Case Study: Delaware Pathways in 2023

An update to the Delaware Pathways story.

Introduction

Career pathways programs are a popular bipartisan tool across the country for addressing state workforce shortages and ensuring students graduate high school with workforce-ready skills.[1] Delaware Pathways is one such example, formally established by executive order in 2016 by then-Governor of Delaware, Jack Markell. The program consists of state-approved career pathways programs that include both high school and advanced coursework, work-based learning experiences, and industry-recognized credentials that prepare students for middle- or high-skill careers, whether they enter the workforce immediately after high school or later in life. Delaware Pathways' programs of study were designed to be high-quality and labor market-aligned in order to meet both economic demand and students' needs.

Nearly a decade into Delaware Pathways' implementation, student participation in the program has increased rapidly, and the programs of study have expanded from just one to 24. Delaware Pathways are offered in every Delaware district and most high schools, as well as eight charter schools and two schools for at-risk youth in the custody of the Delaware Department of Services for Children, Youth, and Their Families.[2]

Now, the program is at a crucial inflection point as leaders prepare to expand the program to serve middle school students.

As stakeholders embark on the next phase of Delaware Pathways, this case study examines the program's evolution and offers a set of policy recommendations for Delaware leaders moving forward (Table 2). In addition, we describe (a) the factors that led to the program's successful adoption and scale, and (b) key implementation challenges Delaware faced (Table 1). In our accompanying playbook, <<TITLE TK >>, we distill these lessons into key moves that policymakers in other states should consider when building or implementing similar pathways programs that center sustainability and equitable access for all students.

[sidebar] **Delaware Pathways Overview**

Eligibility
All public school students in grades 9-12 (including those at vocational-technical schools and charters) are eligible. In SY 2023-24, students in select middle schools will engage in pilot Pathways programming as well.

Programming
Each pathway consists of at least 3 levels of consecutive classes, typically taken over 3-4 years. Participants also engage in a work-based learning experience (e.g., internships, pre-apprenticeships, job shadowing opportunities, mentorship with industry professionals).

Completion
All pathways culminate in postsecondary credit and/or an industry-recognized certification.

Table 1: Delaware Pathways Lessons Learned

Critical Factors for Success	Key Implementation Challenges
1. Steadfast public-private partnerships 2. Clear vision, effective plan, and strong leadership 3. Braided funding strategy 4. Alignment between programs and workforce needs 5. Rigor, flexibility, and support throughout program design and implementation	1. Generating start-up funding and maintaining sustainability 2. Reporting and measuring programmatic outcomes 3. Ensuring students' preparation for Delaware Pathways' rigor 4. Ongoing alignment to an evolving labor market 5. Gathering information on work-based learning experiences

Table 2: Delaware Pathways Key Policy Recommendations

Recommendations for Delaware:
1. Refresh the governance model by reconvening relevant stakeholders more often and considering ways to bring in other stakeholders such as parents or students. 2. Develop a renewed vision for Delaware Pathways and draft an accompanying strategic plan focused on program sustainability and accessibility. 3. Systematize ongoing data efforts to integrate data collection, analysis, and reporting, as well as program iteration, into an annual cycle. 4. Address disparities in access and completion rates using the data gathered. 5. Expand access to work-based learning by providing more information and advising for students while involving employers more deeply.

The Creation of Delaware Pathways: From Inspiration to Executive Order

Coming out of the Great Recession, Delaware's growing middle- and high-skill job market offered the greatest opportunities for sustainable employment.

Like many states in the U.S., communities in Delaware face "high rates of poverty, low rates of educational attainment, limited economic security, and poor health outcomes."[3] Delawareans felt these economic pressures acutely in 2014. On the heels of Delaware's last two major automobile plants (Chrysler and General Motors) closing, as well as a merger between two major chemical companies (Dupont and Dow Chemical), the Great Recession saw a decline in low-skilled, high-paying jobs.[4] Leaders also began to realize that the state relied too heavily on just a few large employers.[5] Meanwhile, advances in technology and globalization were creating more high-skill jobs across sectors. In 2016, 62% of Delaware's existing jobs and 69% of projected job openings through 2024 were classified as either high-skill or middle-skill.[6] Middle-skill jobs in particular offered higher wages without requiring individuals to incur the expense of a four-year degree. In looking at these trends, state leaders saw a need to graduate high school students with the right skillsets to meet labor market demand, thereby keeping jobs in Delaware.

Fortunately, in 2014 Delaware already had a solid foundation of career pathways programming. To graduate high school, students in Delaware were required to complete a locally-developed pathway, defined as "three credits of pre-planned and sequential courses…designed to develop knowledge and skills in a particular career or academic area."[7] Delaware's inter-district open enrollment policy allowed students to attend any publicly funded school in Delaware, regardless of where they live in the state, meaning that theoretically, students could access any pathway offered at a school within their reach.[8] These policies, when combined with the economic outlook in 2014, created a favorable system that enabled the development and scale of the future Delaware Pathways.

Gov. Markell urged public and private sector leaders to invest in a state-led career pathways program that would prepare high school students for a meaningful career aligned to labor market demand.

Governor Markell was first inspired by a prominent report, *Pathways to Prosperity*, published in 2011 by Harvard's Graduate School of Education.[9] The authors argued that increasing labor market demands, along with widening skills and opportunity gaps, required broadening postsecondary pathways and strengthening structural supports for young people as they transition into adulthood.[10] A co-author, Robert B. Schwartz, had been collaborating with the national organization, Jobs for the Future (JFF), to launch pathways programs in

various states, and a chance encounter in early 2014 allowed Gov. Markell to meet Schwartz and learn more about creating a pathways program in Delaware.[11]

The first step was to get buy-in from influential stakeholders across Delaware. The governor's office invited a group of public and private sector leaders to hear a presentation from Schwartz and talk about the potential for a pathways program in Delaware. Members included representatives from the Delaware Departments of Education, Labor, and Economic Development, as well as the Delaware Chamber of Commerce and Workforce Development Board; the President of Delaware Technical Community College (Delaware Tech); the President of Delmarva Power; the chairman of the Vision Coalition (a group advocating for education reform); and the CEO of the Rodel, a local nonprofit focused on Delaware education. Although the members of the meeting were initially hesitant, Schwartz was able to convince them that Delaware Pathways was not going to be just another program. Half an hour after his presentation, the program creation was a go.[12]

Delaware then joined JFF's community of states that were creating and implementing similar programs, called the Pathways to Prosperity Network. Rodel, the Delaware Business Roundtable Education Committee, the governor's office, and the Delaware Department of Education (DDOE) all contributed $25,000 to cover the $100,000 participation fee, officially launching Delaware Pathways. To learn more about pathways programs and see how they work, Schwartz invited Paul Herdman, Rodel's CEO; Mark Stellini, CEO of Assurance Media in Delaware and New Castle County School Board member; and Luke Rhine, then-Director of Delaware's Career and Technical Education (CTE) office, on a trip to Switzerland in October 2014, where similar pathways programs have a long history. The visit convinced these leaders that the program was right for Delaware.

The following year, in January 2015, Gov. Markell announced the "Delaware Promise", setting the goal that by 2025, 65% of the state's workforce will earn a college degree or professional certificate, and every student will graduate from high school prepared for continuing education and a career.[13] The Delaware Promise committed "educators, employers, policymakers, and community-based organizations" to work collaboratively and invest in Delaware Pathways to (a) ensure that all youth would have an opportunity to fulfill their postsecondary potential, and (b) enable Delaware's workforce to "compete in a global economy."[14] Delaware Pathways became a centerpiece to achieving the Delaware Promise.

> *" [Delaware Pathways] made sense at all levels. It was an easy story to tell for employers, business folks, and policymakers: 'Our kids need a leg up.' It made sense with parents, and students saw it as a plus … it's been a relatively smooth almost-decade of growth because I think it just made sense as a policy idea." — Paul Herdman, CEO of Rodel*

Developing the first pathways required intense business and education sector collaboration to ensure that programming incorporated workforce-aligned skills and competencies.

