

A Statewide Initiative to Award College Credit for Industry Credentials in Ohio

Building Evidence to Support Implementation

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PR-A2485-1

April 2023

Prepared for the Ohio Department of Higher Education, Lumina Foundation

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About This Project Report

Ohio is among the first states in the country to develop statewide agreements that award college credit at the state’s community colleges and universities for the industry credentials that individuals hold. The Industry-Recognized Credential Transfer Agreement Guide (ITAG) initiative builds on a history of statewide articulation agreements in Ohio, which aim to set common standards for awarding course credit across the state’s public institutions. ITAGs provide clear guidance to Ohio institutions about how they should be awarding credit for industry credentials in such fields as health care, information technology, and manufacturing. The first ITAGs were established in early 2022.

Statewide frameworks that articulate credit for industry credentials aim to simplify the existing credit for prior learning environment, reducing the need for students to navigate a confusing web of institution-specific policies and providing greater assurance that articulated credit will be universally accepted by the state’s institutions. The initiative also provides an opportunity to provide outreach to individuals holding industry credentials and provide information about opportunities to upskill and earn postsecondary credentials. Depending on how they are implemented, statewide credit for prior learning frameworks have the potential to advance goals around equity by increasing access to and success in college for historically underserved populations.

This report provides an overview of the RAND Corporation’s efforts to support the Ohio Department of Higher Education (ODHE) as it prepared to implement the ITAG initiative. RAND’s charge was to support equitable implementation and provide ODHE with evidence-based guidance in three areas: (1) opportunities to center equity in the ITAG implementation process, (2) an outreach plan, and (3) an impact analysis plan. The intended audience for this report is ODHE leadership and staff, and it might also be applicable to others partnering with ODHE on the implementation process.

RAND Education and Labor

This study was undertaken by RAND Education and Labor, a division of the RAND Corporation that conducts research on early childhood through postsecondary education programs, workforce development, and programs and policies affecting workers, entrepreneurship, and financial literacy and decisionmaking.

This study was sponsored through a contract with ODHE, which was funded through a grant from the Lumina Foundation. ODHE is a cabinet-level agency for the Governor of the State of Ohio that oversees higher education for the state. The agency’s main responsibilities include authorizing and approving new degree programs; managing state-funded financial aid programs;

and developing and advocating policies to maximize higher education's contributions to the state and its citizens. Lumina Foundation is an independent, private foundation in Indianapolis that is committed to making opportunities for learning beyond high school available to all. The foundation envisions a system that is easy to navigate, delivers fair results, and meets the nation's need for talent through a broad range of credentials.

More information about RAND can be found at www.rand.org. Questions about this report should be directed to Lindsay Daugherty at ldaughter@rand.org, and questions about RAND Education and Labor should be directed to educationandlabor@rand.org.

Acknowledgments

This study would not have been possible without close collaboration with our funders and partners at ODHE, including Tom Sudkamp, Paula Compton, Nikki Wearnly, Cheri Rice, Jessi Spencer, Patty Klein, and Sherry Chadwell. The team at ODHE helped to shape the study scope, connect us to stakeholders, provide regular feedback on iterations of the outreach plan, and support dissemination of findings. We also thank Mike Duffey for his input on stakeholders from computer science and information technology.

We benefited from regular input from the ITAG Steering Committee, which included: Tara Bair, Dr. Jonathan Dryden, Amy Dumbaugh, Sandra Elliott, Dr. Gigi Escoe, Robbin Hoopes, Paula Kertes, Eric Leach, Dr. Joyce Malainy, Rebekah Michael, Tara Shepherd, Sara Tracey, Dr. Joe Whitehead, and Matt Winkle. We thank all of the members for their time and valuable perspectives and we thank Sara Tracey and Tara Bair for their efforts to connect us to industry stakeholders in manufacturing and health care.

We thank our reviewers for their thoughtful feedback on the report, including Brett Visger (Education Strategy Group), Rita Karam (RAND), and Katie Carmen (RAND). Matthew Baird and Drew Anderson (former RAND researchers) played a critical role in supporting the analysis of racial and ethnic diversity among credential-holders in Ohio. Daniel Ibarrola provided support with the literature review.

Finally, we are grateful to our funders for their support of this research and thoughtful perspectives on the work. We thank ODHE for trusting us as a partner in this work, and we thank the Lumina Foundation for its support of the grant that made the work possible.

