



SEE THE SYSTEM:

Reflections on Career Pathways
Implementation in the United States
and How We Can Do Better

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Executive Summary



The moral and economic imperative of ensuring students are prepared for successful careers is clearer now than ever. By 2031, experts predict that almost three-quarters of jobs will require more than a high school diploma. As our economy enters the age of artificial intelligence (AI), America's education system is increasingly recognizing the strategic importance of "career pathways" programs that empower students to make a successful transition from high school to postsecondary education to a fulfilling career. A growing body of evidence shows that career pathways programs lead to improved high school, postsecondary, and employment outcomes.

To be successful, a career pathways approach means that K-12, higher education, employers, government, and nonprofits need to work together as a coherent system. Unless we are collectively able to see the whole system, implementation can be very challenging. Well-meaning policy reforms get lost in translation and struggle to influence practice on the ground. Promising innovations find it impossible to achieve scale or sustainability. Organizations not used to collaborating find themselves working at cross-purposes.

At Delivery Associates, our work over the past several years has enabled us to experience the challenge of supporting implementation of career pathways programs firsthand. We have witnessed what is possible when those leading implementation are supported to see the whole system and answer key questions about what it would take to deliver improved outcomes for students.



Based on our experience, this paper identifies seven key lessons to strengthen pathways implementation in the United States:

LESSON
01

To scale pathways with impact, you have to “see the system.” It is impossible to scale impact unless you have a clear picture of the public systems charged with delivering that impact, how those systems are working now, and how they will need to work differently. State leaders and funders should align on what they see as the primary model for leading pathways implementation in the state, the role different actors are expected to play in driving change, how the “delivery chain” will flex to the context of different regions and localities, and the infrastructure needed to enable that.

LESSON
02

Once you see the whole system, it’s easier to define what success looks like at scale. By articulating the scale and impact needed to meet current and future economic needs, state governments can make it much easier for partners to align on measurable goals for local and regional pathways efforts.

LESSON
03

It’s impossible to separate the bottom-up of scaling innovation from the top-down of state policy, so don’t try. “Pilot first, scale later” approaches risk starting small and staying small, so innovators must be supported to chart their path to systemic scale from the start. And state-level policy reforms can only succeed where they are informed by a practical understanding of what it will take to implement change on the ground.

LESSON
04

Data abounds, but intentional data use is often lacking. Creating greater alignment on the most important metrics for pathways programs to collect and report has the potential to reduce administrative load, freeing implementation leaders up to be more intentional in how they use data to drive impact.

LESSON
05

Employer engagement requires strategic co-ownership, not just collaboration. Pathways programs that are most successful in engaging employers have found ways to co-create shared, strategic value. Policymakers should consider how incentives and requirements for K-12 and higher education partners enhance, not hinder, their ability to find shared value with employers.

LESSON
06

Because pathways intermediaries come in many forms, they benefit from reflecting on their capacity to deliver. By ensuring that leaders implementing pathways have opportunities for structured reflection, policymakers and funders can create informed demand for capacity building supports. This is better than pushing out one-size-fits-all models of support or passively disseminating resources from the center.

LESSON
07

Innovative tech could be as impactful in connecting the system as it could be in the classroom or the advisor’s office. Innovative AI tools that free up staff time to focus on program quality and human relationships, or which reduce the “friction” involved in sharing information between partners, have the potential to make pathways programs more effective and improve value for money.



Through sharing these lessons, our aim is to assist policymakers, funders, and other stakeholders involved in the ongoing effort to expand and strengthen high-quality career pathways in the United States.

Underlying all these lessons is a central realization that “career pathways” is not a policy to be enacted, nor a single program model to be adopted. It represents a fundamental shift in expectations about how governments, educators, businesses, and civil society organizations must work together as a single, coherent system.

If leaders can be supported to see the system, we firmly believe they can unlock the multi-level, multi-sector collaboration needed to realize the true potential of career pathways and meet the imperative America is facing.

Introduction



The idea that elementary and secondary education should prepare young people for the workplace has been a feature of American society for over 200 years, with the concept we now call Career Technical Education (CTE) enshrined in federal law from 1917 onward.¹ But in the last few years, the moral and economic imperative of ensuring students are prepared for successful careers has become clearer than ever. In the post-pandemic era, the United States faces the paradox of persistent youth unemployment² combined with a skills shortage.³ By 2031, experts predict that almost three-quarters of jobs will require more than a high school diploma.⁴ And although artificial intelligence (AI) is expected to have significant impacts on the labor market, there are indications that it is actually increasing demand for advanced-skill roles⁵ and underlining the importance of structured technical training for early-career employees.⁶

At the same time, CTE has evolved. The “career pathways” movement represents the culmination of a decades-long shift away from seeing CTE as a route for only some students, into a specific job role, as an alternative to college. There is growing recognition that all students deserve the opportunity to successfully transition from high school to postsecondary education and into a fulfilling career in which they can continue to learn, grow, and achieve economic mobility over their lifetime. Career pathways programs typically combine career-connected learning experiences, opportunities to earn postsecondary credit and/or industry certifications while at high school, and advisers to help students navigate choices and transitions. Through these programs, students are supported to explore which career they might want to choose, and select carefully sequenced programs of study—complementing rigorous instruction in core subjects—that build toward a credential that will be relevant to a high-wage, high-demand career. A growing body of evidence shows that career pathways programs lead to improved high school, postsecondary, and employment outcomes.⁷

