

WORKFORCE IMPACT ASSESSMENT FRAMEWORK: **Industry-Aligned Degree Programs**

*Post-secondary education that builds specialized knowledge
and expertise in biomanufacturing*



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ABOUT THE FRAMEWORK

To help meet the growing workforce needs of the biopharmaceutical manufacturing industry, the National Institute for Innovation in Manufacturing Biopharmaceuticals (NIIMBL) is developing a **suite of tools to standardize how the community can:**

- Evaluate feasibility of proposed workforce initiatives and programs
- Maximize and communicate the impact of existing workforce initiatives
- Facilitate program benchmarking and comparison through standardized metrics



Framework

Outlines activities, considerations, and measures that define industry-informed best practices for initiative development and sustainability

Comprehensive guidance by initiative type; covers all phases



Self-Assessment

Web-based assessment to help organizations identify initiative strengths and areas for enhancement

Offers a more tailored view of the framework, customized to initiative type and phase



NIIMBL Endorsement Program

ANTICIPATED 2027

Recognizes workforce initiatives aligned with the specific needs of the biopharmaceutical manufacturing industry

Grounded in the guidance and measures in the

These tools are customized for **three different types of initiatives:**

1. **Community Outreach and Awareness:** Initiatives focused on creating interest in and understanding of biomanufacturing career opportunities
2. **Non-Degree Training and Programs:** Training and professional development opportunities designed to recruit new workers and upskill current workers
3. **Industry-Aligned Degree Programs:** Post-secondary education that builds specialized knowledge and expertise in biomanufacturing

Impact of the Framework: Efficiency, Consistency, Effectiveness

The framework offers education and workforce development (EWD) providers the opportunity to leverage **industry-aligned best practices for developing or improving initiatives** and **standard methods for assessing and communicating initiative impact**, yielding **successful initiatives that better meet industry needs**.

While NIIMBL has developed the framework oriented around the biopharmaceutical manufacturing industry, its principles and guidance are **transferable to all advanced manufacturing sectors**.

How the Framework Was Developed

Spurred by an interactive 2024 NIIMBL National Meeting session and with support from the Gates Foundation, the NIIMBL team engaged Nexight Group to help develop the workforce impact assessment framework.

Key Stakeholder Engagement

The development process was informed by active engagement of the broader biopharmaceutical manufacturing ecosystem, including:

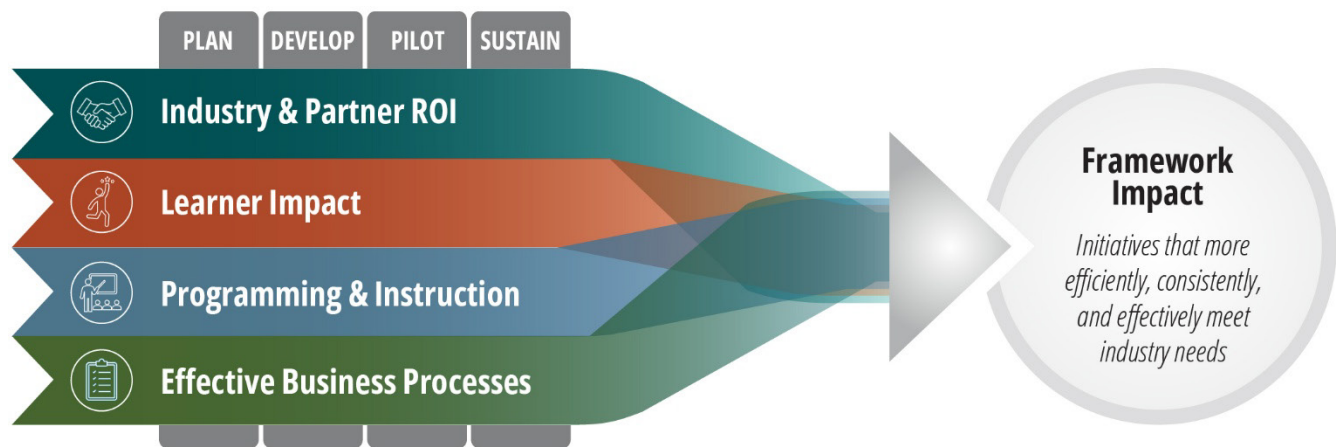
- **Industry:** Small, medium, or large biopharmaceutical manufacturers and suppliers
- **Training Providers:** Training centers, community colleges, universities
- **Economic Development Organizations:** Local, state, or federal governments; non-profits and community organizations; regional economic development organizations

After conducting a comprehensive landscape assessment and literature review of existing program assessment resources, best practices, and guidelines, the team began the development of the proposed framework, soliciting key stakeholder inputs through:

- **March 2025:** Reviews of the framework concept and key components with members of the NIIMBL Workforce Activities Committee (WAC) and a brainstorming session with participants at the 2025 Biopharma Workforce Partnership Conference
- **May – June 2025:** A series of interviews with training providers, industry, and regional economic development organizations to understand current biopharma workforce program benchmarking/evaluation practices and how the framework could support their work
- **June 2025:** A feedback session at the 2025 NIIMBL National Meeting in which more than 40 participants had an opportunity to provide direct input on the guidance and best practices in the framework, with a focus on non-degree training and programs
- **June – September 2025:** Small focus group working sessions to validate and refine activities and corresponding guidance, evaluation markers, and evidence of anticipated impact, as well as help define baseline evaluation criteria and key indicators of exemplary programs
- **October – January 2026:** Review cycles with focus groups to identify areas that needed to be refined or clarified
- **December 2025 – June 2026:** Development of online self-assessment to tailor the framework content to the initiative type and phase of an individual user

UNDERSTANDING THE FRAMEWORK STRUCTURE

Both new and experienced EWD professionals can use the suite of framework tools to identify initiative strengths and potential areas to focus on to continuously improve and communicate initiative impact. This framework should be used as a roadmap to help better **plan, develop, pilot, and sustain EWD initiatives** by considering the perspectives and needs of all stakeholders integral to the success of these initiatives.



Initiative Development Phases

Key phases for developing an initiative, from initiation through implementation and long-term sustainment:

PLAN	Define program scope, considering priority industry needs, target audience, instructional methodology, and resource requirements
DEVELOP	Validate and refine program value to industry and learners, develop curriculum, and define implementation plan
PILOT	Launch program with initial cohort to evaluate its success and develop an operational plan to sustain it; includes the duration required for the first student cohort to enter and complete the degree program.
SUSTAIN	Continuously evaluate and improve program to maximize its impact <ul style="list-style-type: none"> • Sustain a program: Continue to follow business and operational model with new cohorts • Grow a program: Increase student enrollment

Foundational Dimensions of Impact

Key categories of activities that cut across initiative development phases and involve engagement with key stakeholders critical to the successful development and implementation of workforce initiatives:

Industry & Partner ROI	Align program with current and/or projected workforce needs
Learner Impact	Enhance learner skill marketability and career opportunities
Programming & Instruction	Apply best practices to optimize program delivery and instructional effectiveness
Effective Business Processes	Support program success through sound operational planning and practices

Components for Improving Initiatives

Each foundational dimension of impact includes tables with the following content:

Activities	Key elements and/or actions needed to plan and implement an impactful workforce initiative. <i>Note: Activities are recommended at each dimension of impact but are not intended to be completed sequentially.</i>
Considerations and Guidance	Best practices and steps related to the activity that can set the initiative up for success
Assessment Criteria and Measures	Each activity includes both baseline (minimum achievement) and exemplary (exceptional achievement) measures. These measures form the basis of the rating system in the self-assessment.

Note: Depending on initiative scope, some activities, considerations and guidance, and/or measures may not be relevant.

Example Measures: Industry-Aligned Degree Programs

The table below provides an **overview of the kinds of measures used in the framework**, across all dimensions of impact.

	ENGAGEMENT EXAMPLE MEASURES	VALUE/IMPACT EXAMPLE MEASURES
INDUSTRY & PARTNERS	<p>In-kind industry support: subject matter expertise; contributions to program planning, reviews, delivery, marketing, and outreach; student networking and mentorship</p> <p>Committed resources beyond time: funding, facilities and equipment; internships and apprenticeships</p>	<p>Talent attraction and retention: reduction in unfilled positions or time to fill, more qualified candidates</p> <p>Improved employee performance: increased skill and performance, reduced time to promotion</p> <p>Internal resource efficiency: reduced employee time to contribution, reduced need for internal training</p>
LEARNERS	<p>Interest and activation: application and enrollment numbers</p> <p>Progress and persistence: student graduation rates, drop-off points, time to complete program, willingness to refer</p>	<p>All students: skill marketability, education/career pathways, industry-relevant instruction and experience, credential attainment, access to industry networks</p> <p>Job seekers: access to job opportunities and higher-quality jobs, interviews secured</p> <p>Current employees: job performance and satisfaction, promotion opportunities</p>
TRAINING PROVIDERS	<p>Reach: actual applications and enrollment compared with targets</p> <p>Effectiveness: demonstration that program curriculum is engaging, informed, and well-structured</p>	<p>Industry and partner value: committed resources and consistent participation; alignment with industry knowledge, skills and abilities (KSAs) and occupations</p> <p>Business value: revenue and profitability, credibility and track record of initiative, alignment with policy and economic development strategies</p>

USING THE FRAMEWORK

How to Evaluate Initiative Impact

The framework provides **example measures** across phases that capture the value proposition and assess the impact from the perspective of key stakeholder audiences. As you review the framework, **note the following**.

Guidance and measures should not be viewed as a checklist.

- The information provided in the framework—and the accompanying self-assessment tool—should be used as guidance to **inform continuous improvement** and help increase initiative impact. The self-assessment tool will generate a custom report with feedback based on the maturity of a given workforce initiative and how you self-assess against the questions in this framework.
- **Examples are intended to be selected and adapted for use** according to what is most applicable to a given initiative, including setting specific qualitative or quantitative targets for the measure as appropriate. As noted above, some may not be relevant to your initiative or the level of effort may need to be scaled based on staff availability and expertise. For example, if you do not have access to marketing or communications staff, you can still be thoughtful about your outreach or leverage student support to help you meet baseline measures.

Impactful initiatives need not achieve all exemplary measures.

- **Measurement is dependent on the initiative scope**; the goal is not necessarily to achieve the exemplary measures for all activities.
- **Measurable indicators of activity success may be qualitative and/or quantitative.** Qualitative measures can be more storytelling or testimonials, as quantitative measures may not always be available or easy to obtain. For example, while industry partners may be unable to provide longitudinal data on individual participants, they may be willing to share anecdotal evidence and demonstrate continued support for the initiative.
- Many exemplary measures may be more aspirational in nature and represent an ideal to work toward as part of **continuous improvement**.

Self-assessment does not represent NIIMBL endorsement.

- **NIIMBL is exploring an endorsement program** that will likely be grounded in the framework but with more extensive programmatic guidelines and requirements.
- Evaluating initiatives using the self-assessment tool can help give a clearer idea of the **kinds of improvements needed** in both the near and long term.