Summary

Issue

Colleges are increasingly recognizing the value of learning that takes place outside the classroom, and many offer credit for prior learning (CPL) initiatives that award course credit toward a certificate or degree for noncredit learning experiences. For example, many individuals hold industry certifications and licenses, credentials awarded by a wide variety of organizations outside the formal postsecondary education system (e.g., for-profit companies, such as Cisco; associations, such as the American Welding Society; and state bodies; such as the Ohio Board of Nursing), and the knowledge and skills required for these certifications and licenses often overlap with what is taught in college courses. Rather than requiring individuals to take courses that cover things they already know, institutions use CPL initiatives to award credit for the courses that overlap with industry certifications.

CPL initiatives offer an opportunity for individuals to save time and money on a credential and communicate to individuals that their prior experiences and the knowledge and skills they bring into college are valued. These initiatives have the potential to advance equity by building on-ramps into and through college for the historically underserved populations who commonly hold these credentials. Yet CPL initiatives have largely been implemented at the local level by institutions and academic departments, leading to a complex web of policies and processes for individuals to navigate. Individuals often are not aware of the opportunities, cannot figure out how to access them, or do not have the time and resources to complete administrative requirements (e.g., paperwork, assessments). Groups of individuals that have been historically underserved by U.S. postsecondary systems—individuals of color, low-income individuals, rural individuals, and older individuals—are those who often face the greatest barriers to access.

In 2022, the Ohio Department of Higher Education (ODHE) established statewide frameworks to set standards for how college credit should be awarded for industry credentials across the state's public institutions. This Industry-Recognized Credential Transfer Assurance Guide (ITAG) initiative expanded on a set of similar statewide articulation agreements in Ohio. These statewide frameworks aim to improve access to CPL by requiring all public institutions to award credit for approved noncredit experiences, streamlining the confusing environment of institution-specific policies that individuals must navigate, and offering opportunities to coordinate and expand outreach. As state leaders at ODHE implemented the ITAG initiative, they leveraged funding from the Lumina Foundation to support their strong existing processes and procedures for articulation and to identify additional opportunities for centering equity and building evidence to inform implementation.

Approach

ODHE partnered with the RAND Corporation to provide support and gather evidence as it implemented different components of its statewide CPL frameworks. RAND researchers provided ODHE with support in three areas:

1. *Guidance on Equitable ITAG Implementation:* To inform the equity-centered implementation of ITAGs, we provided ODHE with three types of evidence. Our expertise on equity, postsecondary education, and CPL literature informed our guidance on promising practices for equity-centered implementation of initiatives in colleges; analysis of quantitative data on the racial and ethnic diversity of individuals holding ITAG-relevant credentials across different fields and occupations to identify credentials that were held more frequently by individuals of color; and examination of how equity should be considered as part of the state’s outreach plan efforts around ITAGs.
2. *An Evidence-Based Outreach Plan:* To develop an evidence-based outreach plan, we engaged a wide variety of stakeholders, including institutional staff and leadership and industry partners; drew lessons from a targeted search of the literature; and engaged with ODHE and the steering committee.
3. *An Impact Analysis Plan:* We developed an impact analysis plan that can be used to guide data collection efforts and support analysis of student outcomes and equity.

This report is intended for ODHE leadership, the funders, and other stakeholders engaging closely with ODHE to implement ITAGs. It documents our efforts to support ODHE and the evidence we provided to inform implementation efforts during the first year of the initiative. This work offers valuable insights into ways that state agencies can engage with research partners to consider evidence in the planning process for rolling out a statewide CPL initiative. We describe some of the key takeaways from the work below.

This project was an initial step in building evidence to support, understand, and evaluate the state’s efforts to implement its initiative awarding credit for industry credentials. Although we provide a few examples of how ODHE might be carrying out aspects of implementation, evaluating the implementation and impact was outside the scope of this project. More work is needed to assess the implementation and impacts of the policy and to build a roadmap for other states to replicate the work. It will be particularly important to understand how ITAGs are being implemented in institutions and integrated into the broader set of CPL opportunities and enrollment and advising processes. Statewide CPL frameworks can establish the infrastructure for improved noncredit to credit movement and enhanced pathways into credit-bearing postsecondary education, but how colleges and universities make incoming students aware of CPL opportunities and implement them on the ground is essential to the student experience and whether students benefit from CPL opportunities.