Planning for the first pathway – Advanced Manufacturing – began immediately, building on an existing Delaware Tech program that trained at-risk students in construction trades. By establishing a partnership between Delaware Tech, local school districts, and employer partners, the program provided a foundation on which to build the state model.[15] Delaware Tech and DDOE leaders then sought industry representatives through the Delaware Manufacturing Association to determine the key competencies needed for entry-level employment.[16] The curriculum developers were adamant that Delaware Pathways be aligned to the needs of the labor market; however, industry leaders were not used to communicating with the education sector about the skills and competencies they needed from the workforce.[17] After four months of ironing out the details, both parties were able to develop the pathway in time for the 2014-2015 academic year, and Advanced Manufacturing launched in the Colonial and New Castle County Vocational-Technical school districts, enrolling 40 students (27 of whom completed it 2 years later).[18]

At the same time, both DDOE and Delaware's Department of Labor (DDOL) were working to determine which other industries should be prioritized for the development of future pathways. Using data on occupations and the level of education they required, DDOL staff classified jobs as high-skill, middle-skill, and low-skill.[19] These classifications became codified in Delaware's biannual *Occupation & Industry Projections* report, as well as published online through a new platform, the Economic Development and Employer Planning System (EDEPS).[20] They also identified which occupations were "high-wage" and/or "high-demand," then aggregated data to create "career clusters." By basing pathway development on labor market information, program administrators could strategically plan investments, and many of those career clusters have now become pathways.[21]

Additional pathways quickly followed Advanced Manufacturing. The Culinary & Hospitality Management pathway was based on a local effort at William Penn High School in New Castle County to replace home economics with "a culinary arts curriculum that focused on cooking for restaurants," while Code.org pilot programs in Los Angeles and Chicago inspired the Computer Science pathway.[22] In 2015, DDOE launched the Biomedical Sciences and Engineering pathways. In total, five pathways were developed within the first two years of the program: Advanced Manufacturing, Culinary & Hospitality Management, Computer Science, Biomedical Sciences, and Engineering.

The working group was codified into a Steering Committee in 2016, and published a strategic plan in 2017 that set the direction for future Delaware Pathways growth.

While administrators at DDOE and Delaware Tech were developing the first five pathways, the original working group drafted a strategic plan to guide Delaware Pathways' long-term trajectory. Using a catalytic $2 million grant from JP Morgan Chase & Co., the working group met twice monthly to conduct a diagnostic assessment of Delaware's career preparation systems.[23] Through that process, they identified five distinct priority workstreams, each of which would be led by different governmental or nongovernmental entities:[24]

1. Build a comprehensive system of career preparation from grades 7-14 that aligns with the state and regional economies. (Led by DDOE).
2. Scale and sustain meaningful work-based learning experiences for students in grades 7-14. (Led by Delaware Tech).
3. Integrate education and workforce development efforts and data systems. (Led by DDOL).
4. Coordinate financial support for Delaware Pathways. (Jointly led by Rodel and the United Way of Delaware).
5. Engage employers, educators, and service providers to support Delaware Pathways (Led by the Delaware Workforce Development Board).

In February 2016, the group published a draft of the strategic plan, titled the *Delaware Pathways Initiative Partnership Agreement*, and asked for feedback from the community. Throughout comments, two themes emerged: (a) the need to engage more community-based organizations and (b) the need to support students with disabilities. As a result, the group created plans to work with organizations like the Boys and Girls Club, libraries, the DDOL Division of Vocational Rehabilitation, and organizations that represent students with disabilities to provide in-school and after-school supports.[25]

As planning and implementation moved forward, the original working group evolved, bringing in K-12 district administrators, more business representatives, and members from community-based nonprofits. On August 11, 2016, the group formed a Steering Committee via Gov. Markell's Executive Order No. 61 and in 2017, they released the official *Delaware Pathways Strategic Plan*.

Since 2016, a lot has changed in the world and for Delaware Pathways.

While reports from JFF (2017) and R Street Institute (2020) have captured key moments in the program's evolution, it is time for a comprehensive update that incorporates developments over the past several years. In the next section, we look to describe Delaware Pathways' growth and impact, as well as showcase current efforts in 2023.

Looking Ahead: Delaware Pathways in 2023 and Beyond

Over the last nine years, Delaware Pathways has grown significantly, with more than half of the state's eligible high school students enrolled in 24 different pathways.

Today, Delaware Pathways offers 24 pathways across 12 career clusters, growth that largely reflects both student and industry demand.[26] Based on 2021 data from the Economic Development and Employer Planning System, Delaware Pathways' programs of study cover 12 of the 16 career clusters that offer middle- or high-skill jobs, are high-wage, or in high demand (Table 3).

Table 3: Delaware Pathways' Alignment with Economic Development Career Clusters

Career Cluster	Delaware Pathways	Middle-Skill	High-Skill	High-Wage	High Demand	Employment Growth 2020-2030	Average Wage in 2021
Agriculture, Food & Natural Resources	Yes	☒			☒	11.3%	$36,174
Architecture & Construction	Yes	☒		☒	☒	12.7%	$55,635
Arts, A/V Technology & Communications	Yes	☒	☒	☒	☒	1.8%	$57,331
Business Management & Administration	Yes		☒		☒	0.1%	$63,141
Education & Training	Yes		☒	☒	☒	5.3%	$63,458
Finance	Yes	☒	☒	☒	☒	3.2%	$90,161
Government & Public Administration	No	☒	☒	☒	☒	3.5%	$63,392
Health Science	Yes	☒	☒	☒	☒	16.4%	$75,608
Hospitality & Tourism	Yes	☒			☒	18.9%	$31,092
Human Services	No		☒		☒	14.9%	$44,729
Information Technology	Yes		☒	☒	☒	2.6%	$100,968
Law, Public Safety, Corrections & Security	No	☒		☒	☒	6.1%	$45,282
Manufacturing	Yes	☒			☒	3.5%	$47,670
Marketing	No	☒	☒		☒	4.6%	$51,447
Science, Technology,	Yes		☒	☒	☒	2.2%	$108,947

Career Cluster	Delaware Pathways	Middle-Skill	High-Skill	High-Wage	High Demand	Employment Growth 2020-2030	Average Wage in 2021
Engineering, & Mathematics							
Transportation, Distribution, & Logistics	Yes	☒		☒	☒	9.0%	$45,818

Source: Economic Development and Employer Planning System[27]

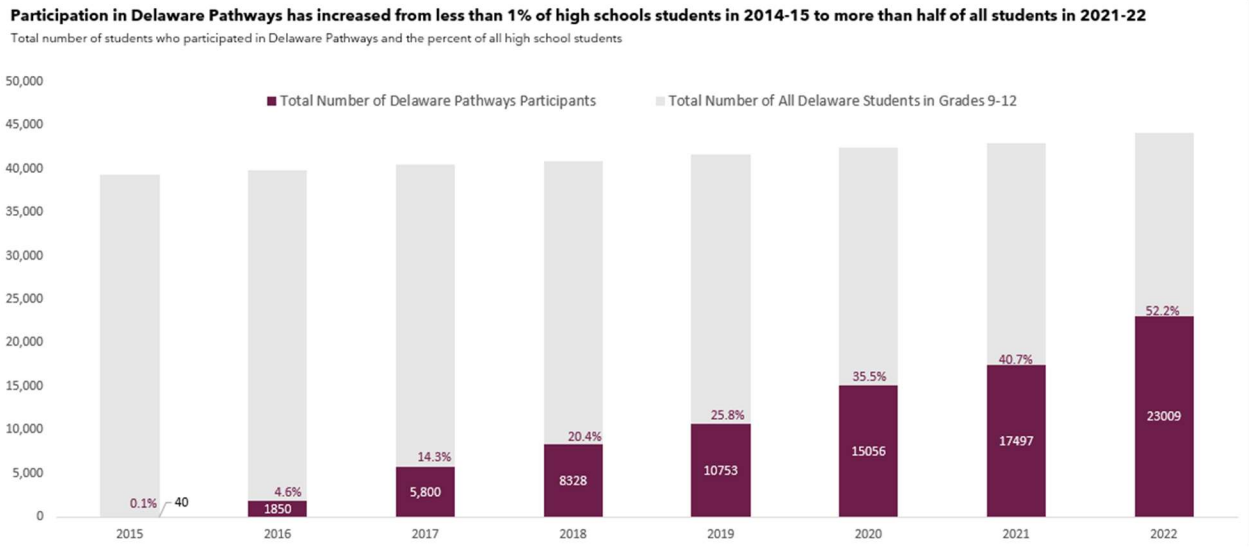
The 2017 Strategic Plan also set a goal to have approximately 50% of all students in grades 9-12 enrolled in career pathways by 2020.[28] Despite the pandemic's disruption, the program surpassed that benchmark in 2022, with 23,009 students participating out of 44,059—a long way from the 40 students in the very first Advanced Manufacturing course.[29] Today, the goal is to reach 80% of high school students by 2025, an ambitious but feasible metric given the program's historic growth.[30]

Delaware Pathways Student Definitions

Participant: measured by the number of students who completed at least one pathways course

Concentrator: measured by the number of students who completed least two pathways courses

Completer: measured by the number of students that have completed the three levels of coursework required by a pathway



Sources: NCES,[31] *Rodel,*[32] *and Delaware Department of Education*[33]

While growth has been steady, patterns in completion and concentration data suggest that some students have limited access to Delaware Pathways.