To be successful, a career pathways approach means that K-12 education, higher education, employers, and other governmental, private, and nonprofit sector stakeholders need to work

¹ ACTE. (2024). History of CTE – ACTE online. <https://www.acteonline.org/history-of-cte/>

² ILO. (2025). Unemployment, youth total (% of total labor force ages 15–24) (modeled ILO estimate) – United States. World Bank Open Data. https://data.worldbank.org/indicator/SLUEM1524.ZS?most_recent_value_desc=true&locations=US

³ Melhorn, S. F. (2025, May 14). Understanding America’s labor shortage. U.S. Chamber of Commerce. <https://www.uschamber.com/workforce/understanding-americas-labor-shortage>

⁴ Carnevale et al. (2023). After everything: Projections of jobs, education, and training requirements through 2031. Georgetown University Center on Education and the Workforce. <https://cew.georgetown.edu/wp-content/uploads/Projections2031-National-Report.pdf>

⁵ Wood et al. (2025, June 3). AI jobs barometer. PwC. <https://www.pwc.com/gx/en/issues/artificial-intelligence/ai-jobs-barometer.html>

⁶ Leopold, T. (2025, April 30). How AI is reshaping the career ladder, and other trends in jobs and skills on Labour Day. World Economic Forum. <https://www.weforum.org/stories/2025/04/ai-jobs-international-workers-day/>

⁷ Lindsay et al. (2024). What we know about the impact of career and technical education: A systematic review of the research. <https://cteresearchnetwork.org/resources/2024-systematic-review>



together as a coherent system. Unless we are collectively able to see these actors as a whole system, implementation can be very challenging. Well-meaning policy reforms get lost in translation and struggle to influence practice on the ground. Promising innovations find it impossible to achieve scale or sustainability. Organizations not used to collaborating find themselves working at cross-purposes.

At Delivery Associates (DA), our work over the past several years has enabled us to experience not only the challenge of supporting pathways implementation firsthand, but also what is possible when implementation leaders are supported to see the whole system and answer key questions about what it would take to deliver improved outcomes for students. So far, we have had the privilege of providing technical assistance to over 100 career pathways efforts, in particular through our work with:

- The Accelerate ED initiative, funded by the Bill & Melinda Gates Foundation—a national network of multi-stakeholder regional teams that are implementing accelerated pathways leading to high-value degrees and careers in their local economies.
- Bloomberg Philanthropies CTE portfolio, for which DA designed a measurement and evaluation system spanning 25 pathways intermediaries in 17 states and provided capacity building for grantee organizations.
- The Community Funding Accelerator, which has helped over three dozen underserved communities seek competitive federal grants and implement innovative education and workforce solutions.
- Multiple **state governments** like Indiana, Colorado, and North Carolina, which are leading efforts to design pathways programs that enable career-connected learning, advising, and dual enrollment/credit opportunities.
- Dozens of **pathways intermediaries**, for whom DA has helped build capacity for setting goals, progress monitoring, and continuously improving delivery efforts.

Often our support for pathways efforts has involved working in depth with individual teams to help them self-assess and then strengthen the systems, behaviors, and practices needed to deliver impact for students at scale. We have also facilitated peer-learning across small cohorts of “pathways intermediaries”—the organizations that play a vital role in coordinating pathways work at a local, regional, or state level. In both cases, the nature of this work has enabled us to learn a lot about how pathways programs are implemented in practice, the nature of challenges they face, and how to help.

This paper sets out **seven key lessons** drawn from our work in the career pathways space. Through sharing these lessons, we aim to assist policymakers, funders, and other stakeholders involved in the ongoing effort to expand and strengthen high-quality career pathways in the United States. If leaders can see the system, we firmly believe they can unlock the multi-level, multi-sector collaboration needed to realize the true potential of career pathways and meet the imperative America is facing.

These reflections and learnings are informed by excellent research and thinking that already exists. Notably, Education Strategy Group’s Keys to Scale report⁸ explores how to grow the

⁸ Education Strategy Group. (2024). *Keys to scale: How to grow the impact of education-to-career pathway intermediaries*. <https://www.accelerate-ed.org/wp-content/uploads/2024/10/Keys-to-Scale-FINAL.pdf>



impact of pathways intermediaries, and their recent *Accelerating All Students* report⁹ provides a pathways policy playbook for state leaders. We are also indebted to Paul Herdman of the Rodel Foundation, whose *Global Lessons* paper¹⁰ provides an international perspective based on his comparative research in five countries on behalf of the Organisation for Economic Co-operation and Development (OECD). We hope that DA's implementation-focused lessons complement and add an additional dimension to this important discourse.

⁹ Education Strategy Group. (2025). *Accelerating all students: A pathways policy playbook for state leaders*. <https://edstrategy.org/resource/accelerating-all-students/>

¹⁰ Herdman, P. (2025). *Global lessons: Career pathways in a rapidly changing world*. Rodel Foundation. <https://rodelde.org/wp-content/uploads/2025/05/oecd-summary-final.pdf>

7 Key Lessons to Strengthen Pathways Implementation



LESSON 01

To scale pathways with impact, you have to “see the system.”

It is impossible to scale impact unless you have a clear picture of the public systems charged with delivering that impact, how those systems are working now, and how they will need to work differently. In our engagements with state leaders, we’ve seen that the most successful pathways efforts are led by those who intentionally build systems—not just launch programs. In one state, we supported senior leaders to define a statewide strategy that aligned the career pathways system to the needs of high-growth industries. This involved clarifying cross-agency priorities, mapping the chain of actors from students to system leadership, and identifying where coordination, accountability, and feedback loops needed to be strengthened. Leadership made the difference—not just in setting a bold vision, but in aligning partners, organizing delivery infrastructure, and unlocking the policy and resource levers needed to sustain momentum.