Our analyses were also limited in several ways. Our efforts to pull data on the characteristics of credential-holders focused on a single measure—racial and ethnic diversity of individuals holding credential—while ODHE considered a wider variety of measures that included average earnings. And our interviews focused primarily on administrators at postsecondary institutions

and high-level industry leaders; we were not able to gather the perspectives of individuals holding industry certification and licenses or the frontline staff that are most likely to be communicating with these individuals. To develop effective outreach materials, it will be essential to identify opportunities to incorporate the perspectives of these individuals.

Key Takeaways

Through this project, we identified some lessons learned for ODHE and other key stakeholders implementing statewide CPL frameworks about how evidence can be used to inform the implementation of initiatives and how statewide CPL initiatives can center equity. Below we outline some of the key takeaways from the project.

There are at least five implementation practices that states like Ohio can adopt in developing statewide CPL agreements to center equity. ODHE provided examples of how their implementation efforts were aligned with these equity-centered practices. These practices include:

- Prioritize certifications and licenses that are more likely to reach individuals of color and other historically underserved populations and improve their career outcomes.
- Include diverse perspectives on advisory groups, faculty panels, and other implementation teams.
- Design processes for seeking and receiving credit that minimize administrative burden on incoming students.
- Develop outreach strategies to inform and engage individuals, with a focus on historically underserved groups.
- Ensure that credits are comprehensively awarded and tracked and that evidence on outcomes and equity is assessed.

Evidence indicates that racial and ethnic diversity of the individuals holding industry credential varies across fields. This suggests that prioritizing credentials held more commonly by individuals of color (and potentially other historically underrepresented populations) could be important to ensuring equitable implementation. For Ohio's ITAG initiative to advance racial and ethnic equity, it must ensure that individuals of color have sufficient access to opportunities and resources so that they have a fair chance of achieving similar outcomes to non-individuals of color. Prioritizing industry credentials that are more commonly held by individuals of color is one way to do this. ODHE considered our evidence on the racial and ethnic diversity of credential-holders alongside earnings. Many of the initial ITAGs fell in areas in which individuals of color were disproportionately represented, such as Computer Technology and Computer and Information Sciences (in which 40 percent and 27 percent of certificate-earners are individuals of color, respectively); Licensed Vocational Nursing

(in which 31 percent of certificate-completers are individuals of color); and Electrical Engineering Technician (in which 27 percent of certificate-completers are individuals of color).

State policymakers will need to engage a wide variety of messengers to support outreach around ITAGs. The state will want to build awareness of the statewide opportunities to earn credit for industry credentials among individuals who can benefit. These individuals are spread throughout the workforce; reaching them might require the state to engage with different messengers. ODHE should prioritize its outreach efforts to the organizations it most frequently engages with to communicate about the state’s initiatives, including postsecondary institutions, intermediaries, and policymakers. ODHE can then rely on other state agencies and intermediaries to communicate with other messengers at high schools, employers, and OhioMeansJobs Centers.

Community colleges and universities will play a particularly important role in supporting outreach. ODHE and other messengers can provide general information on ITAGs, but to enroll and use ITAGs, individuals will eventually need detailed program-level and institution-level information on credit-bearing programs. In addition, staff at these institutions play a critical role in ensuring that incoming students are broadly informed about CPL opportunities and must integrate outreach to students on ITAGs with communication around the institution’s broader set of CPL initiatives. Furthermore, colleges and universities often have strong relationships with their local high schools, Ohio Technical Centers (OTCs), and employers and can leverage these partnerships to enlist these other messengers to spread the word about ITAGs.

Industry messengers can be valuable in reaching individuals not actively seeking out information on college, but their capacity for deep involvement in outreach might be limited. Although postsecondary institutions will play a primary role in informing current and incoming students about ITAGs, other messengers might be needed to reach individuals in the workforce who hold industry credentials but are not actively engaging with colleges to seek out information. Industry messengers include leadership and human resources staff at employers (who can provide outreach to employed individuals); staff at OhioMeansJobs centers (who can provide outreach to unemployed individuals); and staff at credential-awarding bodies (for all credential-holders). Statewide and regional employer associations could also be valuable messengers to employers. However, industry partners might see limited connections of ITAGs to their priorities and might have limited time and resources for providing outreach to individuals around education and training opportunities. So, their role in active outreach will likely remain limited.