In disaggregating 2021 Delaware Pathways data, our team found fairly representative subgroup participation, with all racial, ethnic, and gender groups participating at rates within 3 percentage points of their public school enrollment rates (See Figure 1). Low-income and students with disabilities also participated at rates within 3 percentage points of their enrollment rates; however, English Language Learners are the most underrepresented, enrolling at just half the rate of enrollment (5% versus 10%).

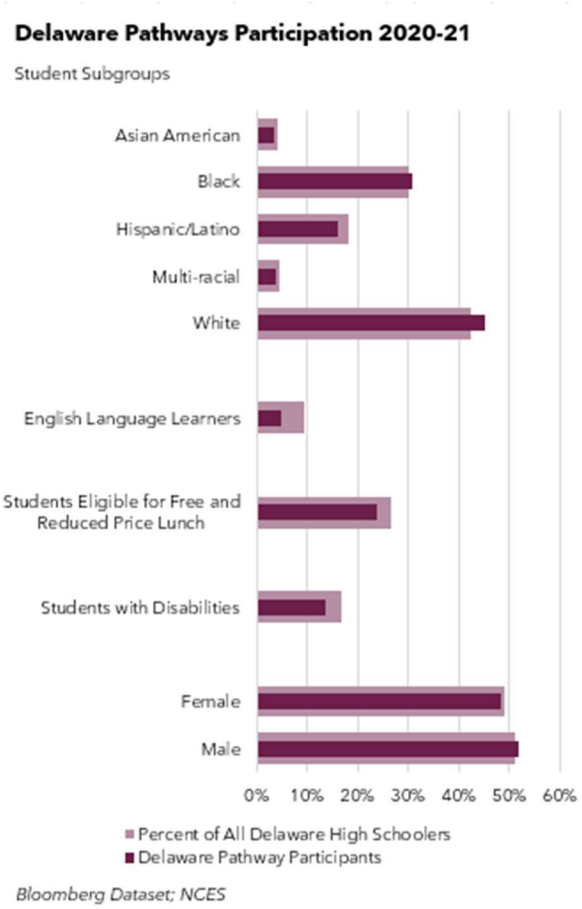


Figure 1: Delaware Pathways Participation 2020-21

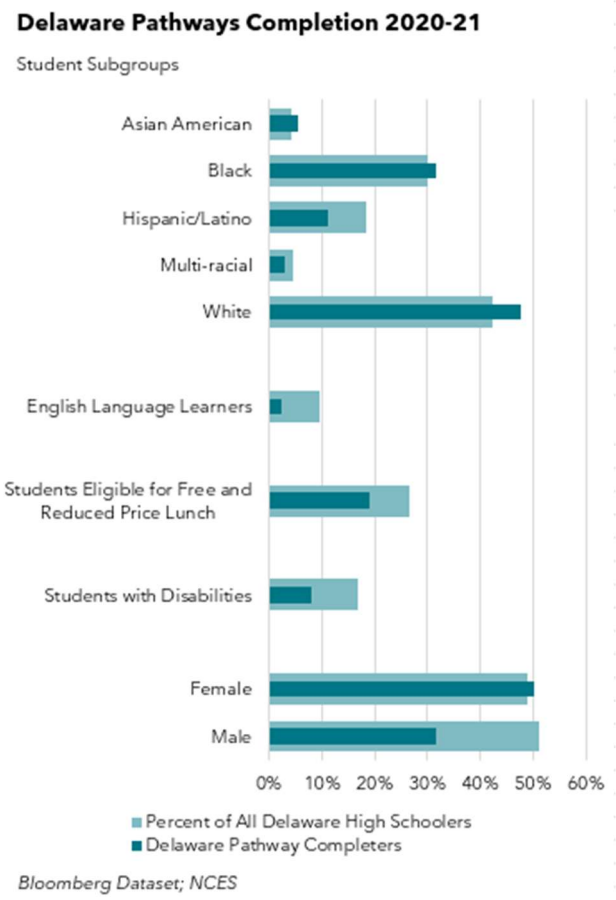


Figure 2: Delaware Pathways Completion 2020-21

Despite the mostly fair representation of subgroups in participation rates, greater disparities emerge when analyzing completion rates (i.e., students who completed the three levels of coursework required by a pathway; see Figure 2). Notable differences include:

- Male students represent only 32% of pathways completers, far below their rate of participation (52%) and high school enrollment (51%).
- Hispanic/Latino completers fall 7 percentage points below their enrollment rate (11% versus 18%).

- Low-income completers fall 8 percentage points below their enrollment rate (19% versus 27%).
- Completers with disabilities fall 9 percentage points below their enrollment rate (17% versus 8%).
- English Language Learners fall 8 percentage points below their enrollment rate (2% versus 10%).

Although participation rates are relatively representative of statewide student enrollment, disparities in completion rates suggests there are barriers or obstacles along the pathways journey that are impacting certain student subgroups, but not others.

Finally, in looking at concentration within individual pathways, we found certain subgroups overrepresented (60%+)[34] in specific programs of study:

- Male students were overrepresented in 16 STEM-related pathways (e.g., manufacturing, computer science & IT, engineering, and finance)
- Female students were overrepresented in 9 service-oriented pathways (e.g., teacher academies, healthcare, nursing & patient care, animal science).
- Hispanic/Latino students were overrepresented in Automotive Technology (71%)
- White students were overrepresented in 9 pathways:
    - Automotive Technology (88%),
    - Cisco Networking (79%),
    - Natural Resource Management (78%),
    - Agricultural Structures and Engineering (67%),
    - 3-credit Engineering (66%),
    - 6-credit Engineering (60%),
    - Academy of Business Information Management (65%),
    - Agricultural Power and Engineering (63%), and
    - Animal Science & Management (63%).

Besides White and Hispanic/Latino students, no other racial groups were considered overrepresented (60%+) in a pathway; however, Black students are heavily concentrated in Culinary & Hospitality Management, while Asian students are mostly concentrated in Computer Science.

These disparities necessitate a closer look at students' journeys throughout a pathway to better understand whether the patterns in the data can be ascribed to student preferences, or whether there might also be biases, barriers to access, or other explanations. For example, lower rates of academic achievement (as measured by grades or test scores) may be preventing some students from historically underserved student groups from entering certain pathways. In addition, not every pathway is offered at every school, and while Delaware's

choice policy allows students to enroll in any Delaware school offering the pathway of their interest, lack of transportation can still prevent students, especially those in rural communities, from being able to take advantage of the opportunity or from accessing work-based learning opportunities.[35]

Understanding patterns in Delaware Pathways participation and long-term impact is challenging, but promising efforts are underway.

School systems track several outputs from Delaware Pathways — including participation, concentration, and completion rates — and report the data to DDOE for aggregation. Other benchmarks of participation (e.g., certifications earned) are also collected and used as part of the state accountability model. One interviewee noted that administrators are not really "squeamish" about data-sharing in Delaware, which has helped them immensely in building and improving pathways programs.

Collection aside, however, analyzing these copious amounts of data has proven elusive at the state level, partly due to capacity and partly due to lack of clarity. Several interviewees noted that one of the most challenging aspects of their work was distinguishing the nuance between the state model (Delaware Pathways) and locally developed pathways, which also include vocational-technical schools' programs. In the data, state model courses have certain codes that correspond to a particular career cluster, pathway, and level. However, as Delaware Pathways continue to evolve over time, those codes are becoming more complicated, necessitating extra analysis to track their development.

Furthermore, measuring the long-term impact of pathway programs remains a persistent challenge across the country. Researchers encounter difficulties in accessing and matching students' education and employment data, while certain desirable outcomes are not easily quantifiable. For example, a student might make a valuable connection who helps them throughout their career, or they might find out that they are not well-suited to the first pathway they chose. Both situations could produce a net positive outcome for the student, but may not be reflected in outcome data.