Where to Start




Use the decision tree below to determine the current phase of your initiative:

QUESTION		ACTION
1) Have you developed a program curriculum, with industry input and involvement, and identified all necessary resources?	NO	➔ PLAN PHASE
	YES	➔ Go to question 2
2) Have you already secured resources and funding to conduct a pilot?	NO	➔ DEVELOP PHASE
	YES	➔ Go to question 3
3) Have you completed a pilot with an initial cohort?	NO	➔ PILOT PHASE
	YES	➔ SUSTAIN PHASE

PLAN

Define program scope, considering priority industry needs, target audience, instructional methodology, and resource requirements

Activities by Dimension of Impact

	<p>Industry & Partner ROI</p>	<p>Identify workforce needs and priorities</p>
	<p>Learner Impact</p>	<p>Determine target audience characteristics and motivations</p> <p>Develop learner outreach and marketing strategy</p>
	<p>Programming & Instruction</p>	<p>Define high-level program learning objectives</p> <p>Define degree program level and core components</p> <p>Define needed educational resources</p>
	<p>Effective Business Processes</p>	<p>Conduct a market analysis of existing, similar, or competing programs</p> <p>Clarify understanding of needed vs. available resources</p> <p>Synthesize a program business case</p>



Industry & Partner ROI

Align program with current and/or projected workforce needs

ACTIVITY: Identify workforce needs and priorities — Define the program scope based on demand for specific knowledge, skills, and abilities (KSAs) in the current and/or future workforce

CONSIDERATIONS & GUIDANCE

<p>Identify high-level program objective</p>	<p>Consider regions, occupations and roles, and student experience (e.g., is the proposed solution a regional solution or national solution? Is it specific to particular occupations and roles? Is it focused on pipeline development or incumbent worker training/upskilling?)</p>
<p>Analyze labor market data</p>	<p>Leveraging existing industry-relevant studies and assessments, identify current and projected job growth, worker characteristics, wage trends, existing relevant degree and non-degree instructional programs, and turnover and vacancy rates</p>
<p>Engage employers and industry experts to assess current and anticipated needs</p>	<p>Collect information on the proposed program to refine the high-level program objective, such as in-demand skills (technical and non-technical); hiring challenges (e.g., hard-to-fill occupations/roles); and changes in workforce needs (e.g., due to technology, process, policy, or customer preference)</p> <ul style="list-style-type: none"> • Assess the mix of stakeholders that must be engaged to collect representative input <ul style="list-style-type: none"> ○ Number of stakeholders engaged and participation/response rate ○ Type of stakeholders engaged (e.g., industry, community-based organizations, economic development organizations, unions, sector partnerships, consortia) ○ Organization size and geographic location ○ Job/role/functional area of stakeholders involved (e.g., corporate leadership, site managers, manufacturing managers, talent acquisition, human resources) • Potential engagement mechanisms: interviews, roundtables, surveys, and/or focus groups

<p>Define potential industry-relevant KSAs that the program could address</p>	<p>Identify specific KSAs required by the industry and corresponding education and training requirements</p> <ul style="list-style-type: none"> • Leverage existing competency models, skill standards, labor market data, and/or regional and national workforce needs assessments • Consider conducting a DACUM (Developing a Curriculum) or other structured method for analyzing jobs and occupations to better identify tasks performed by incumbent employees in particular roles
<p>Work with industry to prioritize needs based on impact</p>	<p>To better focus the program, engage industry to identify the workforce KSAs that are most urgently needed and would yield the greatest potential impact to the industry</p> <ul style="list-style-type: none"> • Identify industry's initial willingness to invest or engage in the program (e.g., letters of support/commitment, funding, equipment, advisory board participation, program co-development and delivery)

ASSESSMENT QUESTION: To what extent have you identified the KSAs and target occupations needed by industry at the regional or national level?

<p>BASELINE MEASURES</p>	<p>EXEMPLARY MEASURES</p>
<p>Qualitative capture of workforce needs and prioritized KSAs, derived from multiple credible sources and with some data-driven support</p> <ul style="list-style-type: none"> • National-level data (e.g., current and projected jobs) from existing industry-relevant studies/assessments • Informal industry engagement (e.g., small-scale surveys and interviews) 	<p>Quantitative supporting data from industry on prioritized KSAs and relevant occupations</p> <ul style="list-style-type: none"> • Regional occupation-specific data (e.g., regional unfilled positions, projected unmet demand for relevant jobs in 5–10 years, supporting analysis for trends and drivers related to projected unmet demand, current time to fill positions, current time to contribution) and how the program will address these needs <p>Industry commitment to invest or engage in the program</p> <ul style="list-style-type: none"> • Examples: letters of support/commitment, funding, equipment, advisory board participation, program delivery



Learner Impact

Enhance learner skill marketability and career opportunities

ACTIVITY: Determine target audience characteristics and motivations

— Understand and define the “market” (i.e., who the program is being designed for, including their characteristics)

CONSIDERATIONS & GUIDANCE

Assess characteristics of target learner	Consider age, background, education level, education prerequisites and fields of study, vocational background and skills, current occupation and role, income, language, geographical location, employment status (e.g., full-time, part-time), motivations and goals, challenges, barriers to program participation, cultural or community influences, learning preferences, media and technology habits
Evaluate the talent pipeline needed to deliver needed knowledge, skills, and abilities (KSAs)	Assess how job candidates and employees could currently pursue education and/or training to obtain the prioritized KSAs (i.e., do they have or do they perceive alternate pathways to secure their desired employment/advancement outside the degree program?)

ASSESSMENT QUESTION: To what extent have you identified your target audience’s characteristics and motivations for participation?

BASELINE MEASURES	EXEMPLARY MEASURES
<p>Qualitative capture of target audience characteristics and motivations that would define program format and structure</p> <ul style="list-style-type: none"> • Example information: geographical location, education level, education prerequisites and fields of study, vocational background and skills, employment status (e.g., full-time, part-time), current and desired occupation and role (i.e., currently working in life sciences vs outside this sector), incentives and barriers to program participation • At least some information is gathered or validated through industry engagement 	<p>Quantitative, regionally specific data and robust qualitative understanding of target audience characteristics and motivations to align the target audience to the talent pipeline needed to fulfill occupation/KSA needs</p> <ul style="list-style-type: none"> • Example quantitative data: age, income, language, audience size • Example qualitative information: background, motivations and goals, cultural or community influences, learning preferences, media and technology habits • Information gathered through industry, community organizations, and/or engagement with prospective students

ACTIVITY: Develop learner outreach and marketing strategy — Analyze outreach channels, define outreach approach, and outline initial messaging to reach the target learner audience and encourage them to participate in the program

CONSIDERATIONS & GUIDANCE

<p>Identify potential outreach channels</p>	<p>Determine which channel(s) will best help reach the target learner audience:</p> <ul style="list-style-type: none"> • Digital: social media, websites, email, ad campaigns • Traditional: posters, flyers, advertisements • In-person: conferences, college/university open house and information sessions, other events and meetings, career fairs • Organizational: Institutions, community and regional organizations, teachers, networks, other influencers who could refer/encourage participation
<p>Evaluate channel reach, penetration, credibility, and effectiveness</p>	<p>Assess who each channel reaches, channel accessibility, how the audience interacts with the channel and frequency of use, audience perceptions of channel credibility, and past experience with the effectiveness of channel engagement (e.g., open rates, click throughs, sign-ups, attendance)</p>
<p>Prioritize channels based on projected return on investment</p>	<p>Consider budget needed to effectively use a channel; staff time or expertise required; printing, design, or ad costs; and ongoing management</p>
<p>Define content needs in alignment with channels</p>	<p>Identify high-level content parameters, including use of visuals or interactivity, content complexity, calls to action, and how to communicate the program value proposition to the target audience</p>

ASSESSMENT QUESTION: To what extent have you demonstrated that the outreach and marketing strategy will effectively reach the target audience?

BASELINE MEASURES	EXEMPLARY MEASURES
<p>Qualitative assessment and prioritization of outreach channels (e.g., digital, traditional, in-person, organizational) based on target audience reach, channel credibility and effectiveness, and cost</p>	<p>Quantitative data to support outreach channel prioritization and allocation of marketing resources</p> <ul style="list-style-type: none"> Examples: projected number or percentage of target audience members that would be reached via prioritized channels, channel cost relative to reach



Programming & Instruction

Apply best practices to optimize program delivery and instructional effectiveness

ACTIVITY: Define high-level program learning objectives — Develop clear, concise, and measurable statements that define what a participant should know or be able to do after completing the program

CONSIDERATIONS & GUIDANCE

Define learning objectives based on desired program outcomes	Assess the change in knowledge, skills, abilities, or behaviors that the program is intended to enable (i.e., what learners need to know, be able to do, or feel differently about after participating in the program)
Refine objectives to be action-oriented and measurable	Leverage academically-recognized instructional design frameworks (e.g., Bloom’s Taxonomy, SMART—Specific, Measurable, Achievable, Relevant, and Time-bound—methodology) to ensure learning objectives are meaningful and learner achievement toward objectives can be assessed
Align objectives with target learner audience	Define the learner’s anticipated prior knowledge or skill level based on target learner characteristics, and assess the feasibility of whether the learning objectives will allow the target audience to achieve the industry-defined priority knowledge, skills, and abilities (KSAs)

ASSESSMENT QUESTION: To what extent can you demonstrate that your learning objectives are linked to industry-defined KSAs?

BASELINE MEASURES	EXEMPLARY MEASURES
<p>Demonstration that learning objectives 1) follow validated and accepted methodologies and best practices and 2) align with prioritized industry and learner needs and capabilities</p> <ul style="list-style-type: none"> Leverages academically recognized instructional design framework (e.g., Bloom’s taxonomy, DACUM [Developing a Curriculum]) Informal industry engagement (e.g., small-scale surveys and interviews) to validate high-level program objective and KSAs 	<p>Demonstration of more in-depth mapping (e.g., logic model) of needed KSAs to program and course learning objectives, program outputs, and corresponding job roles and occupations</p> <ul style="list-style-type: none"> Industry-vetted learning objectives, with industry subject matter experts committed to driving program development (e.g., reviews from industry, program inputs)

ACTIVITY: Define degree program level and core components — Outline the program structure needed to achieve learning objectives

CONSIDERATIONS & GUIDANCE

Define degree level	Based on target audience analysis, preliminary learning objectives, and priority industry needs, identify the target degree level (e.g., associate, bachelors, graduate, doctoral, academic concentrations, minors)
Identify existing courses, curricula, and resources	<p>Conduct an analysis of courses and curricula across departments and degree programs within the sponsoring academic institution—or in the public domain or at partnering institutions—to inform:</p> <ul style="list-style-type: none"> • What can be leveraged, adapted, or revised? • What new courses and curricula need to be developed, and how feasible is it to develop them?
Determine degree delivery format and key requirements	Define whether program will be in-person, online, or hybrid; whether courses will be synchronous (live) and/or asynchronous (self-paced); and requirements (e.g., prerequisites, core courses, internships, thesis and capstone projects, comprehensive exam)
Identify approaches for ensuring industry relevance	Engage external industry stakeholders to validate that the defined degree program level and core components will continue to achieve the needed industry KSAs

ASSESSMENT QUESTION: To what extent have you demonstrated that the defined program structure will enable participants to achieve the industry-aligned learning objectives?

BASELINE MEASURES	EXEMPLARY MEASURES
<p>Demonstration that the program structure and format is aligned with industry needs</p> <ul style="list-style-type: none"> • Integration of priority industry KSAs • Alignment with target learner size, characteristics, and baseline capabilities/knowledge • Logistical feasibility and accessibility of degree program <p>Assessment of existing courses, curricula, and resources within sponsoring academic institution:</p> <ul style="list-style-type: none"> • Key components and pathways for leveraging, adapting, or revising existing assets • Gap analysis of needed courses and curricula 	<p>Demonstrated integration of industry-relevant instructional and/or assessment components, such as:</p> <ul style="list-style-type: none"> • Industry-relevant context for job roles and responsibilities, including real-world operation and environments and multidisciplinary problem-solving (e.g., statistics) • Hands-on, experiential learning • Demonstration-based assessment of skill performance • Integration of relevant business and leadership skills • Use of rigorous, evidence-based instructional practices • Alignment with regionally or nationally recognized standards <p>More comprehensive assessment of existing courses, curricula, and resources in the public domain and at outside institutions</p> <ul style="list-style-type: none"> • More detailed pathways for leveraging, adapting, or revising existing assets • More detailed gap analysis and plan for developing needed courses and curricula • Demonstration that program can integrate with and add value to current education/career pathways

ACTIVITY: Define needed educational resources — Assess needed equipment, facilities, instructors, and any other resources needed to implement the program

CONSIDERATIONS & GUIDANCE

<p>Identify needed instructional resources</p>	<p>Define the following needed resources:</p> <ul style="list-style-type: none"> • Human resources (e.g., instructors, programming staff) • Equipment and facilities (e.g., lab equipment, lab or classroom training space, instructional materials and supplies) • Instructional technology (e.g., software, platforms, hardware)
<p>Assess resource characteristics and requirements</p>	<p>Consider:</p> <ul style="list-style-type: none"> • Relevance and value (i.e., what resources are most critical to achieve learning objectives) • Quantity (e.g., instructors, physical space capacity, equipment and technology) • Accessibility (e.g., usability, cost, accommodations, and convenience) • Compliance (e.g., legal, safety, and/or policy considerations) • Scalability and sustainability (i.e., can resources grow with the program)

ASSESSMENT QUESTION: To what extent are programmatic resource requests well documented?

