Insights from the ExLENT PI Engagement Workshop

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National Academy of Engineering
Facilitating Experiential Learning for Emerging and Novel Technologies Workshop

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Strengthening University-Industry Partnerships

Agenda

- Context and lessons learned from the UIDP-NSF ExLENT Program PI Workshop
- Beginnings as a project model
- Shared constraints around funding and operations
- From projects to ecosystem impact

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Experiential Learning for Emerging and Novel Technologies (ExLENT) Program Principal Investigator Engagement Workshop

A UIDP Workshop Report

Nov. 5-6, 2025
Washington, DC

Workshop Organizers:
Anthony Boccanfuso, UIDP
Morgan-Jones King, UIDP

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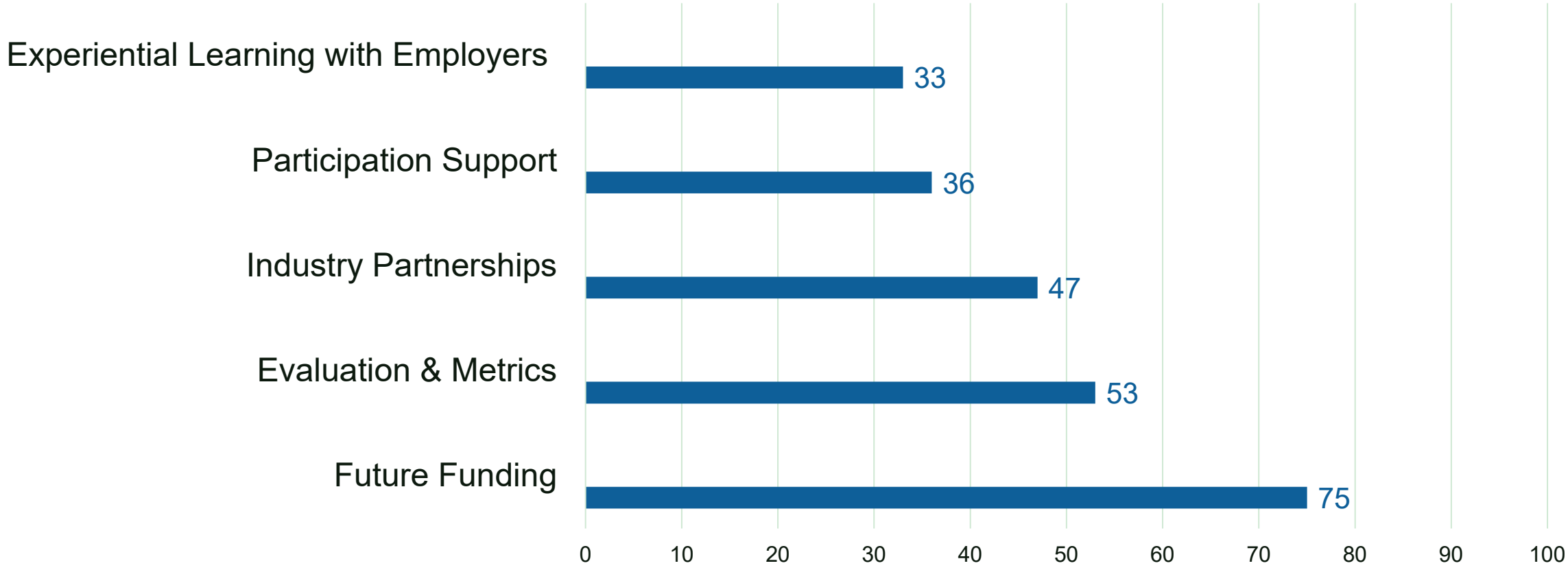
Top ExLENT PI Challenges

Pre-workshop survey across all tracks

Percentage of PIs who identified each challenge as highly relevant to their project

Survey fielded Oct 16-30, 2025; n = 36



Workshop at a Glance

Broad representation drawn from the education and workforce ecosystem.

Workshop participation included:

- 92 participants, observers, and staff
- 63 higher education institutions
- 12 nonprofit organizations
- 7 private sector organizations
- 2 public entities

Supported by NSF Directorate for Technology, Innovation and Partnerships and the Directorate for STEM Education

What the Workshop Surfaced

Across plenary, breakout, and cross-sector discussions, clear patterns emerged.

