

Workforce Capacity & Training

Building the Pipeline for the US Biomanufacturing Wave

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The Challenge Ahead

A historic surge in domestic pharmaceutical manufacturing — and a workforce gap that could stall it.

\$50B+

Capital flowing in

Onshoring incentives and BIOSECURE-era policy are landing new US plants now.

70K+

New roles this decade

Industry projections show tens of thousands of new biomanufacturing jobs by 2030.

1 in 2

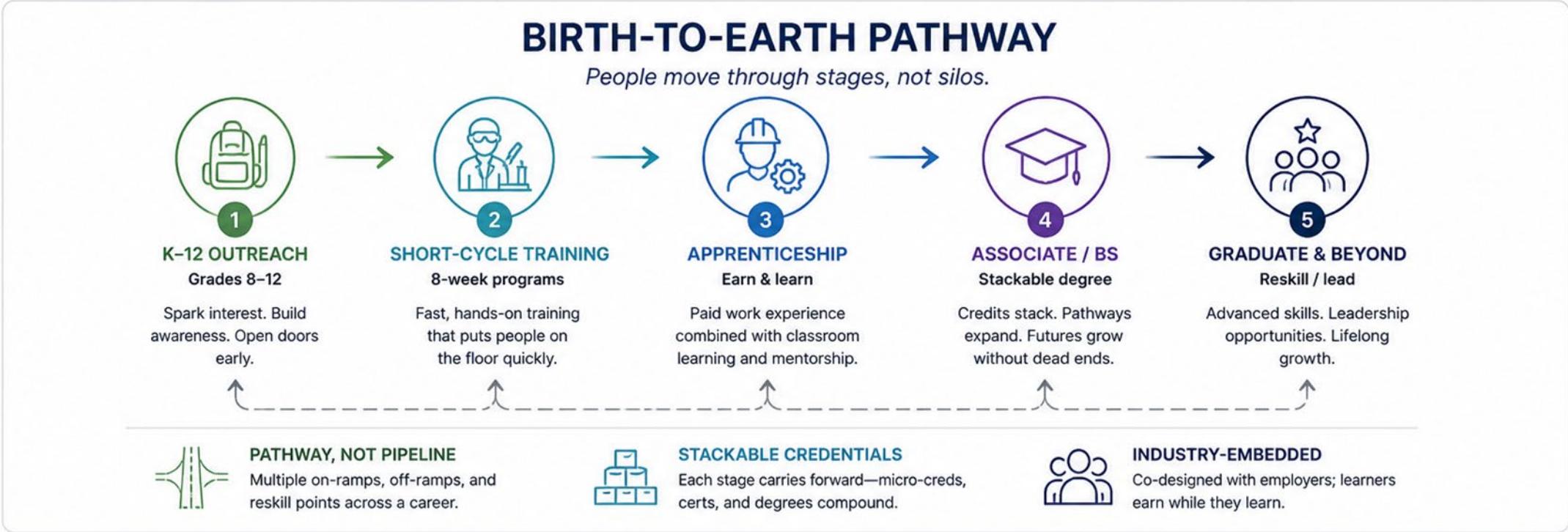
Hires hard to source

Half of technical openings reported unfilled or under-qualified at hire.

Talent — not capital — is the binding constraint.

A "Birth-to-Earth" Pathway

A pathway-based strategy: people move through stages, not silos.



Start Early: K–12 Outreach

If we wait until college, we have already lost most of the workforce we need.

What it looks like

- Hands-on lab experiences for grades 8–12
- Teacher externships in industry partner labs
- Career awareness: "What does a biotech tech actually do?"
- Dual-enrollment so HS students earn college credit

Why it matters

- Builds the local pipeline before a plant breaks ground
- Reaches communities historically excluded from biotech
- Cuts ramp time for entry-level technicians
- Creates families' first-time college-goers

Northeastern partners with school districts and ABE to put biotech tools in classrooms today.

Short-Cycle Training & Apprenticeships

Fast on-ramps that put people on the floor in weeks, not years.