Scaling doesn’t happen by accident; it requires clear ownership, coordinated execution, and the ability to see and steer the whole system. Without that, even strong programs remain disconnected efforts, unlikely to achieve impact at scale. Because pathways work depends on collective action among diverse groups of stakeholders, there must be dedicated leadership driving and orchestrating the effort across partners. This is true whether you’re scaling a pathways program within a single community or across many communities, but it poses some particularly important questions for state leaders and funders making multiple investments within a state.

What does collective action for pathways implementation look like in your state? Is it clear where responsibilities sit and what infrastructure (e.g., data infrastructure, credentialing frameworks, or facilitated communities of practice) is needed to enable effective stakeholder collaboration? How will roles and relationships look different across regions and localities, and does your approach take that into account?



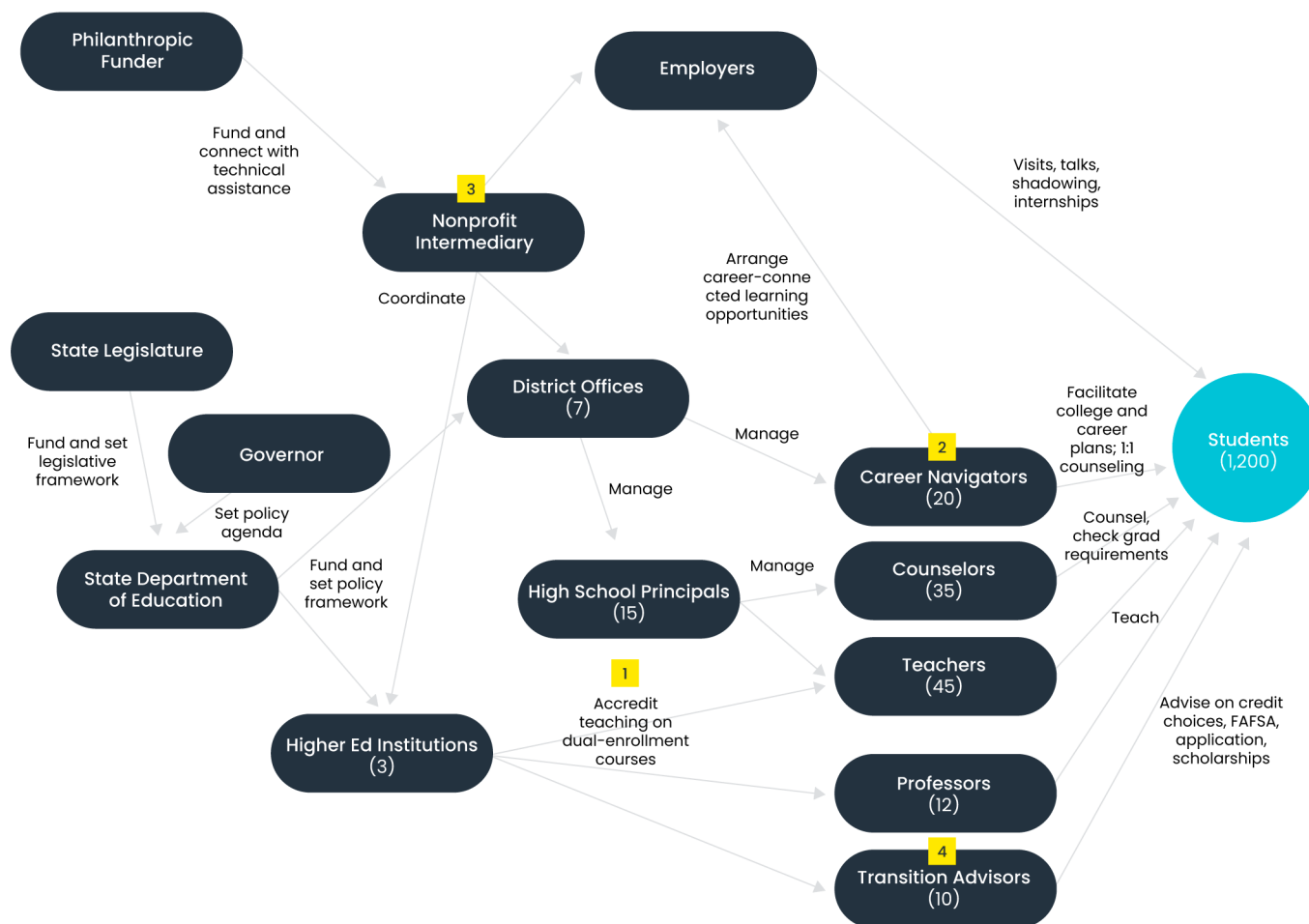
Even more fundamentally, state leaders and funders should consider what they see as the primary model for leading pathways implementation in the state. This could include:

- Coordination by a state agency (or a formal collaboration of agencies)
- Coordination by a state-level intermediary organization
- A statewide policy and funding framework coordinated regionally by intermediaries, workforce boards, or community college systems
- A bottom-up approach based on incentivizing innovation by local school districts or intermediaries
- A franchise/replication model based on incentivizing the spread of a few proven models across the state

Each model implies a different set of policy choices and enabling actions to help it succeed, and each comes with its own set of risks to manage. To be clear, the lesson we draw from our experience is not that statewide pathways implementation needs to be led from the top down, nor that state government needs to drive the day-to-day implementation effort—that just wouldn't work in the context of some states. But pathways programs rely on public systems to deliver impact, and state governments set the policy and funding conditions within which those systems operate, so it is important that state leaders are clear on both: (a) which model for leading pathways implementation they have decided to pursue; and (b) how state government will use its levers to create the conditions for that model to succeed. In short, to operationalize any model for scaling impact in a system, first you have to see the system.