Despite the challenges, Delaware's efforts to measure impact include a third-party evaluation conducted by RTI International in 2021 as well as an ongoing effort by RTI International to survey and interview students in the classes of 2022 and 2023 to elevate their perspectives.[36] In addition, a team at the University of Delaware is evaluating access to Delaware Pathways by examining student participation rates, as well as linking participation to high school graduation, postsecondary enrollment, employment, and wages.[37]

Ongoing initiatives are working to expand equitable access through greater support for students with disabilities, as well as expanding via "Delaware Pathways 2.0."

Delaware Pathways administrators heard the need for more support for students with disabilities as early as 2016, when the original working group received community feedback on its draft strategic plan. In response, the Steering Committee sought and received a U.S. Department of Labor grant to (a) create on-ramps so students with disabilities could participate more easily; (b) identify relevant supporting services; and (c) conduct training for teachers, counselors, and special education coordinators so that they could better support students with disabilities.[38] Currently, DDOE is partnering with the National Alliance for Partnerships in Equity (NAPE) to identify gaps in access and ensure that students can participate in Delaware Pathways to the fullest extent possible.

In 2022, state leaders embarked on "Delaware Pathways 2.0," which includes deepening the program's impact in high school and growing work-based learning opportunities. Delaware's vo-tech high schools will also work to ensure their high school and adult education programs are aligned to better facilitate the transition after graduation.[39]

The key feature of 2.0, however, is a new focus on "Increasing Equitable Opportunities Through Early Exploration with Middle Schoolers."[40] The idea is to give every student the information they need to make decisions on what works best for them early on. When the time comes to choose a high school and pathway, the goal is for students to be on more level footing with each other, rather than relying on incoming social and/or cultural capital. These pilot programs are set to launch in the 2023-24 school year in nine middle schools across Delaware. Though each program's design varies, all are based on guidelines created by a committee that includes 30 educators, parents, students, and business leaders.[41]

Although the goal of expanding into middle schools is to broaden students' access to career possibilities earlier, some worry that the current variation in pathway availability will end up limiting students' exposure to just those programs in their specific school or district. In the long run, the program might then just replicate current patterns of student awareness and participation, rather than addressing biases or inequities.[42] Nonetheless, administrators are optimistic that the pilots will help students better understand their interests, build connections between their current education and future careers, and prepare for future employment.[43]

Lessons Learned

Over the course of two months, we interviewed 19 stakeholders, including Delaware Pathways visionaries, researchers, nonprofit intermediaries, higher education leaders, national contributors, and K-12 administrators at the state, district, and school levels. Our interviews focused on the design of Delaware Pathways, its initial development, and implementation challenges, as well as factors that contributed to the successful implementation and scaling of the program. Our two goals were to (a) surface lessons learned for Delaware stakeholders and (b) identify key moves that stakeholders in other states could replicate (see our accompanying playbook, <<TITLE TKTK>>). This section is not meant to be a comprehensive review of Delaware's implementation tactics, but these lessons recount Delaware's replicable efforts and actions, which could be essential for policymakers in other states working on similar pathways programs.

Some interviewees suggested that certain aspects of Delaware — most notably its size — facilitated faster implementation and scaling than would be possible in other states. Yet, despite being the second-smallest state in the country, Delaware often serves as a "microcosm" of the United States.[44] Business, industry, and commerce are concentrated in two heavily populated cities in the northern part of the state, while the southern half contains large swathes of agricultural regions, particularly in the southernmost county of Sussex.[45] The population of Delaware is also growing increasingly racially diverse: as of 2021, almost 60% of public school students identified as students of color.[46] These economic and demographic trends are not unique to Delaware.

Moreover, the success factors and challenges that rose to prominence in our research are applicable in many states. For example, one interviewee pointed out that "other states also have federal Perkins funding, which is allocated proportionally to the number of students in your state … so when you think about the policy and funding levers that Delaware pulled, those are available in every state context."[47] Simply put, while building, implementing, and scaling career pathways programs may require more coordination in larger states, the resources Delaware leveraged are available to all states, making the critical factors for success replicable across the country.

Critical Factors for Delaware Pathways' Success

Steadfast public-private partnerships across sectors, built on intentional relationships, served as a backbone for the collaboration required to develop and scale Delaware Pathways.

Forging and sustaining intentional relationships at every level and stage of Delaware Pathways were key drivers of its ongoing success. While the governor's office might have

initiated the conversation, it is clear from the 2017 Strategic Plan and stakeholder interviews that those involved not only felt committed to the program's success, but also gave each other credit for the roles that they played. This, along with other relationship-building efforts such as offering technical assistance, funding, and/or connections, allowed leaders to build trust and mitigate conflict. For example, the three vocational-technical high schools had already established strong partnerships with local employers.[48] Local administrators of these programs initially feared that Delaware Pathways would undermine their longstanding pathways programs. Yet by building on some of the highest-quality local programs and bringing extra resources or capacity, Delaware Pathways administrators were able to offer something valuable that smoothed the way to collaboration.

The fact that so many different state agencies were involved with Delaware Pathways meant each department had to learn how the other worked. For example, DDOE frequently worked in partnership with mostly autonomous districts, but DDOL had no similar counterpart and was accustomed to creating and executing policy with only Delaware's Workforce Development Board. Interviewees admitted that this created some friction; however, with increased intentional communication, leaders were ultimately able to better understand the agencies different ways of working.[49]

Partnerships with nongovernmental organizations were critical to the development of Delaware Pathways. Not only did these organizations provide technical assistance, but the nonprofit and business sectors also engaged communities and gathered buy-in to generate additional partnerships crucial to Delaware Pathways' success. Following is a non-exhaustive list of examples of the key roles that nongovernmental partnerships have played:

- Established under the second priority in the 2017 Strategic Plan, Delaware Tech's Office of Work-Based Learning coordinated work-based learning experiences for both schools and employers by making connections, creating resources and trainings, and guiding employers through hosting high school students.[50]
- Community-based organizations like the United Way of Delaware convened local employers and created comprehensive supports (e.g., soft skills support and equipment donation) that helped marginalized students participate.[51]
- Rodel was uniquely positioned as a locally-focused intermediary with flexible funding, expansive relationships, and the credibility and capacity to lead convenings, research, planning, and communication – all of which were key to catalyzing efforts and keeping the momentum going.[52]
- Outside of Delaware, membership in JFF's *Pathways to Prosperity Network* provided technical assistance, access to research and resources, and expertise in career pathways policy.[53] It also allowed Delaware Pathways' leaders to connect with peers and see what other states were doing.[54]

- The business sector served as "the first real champion of Delaware Pathways", contributing seed money and industry expertise towards developing the initial programs.[55]

The variety of partners and stakeholders involved were not just a demonstration of goodwill in Delaware, but had real implications for strategic alignment. It opened up sources of funding that might have been closed to a single entity, and engaged folks who might not have otherwise been brought to the table.

> *"The Delaware example is one that can be replicated. I don't want people to read about us and think, 'Oh, it had to be easier because they're so small.' It's gone magnificently well, for Delaware Pathways, and that was not because we're small – it's because we're focused on relationships." – Dan Cruce, Chief Operating Officer at United Way of Delaware*

A clear vision, effective plan, and strong leadership facilitated smoother collaboration, mutual accountability, and greater alignment across stakeholders.

Delaware's collaborative mindset brought stakeholders to the table, but their efforts might not have been as cohesive without the creation of the 2015 "Delaware Promise" and the 2017 strategic plan. These guiding documents were essential for the original working group – and later, the Steering Committee – to strategically align efforts across workstreams. Throughout the drafting process, stakeholders co-created their roles and responsibilities by providing input on plan and milestone developments. Those months of collaboration built a common purpose and shared understanding among the key actors and prevented major conflicts and standstills in the work.[56]

This collaborative mindset also enabled stakeholders to coordinate strategic efforts (such as raising funds or engaging the community) across different implementation levers because they all understood and were aligned to the vision and goals of Delaware Pathways. During the early development stages when the working group met every other week, the Strategic Plan worked as a roadmap for project management and accountability, against which they could compare progress and problem-solve the day-to-day issues.[57] Luke Rhine, the former state director of CTE who spearheaded program implementation, noted that program administrators adopted a practice of trying to "control, contract, or cleave" all work in order to prioritize what was important and keep moving forward.[58] The strategic plan helped to establish clear expectations for what to control, contract, and cleave.