8 WEEKS

Short-Cycle Training

- Hands-on biomanufacturing fundamentals: aseptic, GMP, doc
- Co-designed with hiring employers — "hire the cohort"
- Pathmaker-style programs run with industry partners
- Outcome: job-ready technician, paid from day one

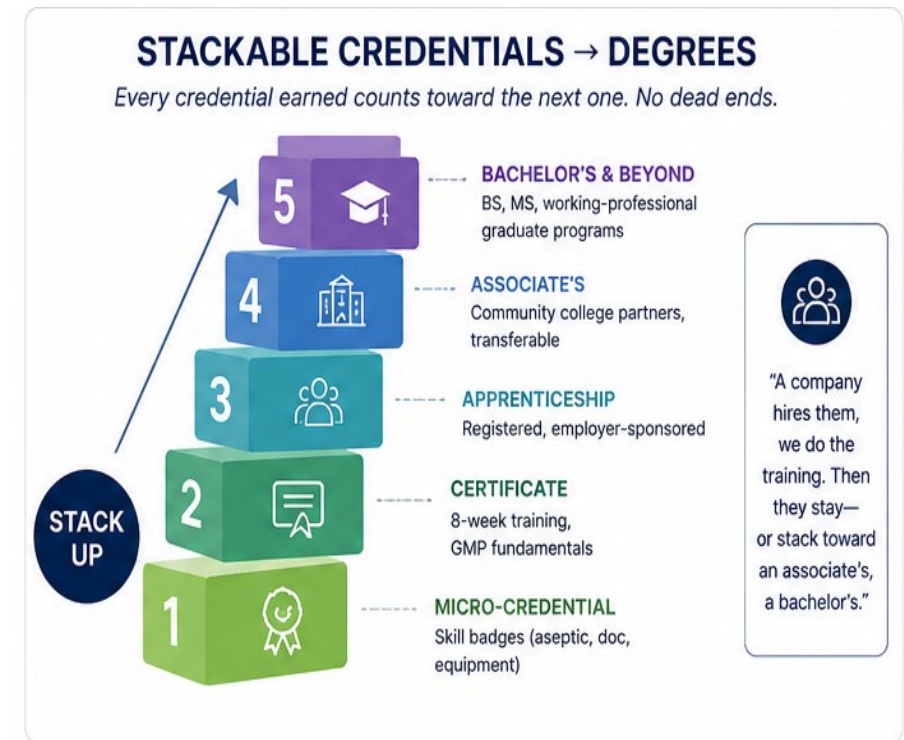
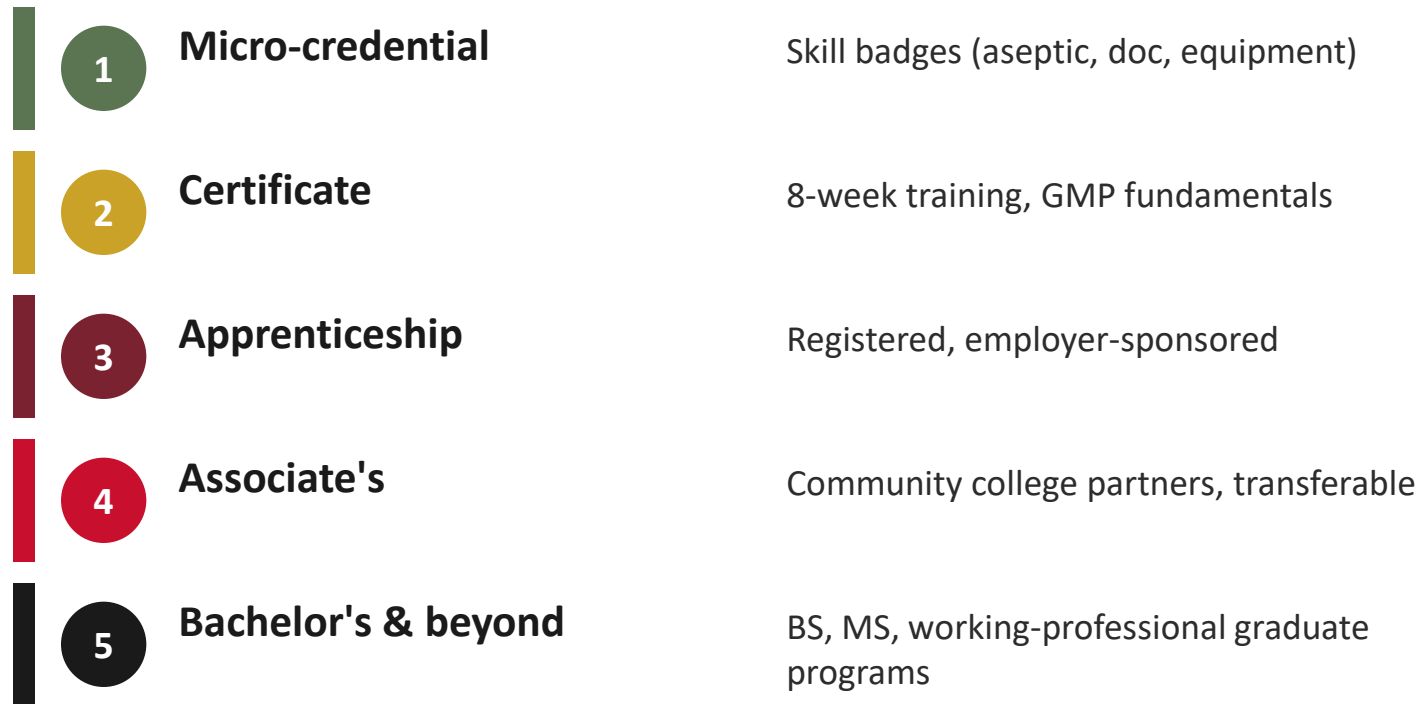
1-2 YEARS