Resources and outreach efforts should deliver simple, tailored messages to different stakeholder groups that present information broadly on CPL initiatives and consider their interests in these initiatives. Communication about ITAGs to individuals with credentials

should stay away from acronyms and focus on simple concepts that ring true to adult learners in the workforce, such as career opportunities and saving time and money on college. In addition, individuals might look to access information on different types of CPL opportunities in a common way, so it will be important to consider how ITAG outreach can be integrated with outreach on other closely related statewide and local CPL policies. Furthermore, many ITAG messengers (e.g., employers; high schools and technical centers; OhioMeansJobs centers) might have limited capacity and motivation to prioritize outreach on ITAGs. As a result, ODHE and other state agencies need a compelling message about the value of ITAGs for industry and can play a role in providing ready-to-use materials that they can push out to individuals. Given the deeper role and interests of credit-awarding institutions in using CPL to attract and support students, the outreach to these institutions can be more detailed (and should be).

To encourage equitable take-up of ITAGs among incoming and current students, traditional outreach to individuals about education and training options (e.g., websites, advertising) might be less valuable than institutional practices that more systematically identify eligible students and award credit. The primary value of traditional forms of outreach around ITAGs is to provide a *hook* into postsecondary education for individuals who hold industry credentials but were not actively considering college enrollment. For incoming and current students, a more effective and equitable way of informing students about CPL opportunities and maximizing use of these opportunities is to build them systematically into intake processes. For example, some institutions build screening questions into applications and build CPL in as a required topic during mandatory meetings with new students and advisors. This more systematic approach to outreach and screening around CPL reduces the need for individuals to seek out information and figure out administrative processes, barriers that commonly prevent students from benefiting from these opportunities.

There are a modest set of outreach resources that ODHE can develop to support outreach. This report describes 11 different resources the state might prioritize for outreach. ODHE has already developed some of these resources (e.g., websites, search tools, ITAG approval documents), and some of the resources would need to be developed (e.g., marketing materials, pathways maps, frequently asked questions). It will be important to tailor some resources to specific fields, institutions, and occupations, and we suggested approaches to doing this that would require some work on the part of state agency staff and some support from institutions and other organizations to tailor resources. We laid out a one-year timeline for the initial work to build these resources and engage stakeholders around them, though some outreach efforts will likely need to extend beyond that initial year. We suggested that ODHE will require additional resources for the work, such as ODHE staff time; support from consultants in designing marketing materials and pathways maps; and engagement of institutional and industry messengers and partners at other state agencies in providing feedback on resources.

Ohio can leverage variation in the rollout of statewide CPL frameworks to examine impacts, though there are limitations to this approach. The state only has capacity to establish 15 to 25 new ITAGs per year given the time and resources it takes for approval and limited capacity at ODHE and among panel members. This leads to variation over time in which fields have approved ITAGs, and we can compare individuals in fields with early-approved ITAGs with individuals in fields in which ITAGs were approved later. Institutions also vary in the speed at which they offer equivalent courses and register course equivalencies. We can compare students entering some colleges that have greater and earlier access to ITAGs than students in the same fields at other colleges. This approach will help to build some evidence on the impact of ITAGs, but we describe several important limitations and suggest one other possible approach to rigorous impact evaluation.

As the state continues to implement the initiative, there are many future areas for continued partnership and evidence-building. For example, it would be valuable to document and assess the implementation process to facilitate replication in Ohio and across the country and to support continuous improvement around areas in which implementation efforts are falling short. It might also be useful to understand whether and how statewide CPL frameworks improve on the institution-driven approach. And it is critical to assess the costs and impacts of the initiative to understand the return on investment.

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Chapter 1. Introduction

In 2022, the Ohio Department of Higher Education (ODHE) began to roll out Industry-Recognized Credential Transfer Assurance Guides (ITAGs), statewide frameworks that specify standards for how credit-bearing postsecondary institutions should award credit for industry credentials. Statewide credit for prior learning (CPL) frameworks aim to streamline the complex landscape of institution-specific policies and ensure all institutions are awarding CPL in a common way. These initiatives have the potential to advance equity in postsecondary education by expanding the on-ramps from noncredit training into postsecondary education and helping to address some of the barriers that have commonly prevented students from receiving credit for their noncredit learning.