Sustained support and leadership from the governor's office also helped Delaware Pathways overcome challenges.[59] Both former Gov. Markell and current Gov. John Carney have

championed the program and made it a priority for investment and energy. When the program first started, Gov. Markell built bridges, invited people to the table, cultivated the resulting coalition, and handled pushback or complaints.[60] He continually highlighted Delaware Pathways in his State of the State addresses, and was willing to invest in the resources and team that the program needed, allowing state administrators to focus on program development and implementation. Since then, Gov. Carney has continued the strong executive leadership, speaking at the annual Delaware Pathways conference and ensuring that attention on the program is sustained. His actions have allowed the momentum of the past near-decade to continue without faltering, even through the COVID-19 pandemic.

> *"It's absolutely impossible to have an effective statewide program without a shared vision. Before you even start implementing, you've got to get everybody on the same page and looking at the same goal so that you're not all hearing the same words but thinking different things. [The shared vision] is critical to success, and it's worth the time it takes to get everybody there."*
> *— Shana Payne, Education Director at Jobs for the Future*

Braiding funding across workstreams allowed Delaware Pathways to stay resilient, flexible, and aligned to its strategic plan.

Rather than looking for a single source of funding, Steering Committee members braided funding from private grants, federal grants, and state agency budget allocations to push the program forward. In addition, throughout the program's expansion, leaders were careful to link future funding to expansion plans so that the availability of future funding wouldn't constrain or cut current programming.[61]

In the early development phase, state budgets did not yet account for the creation of a new program, so philanthropic grants were key to getting the first pathways off the ground and scaling the program as quickly as possible. Certain grants were targeted towards specific efforts, such as local energy company Delmarva Power's $720,000 donation to create an energy-focused pathway or Capital One's $100,000 contribution to setting up the Office of Work-Based Learning at Delaware Tech.[62] Another $2.55 million in grants from Bank of America and JP Morgan Chase (one of the largest employers in Delaware) was dedicated solely towards scaling the program and expanding participation.[63] In 2016 alone, private philanthropy dedicated $3,275,000 to supporting Delaware Pathways.[64]

Meanwhile, federal and state funds augmented philanthropic funding to finance implementation efforts at the state and local levels. Federal legislation such as the Strengthening Career and Technical Education for the 21st Century Act (Perkins V), the Workforce and Innovation Opportunities Act (WIOA), and more recently, the American Rescue Plan Act directed funding towards CTE programs. State administrators included

Delaware Pathways into the state's plans for these federal programs, and used the federal funds to help districts set up and maintain pathways programs. Additionally, the DDOL and Delaware Tech received large grants from the U.S. Department of Labor to support industry certifications and expand apprenticeship programs. At the state level, the Departments of Education, Labor, and Health & Social Services have all contributed funding, with the Department of Education now spending most of its CTE budget on Delaware Pathways.[65]

The strategy of blending funding was consistently cited as critical to Delaware Pathways' success, as it allowed both the program itself and the school systems implementing it to direct money where it would be most effective for strategic growth. Each Steering Committee member brought their own social network to the table, opening doors that otherwise might have been closed. Each member could also support the others in writing grant applications, sourcing data, or bringing in different perspectives. The existence of a partnership also signaled to funders that sustained commitment was "front and center" for Delaware Pathways, assuaging fears of one-off productions.[66] Efforts were grounded in and coordinated according to the shared strategic priorities set by the strategic plan.

As leaders commence Delaware Pathways 2.0, they have continued braiding public and private funding by combining $8.3 million from the ARPA and Gov. Carney's office with another $7.5 million from Bloomberg Philanthropies, the Walton Family Foundation, American Student Assistance, JP Morgan Chase, and the Delaware Business Roundtable Education Committee.[67] The resulting $15.8 million program was catalytic for the expansion into middle schools, demonstrating the continued success of the braided funding strategy.

> *"[Stakeholders] had a set of shared priorities that set them up to start braiding funding. When there was a grant opportunity, whether it was from the U.S. Department of Labor, philanthropy, or somewhere else, they went after it together in support of Delaware Pathways, regardless of who the fiscal agent was. They were able to leverage lots of different sources using that structure." —Charlotte Cahill, VP of the Pathways to Prosperity Network*

Aligning pathway programs to labor market information and workforce needs provided greater value to both students and employers.

From the very first working group, DDOL had a seat at the table and brought a workforce development lens to program discussions. One interviewee noted that this seemed unique among the Pathways to Prosperity Network; labor representatives were rarely at the annual convenings.[68] Nonetheless, DDOL and its collaboration with the Workforce Development Board was crucial to Delaware Pathways' success. Not only did the agency have access to additional federal funds, but DDOL administrators were also able to help "translate"

Delaware Pathways work for those outside of the education world by making connections across the community.[69]

For example, DDOL's caseworkers were frequently in touch with employers seeking assistance with recruiting or training employees; the feedback they received helped to inform program development. Similarly, the Delaware Workforce Development Board created liaisons tasked with understanding businesses' needs; in return for their feedback, employers were informed about Delaware Pathways programs as a potential talent pipeline. Interested businesses could be connected directly to a program or school, or directed to Delaware Tech's Office of Work-Based Learning (OWBL) for more support.[70]

Analyzing labor market and economic growth data and engaging employers has been critical to maintaining Delaware Pathways' relevance and value for both students and employers. The Delaware Workforce Development Board and DDOL regularly compare Delaware Pathways' programs of study and in-demand occupations. While it's not quite apples-to-apples, the practice of using labor market information to inform Delaware Pathways offerings ensures that programs remain high-quality.[71] It also creates an improvement process that weathers staff turnover, ensuring staff "have a continuous awareness around how education and labor are interrelated."[72]

> *"If you think about workforce development as a business model, our employers are our customers, and we are training people to end up in a job that is family or life-sustaining. We want to make sure that people are creating wealth, and that businesses have the opportunities to provide the jobs necessary to allow for wealth creation, so we should always be listening to our employer partners." – Joanna Barnekov-Staib, Executive Director of the Delaware Workforce Development Board*

Balancing program rigor, implementation flexibility, and state support was integral to rolling out and scaling Delaware Pathways.

Although locally developed career pathways already existed prior to Delaware Pathways, the state model brought a higher level of rigor and standardization to this kind of programming. Every state-approved program of study had to (a) be aligned to labor market data; (b) include postsecondary credit, an industry-recognized certification, or both; and (c) incorporate a work-based learning (WBL) experience.[73] As a result, Delaware Pathways held value for all students, even if they leave their chosen industry, enroll in a postsecondary institution, join the workforce, or embark on another postsecondary pathway altogether.[74]

Rigor, however, did not come at the expense of district autonomy or flexibility. Neither districts nor schools were required to adopt the state model, leaving school systems still in charge of the curriculum they chose to offer students – if they wanted, schools could still

create and administer their locally developed pathways. Yet, many school systems still chose to embrace the state model, for two common reasons: the high quality of the program and the accompanying state resources. Delaware Pathways came with an employer-informed curriculum, connections to higher education and industry certifications, and a work-based learning infrastructure that made it substantially more robust than what an individual school system could create on its own.[75] For large districts, the turnkey curriculum made it easy to offer to more students, while smaller school systems benefited from the state resources.

DDOE intentionally leaned in to support the expansion of Delaware Pathways, whether through increased state funding (aided by the braided funding strategy), professional development, or capacity building for districts.[76] For example, as Delaware Pathways expanded, districts and schools struggled to find industry professionals that were qualified in both industry and teaching expertise. In response, Delaware's State Board of Education and DDOE's Professional Standards Board developed a new teaching certification titled the "Skilled and Technical Science" (STS) certification, for individuals with six years or more of industry experience who commit to completing a teaching certification program within six years.[77]

At the local level, schools had to hire or realign instructional staff, as well as hire CTE coordinators or adjust counseling teams to handle employer engagement and business partnerships.[78] DDOE provided grants and funding for school systems to make those changes, as well as guidance or capacity-building as applicable. Even for vocational-technical high schools, who already had much of the infrastructure needed to implement the state model, DDOE's support made the implementation process itself easier.[79] In the event that a school system wanted to elevate a locally-developed pathway to become a state model or create a new state-approved pathway, DDOE supplies a manual that includes all the necessary definitions, requirements, implementation steps, and continuous improvement processes involved.[80] Once a school system completes the program adoption process, state funding for CTE flows based on student enrollment, and the state continues to provide technical assistance.[81]

Over the years, DDOE has also aligned the state education accountability model to not only incorporate Delaware Pathways benchmarks (e.g., postsecondary credits or industry certifications earned) but also to match Delaware's WIOA, Perkins V, and Every Student Succeeds Act (ESSA) plans.[82] Now, the state agency is working to create additional resources that help local administrators understand the alignment between federal and state accountability models.[83] This combination of high-quality programming, implementation support, and continued funding offers something for every school system.