Registered Apprenticeships

- Earn-and-learn: paid work + classroom hours
- Federally-recognized credential at completion
- Employer captures retention; learner avoids debt
- Especially powerful for underserved talent pools

Stackable Credentials → Degrees

Every credential earned counts toward the next one. No dead ends.



"A company hires them, we do the training. Then they stay — or stack toward an associate's, a bachelor's."

It Takes a Coalition

No university — and no employer — solves this alone. Examples from our work:

BioConnects New England

Multi-state coalition (MA, ME, RI)

Building a biomanufacturing cluster that includes communities historically left out of biotech. EDA Build Back Better finalist.

Center for Bioinnovation

Northeastern, Burlington campus

Bridges academic research and industry — analytics, training, and educational pathways from middle school to graduate study.

BATL

Biopharm Analysis & Training Lab

Drug analytics, regulatory training, and a real GMP-adjacent learning environment for technicians and scientists.

NIBRT (Ireland)

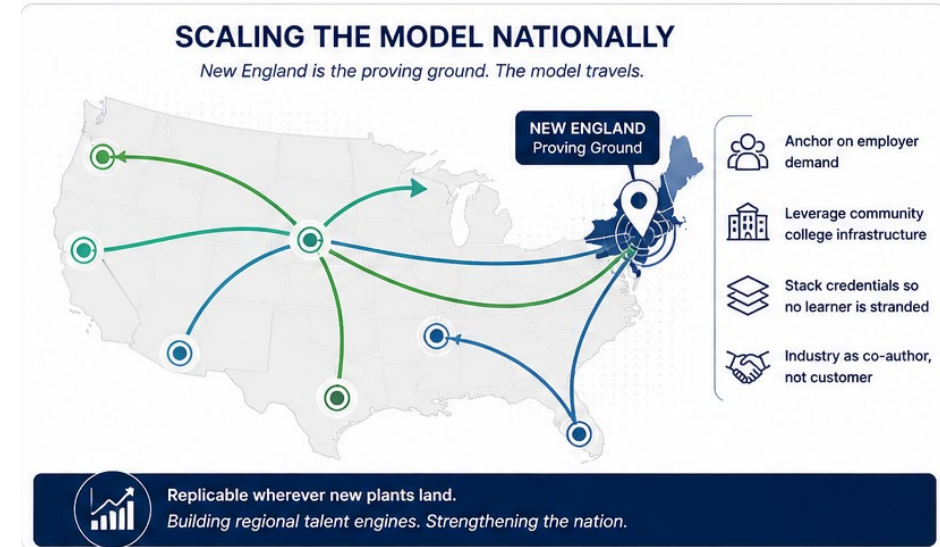
International partner

Bioprocessing training at world scale. We co-deliver curriculum and exchange best practice across the Atlantic.

Plus: MassBioEd, MLSC, community colleges, school districts, and 30+ industry partners.

Scaling the Model Nationally

New England is the proving ground. Here is how the model travels.



1

Anchor on a regional employer demand signal

Start where plants are being announced. Co-design curriculum with hiring managers, not catalog committees.

2

Plug into existing community-college infrastructure

Don't build new institutions. Use the ones that already serve the workforce — at scale, at low cost.

3

Stack credentials so no learner is stranded

A certificate must lead somewhere. Apprenticeship hours must transfer. Make every step count.

4

Treat industry as a co-author, not a customer

Equipment loans, instructor exchanges, paid internships. Employers get hired-ready talent; learners get a paycheck.

Same playbook now extending to Northeastern's Oakland campus — and replicable wherever new plants land.

Discussion

Talent is the binding constraint.

Birth-to-earth pathways are how we relax it.

QUESTIONS TO CONSIDER

- How do we time workforce build-up to plant commissioning — without overshooting demand?
- What does "good" credentialing look like for a brand-new region with no biotech history?
- Where should industry invest its workforce dollars first — outreach, training, or retention?