<p>BASELINE MEASURES</p>	<p>EXEMPLARY MEASURES</p>
<p>Clearly articulated list of resource requirements</p> <ul style="list-style-type: none"> • Quantity and accessibility of human resources, equipment, facilities, materials, and tools • Demonstrated availability and suitability of resources (e.g., instructor(s) with relevant industry experience) 	<p>Identified sources for resource acquisition (e.g., internal, vendors, partners, or community sources)</p> <ul style="list-style-type: none"> • Vendors/sources reviewed for price, quality, and availability comparison (materials, technology, and facilities) • Qualified existing candidates identified for staff and instructor positions



Effective Business Processes

Support program success through sound operational planning and practices

ACTIVITY: Conduct a market analysis of existing, similar, or competing programs — Identify and examine existing programs, trends, and characteristics of programs to identify unique elements of program scope and unmet needs

CONSIDERATIONS & GUIDANCE

Define analysis scope	Identify the characteristics of programs that should be included in the assessment: consider target learner audience; occupations and roles of focus; target knowledge, skills, and abilities (KSAs); and geographic scope
Define data needs and data sources	Identify desired data points, such as program goals and objectives, program degree level and student enrollment size, delivery model, key partners, and evidence of effectiveness <ul style="list-style-type: none"> Identify data sources (e.g., websites, reports, databases, and direct stakeholder input) for this information on relevant programs
Develop landscape assessment	Analyze compiled data to develop a landscape assessment of existing related programs, identify strengths and weaknesses of existing programs, define the unmet need that a new program could address, and identify potential partnerships and opportunities for articulation agreements / credit transfer

ASSESSMENT QUESTION: To what extent can you demonstrate that the program will deliver unique or additive value by addressing an unmet/unfulfilled need or building on existing programs?

BASELINE MEASURES	EXEMPLARY MEASURES
<p>Assessment of a sample of existing competing, similar, and complementary program, with synthesis of program strengths and weaknesses and definition of complementary/additive scope of proposed new program</p>	<p>More comprehensive assessment across geographies, program types, and stakeholders aligned with planned program scope</p> <ul style="list-style-type: none"> • Demonstration that program can integrate with and add value to current education/career pathways • Identification of potential partnerships and opportunities for articulation agreements

ACTIVITY: Clarify understanding of needed vs. available resources —
Outline all necessary resources for the program, take inventory of current resources, and source new ones

CONSIDERATIONS & GUIDANCE

Identify all needed resources	<p>Consider educational resources (see Programming & Instruction):</p> <ul style="list-style-type: none"> • Human resources (e.g., instructors, programming staff) • Equipment and facilities (e.g., lab equipment, lab or classroom training space, instructional materials and supplies) • Instructional technology (e.g., software, platforms, hardware) <p>Consider additional programmatic needs:</p> <ul style="list-style-type: none"> • Human resources (e.g., administrative staff) • Material/physical resources (e.g., equipment, supplies, printed materials, facilities) • Administrative technology (e.g., software, platforms, hardware) • Financial resources (e.g., seed funding, long-term funding, funding mechanisms) • Administrative/operational resources
Inventory all available resources	Assess what resources are available to support and sustain the program
Perform a resource gap analysis	Evaluate the biggest gaps between what is needed and what is available, identify the gaps that are critical to develop and pilot the program, and prioritize accordingly
Determine sources from which to acquire resources	Identify internal sources, vendors, partners, or community sources, as well as their value, reliability, and/or mission alignment, and work through an operational plan to secure them
Build a resource plan	Map resource needs to the timeline to develop and sustain the program, assign ownership for securing and/or managing resources, and define future funding models

ASSESSMENT QUESTION: To what extent have you identified and outlined a plan to procure the resources required to support the development and pilot of this program?

BASELINE MEASURES	EXEMPLARY MEASURES
<p>Clearly articulated list of resource requirements and outlined budget/estimated costs</p> <ul style="list-style-type: none"> • Example resources: instructors, staffing, partnerships, facilities, equipment, consumables 	<p>Detailed plan for securing resources, with demonstrated feasibility of securing them</p> <ul style="list-style-type: none"> • Examples: currently available resources, funding commitments, fundraising plans, equipment and facility access, in-kind contributions

ACTIVITY: Synthesize a program business case — Develop a value proposition for the program to help secure partnerships and other institution-level support

CONSIDERATIONS & GUIDANCE

Articulate program value proposition	Clearly define the unique gap or issue that the program will address, such as target learner audience, target KSAs, degree program level and learning objectives, and geography
Outline program scope and core components	Synthesize takeaways from industry needs assessments, target learner outreach strategy, learning objectives, available instructional and operational resources, extent of needed new course and curricula development, and feasibility of securing additional resources
Demonstrate anticipated return on investment	Conduct a cost-benefit analysis, presenting key advantages and impacts of the program on target stakeholders, estimating high-level costs and resource needs, and identifying opportunities for articulation agreements and transfer credits
Conduct a risk assessment	<p>Include mitigation strategies that can ensure program success; consider how to address risks such as:</p> <ul style="list-style-type: none"> • Industry and stakeholder partnership risks (e.g., lack of long-term commitment from industry, misaligned expectations, low industry engagement) • Market risks (e.g., student interest, enrollment, oversaturation with too many related programs at home or other institutions) • Financial/business risks (e.g., high development cost, lack of funding for faculty or equipment, dependency on soft money) • Academic risks (e.g., accreditation delays, difficulty recruiting key faculty in time to develop program) • Reputational risks (e.g., optics of a failed program) • Insufficient institutional support (e.g., if institute does not value industry engagement) • Insufficient student support services (e.g., advising, tutoring, career awareness) resulting in low retention or graduation rates or poor industry perception of graduates • Lack of coordination among departments (e.g., required course changes from outside the program home department) • Difficulty updating curriculum to align with shifts in demand or technology (e.g., due to internal resistance or lack of resources)

Identify approval requirements	<p>Consider key internal governance bodies (e.g., department curriculum committee, college/school curriculum committee, faculty senate or academic council, provost, or academic affairs) and external approval requirements (e.g., regional accreditors, specialized accreditors, state-level agencies)</p> <p>Consult with institutional research and planning, legal and compliance, registrar, and financial aid</p>
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ASSESSMENT QUESTION: To what extent does your program’s business case demonstrate that the program can be successfully developed, piloted, and sustained?

BASELINE MEASURES	EXEMPLARY MEASURES
<p>Clear articulation of program impacts and value for all stakeholders (learners, industry, and the sponsoring institution), required resources, and needed funding</p> <ul style="list-style-type: none"> • Synthesis of all data gained through the Plan phase • Defensible cost estimates based on program throughput and cost per student 	<p>More robust demonstration of the program business case, such as:</p> <ul style="list-style-type: none"> • Secured or pledged resources and committed partners (e.g., teaming agreements) • Risk assessment and mitigation plans (e.g., operational, financial, market)

DEVELOP

Validate and refine program value to industry and learners, develop curriculum, and define implementation plan

Activities by Dimension of Impact

	<p>Industry & Partner ROI</p>	<p>Validate value proposition for industry</p> <p>Obtain industry inputs to and feedback on draft program curriculum and assessments</p>
	<p>Learner Impact</p>	<p>Validate value proposition for the learner</p>
	<p>Programming & Instruction</p>	<p>Develop, adapt, and vet program curriculum and/or assessments</p>
	<p>Effective Business Processes</p>	<p>Outline a program operational plan</p> <p>Establish a communications plan</p> <p>Develop an evaluation plan</p>



Industry & Partner ROI

Align program with current and/or projected workforce needs

ACTIVITY: Validate value proposition for industry — Build out and refine a value proposition for the program that meets the needs outlined by industry and garners industry support and engagement

CONSIDERATIONS & GUIDANCE

<p>Obtain feedback on employer expectations and learning objectives</p>	<p>Seek input on employers’ expectations for the skills and knowledge learners should gain and industry’s perception of whether the program’s delivery methods would ensure learners will be able to perform needed job functions</p> <ul style="list-style-type: none"> • Consider the most desired skills, current and projected skill shortages, new and emerging technologies, market shifts, and policy • Assess the mix of stakeholders that must be engaged to collect representative input <ul style="list-style-type: none"> ○ Number of stakeholders engaged and participation/response rate ○ Type of stakeholders engaged (e.g., human resources [HR] managers, hiring managers, talent acquisition specialists, industry association leaders, front-line managers, subject matter experts, government or regulatory bodies, community-based organizations, economic development organizations, unions) ○ Organization size and geographic location ○ Job/role/functional area of stakeholders involved (e.g., corporate leadership, site managers, manufacturing managers, talent acquisition, human resources) • Potential engagement mechanisms: interviews, roundtables, surveys, and/or focus groups
<p>Consider cost vs. benefit perception</p>	<p>Determine if the perceived benefits of the program (i.e., extent to which the program will result in trained workers with needed knowledge, skills, and abilities [KSAs] regionally or nationally) outweigh the costs (in time, money, or effort)</p>
<p>Align on needed industry support for the program</p>	<p>Evaluate and secure commitments from industry, including:</p> <ul style="list-style-type: none"> • Commitments for human resources for development (e.g., input into program development, review, revision, and validation)

- Capital resources for development (e.g., funding, facilities, equipment)
- Other commitments related to the program (e.g., marketing, tours and site visits, experiential learning opportunities, internships and apprenticeships, interviews/hiring)

ASSESSMENT QUESTION: To what extent has industry confirmed there is sufficient value in the program such that they are willing to support its development and implementation?

BASELINE MEASURES	EXEMPLARY MEASURES
<p>Demonstrated alignment between training providers and industry on degree requirements and curriculum</p> <ul style="list-style-type: none"> • Clearly articulated value proposition with projected industry return on investment (e.g., number of graduates per year compared with open or projected position vacancies, decreased time to fill positions, reduced employee time to contribution) <p>In-kind industry support</p> <ul style="list-style-type: none"> • Examples: participation in subject matter reviews, advisory board participation, program delivery and instruction, marketing and outreach support • Small number of industry early adopters/participants 	<p>Committed industry resources beyond time</p> <ul style="list-style-type: none"> • Examples: funding, access to facilities and equipment for experiential learning opportunities, internships and apprenticeships, plans to hire graduates, addition of program to preferred hiring requirements • Broader industry commitment, dependent on program scope (i.e., engaged decision makers and/or a greater number of organizations)

ACTIVITY: Obtain industry inputs to and feedback on draft program curriculum and assessments — Engage with industry to ensure program aligns with current and anticipated industry needs, including priority KSAs and occupations

CONSIDERATIONS & GUIDANCE

<p>Assess extent of industry involvement in program delivery</p>	<p>Determine how industry should be involved beyond providing input to and feedback on program curriculum and/or assessment, such as providing case studies, guest speakers/lecturers, evaluation, networking opportunities for participants, and experiential opportunities (e.g., site visits, internships)</p>
<p>Define clear objectives and level of detail for feedback</p>	<p>Outline what feedback is needed, on what aspects of the program (e.g., learning objectives, instructional methodology, curriculum content, assessment), and what level of detail is required (e.g., broad strategic input, tactical feedback, high-level feedback, specific recommendations)</p>
<p>Determine the right stakeholders for feedback</p>	<p>Identify the stakeholder perspectives and subject matter expertise needed, as well as the desired mix of feedback across these perspectives, considering:</p> <ul style="list-style-type: none"> • Type of stakeholders engaged (e.g., front-line managers, subject matter experts) • Organization size and geographic location
<p>Define mechanisms for ongoing and iterative feedback</p>	<p>Define the process and expectations for review of the program as it is developed, piloted, and/or sustained</p>

ASSESSMENT QUESTION: To what extent has industry been involved in developing, reviewing, revising, and/or validating program curriculum and assessments?

BASELINE MEASURES	EXEMPLARY MEASURES
<p>Qualitative positive feedback from industry that demonstrates industry confidence in the program content</p> <ul style="list-style-type: none"> Informal industry input through ad hoc engagement (e.g., surveys, focus groups / roundtables, individual meetings, and interviews) 	<p>Industry commitment to participate in program delivery</p> <ul style="list-style-type: none"> Examples: program co-development, instruction and guest speakers, case studies, mentorship, commitment to provide data on program impact <p>Clearly articulated mechanism and defined frequency for ongoing feedback to inform program improvements and ensure alignment with current and projected industry needs</p>



Learner Impact

Enhance learner skill marketability and career opportunities

ACTIVITY: Validate value proposition for the learner — Corroborate and refine the program’s outlined benefits and value to participants

CONSIDERATIONS & GUIDANCE

Assess mechanisms for engaging or learning about prospective learners	Consider relevant initiatives that may be feeders for degree candidates (e.g., non-degree training and programs, community outreach and awareness activities, other relevant degree programs), engagement with industry or community organizations who interact with the target learner audience, or direct interaction with the target audience
Consider cost vs. benefit perception	<p>Determine if the perceived benefits (e.g., access to industry networks and experiences, increased skill marketability, access to high-quality job opportunities, promotion opportunities, compensation, job satisfaction, job performance, professional networks, education/career pathways, professional pride and motivation) of the program outweigh the costs (in time, money, or effort)</p> <ul style="list-style-type: none"> Consider program affordability, available funding/support, time commitment, scheduling constraints, accessibility, delivery format (e.g., experiential/interactive opportunities, online), and available support services (e.g., transportation, childcare)
Refine value proposition	Synthesize and integrate findings to better capture interests and needs of the target audience

ASSESSMENT QUESTION: To what extent have target learners or learner proxies (e.g., industry, community organizations) confirmed they perceive value in the program and would be interested in participating?