Ohio's ITAG initiative builds on the state's existing set of comprehensive transfer agreements that were supported by legislation and established over the past three decades. For example, the state has developed initiatives that support the transfer of credit from two-year institutions to four-year institutions for individuals in traditional degree programs, such as the Ohio Transfer 36, which aims to articulate credit for general education courses; Transfer Assurance Guides (TAGs), which aim to articulate credit for coursework that is specific to the degree requirements for particular fields of study (e.g., common majors); and Ohio Guaranteed Transfer Pathways, which offer opportunities for the articulation of associates degrees into bachelor degree programs. Over the past decade, the state has developed frameworks that focus on awarding college credit for noncredit learning experiences, including career-technical courses offered by high schools and technical schools (Career and Technical Education Transfer Assurance Guides [CTAGs]) and military training (Military Transfer Assurance Guides [MTAGs]). ODHE drew on many of the structures and faculty-led practices that were established for these prior agreements to provide the foundation for the ITAG initiative.

In considering how to implement ITAGs, ODHE wanted to ensure that it was centering equity in the process and using evidence wherever possible to guide its planning around ITAG approval and outreach. Although the implementation of institution-specific CPL practices is well-documented in the literature, there is little evidence to inform the implementation of statewide frameworks for CPL and limited guidance on how to ensure that these initiatives are established in a way that centers equity. To address this gap, the RAND Corporation partnered with ODHE between December 2021 and April 2023 to provide guidance in three specific areas: (1) equity-centered implementation practices, (2) evidence-based approaches to outreach, and (3) planning for impact analysis.

This report documents the work that was carried out by RAND researchers to support ITAG implementation for ODHE staff, the funders, and other stakeholders working closely with ODHE on implementation. In the rest of this chapter, we provide some additional background on CPL

and statewide frameworks for noncredit articulation, and we describe how these efforts aim to improve postsecondary achievement and advance equity. In Chapters 2 through 4, we provide a description of our efforts to support ODHE's implementation of the initiative. We then conclude with some final thoughts in Chapter 5. Appendix A presents analysis from two different data sources examining the racial and ethnic diversity of individuals holding credentials in different fields and occupations. Appendix B presents relevant findings from our interviews and targeted search of the literature.

The Role of Credit for Prior Learning and Statewide Frameworks in Advancing Credential Completion and Equity

Traditionally, the requirements for earning a credit-bearing college credential have been structured around the completion of coursework and seat time in a college classroom (in-person or virtual). But increasingly states and postsecondary institutions have begun to recognize the value of other types of learning experiences in building relevant knowledge and skills, and many colleges now award college credit for noncredit learning that individuals obtain through military and work experience (Education Strategy Group, 2020; Kilgore, 2020; Sherman and Klein-Collins, 2015; Whinnery, 2017; Whinnery 2018). These efforts to award credit for noncredit learning are often referred to as credit for prior learning (CPL) initiatives. For example, many individuals hold industry certifications and licenses, credentials awarded by a wide variety of organizations outside the formal postsecondary education system (e.g., for-profit companies, such as Cisco; associations, such as the American Welding Society; and state bodies, such as the Ohio Board of Nursing), and the knowledge and skills required for these certifications and licenses often overlap with what is taught in college courses. Rather than requiring individuals to take courses that cover things they already know, institutions use CPL initiatives to award credit for the courses that overlap with industry certifications.

The opportunity to earn college credit for prior noncredit learning helps to reduce the time and financial requirements of credit-bearing certificates and degrees for individuals (Berek and Kortegast, 2022; Klein-Collins, 2010; Kilgore, 2020; Klein-Collins et al., 2020; Ryu, 2013). These initiatives also communicate to individuals that their noncredit learning experiences are valued in the postsecondary education system and provide an opportunity to inform them about credit-bearing credentials that can build skills and knowledge and lead to career growth in such applied fields as advanced manufacturing, information technology, and health care (Klein-Collins and Framularo, 2022). Studies indicate that CPL opportunities can increase completion of postsecondary credentials (Boatman et al., 2019; Klein-Collins et al., 2020; McKay and Douglas, 2020). CPL can be more effective when paired with supports that address student needs and experiences (McKay and Douglas, 2020; Palmer et al., 2021).