> *"Our philosophy was, the school system is still responsible for the curriculum, it just has the choice of using what we create. We talked about our programs*

as 'opportunity multipliers.' So, when I would get asked the question, 'What's in it for my student?' I would say, 'What's not in it for your student?'" — Luke Rhine, former Delaware Director of Career and Technical Education

Key Implementation Challenges

Funding challenges related to startup and sustainability costs end up disadvantaging the students who need high quality programming the most.

While state resources for implementing Delaware Pathways are significant, startup costs can still overwhelm districts with fewer resources (Sidebar X). Certain pathways (e.g., Automotive Technology, Culinary & Hospitality Management) require new or updated facilities and technology, incurring hefty capital expenses to establish those spaces.[84] Meanwhile, operating expenses increase with inflation every year, creating competing priorities for local administrators.

[Sidebar: School Districts' Access to Capital Funding]

In Delaware's education funding system, districts have two avenues to access capital funding. The first is the state, where they must submit a request and make their case.[85] Smaller districts or those facing enrollment declines struggle to successfully access those funds, so they must look to local funding.[86] Local funding relies on property tax revenue within each district, disadvantaging districts with lower property values.[87] Moreover, school boards in each district cannot increase the tax rates to raise revenue without calling a referendum, and increasing property tax rates is rarely popular with voters.[88]

During the implementation of Delaware Pathways, school systems were challenged to get creative with funding. One school in Red Clay Consolidated School District (the largest district in Delaware) eliminated or minimized electives that were not connected to a state model pathway (e.g., pottery, yearbook) and restructured the school day to encourage greater student participation, which meant more opportunities for students to complete a second pathway and thereby increase state vocational funding.[89] At other schools within Red Clay, leadership pooled their local building funds to make districtwide facility upgrades.[90] Once the facilities were set up and students were enrolled and attending, state funding largely covered general program operating expenses.

The combination of restricted capital funding and other startup costs such as staffing or certification challenged even well-resourced districts. For less-resourced districts, the startup expenses were (and remain) too costly to offer certain pathways. An interviewee gave the example of Indian River High School, located in a beach town where local restaurants attract tourists: "Everybody wants Indian River High School to have the Culinary pathway but they

can't raise the local dollars to extend their building to have a kitchen."[91] This barrier to implementation means students must travel farther to access the pathway they want, placing a higher burden on some who are already disadvantaged. As technology advances and operating expenses grow, startup costs will continue to be a barrier, both to Delaware Pathways' expansion and to students' access.

Meanwhile, the tasks of maintaining, improving, and updating all 24 existing pathways will challenge the capacity of DDOE's CTE office, who are already responsible for responding to requests for support, working to increase equitable access and participation, piloting the middle school Delaware Pathways curriculum, and creating sustainable infrastructure that will survive staff turnover. On the to-do list in upcoming years is updating the oldest pathways to ensure their relevance to the current labor market, which will require reconvening industry stakeholders, determining the changes to be made, and implementing those changes throughout the state. In the future, the CTE office is also considering initiatives such as updating advising and accountability models, increasing supports for students with disabilities, expanding early postsecondary credit opportunities, and working more closely with community-based organizations to increase participation supports for marginalized students.[92]

Clearly, there is no shortage of work to be done; however, this demand constricts the state's ability to grow Delaware Pathways. Private and one-time federal grants such as Elementary and Secondary School Emergency Relief (ESSER), awarded in response to the COVID-19 pandemic, provided early seed money to develop the existing pathways, but administrators have yet to find an ongoing, sustainable source of funding to continue that development. Meanwhile, DDOE's budget allocation for CTE is at capacity. In the long run, this means that districts will need to use more local funding for pathways' maintenance, expansion, and growth. Well-resourced districts will be in a better position to continue building and maintaining their pathways; some will be able to go as far as developing new pathways according to student demand. However, less-resourced districts will struggle to reach the same level of innovation, hindering those students' access to responsive, high-quality programming and likely creating new (or exacerbating existing) inequities.[93]

Reporting Delaware Pathways' current impact, as well as measuring the program's long-term outcomes, requires greater coordination across multiple systems.

Career pathways programs are intended to impact students long after they graduate high school. Yet collecting and analyzing the right data (e.g., college enrollment, persistence, employment, wages) to measure longitudinal postsecondary outcomes and determine a program's impact is difficult. Tracking individuals through both educational and workforce systems with limited identification methods requires a robust career readiness data

ecosystem, including an interconnected longitudinal data system, strong privacy laws and protections, sophisticated technology, and policies and processes that enable quality data "collection, analysis, reporting, and use."[94] Challenges in measuring the long-term impact of career pathways programs are not unique to Delaware. Across the country, program administrators struggle due to inconsistent student identifiers across state agencies, gaps in in key information, different definitions across systems, and generally poor quality control practices.[95]

In Delaware, researchers can connect K-12 data to higher education enrollment via the National Student Clearinghouse, capturing those Delaware Pathways students who matriculated into colleges and universities. However, for students who enter the workforce after graduation, there isn't a repository that collects information on their roles or wages, creating a significant breakage point. DDOL collects some information based on unemployment, but it may not be the most accurate representation of wages in the field and there is no common identifier on which to match the K-12 data to DDOL's data. In analyzing matched DDOL and DDOE datasets for 2019 graduates, RTI International found that employment data was available for only about 10% of students, which still leaves a significant number of students without matching postsecondary employment data.[96] Challenges in matching students' K-12 data to information on their postsecondary lives hinder administrators from articulating Delaware Pathways' general impact, much less describing the program's effects on subgroups of marginalized students.

In coordination with DDOE, DDOL, and Delaware's Department of Health and Social Services, researchers at the University of Delaware may have found a way around this issue by taking the unique approach of linking the K-12 and workforce datasets using intermediary data from the Department of Health and Social Services.[97] They also plan to supplement DDOL's wage data with information from the State Wage Interchange System (SWIS) to capture students who may be employed in neighboring states.[98] The analysis is still underway; however, if successful, the study will be the most robust effort to demonstrate Delaware Pathways' impact.

Until then, analysis efforts remain scattered at both the district and state level. While several interviewees described internal efforts to look closely at their participation rates, none mentioned a continuous, coordinated statewide endeavor to evaluate program quality or equitable access and participation. As a result, disparities in access or participation seem to be addressed unevenly throughout the state. Publicly available data is also scarce. On DDOE's "Report Card Snapshot," the College and Career Readiness indicator does not include data on Delaware Pathways.[99] Information on Delaware Pathways is also missing from both the state's published Educational Data Reports and the datasets on Delaware Open Data.[100] In fact, the only publicly available data on recent Delaware Pathways participation that we found was in Rodel's biennial report, *Delaware Education at a Glance*.[101] The lack of

publicly available data prevents interested stakeholders from understanding how Delaware Pathways works, who is accessing the pathways programs, and how the program's value warrants increased attention and funding from local politicians.

Finally, a key but challenging component to measuring impact is quantifying indirect outcomes (e.g., a student exploring a pathway they ultimately don't complete). Nonetheless, those intangible effects are the ones students tend to talk about the most: in a preliminary review of survey and interview data from the ongoing RTI International study, researchers found that students tend to frame Delaware Pathways' impact on their lives as indirect, but meaningful. For example, after high school one student enlisted in the military, despite having finished the Early Childhood Teacher Academy. The military then led her to a career in finance, a path not intuitively connected to early childhood education. In an interview, the student cited her pathway as influential in developing her career because she found that she liked working on teams in a dynamic environment.[102] Whether it's figuring out their preferences, learning transferable skills, or making key connections, examples like these demonstrate that students are finding value in Delaware Pathways beyond a numbers-driven return on investment.

Student preparation must encompass building academic skills, soft skill development, and advising support, without which many students are not ready to take on Delaware Pathways courses and program requirements.

The rigor of Delaware Pathways' offerings requires students to have strong foundations in English Language Arts (ELA) and math before beginning a pathway. Concerns around student preparation were raised early on, leading the Steering Committee to create an extra course for students who needed help meeting Delaware Pathways' college-level ELA requirements.[103]

However, these concerns persist and are arguably greater in the aftermath of the COVID-19 pandemic. Proficiency rates on the Smarter Balanced Summative Assessment declined for both ELA and math: 63% of 11th graders scored proficient or higher in ELA during the 2018-2019 school year, while only 42% scored similarly in the 2021-2022 school year.[104] For math, the proficiency rate of 11th graders dropped from 42% to 30% over the same time frame.