BASELINE MEASURES	EXEMPLARY MEASURES
<p>Demonstrated understanding of and clearly articulated value proposition of the range of projected learner return on investment (ROI)</p> <ul style="list-style-type: none"> Examples of learner ROI: access to industry networks and experiences, increased skill marketability, access to high-quality job opportunities, promotion opportunities, compensation, job satisfaction, job performance, professional networks, education/career pathways, professional pride and motivation Alignment with target audience characteristics (e.g., geographical location, education level, education prerequisites and fields of study, vocational background and skills, employment status (e.g., full-time, part-time), current and desired occupation and role (i.e., currently working in life sciences vs outside this sector), incentives and barriers to program participation, age, background, income, language, motivations and goals, cultural or community influences, learning preferences, media and technology habits) <p>Qualitative positive feedback from target learners and/or learner proxies that demonstrates learner interest in the program</p>	<p>Planned engagement mechanisms with learners pre- and post-matriculation</p> <ul style="list-style-type: none"> Examples: survey, focus groups, self-reflection tools, alumni engagement <p>Demonstration of industry-relevant instruction and assessment, such as:</p> <ul style="list-style-type: none"> Hands-on, experiential learning relevant to job roles/industry sector Ability to demonstrate learner knowledge and skill growth Management of student expectations of job requirements and education/career pathways <p>Quantitative positive feedback from target learners and/or learner proxies that demonstrates learner interest in the program (e.g., survey feedback)</p>



Programming & Instruction

Apply best practices to optimize program delivery and instructional effectiveness

ACTIVITY: Develop, adapt, and vet program curriculum and/or assessments — Engage iterative third-party review to evaluate program content, instructional methods, and assessments to ensure they are accurate, relevant, effective, and aligned with industry and learner needs

CONSIDERATIONS & GUIDANCE

<p>Develop and/or adapt course outlines and curriculum content</p>	<p>Ensure course outlines and content support learning objectives and are aligned with industry needs, including current technology, policy, and standards, as well as learner characteristics and needs</p> <ul style="list-style-type: none"> • Integrate real-world relevance: Emphasize skill development through experiential learning and instructional methods focused on skill application and performance. In addition to technical skills, consider integration of business and leadership skills (e.g., team collaboration, public speaking, critical thinking) • Ensure program curriculum and/or assessment methodology and approach are aligned with the target learner’s characteristics, needs, and motivations • Consider customizability and adaptability: Ensure content is modular/editable so it can be tailored to evolving industry needs or adapted to different formats (e.g., online vs on campus)
<p>Identify assessment tools to evaluate learner knowledge and skill development</p>	<p>Align assessment types—at the degree and course level—to the learning objectives</p> <ul style="list-style-type: none"> • Capture learner data for tracking progress and the effectiveness of the program in helping learners achieve learning objectives • Consider a variety of assessment methods such as summative assessments (e.g., exams, projects, hands-on practicum), formative assessments (e.g., quizzes, reflections, peer feedback), and learner evaluations (e.g., feedback on the program)
<p>Ensure instructional quality is in alignment</p>	<p>Ensure curriculum is engaging, pedagogically sound, and well-structured, allowing learners to apply, practice, and evaluate their knowledge and skills</p>

<p>with sponsoring institution standards</p>	<ul style="list-style-type: none"> • Consider use of lecture, case studies, role-play/simulations, group work, demonstration and practice, flipped classroom, microlearning, mixed methods • Use proven learning theories to guide the approach (e.g., experiential learning, constructivism, behaviorism, cognitivism, andragogy) • Use credible sources (e.g., authors/instructors are subject matter experts with industry-relevant experience, material is from a recognized and trusted source such as accredited institutions or industry associations) • Ensure the curriculum is evidence-based and informed by instructional best practices
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ASSESSMENT QUESTION: To what extent are the program materials, curriculum, and/or assessments designed to align with current and emerging industry needs and target learner characteristics?

<p>BASELINE MEASURES</p>	<p>EXEMPLARY MEASURES</p>
<p>Demonstrated alignment of training materials, curriculum, and/or assessments with industry needs and target learner characteristics</p> <ul style="list-style-type: none"> • In-depth mapping (e.g., logic model) of needed knowledge, skills, and abilities (KSAs) to program and course learning objectives, program outputs, and corresponding job roles and occupations • Informal industry engagement (e.g., small-scale surveys and interviews, material mark-up) to review program materials, curriculum, and/or assessments <p>Demonstrated quality of program content, assessment, and instruction</p> <ul style="list-style-type: none"> • Curriculum is evidence-based and leverage instructional best practices and credible sources • Instructional methods and assessments are focused on skill application and performance • There is a clear and demonstrated plan for instructor evaluation 	<p>Demonstrated integration of industry-relevant instructional and/or assessment components, such as:</p> <ul style="list-style-type: none"> • Industry-relevant context for job roles and responsibilities, including real-world operation and environments and multidisciplinary problem-solving (e.g., statistics) • Hands-on, experiential learning • Demonstration-based assessment of skill performance • Integration of relevant business and leadership skills • Use of rigorous, evidence-based instructional practices • Alignment with regionally or nationally recognized standards <p>Clearly articulated mechanism and defined frequency for ongoing feedback to inform program improvements and ensure alignment with current and projected industry needs</p>

	<ul style="list-style-type: none">• Advisory board of industry and accredited instructors with relevant experience informing feedback on curriculum• Demonstrated customizability and adaptability of course materials to changing and emerging industry needs
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Effective Business Processes

Support program success through sound operational planning and practices

ACTIVITY: Outline a program operational plan — Develop a logistical plan for successfully executing the program

CONSIDERATIONS & GUIDANCE

Establish operational goals and milestones	<p>Define the following:</p> <ul style="list-style-type: none"> • Enrollment goals and tuition • Budget requirements (e.g., personnel costs) and expected revenue over time, if applicable (i.e., internal institutional budget agreements, reliance on external funding, goal of revenue generation, plan to achieve cost neutrality) • Initial plans for program sustainment and/or growth
Define and assign tasking	<p>Outline specific tasks needed to reach each goal and stakeholders involved in completing them</p> <ul style="list-style-type: none"> • Assign an internal project lead • Consider employing a project management tool to help define responsibilities and track task progress
Refine required resources	<p>Refine resources and procedures, assessing what is applicable and available at the institution level, including:</p> <ul style="list-style-type: none"> • Human resources (e.g., instructors, programming staff) • Equipment and facilities (e.g., lab equipment, lab or classroom training space, instructional materials and supplies, programmatic materials and supplies) • Material/physical resources (e.g., equipment, supplies, printed materials, facilities) • Instructional and administrative technology (e.g., software, platforms, hardware, IT and data management) • Financial resources (e.g., seed funding, long-term funding, funding mechanisms) • Administrative/operational resources and processes (e.g., registration, accounting infrastructure, intellectual property agreements, insurance)

<p>Assess potential risks and develop a risk management strategy</p>	<p>Include mitigation strategies that can ensure program success; consider how to address risks such as:</p> <ul style="list-style-type: none"> • Industry and stakeholder partnership risks (e.g., lack of long-term commitment from industry, misaligned expectations, low industry engagement) • Market risks (e.g., student interest, enrollment, oversaturation with too many related programs at home or other institutions) • Financial/business risks (e.g., high development cost, lack of funding for faculty or equipment, dependency on soft money) • Academic risks (e.g., accreditation delays, difficulty recruiting key faculty in time to develop program) • Reputational risks (e.g., optics of a failed program) • Insufficient institutional support (e.g., if institute does not value industry engagement) • Insufficient student support services (e.g., advising, tutoring, career awareness) resulting in low retention or graduation rates or poor industry perception of graduates • Lack of coordination among departments (e.g., required course changes from outside the program home department) • Difficulty updating curriculum to align with shifts in demand or technology (e.g., due to internal resistance or lack of resources)
<p>Acquire resources</p>	<p>Develop internal agreements and formal contracts with external entities to secure administrative and instructional resources requested through programmatic support</p>

ASSESSMENT QUESTION: To what extent does your program’s operational plan demonstrate that the program can be successfully piloted and sustained?

BASELINE MEASURES	EXEMPLARY MEASURES
<p>Clearly articulated goals, milestones, and roles and responsibilities</p> <ul style="list-style-type: none"> • Enrollment targets and cost per student • Internal processes, including logistics, data management, and risk management • Informed by engagement with key internal and external stakeholders <p>Detailed budget and plan for securing resources in alignment with implementation timeline and milestones</p> <ul style="list-style-type: none"> • Example plans: agreements and contracts for funding, human resources, equipment and facility access, instructional and administrative technology 	<p>More robust operational plan that extends beyond the first program cohort, with components such as:</p> <ul style="list-style-type: none"> • Potential for program sustainment and growth (e.g., long-term funding/revenue models, potential to adapt to different formats) • Risk assessment and mitigation plans (e.g., operational, financial, market)

ACTIVITY: Establish a communications plan — Develop a strategy for conducting targeted outreach about the program with messaging tailored by channel for each key stakeholder group (students, industry, community organizations)

CONSIDERATIONS & GUIDANCE

<p>Conduct an audience outreach analysis</p>	<p>Work with available institutional resources to:</p> <ul style="list-style-type: none"> • Align target audiences (i.e., students, industry, community organizations) with outreach channels; identify the channels best suited for each audience type
<p>Develop a content strategy</p>	<p>Work with available institutional resources to:</p> <ul style="list-style-type: none"> • Craft key messages tailored to each audience and outreach channel type • Identify the call to action / action you want each audience to take • Develop content appropriate to each prioritized channel; consider level of specialized support that may be required / desired (e.g., digital development, videography, graphic design), depending on resources <ul style="list-style-type: none"> ○ Digital: social media posts, website content, email marketing and/or newsletters, paid ad campaigns, radio spots ○ Traditional / in person: posters, flyers, advertisements, event materials
<p>Develop an implementation plan</p>	<p>Work with available institutional resources to:</p> <ul style="list-style-type: none"> • Identify metrics for analysis to ensure outreach is effectively reaching key audiences. Examples include: <ul style="list-style-type: none"> ○ Digital: social media and website (engagement rates), email (open rate), paid ads (clicks) ○ Traditional / in person: informational session attendance, campus visits • Develop an outreach timeline / frequency cadence aligned with the calls to action • Assign ownership of tasks (e.g., writing, distribution, monitoring feedback, metrics analysis)

ASSESSMENT QUESTION: To what extent does your program’s communication plan demonstrate your ability to successfully engage key stakeholder groups?

BASELINE MEASURES	EXEMPLARY MEASURES
<p>Clearly articulated communications plan that demonstrates key messages and content are tailored to all target audiences and outreach channels</p> <ul style="list-style-type: none"> • Outreach timeline is realistic and content/materials are aligned with budget • Outlined key performance indicators (KPIs) (e.g., projected engagement, referrals) to assess return on investment • Analytics tracking mechanisms are in place • Defined roles and responsibilities 	<p>More robust communications plan, with components such as:</p> <ul style="list-style-type: none"> • Opportunities for feedback and input from target audiences • Plans for ongoing alumni engagement beyond program completion (e.g., events, career pathway tracking, mentorship, guest speakers)

ACTIVITY: Develop an evaluation plan — Outline a plan to assess the success of the program in meeting industry needs in a sustainable manner

CONSIDERATIONS & GUIDANCE

<p>Define stakeholders who must inform the evaluation plan</p>	<p>Identify the goals and key stakeholders of the evaluation (e.g., students, instructors/facilitators, industry partners/employers, and sponsoring institution); consider formative, summative, process, and/or outcome evaluations</p>
<p>Solidify indicators of success</p>	<p>Refine and synthesize the indicators that will provide evidence of a successful program—both in the short-term and long-term; consider KPIs and benchmarks (e.g., assessment targets, measures of engagement, job placement and tenure) by dimension of impact</p> <ul style="list-style-type: none"> • Industry & Partner ROI: Demonstration of increased participant skill and performance, reduced internal training, decreased time to fill positions, reduced employee time to contribution; number of graduates per year compared with open or projected position vacancies; representative industry stakeholder engagement; alignment with industry market data (e.g., occupations, current and anticipated positions to fill, needed knowledge, skills, and abilities [KSAs]); resources committed compared with value realized • Learner Impact: Application/enrollment numbers; access to industry networks and experiences, increased skill marketability, access to high-quality job opportunities, promotion opportunities, compensation, job satisfaction, job performance, professional networks, education/career pathways, professional pride and motivation; willingness to refer other participants • Programming & Instruction: Committed industry resources and consistent participation in program planning, reviews, and delivery; demonstration that program learning objectives, core components, and curriculum are aligned with current and projected industry needs (KSAs, occupations); demonstration that curriculum is engaging, informed by instructional best practices, and well-structured, allowing learners to apply, practice, and evaluate their knowledge and skills; assessment of instructor effectiveness • Effective Business Processes: Secured resources (human resources, facilities, equipment, technology, supplies, software, logistical process tools); clear operational goals and milestones along with tracking mechanisms and clear roles/responsibilities; robust data management practices; robust risk management strategy; sustainable funding strategy;

	cost per student compared with target and available resources; actual enrolled participants compared with target enrollment
Outline logistics of evaluation	Select data collection methods (e.g., quantitative, qualitative, and mixed), timeline and frequency, resources of evaluation (e.g., budget, human resources, and tools and technology), and ethics (e.g., confidentiality, consent, and bias)
Outline plan for data management, analysis, and reporting	Establish a plan for data analysis and reporting to understand and communicate findings, ensuring the report delineates actionable insights; use results for continuous program improvement

ASSESSMENT QUESTION: To what extent does your program’s evaluation plan demonstrate that you can successfully assess the outcomes of your program?