Many individuals can benefit from CPL opportunities, and the evidence suggests that CPL can offer on-ramps into college for historically underserved populations. Older learners (i.e.,

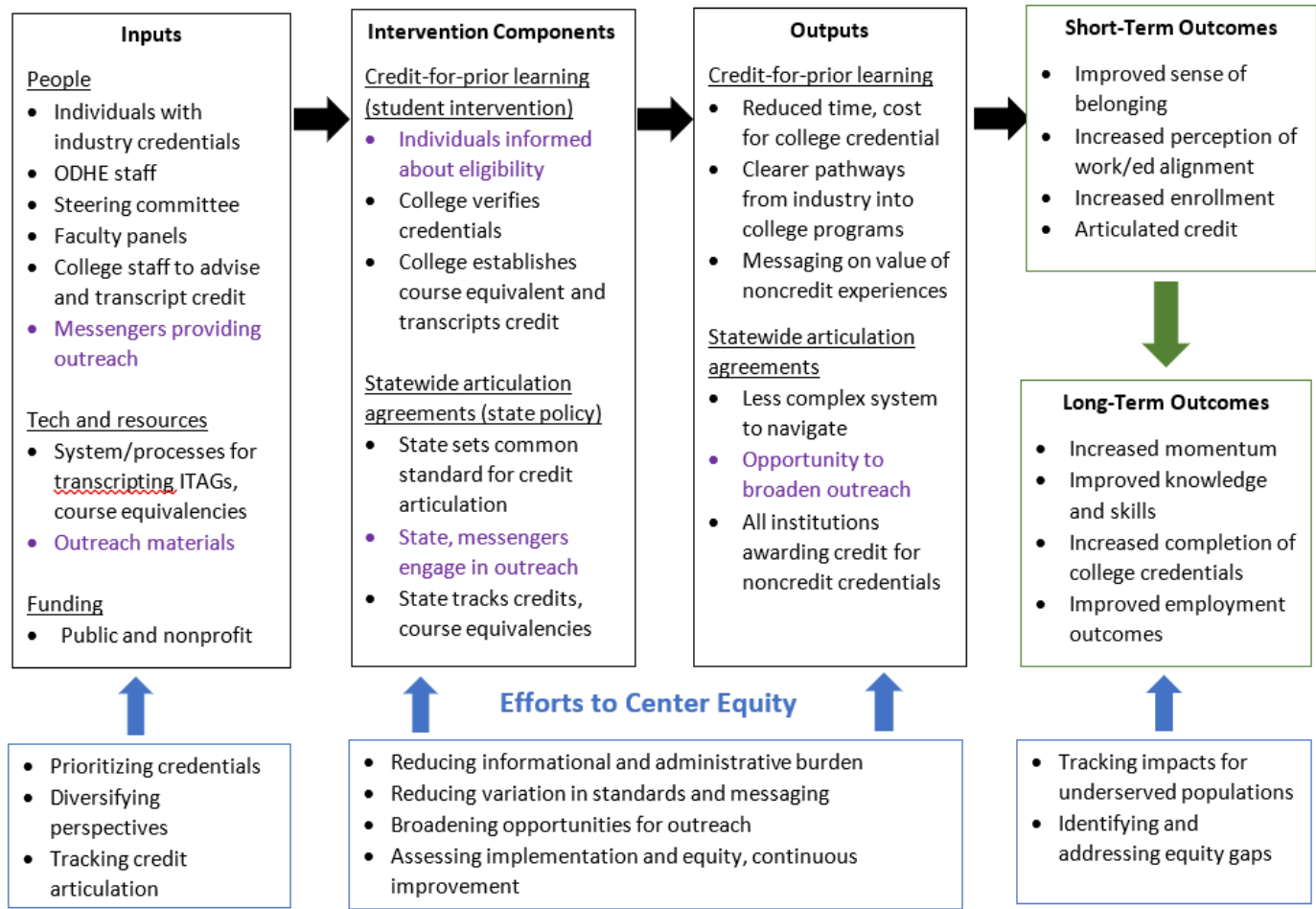
ages 25 and older) are overrepresented among those who have the industry credentials, work experience, and noncredit training. In addition, one study found that women and individuals of color were more likely to enroll in noncredit training programs relative to their representation in credit-bearing programs (Buckwalter and Maag, 2019). On the other hand, national data show that individuals of color are less likely to hold industry certifications and licenses; 26 percent of White adults in the United States hold industry credentials, compared with 22 percent of Black adults and 16 percent of Hispanic or Latino adults (U.S. Bureau of Labor Statistics, 2021). Nonetheless, these racial and ethnic gaps in achievement are somewhat smaller than those seen for degree achievement (Daugherty, 2021).