Disparities in proficiency rates should also raise alarms for equitable access to Delaware Pathways. For example, while 47% of all 11th graders scored proficient or higher on the SAT's ELA section in 2022, Black and Hispanic/Latino students lagged behind at 30% and 31%, respectively.[105] These achievement gaps were present before the pandemic, but should continue to be an area for attention as administrators consider equitable access and participation in Delaware Pathways.[106]

Another, less tangible issue is the need to build students' soft skills (e.g., time management, customer service, communication), especially for those from historically underserved communities.[107] Certain employers have taken this in stride by integrating soft skills development into their work-based learning program. United Way of Delaware, for example, hires young people ages 14-15 to do administrative office work over the summer and builds in soft skill coaching.[108] The Tech Council of Delaware's "Yes, We Tech!" program resulted in dual digital literacy and soft skills certifications for interns.[109] Other nonprofits and some schools offer similar soft skills support through classes or after-school programming.[110]

Yet the COVID-19 pandemic has again only exacerbated the issue. Despite Delaware Pathways continuing virtually, some stakeholders we interviewed suggested that the students' maturity and social development were still impacted.[111] School administrators reported an increase in student discipline challenges and the need for more mental health supports.[112] One program director mentioned that two students she had placed with an employer suddenly stopped showing up to work, but then two weeks later came back to her asking for new placements.[113] With some correction and support, these mistakes might not hurt students' employment opportunities long-term, but they do present a challenge for Delaware Pathways as a whole. In a 2019 report from RTI International, the authors noted that "weak soft skills among some students can jeopardize employer relationships and the schools' reputation," and interviewees agreed that soft skill preparation was an area that needed more attention.[114]

Finally, students need robust advising support to ensure that they are well-equipped to make decisions related to their Delaware Pathways experiences. While all Delaware students in grades 8-12 are required to have a Student Success Plan (SSP), implementation seems to be uneven across districts. The structure and roles of counseling teams and/or work-based learning coordinators vary across districts as well. Some interviewees mentioned that the expansion of Delaware Pathways to middle school will create greater exposure to pathways for younger students, but several still admitted the need for dedicated advising opportunities tailored to students' interests and personal circumstances.

Delaware Pathways must continually re-align to changing economic conditions and integrate more closely with higher education systems to better prepare students for the post-graduation transition.

Integration and alignment are especially important for students from underserved backgrounds, who may not have the social or economic capital to transition smoothly into the workforce or postsecondary enrollment. As a result, they might not be able to capitalize on Delaware Pathways' value after graduation to the same extent as their more privileged peers.

For students entering the workforce after graduation, updating pathways is crucial to maintaining relevance to employers, especially in a constantly changing economic landscape. As an example, the Computer Science pathway originally culminated with students earning a Java certification, but employers felt that experience with Amazon Web Services (AWS) was more applicable in the workplace, leading program administrators to change the requirement for the 2019-2020 school year.[115] Currently, administrators are assessing various pathways credentials to better signal how certain certifications (e.g., CPR, First Aid) need to "stack" on others in order to lead to employment.[116]

Interviewees also mentioned wanting to see more explicit connections to local businesses that might employ graduating seniors. Joanna Barnekov-Staib at the Delaware Workforce Development Board imagines that ideally, "we could map the businesses that are around a high school and signal to the business community, saying, 'if you connected to this high school, this is a pipeline for your workforce.'"[117] However, these iterations will stretch DDOE's capacity, so stakeholders must pay close attention to these efforts and leverage partners like ZIP Code Wilmington, who developed the AWS training, to help.

Delaware Pathways must also integrate more closely with postsecondary education systems so that students can smoothly transition from pathways courses into higher education. Interviewees mentioned needing to focus on (a) increasing opportunities for advanced classes, (b) creating articulation agreements for credit transfers, and (c) aligning scholarship opportunities so that students who want to transition into higher education aren't derailed due to financial burdens. Administrators have made some progress on all three initiatives: student enrollment in advanced courses has risen by 6% since 2018, administrators are negotiating articulation agreements across the state, and DDOE has revamped postsecondary financial aid by consolidating scholarships and extending eligibility.[118]

Despite this progress, more work is needed. In a 2019 study, RTI International found that only one-third of surveyed parents believed that Delaware Pathways was "appropriate for students entering college immediately after high school."[119] The study's authors attributed this belief to "outdated parent perceptions" about the value of CTE programs, but interviewees believed that greater integration would both combat that stigma and solidify the bridge for students between Delaware Pathways and higher education.[120]

Work-based learning experiences seem to vary widely by region, industry, or employer, with little existing data regarding access or experience quality.

Work-based learning experiences can be customized to different pathways, employers, and regional offerings, leaving many school systems in charge of arranging these opportunities for students. Most schools and districts rely on CTE coordinators or work-based learning specialists to connect students to employment, but some schools also place that

responsibility with the pathway teacher, who ideally has industry connections to naturally facilitate those opportunities. For school systems that created distinct positions, the role may be full time, part-time, or combined with traditional college guidance counseling. This flexibility in implementation allows districts to preserve longstanding partnerships or work with small businesses, and they are often supported by Delaware Tech's Office of Work-Based Learning (OWBL). Established in 2018 with a $3.2 million grant from Bloomberg Philanthropies, the OWBL brokers partnerships, provides guidance, and creates tools for school systems, employers, and community-based organizations.

Nonetheless, various implementation challenges still create obstacles. Early on, certain industries (e.g., manufacturing and health care) had safety restrictions that prevented them from hiring minors or having them on-site.[121] Other industries (e.g., finance, computer science, and engineering) were conditioned to only engage college students, not support high schoolers.[122] Larger employers were reluctant to take on the burden of screening high numbers of candidates for part-time, short-term employment, while smaller or rural communities had fewer businesses and partnership options to begin with.[123] Local partnerships also suffered when coordinators on either the school or employer side changed, but OWBL, who might provide some consistency that alleviates local turnover, has too small of a staff to engage in every community.[124]

Certain programs have found some workarounds, such as turning classrooms into bank branches to offer opportunities for rural students, or using an intermediary such as Goodwill to handle the human resources processes.[125] Nonetheless, the flipside of implementation flexibility and creative problem-solving is that students' experiences across the state vary widely, with holistic information regarding work-based learning experiences being scarce.

A 2021 report from RTI International and Rodel described significant success in the growth of work-based learning experiences, as measured by number of employers engaged, partnerships formalized, and resources created.[126] Yet, the report also recommends increasing data collection regarding the type, duration, and quality of work-based learning experiences. That data would be crucial to understanding potential barriers to access, student preparedness, and student satisfaction. Unless intentionally addressed, ad hoc work-based learning experiences are likely to inequitably benefit students with social and cultural capital. Ultimately, differences in available or high-quality work-based learning experiences may be contributing to disparities in pathway completion or even post-pathway employment.

Recommendations

Delaware Pathways is at a crucial inflection point similar to its inception in 2014, in the wake of the Great Recession. Now, three and a half years since the beginning of the COVID-19 pandemic and its subsequent economic downturn, stakeholders are immersed in Delaware Pathways 2.0. Based on the lessons learned from the past nine years of the program, five key policy recommendations emerge to strengthen the program in the years ahead.

Recommendation No. 1: Refresh the governance model by reconvening relevant stakeholders more often and considering ways to bring in other stakeholders such as parents or students.

According to ExcelinEd, "strong governance at the state level sets clear expectations for alignment and quality," allowing fewer barriers to access and affordability.[127] ExcelinEd highlights empowered leadership, a shared vision, aligned policies, and common metrics as essential pillars for strong governance — all of which Delaware Pathways has exemplified over the past nine years. Yet, although implementation challenges and even a pandemic never derailed Delaware Pathways' success, momentum has slowed. The Steering Committee meets less often, and interviewees note that there are less opportunities to share ideas and insights.[128] Recent turnover in leadership and staff mean individuals need more time to understand the complexity of the pathways ecosystem in Delaware, whether that includes getting to know all of the stakeholders involved or understanding the right policy levers to push the work forward. We also heard that there doesn't seem to be a clear engagement strategy, where interested stakeholders might see themselves fitting in or finding direction. Consequently, while Delaware Pathways is still innovating, now seems like the right time to reset alignment among state leadership, as well as among stakeholders across sectors.