BASELINE MEASURES	EXEMPLARY MEASURES
<p>Clearly defined KPIs and benchmarks by dimension of impact (i.e., Industry & Partner ROI, Learner Impact, Programming & Instruction, Effective Business Processes)</p> <p>Clearly defined data collection, management, analysis, and reporting plan, including key stakeholders, methods, and frequency</p>	<p>More robust evaluation plan that extends beyond the first student cohort, with components such as:</p> <ul style="list-style-type: none"> • Demonstrated use of validated and accepted methodologies and best practices for evaluation • More comprehensive set of defined KPIs (SMART: Specific, Measurable, Achievable, Relevant, Time-bound) and corresponding collection, management, analysis, and reporting plan • Plans for obtaining longitudinal data from industry on program alumni employment/performance

PILOT

Launch program with initial cohort of students to evaluate its success and develop an operational plan to sustain it

For degree programs, the “Pilot” phase includes the duration required for the first student cohort to enter and complete the degree program.

Activities by Dimension of Impact

	<p>Industry & Partner ROI</p>	<p>Secure industry champions for program</p> <p>Collect and communicate data from the pilot related to industry-relevant metrics</p>
	<p>Learner Impact</p>	<p>Recruit students</p> <p>Collect and communicate data from the initial student cohort related to learner impact metrics</p>
	<p>Programming & Instruction</p>	<p>Deliver program to initial cohort of students</p> <p>Collect and analyze data from the pilot related to programming and instruction metrics</p>
	<p>Effective Business Processes</p>	<p>Demonstrate business case for sustainment</p> <p>Refine planning for program sustainment</p>



Industry & Partner ROI

Align program with current and/or projected workforce needs

ACTIVITY: Secure industry champions for program — Establish sustained engagement from industry representatives who will help ensure continued program alignment with industry needs and expand program awareness and recognition

CONSIDERATIONS & GUIDANCE

<p>Identify key industry and partner influencers, decision-makers, and subject matter experts</p>	<p>Building on industry engagement during program planning and development, identify the industry contacts needed to maintain the program’s industry relevance, inform continuous program improvements, help drive job placement of graduates, and help capture and communicate the program’s value and impact</p> <ul style="list-style-type: none"> • Determine needed industry representation <ul style="list-style-type: none"> ○ Number of stakeholders engaged and participation/response rate ○ Type of stakeholders engaged (e.g., industry, community-based organizations, economic development organizations, unions, sector partnerships, consortia) ○ Organization size and geographic location ○ Job/role/functional area of stakeholders involved (e.g., corporate leadership, site managers, front-line manufacturing managers, HR managers, hiring managers, talent acquisition specialists, industry association leaders, subject matter experts) • Identify individuals from industry who have been integral to program development and work with them to identify others within their organization who should be engaged and/or informed about the program, broadening program awareness and mitigating potential turnover of key representatives
<p>Develop an industry engagement plan</p>	<p>Leverage the broader program communications plan to:</p> <ul style="list-style-type: none"> • Align communications channels and engagement mechanisms with different industry roles based on how they should optimally be engaged to maximize the program’s impact

	<ul style="list-style-type: none"> • Define the incentives/benefits of engagement for industry, including more direct access to talent, ability to inform program curriculum and instructional methodology, sponsorship visibility, and reduced internal training costs • Outline the frequency and expectations of engagement (i.e., the specific role and calls to action from industry representatives), ensuring industry champions are actively engaged and feel invested in the program
<p>Confirm industry commitments</p>	<p>Obtain a statement or other assurance from industry representatives clarifying their role in and goals for the program, such as committed resources (e.g., funding, facilities, equipment), instructional support, experiential learning opportunities, curriculum reviews, marketing support, or program feedback to inform continuous improvement</p>

ASSESSMENT QUESTION: To what extent has industry committed to support the program’s development and implementation?

<p>BASELINE MEASURES</p>	<p>EXEMPLARY MEASURES</p>
<p>In-kind industry support</p> <ul style="list-style-type: none"> • Examples of support: participation in subject matter reviews, advisory board participation, program delivery and instruction, marketing and outreach support, industry networking with students, program feedback to inform continuous improvement • Sustained support from a small number of industry early adopters/participants 	<p>Committed industry resources beyond time</p> <ul style="list-style-type: none"> • Examples of support: funding, access to facilities and equipment for experiential learning opportunities, internships and apprenticeships, plans to hire graduates, addition of program to preferred hiring requirements • Broader industry commitment, dependent on program scope (i.e., engaged decision makers and/or a greater number of organizations) <p>Clearly articulated mechanism and defined frequency for ongoing feedback to inform program improvements and ensure alignment with current and projected industry needs</p>

ACTIVITY: Collect and communicate data from the pilot related to industry-relevant metrics — Collect data needed to evaluate the program’s alignment with industry needs, and communicate results to inform program improvements and grow industry support and recognition of the program

CONSIDERATIONS & GUIDANCE

Execute on evaluation plan	<p>Capture data about indicators of success relevant to industry</p> <ul style="list-style-type: none"> • Examples: <ul style="list-style-type: none"> ○ Demonstration of increased graduate skill and performance, reduced internal training, reduced time to hire, decreased time to fill positions, reduced employee time to contribution ○ Number of graduates per year compared with open or projected position vacancies ○ Representative industry stakeholder engagement ○ Alignment with industry market data, including occupations, current and anticipated positions to fill, and needed knowledge, skills, and abilities (KSAs) ○ Resources committed compared with value realized • Define data collection frequency (e.g., 6 months, 1 year, 2 years) • Employ data collection methods from evaluation plan to collect relevant data, including from industry partners and program students and graduates • Implement data management and analysis plan outlined in evaluation plan
Assess data quality	<p>Ensure data is reliable, up-to-date, comprehensive, unbiased, and representative</p> <ul style="list-style-type: none"> • Identify data and data collection process errors and inaccuracies • Identify data gaps and plans to fill them
Synthesize and communicate findings	<p>Leverage communications plan to align available data with key messages to demonstrate the industry value proposition</p> <ul style="list-style-type: none"> • Define and prioritize program changes that will better align the program with industry needs

ASSESSMENT QUESTION: To what extent can you demonstrate that the program provides a return on investment to industry?

BASELINE MEASURES	EXEMPLARY MEASURES
<p>Qualitative positive feedback (e.g., testimonials) from industry that demonstrates industry’s perceived value of the program</p> <ul style="list-style-type: none"> Examples: reduction in unfilled positions or time to fill, more qualified candidates, reduced employee time to contribution, feedback on graduate/employee performance <p>Clearly defined data collection, management, analysis, and reporting plan, including key stakeholders, methods, and frequency</p> <ul style="list-style-type: none"> Clearly defined key performance indicators and benchmarks 	<p>Quantitative data from industry that demonstrates industry’s realized value from the program over time</p> <ul style="list-style-type: none"> Alignment with industry market data, including occupations and current and anticipated positions to fill Examples: number of program graduates that industry interviews, offers positions to, hires, or promotes; reduction in unfilled positions or time to fill; reduced employee time to contribution; time to promotion; skills competency scores <p>Multiple methods used for collecting and reporting data on program impact</p> <ul style="list-style-type: none"> Collection examples: survey/feedback forms, interview, roundtable, focus group Reporting examples: Industry case studies and testimonials that can be used in future program marketing and communications



Learner Impact

Enhance learner skill marketability and career opportunities

ACTIVITY: Recruit students — Conduct outreach to target learner audience and enroll students in the initial cohort

CONSIDERATIONS & GUIDANCE

<p>Execute communications plan for target learner audience</p>	<p>Use identified outreach channels to message program details and value proposition to prospective students, communicating a clear call to action and intuitive enrollment process in all materials</p> <ul style="list-style-type: none"> • Leverage recruitment mechanisms within sponsoring academic institution (e.g., recruiting events, outreach) • Coordinate with relevant recruitment partners, including industry employers and other academic institutions, to promote the program to the target learner audience
<p>Support prospective students during the application/enrollment process</p>	<p>In partnership with sponsoring institution, work with prospective students to navigate the application/enrollment process, including answering any questions and addressing any concerns, reviewing program-specific acceptance criteria, scheduling program/facility tours, communicating logistical information, and providing any preparatory or background materials</p> <ul style="list-style-type: none"> • Identify any potential opportunities for participation support (e.g., dedicated student support staff, scholarships and financial assistance, available support services at sponsoring academic institution [e.g., transportation, childcare])
<p>Track and analyze metrics for target learner outreach</p>	<p>Assess whether the target learner audience is engaging with outreach content and mechanisms</p> <ul style="list-style-type: none"> • Adjust outreach strategy, as needed, to reach target audience and achieve enrollment objectives

ASSESSMENT QUESTION: To what extent has the program met its enrollment objectives for the initial cohort?

BASELINE MEASURES	EXEMPLARY MEASURES
<p>Application/Enrollment metrics (e.g., number of individuals who apply for program, number of individuals who enroll in the program compared with enrollment targets)</p> <p>Qualitative demonstration of alignment between enrolled participant characteristics and target learner characteristics</p> <ul style="list-style-type: none"> Examples: geographical location, education level, education prerequisites and fields of study, vocational background and skills, employment status (e.g., full-time, part-time), current and desired occupation and role (i.e., currently working in life sciences vs outside this sector) <p>Qualitative assessment of target audience outreach strategy</p> <ul style="list-style-type: none"> Examples: how interested candidates heard about the program, why prospective students were interested in participating, satisfaction of application/enrollment process 	<p>Quantitative demonstration and more robust qualitative alignment between applicant and enrolled student characteristics and target learner characteristics</p> <ul style="list-style-type: none"> Example quantitative data: age, income, language Example qualitative information: background, motivations and goals, cultural or community influences <p>Quantitative assessment of target audience outreach strategy</p> <ul style="list-style-type: none"> Examples: social media and website engagement rates, email open rate, paid ad clicks, sign-up / attendance at promotional events, cost of marketing approaches compared with reach/application/enrollment

ACTIVITY: Collect and communicate data from the initial student cohort related to learner impact metrics — Collect data needed to evaluate learner engagement with the program and increased learner skill marketability

CONSIDERATIONS & GUIDANCE

Execute on evaluation plan	<p>Capture data about indicators of success relevant to learner impact both during program and/or following program graduation</p> <ul style="list-style-type: none"> • Examples: application/enrollment numbers, access to industry networks and experiences, increased skill marketability, access to high-quality job opportunities, promotion opportunities, compensation, job satisfaction, job performance, professional networks, education/career pathways, professional pride and motivation; willingness to refer other participants • Define data collection frequency (e.g., every X months during program; 6 months, 1 year, 2 years, etc. following graduation) • Employ data collection methods from evaluation plan to collect relevant data, including from industry partners and program students and graduates • Implement data management and analysis plan outlined in evaluation plan
Assess data quality	<p>Ensure data is reliable, up-to-date, comprehensive, unbiased, and representative</p> <ul style="list-style-type: none"> • Identify data and data collection process errors and inaccuracies • Identify data gaps and plans to fill them
Identify and capture student case studies	<p>When collecting data from students and graduates, identify those with compelling success stories or testimonials that could help demonstrate the value of the program to future prospective students</p>
Synthesize and communicate findings	<p>Leverage communications plan to align available data with key messages to demonstrate the learner value proposition</p> <ul style="list-style-type: none"> • Define and prioritize program changes that will better align the program with student needs

ASSESSMENT QUESTION: To what extent does the program successfully engage students and deliver a return on investment for participants?