Our single best practical tool for seeing the system—and a central concept in [Deliverology](#)®—is what we at Delivery Associates call the “delivery chain.” This is the chain of individuals and organizations, starting with the student and working back to the top leadership of the system, and the relationships between those actors. As part of our technical assistance, we often facilitate teams literally to draw their delivery chain, with a premium on capturing the most important actors and relationships rather than brainstorming every possible stakeholder. The point of this exercise is not to draw a diagram. Instead, it is to guide the process of seeing the actors, their roles, and how they contribute to realizing the vision. Visualizing the delivery chain is also an invaluable way of identifying risks that need to be managed, relationships that need to be strengthened, capacity that needs to be built, and information and feedback flows that need to be established or improved.

Illustrative example of how drawing the delivery chain can highlight implementation risks



Identified risks for scale and impact

- | | |
|--|---|
| <p>1 State policy incentivizes higher ed to accredit high school teachers for dual enrollment courses, but does not incentivize districts to release them for training</p> <p>2 The largest districts may need multiple Career Navigators; in smaller districts this role may be fractional and sit at a regional Education Service Center</p> | <p>3 Lack of employer engagement capacity in districts means a lot rests on relationships and goodwill with intermediary organizations</p> <p>4 No feedback loop between high school-based counseling staff and college-based transition advisers</p> |
|--|---|



Working with intermediaries to draw their delivery chains highlighted for us that the approach of developing and trying to scale local pathways programs has sometimes resulted in models that are “too bespoke,” and too hard to scale across districts and communities without visualizing the ways the delivery chain can flex.

Nevertheless, if you see the system, it is possible to overcome this challenge. For example, Learn to Earn Dayton, in Ohio, is scaling its Pathways for Accelerated College and Career Experiences (PACCE) program from a pilot site in one medium-sized suburban district to seven new districts, including both one-high-school rural districts and the largest urban school system in the state. In planning this scaling and expansion, Learn to Earn Dayton used delivery chain analysis to identify which aspects of their pilot model would transfer easily and which needed to adapt to contextual complexities. They realized that in large urban settings the program could leverage additional wraparound supports from the higher concentration of youth-serving nonprofit partners, whereas small rural districts would need to collaborate with the regional educational assets (e.g., the Montgomery County Educational Service Center) to create a shared Career Navigator role, working across several high schools.

Career Navigators, or similar roles, are a case in point of the value of delivery chain analysis. Career pathways models often rely on the creation of innovative roles that go beyond traditional definitions of advising, counseling, or administration. A Career Navigator may combine advising for individual students with organizing career-connected learning activities for whole student cohorts, awareness raising among teachers and parents, and liaising with employers and higher education institutions. Career Navigators may be located in a school district office, on a high school or community college campus, or in a community-based organization, and their employer may be different from their physical location. Working through the funding, policy, and operational questions that allow a Career Navigator role to be created—and to do their job effectively—is an essential part of planning for scale.

In addition to delivery chain analysis, another effective practice we have seen is the conscious curation of a sufficiently broad set of partnerships—what we sometimes call a “guiding coalition.” By identifying and convening key people from across the sectors and organizations involved in pathways implementation, leaders give themselves the best chance of generating the momentum needed to create, scale, and sustain these programs. Members of the guiding coalition (whether or not they are formally designated as such) can act as important critical friends to an implementation effort, enabling leaders to see and hear more clearly how implementation is going along the delivery chain, and potentially advocating on behalf of the effort in the constituencies with which they have influence.

At the state level, a guiding coalition can play the crucial role of ensuring that stakeholders have a shared understanding of what the model for leading pathways implementation is in that state. For example, [Indiana’s i-Lab](#) brings together leaders from K–12, postsecondary, industry, workforce, and philanthropy to accelerate high-quality youth apprenticeships across the state. Supported by the Richard M. Fairbanks Foundation, i-Lab facilitates cross-sector collaboration, funds innovation, and serves as a critical connective tissue between local pilots and statewide policy goals. By creating a shared space for problem-solving and strategic alignment, i-Lab has helped ensure coherence and collective ownership of Indiana’s plan to scale apprenticeships.

If local leaders expect more guidance and support from state government, but state leaders are expecting pathways programs to scale organically from the local level, we have a problem. A



guiding coalition can help avoid situations where partners are working at cross-purposes.

LESSON
02

Once you see the whole system, it's easier to define what success looks like at scale.

One of the first questions we ask when providing technical assistance is, “What are you trying to do?” or, to put it another way, “What does success look like?” With career pathways efforts, the answer is usually to scale an existing or putative pathways program so that it impacts more students. Usually, it is fairly straightforward to quantify what good progress would look like in a year or two years. But when it comes to articulating exactly what impact, and at what scale, would represent success in five or even ten years’ time, this proves a harder question to answer.