- Effective workforce pathways support adaptability and align with immediate industry demand
- Industry engagement must be tailored to learner context
- Mentorship and cohort-based structures function as core infrastructure
- Clear articulation of shared value supports program durability
- Flexible, role-based partnerships more resilient than person-dependent models
- Evaluation approaches most useful when they support learning and adaptation

The Distinct Role of Beginnings

Beginnings serves learners with some STEM exposure who need:

- Applied skill building
- Hands-on industry experience
- Mentorship
- Clear next steps

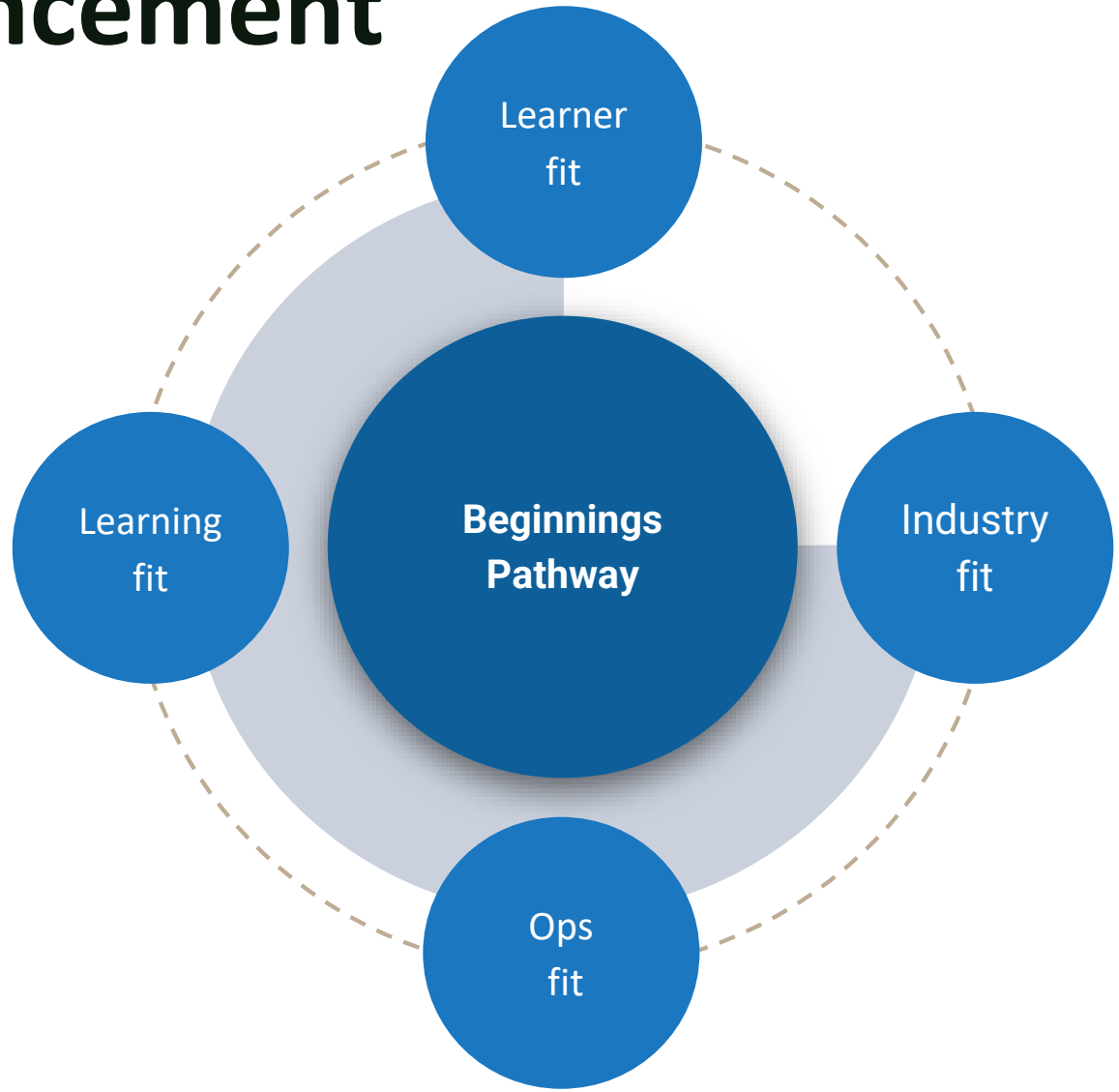
This is where exposure becomes applied capability.

Fit Is Key to Project Advancement

Design programs for:

- Learner realities
- Industry demand
- Flexible learning structures
- Operational capacity

Goal: Reduce friction for learners, employers, and institutions.



Funding and Operations

Shared Challenge

- Blended funding models are the norm, not the exception.
- Institutional support frequently reduces fixed costs rather than providing new revenue.
- Paid participation remains essential but financially complex.
- Operational capacity constrains scale.