BASELINE MEASURES	EXEMPLARY MEASURES
<p>Qualitative positive feedback from students and/or graduates that demonstrates their engagement in and perceived value of the program</p> <ul style="list-style-type: none"> Engagement examples: student graduation rates, drop-off points, time to complete program, willingness to refer Value examples: extent of industry-relevant instruction and assessment, access to industry networks and experiences, increased skill marketability, access to high-quality job opportunities and quality promotion opportunities, compensation, job satisfaction, job performance, professional networks, education/career pathways, professional pride and motivation, long-term access to institutional resources <p>Clearly defined data collection, management, analysis, and reporting plan, including key stakeholders, methods, and frequency</p> <ul style="list-style-type: none"> Clearly defined key performance indicators and benchmarks 	<p>Quantitative data from graduates that demonstrates their increased skill marketability and perceived return on investment from the program</p> <ul style="list-style-type: none"> Examples: interviews secured, job placement rates, promotions attained post-graduation, credential attainment or skills demonstration through performance-based assessments, education/career progression, employment persistence, earnings growth, post-graduation alumni engagement (e.g., social media, alumni network activities, speaking engagements) <p>Multiple methods used for collecting and reporting data</p> <ul style="list-style-type: none"> Collection examples: engagement tracking related to institutional resources, self-reflection tools, survey/feedback forms, interviews, roundtables, focus groups Reporting examples: student case studies and testimonials that can be used in future program marketing and communications



Programming & Instruction

Apply best practices to optimize program delivery and instructional effectiveness

ACTIVITY: Deliver program to initial cohort of students — Put operational plan into action to deliver the degree program to pilot learners

CONSIDERATIONS & GUIDANCE

<p>Coordinate resources and logistics to execute instructional plan</p>	<p>Leverage program operational plan to coordinate:</p> <ul style="list-style-type: none"> • Human resources, including communication with and engagement of instructors, students, and other program and instructional staff support • Equipment and facilities, including access to and scheduling of lab equipment, setup of lab or classroom training space, and organization of instructional materials and supplies • Instructional technology setup, including software, platforms, hardware, and other materials
<p>Deliver program components</p>	<p>Ensure alignment with industry-vetted learning objectives, curriculum, and assessment approach</p>
<p>Implement risk mitigation and contingency plans as needed</p>	<p>Monitor resources and make any real-time adjustments to improve the learner experience and ensure training program alignment with program operational plan</p>

ASSESSMENT QUESTION: To what extent was the pilot delivered as planned?

BASELINE MEASURES	EXEMPLARY MEASURES
<p>Demonstration of successful coordination of resources and logistics</p> <ul style="list-style-type: none"> • Reliable access to equipment, facilities, and technology • Qualified instructors with industry-relevant experience and other programmatic staff support • Instructional setup, including software, platforms, hardware, and physical instructional materials • Implementation of risk mitigation and contingency plans, if needed 	<p>Integration of real-world industry relevance, such as:</p> <ul style="list-style-type: none"> • Industry-relevant context for job roles and responsibilities, including real-world operation and environments and multidisciplinary problem-solving (e.g., statistics) • Hands-on, experiential learning • Demonstration-based assessment of skill performance • Integration of relevant business and leadership skills • Use of rigorous, evidence-based instructional practices • Alignment with regionally or nationally recognized standards <p>Demonstrated use of continuous assessments to inform real-time program adjustments</p> <ul style="list-style-type: none"> • Examples: participant feedback, polls, informal assessment of knowledge and skill development

ACTIVITY: Collect and analyze data from the pilot related to programming and instruction metrics — Collect data needed to evaluate program components, curriculum, assessments, and delivery effectiveness

CONSIDERATIONS & GUIDANCE

Execute on evaluation plan	<p>Capture data about indicators of success relevant to programming and instruction</p> <ul style="list-style-type: none"> • Examples: <ul style="list-style-type: none"> ○ Committed industry resources and consistent participation in program planning, reviews, and delivery ○ Demonstration that program learning objectives, core components, and curriculum are aligned with current and projected industry needs (e.g., knowledge, skills, and abilities [KSAs]; occupations) ○ Demonstration that curriculum is engaging, informed by instructional best practices, and well-structured, allowing students to apply, practice, and evaluate their knowledge and skills ○ Assessment of instructor effectiveness • Employ data collection methods from evaluation plan to collect relevant data • Implement data management and analysis plan outlined in evaluation plan
Assess data quality	<p>Ensure data is reliable, up-to-date, comprehensive, unbiased, and representative</p> <ul style="list-style-type: none"> • Identify data and data collection process errors and inaccuracies • Identify data gaps and plans to fill them
Synthesize and analyze findings	<p>Assess program effectiveness, and define and prioritize program changes that will better achieve degree program learning objectives</p>

ASSESSMENT QUESTION: To what extent did the degree program’s components, curriculum, and assessment approaches ensure students achieved industry-defined learning objectives?

BASELINE MEASURES	EXEMPLARY MEASURES
<p>Qualitative evaluation of student skills attainment</p> <ul style="list-style-type: none"> • Examples: self-assessment, instructor feedback <p>Qualitative data to demonstrate the effectiveness of program content, instruction, and delivery</p> <ul style="list-style-type: none"> • Collection examples: self-assessment, instructor feedback, instructor evaluation from students and peer instructors • Use of instructional best practices and credible sources (e.g., subject matter experts, information from trusted associations) • Instructional methods and assessments focused on skill application and performance • Recommendations to refine learning objectives, degree program components, instructional methodology, assessments, and learning material <p>Clearly defined data collection, management, analysis, and reporting plan, including key stakeholders, methods, and frequency</p> <ul style="list-style-type: none"> • Clearly defined key performance indicators and benchmarks • Synthesis of evaluation, lessons learned, and next steps for improvement and continuation (e.g., understanding of ideal enrollment numbers for optimal outcomes) 	<p>Quantitative data and demonstration of skills attainment and knowledge retainment by graduates following the program</p> <ul style="list-style-type: none"> • Examples: performance-based assessments and credential attainment, job placement rates, reduced employee time to contribution, improved employee performance, time to promotion <p>Clearly articulated mechanism and defined frequency for ongoing feedback to inform program improvements and ensure alignment with current and projected industry needs</p> <ul style="list-style-type: none"> • Advisory board of industry and accredited instructors with relevant experience informing feedback on curriculum • Alumni feedback



Effective Business Processes

Support program success through sound operational planning and practices

ACTIVITY: Demonstrate business case for sustainment — Collect and outline evidence of value to justify continuation of the program

CONSIDERATIONS & GUIDANCE

<p>Provide evidence of impact and industry support</p>	<p>Assess participant outcomes (e.g., job placements, skills gained, wage growth), employer value (e.g., hiring rates of graduates, reduced turnover or training costs), system-level outcomes (e.g., alignment with workforce priorities, economic impact), and strategic partnerships</p>
<p>Assess financial stability and sustainability</p>	<p>Consider program cost effectiveness (e.g., cost per student), sponsoring institution return on investment, affordability for students, and long-term funding strategy</p>
<p>Demonstrate logistical viability and longevity</p>	<p>Consider infrastructure and capacity for growth (e.g., organizational readiness, resource modifications, and new opportunities for articulation agreements and transfer credits), credibility and track record of program, policy alignment (i.e., local, state, and/or federal priorities)</p>
<p>Update risk assessment</p>	<p>Based on pilot, update potential risks and associated mitigation strategies to ensure program success; consider risks such as:</p> <ul style="list-style-type: none"> • Industry and stakeholder partnership risks (e.g., lack of long-term commitment from industry, misaligned expectations, low industry engagement) • Market risks (e.g., student interest, enrollment, oversaturation with too many related programs at home or other institutions) • Financial/business risks (e.g., high development cost, lack of funding for faculty or equipment, dependency on soft money) • Academic risks (e.g., accreditation delays, difficulty recruiting key faculty in time to develop program) • Reputational risks (e.g., optics of a failed program) • Insufficient institutional support (e.g., if institute does not value industry engagement) • Insufficient student support services (e.g., advising, tutoring, career awareness) resulting in low retention or graduation rates or poor industry perception of graduates

- Lack of coordination among departments (e.g., required course changes from outside the program home department)
- Difficulty updating curriculum to align with shifts in demand or technology (e.g., due to internal resistance or lack of resources)

ASSESSMENT QUESTION: To what extent has the program’s pilot provided evidence of its value to justify its continuation?

BASELINE MEASURES	EXEMPLARY MEASURES
<p>Qualitative information to justify program continuation:</p> <ul style="list-style-type: none"> • Demonstrated value to a variety of stakeholders (e.g., commitment to support program execution and continuous improvement, confirmation of continued need) • Financial stability and logistical viability (e.g., new or continued funding secured; continued access to needed facilities, equipment, and materials; ability to secure instructional expertise and program support personnel; cost per student compared with target and available resources; actual enrolled participants compared with target enrollment) 	<p>Quantitative and more robust qualitative information to justify program continuation:</p> <ul style="list-style-type: none"> • Proof of economic impact (e.g., participant employment outcomes, economic mobility, sponsoring institution return on investment, business impact, economic output) • Assessment of continued market need (e.g., current and anticipated unfilled positions for specific jobs and/or knowledge, skills, and abilities [KSAs]; alignment with regional and/or national priorities) • Continued/increased stakeholder commitment and associated resources (e.g., number of new or renewed partners, inclusion in sponsoring institution strategy and priorities, and new opportunities for articulation agreements and transfer credits)

ACTIVITY: Refine planning for program sustainment — Synthesize lessons learned to define and prioritize recommendations for program improvement that will enable program sustainment and/or growth

CONSIDERATIONS & GUIDANCE

<p>Refine program operational goals and milestones</p>	<p>Consider:</p> <ul style="list-style-type: none"> • Enrollment goals and tuition • Budget requirements (e.g., personnel costs) and expected revenue over time, if applicable (i.e., internal institutional budget agreements, reliance on external funding, goal of revenue generation, plan to achieve cost neutrality) • Plans for program sustainment and/or growth
<p>Develop recommendations for program and curriculum updates</p>	<p>Consider needed changes to learning objectives, degree components, curriculum, assessments, and learning material</p> <ul style="list-style-type: none"> • Validate recommended changes with industry
<p>Refine operational plan, including resource needs</p>	<p>Assess current capacity and tasking, including staffing, partnerships, facilities and equipment, and funding; and define key needs and outcomes for program sustainment</p> <ul style="list-style-type: none"> • Build a multi-year financial sustainability plan, including estimated ongoing costs, revenue strategy, accounting practices, and scenario planning (e.g., best-case vs. lean-year budgets) • Identify risks and create contingency plans
<p>Refine communications plan</p>	<p>Consider needed changes to audience outreach analysis, content strategy, and implementation plan (e.g., outreach channels, geographic areas)</p>
<p>Refine evaluation plan</p>	<p>Consider needed changes to contributing stakeholders; indicators of success; evaluation logistics; and data management, analysis, and reporting plans</p> <p>Regularly communicate impact metrics to stakeholders and decision makers</p> <p>Identify barriers to collecting longitudinal data from employers and develop strategies to improve access</p>

ASSESSMENT QUESTION: To what extent do your program’s refined business plans demonstrate your ability to successfully sustain and/or grow the program?