CPL initiatives have largely been pursued at the local level: Institutions and academic departments at each institution establish the standards and procedures by which they will award credit for different types of noncredit learning. Institutions usually require individuals to complete some paperwork to request the credit, and students often demonstrate knowledge and skills obtained through portfolios or assessments, or both (Kilgore, 2020). Individuals might need to take the lead in learning about these opportunities through websites and other resources, or advisors and enrollment staff can build opportunities for noncredit articulation discussions as part of the intake process. Limited information on CPL policies and the confusing landscape of department-specific policies and the substantial administrative burden involved in the articulation of credit can act as barriers to take-up by individuals and college staff (Kilgore, 2020; Palmer and Nguyen, 2019; Ryu, 2013). A recent study indicates that low-income individuals and individuals of color are the least likely to report a clear understanding of CPL policies (Klein-Collins and Framularo, 2022).

To simplify the CPL learning landscape, establish a common set of standards across institutions, and increase access to college for individuals with prior noncredit learning, states and systems have begun to pursue statewide and systemwide CPL frameworks. These CPL frameworks lay out the noncredit experiences for which individuals should receive credit; establish credit and course equivalencies for those noncredit experiences; and lay out a common process for verifying the credentials and capturing the credit on student transcripts (Sherman and Klein-Collins, 2016). In addition to simplifying the landscape of CPL policies for individuals to navigate, these statewide agreements assure that all institutions are awarding CPL. They also provide the state with an opportunity to broaden and coordinate outreach around CPL opportunities (Sherman and Klein-Collins, 2015).

In Figure 1.1, we lay out a visual depiction of how statewide CPL agreements aim to scale and streamline CPL opportunities and how CPL opportunities aim to support improved student education and employment outcomes. The *Intervention Components* section describes what the key activities required to carry out statewide CPL initiatives are. At the state level, ODHE is responsible for establishing the statewide standards for articulating industry credentials into college credit and helping to develop the infrastructure and processes for verifying industry credentials and tracking credit. However, credit-awarding institutions also play a critical role:

Figure 1.1. A Framework Describing Statewide Credit for Prior Learning Frameworks and Their Aims to Improve Student Education and Employment Outcomes



NOTE: The blue boxes in the figure are the efforts to center equity within ITAG implementation, topics covered in Chapter 2 of the report. The text in purple indicates outreach efforts around ITAGs, which are described in Chapter 3 of the report. The green boxes are the measures of student outcomes that will be the focus of impact analysis, which is described in Chapter 4 of the report.

the staff in these institutions are the ones who will interact directly with students to ensure they use the opportunity to receive credit for their industry credentials. Outreach about the initiative will need to happen at both the state and institutional level.

The *Inputs* section of Figure 1.1 lays out the individuals involved in implementing the initiative and the resources and funding needed to implement the initiative. State agency staff and steering committees are engaged in identifying relevant credentials and engaging in high-level planning. Any initiative in Ohio that awards college credit requires a development process to establish a set of statewide learning outcomes that establish equivalency among commonly taught courses across Ohio's public colleges and universities; for ITAGs, this process was carried out by industry workgroups. Institutions must then electronically submit details regarding their coursework to be reviewed by a panel of faculty experts and determine equivalency. Within credit-bearing institutions, a wide variety of staff might be involved in informing individuals about CPL opportunities, verifying credentials, and ensuring that credit is input onto an individual's transcript. Beyond institutional staff, there might be other messengers who can inform individuals with industry credentials about the opportunity to earn college credit, including credential-awarding organizations, employers, and high schools and technical centers that train students for industry credentials.

The *Outputs* section of Figure 1.1 describes how these activities lead to an improved system and improved pathways for students. As described earlier, the value of CPL initiatives is that they reduce duplicative or inefficient course taking by allowing students to receive credit for what they know. This communicates to individuals that the knowledge and skills they bring in is valued, and it reduces the time and costs involved with completing a postsecondary credential. The statewide frameworks simplify the complex existing system of CPL policies, ensure all colleges are offering CPL, and offer opportunities for broader, statewide outreach.

The *Outcomes* sections of Figure 1.1 describe how these initiatives aim to improve educational and employment outcomes. In the short run, individuals who hear about and receive credit through the state's initiative might feel an enhanced sense of belonging and see increased alignment between their industry training and credit-bearing credentials. These opportunities might provide a *hook* into college for some individuals (i.e., increase enrollment), and they should support students in accumulating immediate credit. In the longer run, the hope is that these policies drive increased completion and improved labor market outcomes.