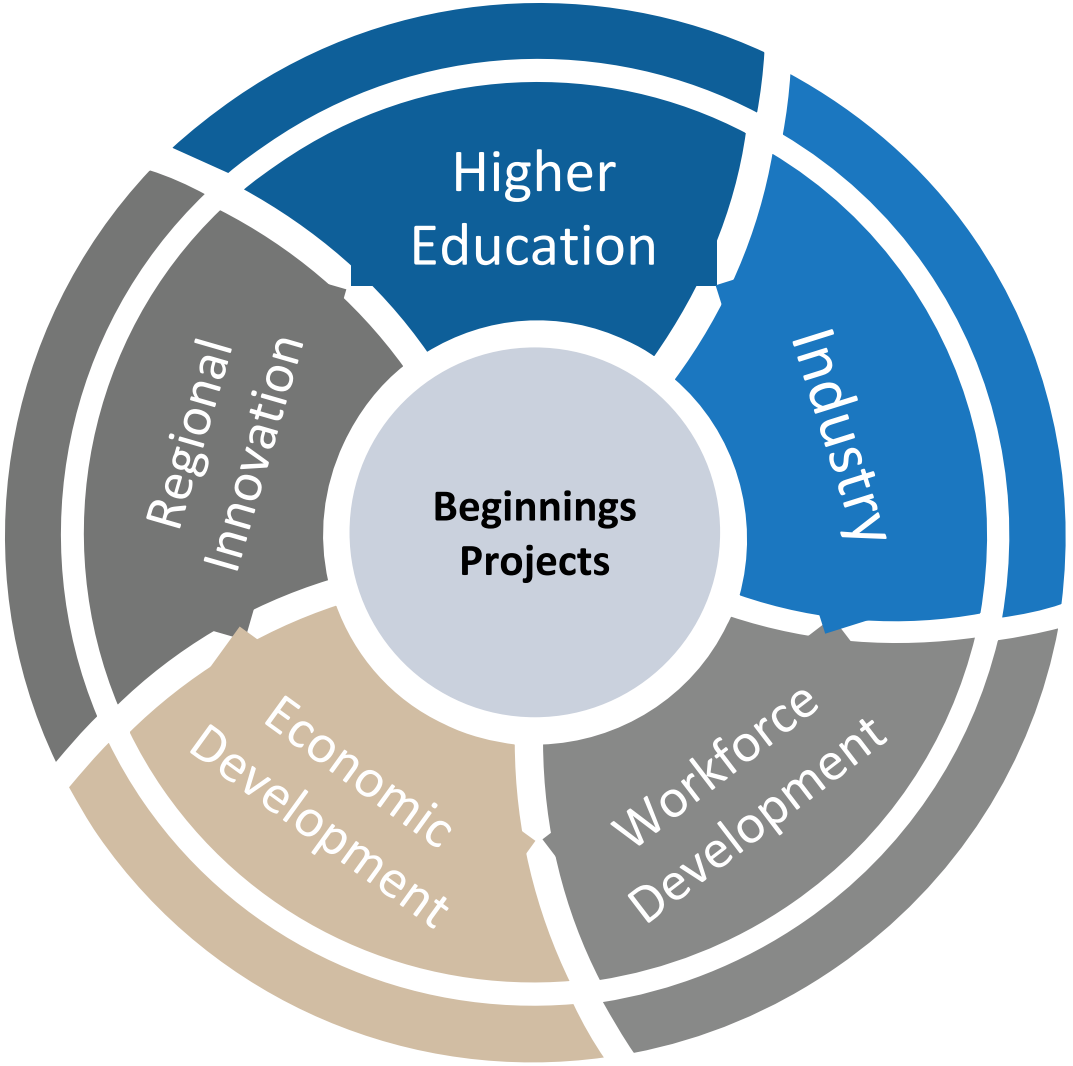
Connecting to the Workforce Ecosystem

Beginnings connects:

- Education
- Industry
- Workforce development
- Economic development
- Regional innovation

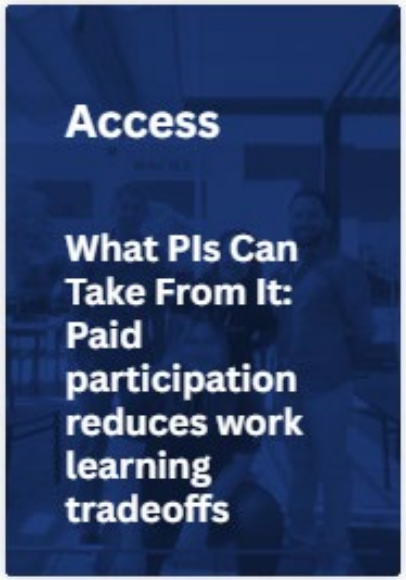
Comparable models:

- U.S. Registered Apprenticeships
- German dual vocational training
- UK Growth and Skills Levy



Biomanufacturing as a Beginnings Model

California Regional Biomanufacturing Work-Based Learning Project



41 students

5 colleges

10 industry sites

13 apprenticeships

The point is not only that the project placed students. ***The design reduced friction*** *for learners, institutions, and employers.*

From Projects to Ecosystem Impact

Early success practices:

1. Clarify the learner journey
2. Define the employer role
3. Strengthen the evidence story
4. Build sustainability early
5. Share reusable tools

Build pathways learners can enter, navigate, pause, resume, and use.

What can this community build together?

Thank you

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