Why? Because often the organizations leading these efforts are pathways intermediaries—who tend to be the main recipients of philanthropic funding in the pathways space—and while intermediaries are uniquely placed to facilitate innovation, they are typically small, nongovernmental organizations. So, although they might be able to say how much they might want to scale their program, they may not always feel it is fully “their place” to define success for the education system and the economy as a whole. Should a given dual credit pathways program be available in every high school? What would be a reasonable contribution from given pathways programs toward closing a key skills gap in a growth industry? And who gets to decide? On top of this, intermediaries face the challenge of not wanting to overpromise—if a program has only been funded for two or three years, intermediaries can feel inhibited from engaging partners in a conversation about a vision for success in ten years.

To address this challenge, we invite intermediaries to articulate a long-term ambition for impact and scale that strikes a balance between being:

- **Measurable:** Do we have access to the data we need to monitor progress toward the ambition, or could we get it within the next year?
- **Moveable:** Can we realistically achieve this ambition within the next five to ten years, drawing on the resources available to us and our partners/networks (or new ones we believe we could develop)?
- **Meaningful:** Would achieving this ambition represent real, sustained change for our students and community, and resonate with our key stakeholders?

Once intermediaries and their partners start to have this conversation, and give themselves permission to be ambitious about their collective impact without fixating on finding the “perfect” goal, they quickly come to shared insights and realizations about the actions needed to create conditions for scale.¹¹ In short, they are able to see, and articulate, where their program fits in relation to the needs of the whole system.

One particularly strong example we saw through our work with Accelerate ED was the Massachusetts Alliance for Early College’s (MA4EC) ambition for their Early College Promise program—an accelerated program in which students remain enrolled in high school for a 13th year, accumulating enough credits to earn an associate degree. They set a five-year goal of 1,000 students participating in the program annually, which—if achieved—will increase associate degree attainment in Massachusetts by 15% annually and make a significant contribution to

¹¹For teams that want to facilitate this conversation themselves, we have developed this [guide](#) and [worksheet](#).



MA4EC's wider goal of closing a quarter of the state-level college success equity gap.

However, funders should also consider whether intermediaries are always best placed to lead the conversation about scale entirely on their own. As Paul Herdman has argued, catalytic investments should be aligned to the goals of longer-term public sector investments.¹² Many states have an overarching goal for postsecondary credential attainment, and some—including Massachusetts—have expressed an ambition to increase the number of students completing high-quality career pathways. But if state governments were to set an even clearer direction for the scale and impact of career pathways programs needed to meet current and future economic needs, that could make the task of aligning local and regional partners behind measurable goals for specific pathways efforts that much easier.

LESSON
03

It's impossible to separate the bottom-up of scaling innovation from the top-down of state policy, so don't try.

We frequently hear two parallel frustrations expressed by policymakers and funders. The first is that promising innovations in career pathways tend to start small and stay small, never reaching sufficient scale for their impact to be felt at a system level. The second is that hard-won policy reforms don't achieve the expected impact in the field—a funding incentive, for example, is introduced but not enough districts adopt the practices which would enable them to benefit from it.

Philanthropically funded—or sometimes state-funded—pilots have been a major source of innovation in career pathways. But an approach premised on the idea that we can “pilot first and scale later” involves an inherent challenge. If a pathways program takes a year to plan, and starts enrolling students in 11th grade, it could be six years from the inception of the program before we have data on the postsecondary and career destinations of the students participating in the pilot cohort. Yet it is very unusual for a pilot program to be funded for more than two or three years. As such, many pilots reach the end of their funding period before they have had a chance to evidence their impact and make the case for sustainable funding.

Conversely, we find that many states have introduced policy reforms that enable funding and other incentives to flow to pathways programs but have not fully worked through all the challenges along their delivery chain that would enable students to benefit from these reforms statewide. For example, in many states we saw scaling impeded by bottlenecks in the supply of credentialed educators to teach on pathways programs or the availability of career-connected learning opportunities, particularly in rural or hard-to-reach areas. In other contexts, we saw a tension between increasing incentives around work-based learning with how that might impact degree programs at institutions of higher education.

We would argue that neither a bottom-up nor a top-down approach is likely to deliver sufficient scale. Instead, a number of things need to happen in parallel:

- Intermediaries and others piloting new pathways programs need to chart their path to systemic scale from the very beginning. This means they need access to thought-partnership and guidance from policymakers or external experts so that they can

¹²Herdman, P. (2025). Full citation above.



strategize for long-term sustainability while they are still in the throes of implementing a pilot.

- State policy reforms should be informed by a practical understanding of what it will take to implement change on the ground—including capacity, relationship and communications needs, and the alignment of local and institutional incentives via policy and funding.
- Everyone involved in supporting regional and local leaders in implementing pathways should identify ways of helping them navigate the funding landscape and advocate for policies that enable effective implementation.

The development of playbooks for planning an approach to sustainable funding, conceptualizing models for delivery, addressing common questions, and identifying strategies that are viable in context have the potential to be very powerful in helping pathways implementation leaders see the system and their route to sustainability within it.

Lost in translation: What happens when top-down and bottom-up efforts don't connect

In one state, we saw examples of districts that wanted to take advantage of a new stream of pathways funding but were unable to do so because of the long lead time involved in getting their plans approved by the relevant state agency. These delays prevented districts from including the expanded pathways work in their internal fiscal planning cycles.

In another state, a pathways intermediary running a pilot program had secured state funding, paid to districts via a K-12 funding stream and then used to fund dual-enrollment at community colleges. The intermediary told us how they were concerned that plans for universal free community college—while very welcome—risked the unintended consequence of removing an important incentive for colleges to collaborate with high schools to ensure a smooth transition for students from underserved groups.