Refreshing the governance model also provides an opportunity to bring in new parties who might not have been present for the development of the first strategic plan. For example, in 2019 RTI International recommended greater parent engagement, and the role of parents and students was surfaced several times in interviews. One interviewee summarized, "if we are building programs for students and young adults, they should not just be sitting at the table for the meal. They should also help plan and prepare the meal, sharing what worked, what didn't, and what the next meal should be."[129] Parents and students are starting to be more involved — for example, they helped to set the guidelines for the upcoming middle school pilot programs. Nonetheless, refreshing the governance model might surface new ways to align and engage new and interested stakeholders.

Recommendation No. 2: Develop a renewed vision for Delaware Pathways and draft an accompanying strategic plan focused on program sustainability and accessibility.

Delaware Pathways' success is easily seen in how quickly it was implemented and scaled. As one interviewee described, the Steering Committee "actually implemented their whole first strategic plan, which people don't usually do."[130] Yet, that has also created an expectation for iteration and growth, which requires even more resources (funding and capacity) than what is currently required and available to sustain the program.[131] As a result, the Steering Committee must turn its attention towards the long-term future of the program.

The time is ripe for a new strategic plan that prioritizes maintaining progress without sacrificing any of the components that make Delaware Pathways high-quality. This strategic plan might include finding financial sustainability and focusing on addressing barriers to access for marginalized students. However, the drafting process for a new strategic plan should involve a collaborative approach similar to the first round, so that those involved have the chance for input, commitment, and ownership.

Governor Markell's 2015 "Delaware Promise" set an ambitious vision for the impact Delaware Pathways could and would have over the next seven years. Governor Carney's continued investment and leadership through the pandemic allowed Delaware Pathways to flourish through adversity and expand to middle school. Now, two critical moments are converging in the next year: an upcoming gubernatorial transition in 2024, and the emergence of results from two substantive studies measuring Delaware Pathways' impact. An opportunity thus arises for Delaware's leaders to build on the legacies of both Govs. Markell and Carney and use the data to develop a renewed vision for what Delaware Pathways could look like in 2033 or 2035.

Recommendation No. 3: Systematize ongoing data efforts to integrate data collection, analysis, and reporting, as well as program iteration, into an annual cycle.

Delaware Pathways has a prime opportunity to learn from the past nine years and use those results to drive innovation. RTI International's study will formally highlight students' voices, giving administrators valuable feedback on how Delaware Pathways can tangibly impact students' lives. Meanwhile, the University of Delaware's longitudinal study will for the first time provide a robust assessment of Delaware Pathways' long-term outcomes, including effects on postsecondary enrollment and wages. Coordinating both of these efforts will provide the fullest evaluative picture of Delaware Pathways' strengths and areas of opportunity, which the Steering Committee can use to inform the strategic plan and other efforts going forward.

In the future, as DDOE begins updating the oldest pathways, it will be critical to establish routine evaluation, reporting, and program iteration processes, so that turnover at any one organization does not derail efforts at another. An ideal process might incorporate the research methodologies used by RTI International and the University of Delaware to ensure

that program quality is backed with strong, holistic evidence. This might require dedicating extra capacity and planning, whether by leveraging partners or adding state personnel, but ultimately, the data and conclusions should be published on state dashboards or the program's website. Not only will this increase the program's transparency for the public, but it will also aid in engaging stakeholders at all levels in meaningful program improvement efforts and making the case for continued investment.

Recommendation No. 4: Address disparities in access and completion rates using the data gathered.

Historically, career pathways programs were a means to "track" Black and brown students into lower-wage occupations with little room for growth and prosperity.[132] That stigma lingers today.[133] Yet at its core, Delaware Pathways works to address inequity by exposing students to a broader range of potential careers that are life- or family-sustaining, regardless of whether they choose to attend college. Delaware Pathways are high-quality, aligned with labor market opportunities, and produce value (e.g., credits and certifications) beyond the K-12 system. Delaware Pathways itself expands opportunities for students — assuming that all students can access it.

In practice, participation data shows disparities in completion rates, and interviewees highlighted that more can still be done for students with disabilities, English Language Learners, and rural students. There seems to be a consensus among stakeholders that something should be done, but before action can be taken, there needs to be a better understanding of the causes for these disparities, whether it's lack of transportation, inadequate academic preparation, weak soft skills, or other causes yet unknown. Additionally, it is currently unclear to what extent each of these affects different communities, and how widespread these might be across the state. Investigating the potential drivers of inequities will be the first step towards addressing them.

A key strength in working towards this goal is that many stakeholders are making progress on understanding and addressing barriers. DDOL was able to increase awareness and access by leveraging an existing summer employment program for low-income students. By simply asking, "What pathway are you in?" on the summer application, administrators could find gaps in awareness, hand out information, and connect education leaders to low-income families.[134] In another example, POLYTECH High School intentionally cultivates equity among its programs by requiring all students in grade 9 to explore every pathway offered before deciding on a path; their approach directly tackles implicit, preconceived notions of who can do what before it can manifest.[135] Although slightly less robust, New Castle County Vo-Tech School District and Sussex County Vo-Tech School District similarly rotate 9th graders through six pathways to facilitate greater exposure.[136] Delaware Tech leverages strong relationships with community-based opportunities to proactively engage students before they arrive at the

college. By coordinating efforts and aligning them to the data collected, the state could amplify Delaware Pathways' impact for those who need it the most.

Recommendation No. 5: Expand access to work-based learning by providing more information and advising for students while involving employers more deeply in co-creating opportunities.

The need for more data on work-based learning experiences comes not just from an evaluative lens, but also from the perspective of students' needs. Some students lack the soft skills needed to succeed in a workplace; others need transportation just to get there. Still others work jobs unrelated to their career pathways program out of necessity and can't participate in additional unpaid experiences.[137] Work-based learning experiences vary across the state, with no formalized assessment of their quality. Given these circumstances, students lack the information they need to accurately make decisions about participating fully in work-based learning. They need both information and advising, which in turn highlights a need to invest in more CTE coordinators and counselors. While both the Office of Work-Based Learning and DDOE have invested a considerable amount of resources in creating supports for work-based learning, scaling high-quality opportunities and participation in them will require a cohesive strategy rooted first in understanding what work-based learning looks like across the state.

On the supply side, employers will also need to engage in new and different ways. Both past reports and interviews lamented that while some in the business community have been engaged, "about half of [the Office of Work-Based Learning's] partnering employers regard work-based learning as a community service," rather than an investment in their hiring strategies.[138] This mindset manifests in a shallower commitment to providing opportunities or sustaining work-based learning through staff turnover. Ultimately, the fear is that "without seeing these programs as creating meaningful returns on investment, employers will lose interest."[139]

The Office of Work-Based Learning is doing their best to change this perspective by catalyzing the creation of industry councils, with the goal of connecting students to businesses across the state.[140] Inspired by similar councils in Switzerland, the first council launched in 2020 as the Delaware IT Industry Council and is now known as the Tech Council of Delaware (TCD). TCD provides "an online membership platform, routine training programs, information panels, lobbying efforts, and collaboration between industry, education, and government."[141] Ultimately, the vision is that TCD will help Delaware "strengthen its place as a national tech hub by building a more diverse tech talent pipeline and a stronger ecosystem."[142]

Moving forward, OWBL and Rodel are hoping to catalyze similar councils in energy, manufacturing and engineering, and healthcare. Other strategies on the table are building in

more incentives for employers, as well as creating infrastructure to engage employers at scale. Ultimately, shifting the narrative from "corporate social responsibility" to "deepening talent pipelines" will be key to scaling Delaware Pathways' work-based learning opportunities.

Conclusion

Delaware Pathways provides an exemplary model for statewide career pathways programming. For nearly a decade, Delaware Pathways has increased the overall quality of career pathways programs, expanded work-based learning opportunities for students, and provided school districts with the funding and support they need to elevate career programming across the state. Other states looking to develop or grow their own career pathways programs should consider the lessons learned from Delaware Pathways' implementation successes and challenges. The accompanying playbook, <<TITLE TKTK>>, distills the lessons discussed in this case study into seven key moves that policymakers should pay attention to when implementing or scaling a pathways program.

The link between education and workforce readiness and skill development have never been more salient. Students are looking for educational experiences that will prepare them for a career with economic security, while both states and employers are looking to education as a driver of talent pipelines and a way to meet states' labor market demands. In response, career pathways programming needs to be high-quality, aligned to the labor market, and accessible to all.