BASELINE MEASURES	EXEMPLARY MEASURES
<p>Refined goals, milestones, roles and responsibilities, and associated resource requirements</p> <ul style="list-style-type: none"> • Refined enrollment targets and cost per participant • Internal processes, including logistics, data management, and risk management • Budget and plan for needed resources (e.g., agreements and contracts for funding, human resources, equipment and facility access, instructional technology) • Updated risk assessment and mitigation plans (e.g., operational, financial, market) <p>Refined communications plan informed by key performance indicators (e.g., engagement, referrals)</p> <ul style="list-style-type: none"> • Updated messages and content tailored to target audiences and outreach channels • Assessment of engagement analytics and mechanisms for ongoing monitoring <p>Demonstrated capture and communication of findings from program evaluation across dimensions of impact (i.e., Industry & Partner ROI, Learner Impact, Programming & Instruction, Effective Business Processes)</p> <ul style="list-style-type: none"> • Continuous communication of impact metrics to stakeholders and decision makers • Refined evaluation plan with updated data collection, management, analysis, and reporting approaches 	<p>Consultation of key stakeholders on recommendations and changes to program</p> <ul style="list-style-type: none"> • Recommendations are prioritized by greatest potential impact and responsiveness to industry, students, and sponsoring institution needs; sound rationale is provided for not implementing certain recommendations • Plans for obtaining longitudinal data from industry on program alumni employment/performance • Continued/increased stakeholder involvement and commitment (e.g., industry support, continued alumni engagement, needed changes to contributing stakeholders) <p>Multi-year strategies for needed resources and stakeholder engagement</p> <ul style="list-style-type: none"> • Funding models: revenue-generating model, diversified funding sources • Equipment, technology, and facility re-evaluation (e.g., contracts, maintenance plans, upgrades) • Succession and knowledge transfer planning for instructional and programmatic personnel

SUSTAIN

Continuously evaluate and improve program to maximize its impact

Sustain a program: Continue to follow business and operational model with new cohorts

Grow a program: Increase student enrollment

Activities by Dimension of Impact

	<p>Industry & Partner ROI</p>	<p>Maintain and expand industry champions</p> <p>Continue to collect and communicate data related to industry-relevant metrics</p>
	<p>Learner Impact</p>	<p>Maintain and/or grow enrollment</p> <p>Continue to collect and communicate data related to learner impact metrics</p>
	<p>Programming & Instruction</p>	<p>Continue to collect and analyze data related to programming and instruction metrics</p> <p>Continuously update and vet refined curriculum and/or assessments</p>
	<p>Effective Business Processes</p>	<p>Continuously refine and evolve planning for program sustainment and/or growth</p>



Industry & Partner ROI

Align program with current and/or projected workforce needs

ACTIVITY: Maintain and expand industry champions — Continue to communicate the program’s value to industry and work with industry to continuously refine and secure resources needed for program sustainment and/or growth

CONSIDERATIONS & GUIDANCE

<p>Maintain engagement with key industry influencers, decision-makers, and subject matter experts</p>	<p>Ensure champions continue to value and support the program</p> <ul style="list-style-type: none"> • Be mindful of industry representative turnover: Maintain materials and processes to facilitate knowledge transfer and quickly get new representatives up to speed on the program • Invest in relationships by offering routine engagement opportunities and providing personalized outreach
<p>Grow the circle of program champions</p>	<p>Build relationships needed to expand the program’s recognition and impact</p> <ul style="list-style-type: none"> • Identify gaps in current industry champions that should be addressed to broaden the program’s reach and success, including: <ul style="list-style-type: none"> ○ Type of stakeholders (e.g., industry, community-based organizations, economic development organizations, unions, sector partnerships, consortia) ○ Organization size and geographic location ○ Job/role/functional area of stakeholders (e.g., corporate leadership, site managers, front-line manufacturing managers, HR managers, hiring managers, talent acquisition specialists, industry association leaders, subject matter experts) • Build relationships with organizations similar to current champions, trade and professional associations, and community organizations • Potential mechanisms: leveraging existing champions for connections, general networking, hosting roundtables, and presenting at industry events
<p>Provide ongoing mechanisms for industry feedback and collaboration</p>	<p>Collect regular industry feedback (e.g., through advisory boards or curriculum reviews)</p> <ul style="list-style-type: none"> • Ensure continued value for champions by helping employers meet their own goals (e.g., talent pipeline, public relations) and adjusting in

response to evolving workforce needs and market factors (e.g., economic fluctuations, labor market policy)

- Continuously engage industry to define the considerations for long-term industry support (e.g., needed program improvements, resource commitments, advisory board participation, and hiring practices in alignment with the program)

ASSESSMENT QUESTION: To what extent has industry demonstrated a continued commitment to support the program’s sustainment and/or growth?

BASELINE MEASURES	EXEMPLARY MEASURES
<p>Continued and/or expanded in-kind industry support</p> <ul style="list-style-type: none"> • Examples of support: participation in subject matter reviews, advisory board participation, program delivery and instruction, marketing and outreach support, industry networking with students, program feedback to inform continuous improvement • Demonstrated industry and organizational support, even with point of contact turnover 	<p>Continued and/or expanded committed stakeholder resources beyond time</p> <ul style="list-style-type: none"> • Examples of support: funding, access to facilities and equipment for experiential learning opportunities, internships and apprenticeships • Broader stakeholder commitment, dependent on program scope (e.g., engaged industry decision makers and/or a greater number of industry organizations, trade and professional associations, and community organizations) • Industry remains committed to hire graduates, with competitive wages and career pathways (e.g., addition of program to preferred hiring requirements, proactive outreach to source job candidates) <p>Clearly articulated mechanism and defined frequency for ongoing feedback to inform program improvements and ensure alignment with current and projected industry needs</p>

ACTIVITY: Continue to collect and communicate data related to industry-relevant metrics — Continue to collect data needed to evaluate the program’s alignment with industry needs, and communicate results to inform program improvements and grow industry support and recognition of the program

CONSIDERATIONS & GUIDANCE

<p>Execute on refined evaluation plan</p>	<p>Capture data about indicators of success relevant to industry</p> <ul style="list-style-type: none"> • Examples: <ul style="list-style-type: none"> ○ Reduced internal training, time to hire, and/or employee time to contribution ○ Representative industry stakeholder engagement ○ Alignment with industry market data, including occupations, current and anticipated positions to fill, and needed knowledge, skills, and abilities (KSAs) ○ Resources committed compared with value realized • Employ data collection methods from evaluation plan to collect relevant data at defined data collection frequency, including from industry partners and program students and graduates • Implement data management and analysis plan outlined in evaluation plan
<p>Assess data quality</p>	<p>Ensure data is reliable, up-to-date, comprehensive, unbiased, and representative</p> <ul style="list-style-type: none"> • Identify data and data collection process errors and inaccuracies • Identify data gaps and plans to fill them
<p>Synthesize and communicate findings</p>	<p>Leverage communications plan to align available data with key messages to demonstrate the industry value proposition</p> <ul style="list-style-type: none"> • Update and prioritize program changes that will better align the program with industry needs

ASSESSMENT QUESTION: To what extent does the program continue to provide return on investment to industry?

BASELINE MEASURES	EXEMPLARY MEASURES
<p>Qualitative positive feedback (e.g., testimonials) from industry that demonstrates industry’s perceived value of the program</p> <ul style="list-style-type: none"> Examples: reduction in unfilled positions or time to fill, more qualified candidates, reduced employee time to contribution, feedback on graduate/employee performance <p>Demonstrated implementation of data collection, management, analysis, and reporting plan, including key stakeholders, methods, and frequency</p> <ul style="list-style-type: none"> Clearly defined key performance indicators and benchmarks 	<p>Quantitative data from industry that demonstrates industry’s sustained value from the program over time</p> <ul style="list-style-type: none"> Alignment with industry market data, including occupations, current and anticipated positions to fill; demonstrated contributions to industry success and growth Examples: number of program graduates that industry interviews, offers positions to, hires, or promotes; reduction in unfilled positions or time to fill; reduced employee time to contribution; time to promotion; longitudinal employee retention and advancement; skills competency scores <p>Multiple methods used for collecting and reporting data on program impact</p> <ul style="list-style-type: none"> Collection examples: survey/feedback forms, interview, roundtable, focus group Reporting examples: Industry case studies and testimonials that can be used in future program marketing and communications



Learner Impact

Enhance learner skill marketability and career opportunities

ACTIVITY: Maintain and/or grow enrollment — Continue to conduct and update outreach efforts to target learner audience to sustain or grow student enrollment in the program

CONSIDERATIONS & GUIDANCE

<p>Execute and refine communications plan for target learner audience</p>	<p>Continue to use identified outreach channels to message program details and value proposition to prospective students, communicating a clear call to action and intuitive enrollment process in all materials</p> <ul style="list-style-type: none"> • Leverage recruitment mechanisms within sponsoring academic institution • Coordinate with relevant recruitment partners, including industry employers, community-based organizations, other academic institutions, and local government to promote the program to the target learner audience <p>Identify outreach successes and potential areas for improvement</p> <ul style="list-style-type: none"> • Track and analyze application/enrollment patterns: Use data to spot trends (e.g., successful outreach channels, drop-offs, demographic or geographic disparities) • Assess and refine messaging and outreach strategy: Messaging should be clear, outcome-focused, relevant, and aspirational; include student case studies and testimonials • Use feedback to continuously improve: Incorporate feedback collected through evaluation methods
<p>Continue to support prospective students during the application/enrollment process</p>	<p>In partnership with sponsoring institution, continue to work with prospective students to navigate the application/enrollment process, including answering any questions and addressing any concerns, reviewing program-specific acceptance criteria, scheduling program/facility tours, communicating logistical information, and providing any preparatory or background materials</p> <ul style="list-style-type: none"> • Identify any potential opportunities for participation support (e.g., dedicated student support staff, scholarships and financial assistance, available support services at sponsoring academic institution [e.g., transportation, childcare])

Contact previous applicants or interested participants	Follow-up and re-engage interested target learners to notify them of additional program opportunities (e.g., offer waitlists or early application; maintain leads through text messages, newsletters, or alumni success stories)
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ASSESSMENT QUESTION: To what extent is the program able to sustain and/or grow student participation?

BASELINE MEASURES	EXEMPLARY MEASURES
<p>Application/enrollment metrics (e.g., number of individuals who apply for program, number of individuals who enroll in the program compared with enrollment targets)</p> <p>Qualitative demonstration of alignment between enrolled participant characteristics and target learner characteristics</p> <ul style="list-style-type: none"> Examples: geographical location, education level, education prerequisites and fields of study, vocational background and skills, employment status (e.g., full-time, part-time), current and desired occupation and role (i.e., currently working in life sciences vs outside this sector) <p>Qualitative assessment of target audience outreach strategy</p> <ul style="list-style-type: none"> Examples: how interested candidates heard about the program, why prospective students were interested in participating, satisfaction of application/enrollment process 	<p>Quantitative demonstration and more robust qualitative alignment between applicant and enrolled participant characteristics and target learner characteristics</p> <ul style="list-style-type: none"> New and/or broader target audiences reached (e.g., students from new regions, different educational/vocational backgrounds) Example quantitative data: age, income, language Example qualitative information: background, motivations and goals, cultural or community influences <p>Ongoing quantitative assessment of target audience outreach strategy</p> <ul style="list-style-type: none"> Examples: social media and website engagement rates, email open rate, paid ad clicks, sign-up/attendance at promotional events, cost of marketing approaches compared with reach/application/enrollment Demonstrated mechanism for tracking and engaging with interested target students who did not enroll / were not accepted

ACTIVITY: Continue to collect and communicate data related to learner impact metrics — Continue to collect data needed to evaluate learner engagement with the program and increased learner skill marketability

CONSIDERATIONS & GUIDANCE

<p>Execute on refined evaluation plan</p>	<p>Capture data about indicators of success relevant to learner impact both during the program and/or following program graduation</p> <ul style="list-style-type: none"> • Examples: application/enrollment numbers, access to industry networks and experiences, increased skill marketability, access to high-quality job opportunities, promotion opportunities, compensation, job satisfaction, job performance, professional networks, education/career pathways, professional pride and motivation, willingness to refer other participants • Employ data collection methods from evaluation plan to collect relevant data at defined data collection frequency (e.g., every X months during program; 6 months, 1 year, 2 years, etc. following graduation), including from industry partners and program students and graduates • Implement data management and analysis plan outlined in evaluation plan
<p>Assess data quality</p>	<p>Ensure data is reliable, up-to-date, comprehensive, unbiased, and representative</p> <ul style="list-style-type: none"> • Identify data and data collection process errors and inaccuracies • Identify data gaps and plans to fill them
<p>Identify and capture student case studies</p>	<p>When collecting data from students and graduates, identify those with compelling success stories or testimonials that could help demonstrate the value of the program to future prospective students</p>
<p>Synthesize and communicate findings</p>	<p>Leverage communications plan to align available data with key messages to demonstrate the learner value proposition</p> <ul style="list-style-type: none"> • Update and prioritize program changes that will better align the program with learner needs

ASSESSMENT QUESTION: To what extent does the program continue to successfully engage students and deliver a return on investment for participants?