In a third state, we heard that successful advocacy by pathways intermediaries had secured multi-million-dollar state investments in tuition assistance and teacher stipends for pathways programs. However, the absence of a coordinated implementation strategy at the state level meant that a large portion of the funds went unspent and were ultimately reclaimed by the legislature.

In a fourth state, we saw how even an ambitious package of legislative and policy change to create the conditions for pathways innovation can struggle to scale adoption at the local level. We heard from one regional pathways intermediary in the state that—although they were excited about the potential of the new reforms—they were not yet seeing the policy change result in increased demand for innovative pathways programs. In fact, they were concerned that the task of adapting to the new policy might be overwhelming school administrators and, paradoxically, making them less open to exploring new external partnerships.

**LESSON
04****Data abounds, but intentional data use is often lacking.**

Although many excellent resources have been published on data and metrics in the career pathways space,¹³ we've found that leaders implementing career pathways struggle to use data for the full range of measurement, evaluation, and learning purposes. This challenge takes a number of forms, notably:

- Collecting key data for external reporting and program evaluation (student enrollment/participation, credit accumulation, pathway and credential completion), but neglecting the data needed for continuous improvement (student and employer perceptions, quality and frequency of advising interactions).
- Accepting a false binary between hard quantitative data and “vibes,” rather than embracing the pragmatic middle ground of more robust qualitative feedback loops.
- Overreliance on long-term formal evaluation, rather than gathering the sort of intermediate outcome data needed to demonstrate early impact—which is necessary for scaling programs to new schools and communities, and for making the case for sustainable funding.
- Allowing the lack of state longitudinal data systems to become an excuse for not establishing any kind of mechanism for evaluating students' postsecondary and workforce destinations.
- Collecting significant volumes of data but struggling to find the time to use it in regular, action-focused conversations about implementation progress.

Many of these challenges are symptomatic of the extent to which leaders implementing career pathways are pulled in different directions by different stakeholders. Different funders require pathways programs to report on different metrics, which in turn can differ from the metrics that K-12 and higher education partners have to report for their own accountability purposes. By contrast, employers or policymakers may find some other metric most persuasive as a reason to support the program. Moves to create greater alignment on the most important metrics for pathways programs to collect and report have the potential to reduce the administrative load on those leading implementation, freeing them up to be more intentional in how they use data to drive impact. We welcome the ongoing work on the Commission on Purposeful Pathways in this regard.

In pathways implementation leaders' efforts to be more intentional in using data, we often saw how they benefited from gaining greater clarity on their overall theory of change. Getting clear on the main ways in which a program was designed to improve students' ultimate postsecondary and career outcomes, and the inputs, outputs, and intermediate outcomes expected along the way, prompted rich and valuable conversations about what was most important to measure, what could already be measured, and what couldn't. This then allowed leaders to make pragmatic decisions about whether to invest in capturing or gathering key data that were missing from their current picture of progress and impact.

¹³ For example: Advance CTE. (2021). *Career readiness metrics framework*. https://careertech.org/wp-content/uploads/2023/01/CR_Metrics_Framework_2021_0.pdf; Alliance for Quality Career Pathways (2013). *A framework for measuring career pathways innovation: A working paper*. <https://www.clasp.org/sites/default/files/public/resources-and-publications/files/CLASP-AQCP-Metrics-Feb-2013.pdf>



Making intentional use of data to understand and drive impact

The **Education Systems Center** at Northern Illinois University (EdSystems) is piloting an innovative approach to monitoring the outcomes of students who participate in its manufacturing and information technology pathways programs. Working with colleagues in the Interactive Illinois Report Cards team—which manages both the state’s PreK-12 student data warehouse and the interagency Illinois Longitudinal Data System (ILDS)—EdSystems has established standardized data sharing agreements with participating school districts, allowing for a limited set of student information to be matched across the two datasets. This will enable analysis of the characteristics and outcomes of students participating in the pathways, including postsecondary and employment outcomes. EdSystems plans to create Tableau dashboards for each of the districts to support evaluation and improvement of their manufacturing pathways programs.

ElevateEdAZ, an initiative of the Greater Phoenix Chamber Foundation, currently supports accelerated pathways programming in 21 high schools across five school districts and a charter network within the Greater Phoenix region. The ElevateEdAZ team monitors real-time progress using a Power BI dashboard, which is regularly updated to track key outputs (like job shadowing participation) and intermediate outcomes (like credential attainment). The dashboard is used to support regular conversations with partner schools and districts, and to ensure data-informed continuous improvement at the program level. ElevateEdAZ’s data sharing agreement with Maricopa Community Colleges also allows for the use of real-time dual enrollment data to identify and address systemic issues. Early in the program, this dual enrollment data revealed which courses had low enrollment and highlighted key reasons for student drop-offs, such as tuition-related obstacles. With these insights, ElevateEdAZ implemented targeted interventions, including tuition assistance advocacy and earlier enrollment timelines in schools. These efforts contributed to a 15% increase in dual enrollment participation in just one year.

Career Connect Texas (CCTX), a program of Educate Texas at Communities Foundation of Texas, established a regional workforce framework to expand access to career-connected learning and job opportunities for young people, especially those from underserved communities. In 2021, responding to the call from community college leaders and workforce organizations for better insight into regional workforce trends, Educate Texas launched a data dashboard that integrated state and federal labor and education training data. This tool empowered workforce boards, employers, and educational institutions to analyze labor market trends across multiple geographies—including metro areas, counties, workforce development regions, and educational service centers. By enabling data-informed decision-making and aligning education pathways with labor market needs, the CCTX dashboard helped lay the groundwork for tools now available through state and other partners.