BASELINE MEASURES	EXEMPLARY MEASURES
<p>Qualitative positive feedback from students and/or graduates that demonstrates their engagement in and perceived value of the program</p> <ul style="list-style-type: none"> Engagement examples: student graduation rates, drop-off points, time to complete program, willingness to refer Value examples: extent of industry-relevant instruction and assessment, access to industry networks and experiences, increased skill marketability, access to high-quality job opportunities and quality promotion opportunities, compensation, job satisfaction, job performance, professional networks, education/career pathways, professional pride and motivation, long-term access to institutional resources <p>Demonstrated implementation of data collection, management, analysis, and reporting plan, including key stakeholders, methods, and frequency</p> <ul style="list-style-type: none"> Clearly defined key performance indicators and benchmarks 	<p>Quantitative data from graduates that demonstrates their increased skill marketability over time</p> <ul style="list-style-type: none"> Examples: interviews secured, job placement rates, promotions attained post-graduation, credential attainment or skills demonstration through performance-based assessments, education/career progression, employment persistence, earnings growth Alumni champions (e.g., guest speakers, mentors, review of and feedback on program materials, program promotion) <p>Multiple methods used for collecting and reporting data</p> <ul style="list-style-type: none"> Collection examples: engagement tracking related to institutional resources, self-reflection tools, survey/feedback forms, interviews, roundtables, focus groups Reporting examples: student case studies and testimonials that can be used in future program marketing and communications



Programming & Instruction

Apply best practices to optimize program delivery and instructional effectiveness

ACTIVITY: Continue to collect and analyze data related to programming and instruction metrics — Refine program components, curriculum, assessments, and program operations to ensure students continue to reach industry-aligned learning objectives

CONSIDERATIONS & GUIDANCE

Execute on refined evaluation plan	<p>Capture data about indicators of success relevant to programming and instruction</p> <ul style="list-style-type: none"> • Examples: <ul style="list-style-type: none"> ○ Committed industry resources and consistent participation in program development and delivery ○ Demonstration that program learning objectives, curriculum, and instructional methodology are aligned with current and projected industry needs including knowledge, skills, and abilities (KSAs) and occupations ○ Demonstration that curriculum is engaging, informed by instructional best practices, and well-structured, allowing learners to apply, practice, and evaluate their knowledge and skills ○ Assessment of instructor effectiveness • Employ data collection methods from evaluation plan to collect relevant data • Implement data management and analysis plan outlined in evaluation plan
Assess data quality	<p>Ensure data is reliable, up-to-date, comprehensive, unbiased, and representative</p> <ul style="list-style-type: none"> • Identify data and data collection process errors and inaccuracies • Identify data gaps and plans to fill them
Synthesize and analyze findings	<p>Assess program effectiveness, and define and prioritize program changes that will better achieve degree program learning objectives</p>

ASSESSMENT QUESTION: To what extent do the degree program’s components, curriculum, and assessment approaches continue to align with current and emerging industry needs and target learner characteristics?

BASELINE MEASURES	EXEMPLARY MEASURES
<p>Qualitative evaluation of student skills attainment</p> <ul style="list-style-type: none"> Examples: self-assessment, instructor feedback <p>Qualitative data to demonstrate the effectiveness of program content, instruction, and delivery</p> <ul style="list-style-type: none"> Collection examples: self-assessment, instructor feedback, instructor evaluation from students and peer instructors Use of instructional best practices and credible sources (e.g., subject matter experts, information from trusted associations) Instructional methods and assessments focused on skill application and performance Recommendations to refine learning objectives, degree program components, instructional methodology, assessments, and learning material <p>Demonstrated implementation of data collection, management, analysis, and reporting plan, including key stakeholders, methods, and frequency</p> <ul style="list-style-type: none"> Clearly defined key performance indicators and benchmarks Synthesis of evaluation, lessons learned, and next steps for improvement and continuation (e.g., understanding of ideal enrollment numbers for optimal outcomes) 	<p>Quantitative data and demonstration of skills attainment and knowledge retainment by graduates following the program</p> <ul style="list-style-type: none"> Examples: performance-based assessments and credential attainment, job placement rates, reduced employee time to contribution, improved employee performance, time to promotion <p>Clearly articulated mechanism and defined frequency for ongoing feedback to inform program improvements and ensure alignment with current and projected industry needs</p> <ul style="list-style-type: none"> Advisory board of industry and accredited instructors with relevant experience informing feedback on curriculum Alumni feedback

ACTIVITY: Continuously update and vet refined curriculum and/or assessments — Continue to evaluate refined degree program components, curriculum, instructional methods, and assessments to ensure they are accurate, relevant, effective, and aligned with industry and learner needs

CONSIDERATIONS & GUIDANCE

<p>Develop and implement a curriculum review cycle</p>	<p>Regularly seek feedback from instructors, industry partners, alumni, and instructional designers</p> <ul style="list-style-type: none"> • Collect feedback from instructors and alumni to identify gaps and challenges in programming and determine actionable insights for improvement • Review instructional materials and technology for relevance and quality: Ensure learning materials and program curriculum remain up to date and aligned with evolving workforce needs by continuing engagement with industry • Prioritize and integrate feedback, using data to inform prioritization • Continuously engage industry stakeholders to ensure learning objectives, curriculum, and instructional resources remain aligned with industry needs and priorities
<p>Coordinate resources and logistics to execute instructional plan</p>	<p>Leverage program operational plan around:</p> <ul style="list-style-type: none"> • Human resources, including engagement with and onboarding of instructors, students, and other program and instructional staff support; knowledge transfer and succession planning • Equipment and facilities, including access to and scheduling of lab equipment, setup of lab or classroom training space, and organization of instructional materials and supplies • Instructional technology setup, including software, platforms, hardware, and other materials
<p>Update and implement risk mitigation and contingency plans as needed</p>	<p>Monitor resources and make any real-time adjustments to improve the student experience and ensure training program alignment with program operational plan</p>

ASSESSMENT QUESTION: To what extent do the program’s components, curriculum, instruction, and assessments continue to effectively contribute to achieving industry-defined learning objectives?

BASELINE MEASURES	EXEMPLARY MEASURES
<p>Demonstrated alignment of revised training materials, curriculum, and/or assessment with current and emerging industry needs and target learner characteristics</p> <ul style="list-style-type: none"> Refined in-depth mapping (e.g., logic model) of needed KSAs to program and course learning objectives, program outputs, and corresponding job roles and occupations Informal industry engagement (e.g., small-scale surveys and interviews, material mark-up) to review refined program materials, curriculum, and/or assessments <p>Demonstrated quality of refined program content, assessments, and instruction</p> <ul style="list-style-type: none"> Curriculum is evidence-based and leverages instructional best practices and credible sources Instructional methods and assessments are focused on skill application and performance There is a clear and demonstrated plan for instructor evaluation, succession, and knowledge transfer 	<p>Demonstrated integration of industry-relevant instruction and assessment, such as:</p> <ul style="list-style-type: none"> Industry-relevant context for job roles and responsibilities, including real-world operation and environments and multidisciplinary problem-solving (e.g., statistics) Hands-on, experiential learning Demonstration-based assessment of skill performance Integration of relevant business and leadership skills Use of rigorous, evidence-based instructional practices Alignment with regionally or nationally recognized standards Professional development plans for instructors to ensure quality instructional delivery aligned with current and emerging industry needs <p>Clearly articulated mechanism and defined frequency for ongoing feedback to inform program improvements and ensure alignment with current and projected industry needs</p> <ul style="list-style-type: none"> Advisory board of industry and accredited instructors with relevant experience informing feedback on curriculum Demonstrated customizability and adaptability of course materials to changing and emerging industry needs



Effective Business Processes

Support program success through sound operational planning and practices

ACTIVITY: Continuously refine and evolve planning for program sustainment and/or growth — Continuously assess—at least annually—the success of the program in meeting industry needs and implement prioritized recommendations for program improvements that will enable continued sustainment

CONSIDERATIONS & GUIDANCE

<p>Define levels of desired growth</p>	<p>Leverage landscape analyses, industry partner recommendations, funding opportunities, resource availability, etc. to define and justify strategy for growth (i.e., increased enrollment)</p>
<p>Continue to refine business case for sustainment and/or growth</p>	<p>Provide frequent evidence of impact and industry support, including graduate outcomes (e.g., job placements, skills gained, wage growth), employer value (e.g., hiring rates of graduates, reduced turnover or training costs), system-level outcomes (e.g., alignment with workforce priorities, economic impact), and strategic partnerships</p> <ul style="list-style-type: none"> • Continuously assess financial stability and sustainability, including program cost effectiveness (e.g., cost per student), sponsoring institution return on investment, affordability for learners, and long-term funding strategy • Demonstrate logistical viability and longevity, including infrastructure and capacity for growth (e.g., organizational readiness, resource modifications), credibility and track record of program, and policy alignment (i.e., local, state, and/or federal priorities)
<p>Refine program operational goals and milestones</p>	<p>Reassess and/or confirm:</p> <ul style="list-style-type: none"> • Enrollment goals • Budget requirements (e.g., personnel costs) and expected revenue over time, if applicable (i.e., internal institutional budget agreements, reliance on external funding, goal of revenue generation, plan to achieve cost neutrality) • Plans for continued program sustainment and/or growth in response to industry need and learner demand

<p>Refine operational plan, including resource needs</p>	<p>Assess current capacity and tasking, including staffing, partnerships, facilities and equipment, and funding; define key needs and outcomes for program sustainment</p> <ul style="list-style-type: none"> • Update financial sustainability plan, including estimated ongoing costs, revenue strategy, accounting practices, and scenario planning (e.g., best-case vs. lean-year budgets) • Update risks and create contingency plans, considering how to address risks such as: <ul style="list-style-type: none"> ○ Industry and stakeholder partnership risks (e.g., lack of long-term commitment from industry, misaligned expectations, low industry engagement) ○ Market risks (e.g., student interest, enrollment, oversaturation with too many related programs at home or other institutions) ○ Financial/business risks (e.g., high development cost, lack of funding for faculty or equipment, dependency on soft money) ○ Academic risks (e.g., accreditation delays, difficulty recruiting key faculty in time to develop program) ○ Reputational risks (e.g., optics of a failed program) ○ Insufficient institutional support (e.g., if institute does not value industry engagement) ○ Insufficient student support services (e.g., advising, tutoring, career awareness) resulting in low retention or graduation rates or poor industry perception of graduates ○ Lack of coordination among departments (e.g., required course changes from outside the program home department) ○ Difficulty updating curriculum to align with shifts in demand or technology (e.g., due to internal resistance or lack of resources)
<p>Refine communications plan</p>	<p>Consider needed changes to audience outreach analysis, content strategy, and implementation plan (e.g., outreach channels, geographic areas)</p>
<p>Refine evaluation plan</p>	<p>Consider needed changes to contributing stakeholders; indicators of success; evaluation logistics; and data management analysis and reporting plans</p> <p>Regularly communicate impact metrics to stakeholders and decision makers</p> <p>Identify barriers to collecting longitudinal data from employers and develop strategies to improve access</p>

ASSESSMENT QUESTION: To what extent are your program’s business plans refined to support evolving industry needs and the business case for program continuation?

BASELINE MEASURES	EXEMPLARY MEASURES
<p>Demonstration of continued operational and logistical viability</p> <ul style="list-style-type: none"> Continued and/or expanded support from own organization Refined goals, milestones, roles and responsibilities, and associated resource requirements Refined enrollment targets and cost per student Repeatable internal processes, including logistics, data management, and risk management Refined budget and plan for needed resources (e.g., funding, human resources, equipment and facility access, instructional technology) Updated risk assessment and mitigation plans (e.g., operational, financial, market) <p>Refined communications plan informed by key performance indicators (e.g., engagement, referrals)</p> <ul style="list-style-type: none"> Updated messages and content tailored to target audiences and outreach channels Assessment of engagement analytics and mechanisms for ongoing monitoring <p>Demonstrated capture and communication of findings from program evaluation across dimensions of impact (i.e., Industry & Partner ROI, Learner Impact, Programming & Instruction, Effective Business Processes)</p>	<p>Demonstration of operational and logistical maturity</p> <ul style="list-style-type: none"> Demonstration of program scope alignment with market need: frequency and enrollment targets align with job openings and projected needs, ensuring return on investment for both industry and learners Increased and/or expanded stakeholder buy-in (e.g., increased funding, resources, and support from within organization; continued engagement and participation from program alumni) Demonstration of thought leadership and expertise (e.g., participation in regional workforce boards and initiatives, sought-after best practices and experience) Demonstrated integration and partnership with the broader community (e.g., wraparound services, connections with community organizations, mentorship, partnerships with training providers across biomanufacturing education/career pathways) <p>Consultation of key stakeholders on recommendations and changes to program</p> <ul style="list-style-type: none"> Recommendations are prioritized by greatest potential impact and responsiveness to industry, students, and sponsoring institution; sound rationale is provided for not implementing certain recommendations Receipt of and plans for continuing to obtain longitudinal data from industry on program alumni employment/performance

<ul style="list-style-type: none"> • Proof of economic impact (e.g., employment outcomes, economic mobility, return on investment, business impact, economic output) • Continuously communicate impact metrics to stakeholders and decision makers • Refined evaluation plan with updated data collection, management, analysis, and reporting approaches 	<ul style="list-style-type: none"> • Continued/increased stakeholder involvement and commitment (e.g., industry support, alumni continued engagement, needed changes to contributing stakeholders) <p>Multi-year strategies for needed resources and stakeholder engagement</p> <ul style="list-style-type: none"> • Institutional capabilities and infrastructure for securing additional funding (e.g., grant application and management) • Funding models: revenue-generating model, diversified funding sources • Equipment, technology, and facility re-evaluation (e.g., contracts, maintenance plans, upgrades) • Succession and knowledge transfer planning for instructional and programmatic personnel
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