**LESSON
05****Employer engagement requires strategic co-ownership, not just collaboration.**

Although all types of partners needed for an effective pathways effort have their own institutional perspectives, employers are unique as a group. Ultimately, they are businesses—usually private, for-profit businesses—with a job to do; their engagement in pathways work is dependent on establishing a legitimate business interest, rather than support for a policy agenda. As such, employers are often hesitant to commit resources unless they see immediate, tangible benefits in hiring outcomes, retention rates, and cost savings. Challenges in persuading employers to invest their time in pathway design or in facilitating work-based learning opportunities are commonly cited as a problem in implementation efforts.

The pathways programs we have seen that are most successful in engaging employers have found ways to co-create shared, strategic value for employers, and to articulate that value proposition effectively to prospective partners. Policymakers should consider how they can ensure that incentives and requirements for K-12 and higher education partners implementing pathways programs do not work against their ability to find shared value with employers. Funders should also consider how they can incentivize deeper employer involvement in pathways initiatives—for example, by underwriting costs for shared infrastructure, like tools for co-designed training, or offering performance-based grants tied to employer outcomes.

Seeing employers as part of the system

Propel America is a unique workforce development model that prepares young people for accelerated, career-connected pathways into high-demand healthcare jobs like medical assistants and sterile processing technicians. Propel's deep network of healthcare employers underpins its ability to align training with real-world demands. Propel's Employer Advisory Team serves as a vital feedback loop, meeting quarterly to refine hiring and retention strategies. The team uses an advisory framework that highlights value propositions for employers that go beyond immediate hiring needs and foster co-investment strategies where employers share ownership of program design, delivery, and outcomes.

Rodel is helping to reshape how Delaware prepares students for the workforce by supporting innovative, school-based apprenticeship pathways. By expanding dual enrollment to include adult education courses in addition to college courses, these models give students earlier access to real-world training and industry-recognized credentials. This approach compresses traditional timelines for students, and provides employers with a skilled, credentialed workforce faster than conventional pathways. By embedding labor market data into program design, Rodel works to align learning with evolving industry needs. Employers play a hands-on role in shaping these programs, which substantially reduces employers' onboarding and training costs and helps to build a future workforce that is more prepared, more diverse, and ready to contribute on day one.

YouthForce NOLA has developed a comprehensive career-connected learning model, which is particularly innovative in the way it centers "soft skills" valued by employers—such



as communication, adaptability, and problem-solving—alongside technical knowledge. By working with over 100 local businesses through YouthForce NOLA's internship program, students apply these skills in real-world environments, receiving structured feedback and mentorship to refine their professional abilities. By collaborating with YouthForce, businesses invest in their future workforce, ensuring a pipeline of skilled and prepared graduates ready to meet industry demands. The organization reports that 89% of employers rate their high school interns as either “well-prepared” or “exceptionally prepared” compared to other entry-level hires.

LESSON 06

Because pathways intermediaries come in many forms, they benefit from reflecting on their capacity to deliver.

Many pathways intermediaries are education or youth-serving nonprofits, but some are hosted within higher education or K-12 institutions, regional workforce boards, or even chambers of commerce. All intermediaries come to the table with their own strengths and “comfort zones” and, by contrast, their own weaknesses and blind spots. An organization with a background in state-level advocacy may struggle when it comes to monitoring quality of implementation on the ground; an organization historically focused on dual-credit programming may have blind spots around advising or career-connected learning.

The fact that intermediaries build out from what they know is completely understandable, and, in many ways, a good thing. However, we’ve found through our work that intermediaries benefit greatly from being pushed to think outside their comfort zones through structured reflection. One of the most well-received tools we deployed as part of our work with Accelerate ED teams was the Ready-to-Deliver diagnostic,¹⁴ which enabled intermediaries to assess their implementation capacity against a 10-element framework and identify the muscles they needed to strengthen.

Elements of the Ready-to-Deliver Diagnostic Framework



Delivery Plan

- 1 Define the ambition:** How clear and meaningful a definition of success are we working toward?
- 2 Plan for implementation:** How clear and realistic is the implementation plan to achieve the ambition?
- 3 Plot the path to scale:** Have the ambition and associated metrics been translated to concrete end targets and trajectories?



Data and Evidence

- 4 Understand progress:** Does the program have the data it needs to understand progress?
- 5 Evaluate impact:** How well is the implementation team able to understand the impact of the program for decision-making and evaluation purposes?
- 6 Use data to drive performance:** Are there regular data-driven conversations that allow for reflection and problem solving?



People and Relationships

- 7 Secure program governance:** Does the team have strong arrangements for managing implementation and engaging key stakeholders in support of the ambition?
- 8 Visualize the delivery chain:** How well does the implementation team understand the chain of actors through which implementation must occur?
- 9 Build capacity for scale:** To what degree is building implementation capacity a priority for the implementation team and an ongoing endeavor?
- 10 Communicate and advocate for scale:** How impactfully does the program team communicate?

¹⁴ For teams that want to complete the Ready-to-Deliver diagnostic themselves, we have developed [this self-facilitation guide](#).



Assessing capacity to deliver is not an indication that a pathways intermediary is not already performing well. In fact, we developed the Ready-to-Deliver diagnostic for intermediaries that had already been identified as leaders in their field. Rather, this kind of reflection is an acknowledgment that seeing the system, your place within it, and how you can optimize your ability to deliver impact for students is complex work and deserves dedicated time. As one intermediary leader put it: “This process helped our team step back and take stock of progress, impact, opportunities, and challenges ... we have further leveraged the outcomes of our self-assessment, and it is a through-line for all of our [program] work this year. It is something we regularly come back to.” Another intermediary leader commented that the diagnostic had allowed their team to “better understand the ways in which organizational strengths could be leveraged and programmatic weaknesses could be addressed ... [and] better define the critical next steps in creating next generation pathways to in-demand careers for students.”

We encourage policymakers and funders to consider the capacities needed for effective implementation in their context and to ensure that key actors in their system, including pathways intermediaries, are given opportunities for structured reflection. The effect of doing so is to create informed demand for capacity building supports from their field, rather than relying on pushing out one-size-fits-all models of support or passively disseminating resources from the center.

LESSON 07

Innovative tech could be as impactful in connecting the system as it could be in the classroom or the advisor’s office.

AI could have a potentially transformative impact on the frontline delivery of career pathways work. There is already a lively discussion about the potential application of AI in CTE classrooms¹⁵ and in increasing the impact of advising.¹⁶

But what about the potential impact for those leading the implementation of career pathways efforts? How can AI help them see, coordinate, build, and influence the system? As noted above, much of the hard work involved in coordinating career pathways efforts falls on relatively small teams or individuals in intermediary organizations, school districts, higher education institutions, or branches of state government. We’ve found that leaders of pathways implementation face a challenge in carving out time for strategic thinking amid the day-to-day business of running a program. And even when leaders are able to carve out this time, the task of synthesizing the information they need from different stakeholders, across multiple sectors, can be extremely onerous.

Innovative AI tools that free up staff time to focus on program quality and human relationships, or which reduce the “friction” involved in sharing information between partners, have the potential to make pathways programs more effective and improve value for money. For example, AI applications could help leaders:

- Synthesize labor market data to quickly identify high-wage, high-demand pathways with the highest potential in a given region

¹⁵ Ng, A. (2024, December 5). *Could AI transform Career-Technical Education?* EdWeek. <https://marketbrief.edweek.org/education-market/could-ai-transform-career-technical-education/2024/12>

¹⁶ Mowreader, A. (2004, September 5). *Generative AI can address advising challenges.* Inside Higher Ed. <https://www.insidehighered.com/news/student-success/academic-life/2024/09/05/survey-college-advisers-could-benefit-ai-assistance>



- Problem-solve timetabling challenges to enable students to juggle on-campus learning, work-based learning, and other commitments
- Extract insights from qualitative student feedback
- Analyze funding opportunities through federal, state, and private grants and braiding strategies
- Spot patterns across multiple datasets to support continuous program improvement, and even student-level predictive analytics

Such tools would be especially impactful if they could integrate data from state, institutional, and third-party systems like Naviance, MyCAP, YouScience, and National Student Clearinghouse.

Our experience with the [Community Funding Accelerator](#) provides a glimpse of what might be possible if funders, governments, and industry invest in targeted AI tools to assist with pathways implementation.

Enhancing system-level coordination with AI

The work of the **Community Funding Accelerator** (CFA) offers a glimpse into how AI can strengthen the system-level coordination critical to career pathways implementation. CFA has supported career pathway efforts in more than 40 communities, including for quantum technology in Colorado, the textile industry in North Carolina, and broader workforce development in Birmingham. To support these complex ecosystems, CFA has utilized AI-supported pathway quality assessment tools that synthesize data across program quality, industry engagement, wraparound supports, and other pathway components to enable coalitions to identify strengths, surface gaps, and target resources toward high-impact opportunities.

But AI capabilities are getting stronger, and tailored AI tools present significant opportunities to expand and deepen this work. For example, in places where CFA has helped develop systems for collecting and analyzing qualitative feedback, AI could enable faster identification of challenges and promising practices—informing decisions well before long-term outcome data becomes available. Similarly, CFA's work guiding pathway investments through labor market and education data could be enhanced by AI tools that track changes in demand, occupation requirements, and workforce supply in real time—allowing coalitions to respond proactively to evolving regional needs. In the funding space, CFA's publicly available federal grants tracker could be paired with AI tools to best match and prepare coalitions for pursuing public funding opportunities. As these use cases continue to take shape, CFA is excited to explore where AI can add the greatest value in advancing high-quality career pathways.

The Path Forward



In setting out these seven lessons, we have consciously tried not to focus on identifying the policy changes and programmatic features that make for effective career pathways programs. Others have written extensively on those points and will continue to do so. Instead, we wanted to underline the very practical conditions and techniques that can make or break implementation. Some of these lessons are specific to the pathways space; many are a development of lessons with particular pertinence in a pathways context that also apply widely across implementation in the public and social sectors.

Underlying all these lessons is a central realization that “career pathways” is not a policy to be enacted, nor a single program model to be adopted. It represents a fundamental shift in expectations about how governments, educators, businesses, and civil society organizations must work together as a single, coherent system.

As we noted at the start, we believe that if leaders can see the system, they can unlock the multi-level, multi-sector collaboration needed to realize the true potential of career pathways and meet the imperative America is facing. We hope this paper provides at least some insight into how policymakers, funders, and all those leaders implementing career pathways programs across the nation can see the system more clearly and—by doing so—deliver for students.



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