Advancing equity in postsecondary education has been an important focus of the state's efforts to establish statewide CPL frameworks. As noted earlier, statewide agreements can further increase access to CPL among historically underserved communities by simplifying the system and reducing the amount of information and navigation support individuals need to access the opportunities; minimizing administrative burden; and ensuring broader, more consistent outreach. There are also things that states can do to center equity as they implement statewide CPL initiatives. As conveyed in Figure 1.1, states can center equity in the initiative by incorporating the voices of a wide variety of stakeholders, prioritizing credentials that offer

educational and career advancement opportunities for historically underserved populations, and ensuring consistent tracking of credit to assess take-up and outcomes for these groups.

A RAND and ODHE Partnership to Support Evidence-Based, Equitable Implementation

Since 2018, ODHE and RAND have partnered on efforts to build evidence around the state's nondegree and stackable credential programs. This work highlighted the importance of initiatives that align noncredit and credit credentials, including Ohio's innovative statewide CPL frameworks. Through conversations between ODHE and RAND about the state's plans to roll out its ITAG initiative in 2022, the two organizations identified some areas in which RAND researchers could provide some additional guidance and evidence to support implementation. Below we describe the three areas in which we provided ODHE with guidance and evidence; we organize the remaining chapters of the report according to these three areas.

Providing guidance on equitable implementation of ITAGs (Chapter 2): The Lumina Foundation and ODHE wanted to ensure that equity was a central focus of the state's implementation of ITAGs. RAND and ODHE identified two ways that RAND researchers could support equity-centered implementation. Prior to implementation in December 2022, the RAND team drew on our expertise around postsecondary equity and our knowledge of the postsecondary equity and CPL literature to provide a memo to ODHE on equity-centered implementation practices. Although we did not rigorously assess ODHE's implementation of these practices, we provide some examples of how ODHE staff reported that these practices were adopted. ODHE also wanted to ensure that the state was prioritizing industry credentials that are held commonly by historically underrepresented populations. To support ODHE in identifying and prioritizing credentials for ITAG approval, we provided quantitative data on the racial and ethnic diversity of individuals holding ITAG-relevant credentials across different fields and occupations. We describe the findings from this analysis.

Developing an evidence-based outreach plan (Chapter 3): As evidenced in Figure 1.1 and the literature around the barriers to use of CPL, awareness of CPL opportunities and statewide frameworks is an essential component of successful implementation. We highlight the role of outreach in implementing these statewide frameworks through bold text. Individuals with credentials need to know about the opportunities, and the staff at credit-bearing institutions who play such a critical role in implementation also require outreach and support. Broad outreach to these individuals is essential. Given ODHE's recognition of the importance of outreach to successful implementation, state leaders asked RAND to help develop an outreach plan that was evidence-based. We engaged a wide variety of stakeholders, including institutional staff and leadership and industry partners; drew lessons from a targeted search of the literature; and engaged with ODHE and the steering committee to develop a potential plan.

Designing an impact analysis plan (Chapter 4): To determine whether the state’s CPL frameworks are achieving the goals of increasing the completion of postsecondary credentials and advancing equity, it will be critical to assess the impacts of ITAGs on student outcomes. We developed an impact analysis plan that can be used to guide data collection efforts and support analysis of student outcomes and equity, as detailed in Figure 1.1.

This report details the guidance and evidence that RAND researchers provided to ODHE to support its implementation of ITAGs, but it is important to note that this is just a first step in advancing the state’s efforts and building evidence on equitable, evidence-based approaches to the implementation of statewide CPL frameworks. More work is needed to assess how the initiative is being implemented and identify lessons learned for how the initiative should be scaled in Ohio and across the United States. Although we lay out an impact analysis plan, it will be several years before sufficient outcomes data will be available to assess the impacts of the statewide CPL frameworks. Future work should address these other important areas for evidence-building and guidance to states and institutions.

Chapter 2. Guidance on Equitable ITAG Implementation

As ODHE began to implement ITAGs, RAND and ODHE identified three ways that RAND researchers could provide the state with targeted guidance on ways it might center equity in ITAG implementation. First, we drew on our expertise of the evidence base on equity in postsecondary education and the CPL literature to identify practices that the state agency might take to center equity in the implementation process. In this chapter, we describe five equity-centered practices that we suggested to ODHE prior to implementation, and we provide some examples of how ODHE leaders report aligning implementation with these practices (though it was outside the scope of the project for us to evaluate the implementation of the initiative and these equity-centered practices). Second, we conducted an analysis of state administrative data to describe credential-holders by race and ethnicity and identify industry credentials that might offer the greatest opportunities for historically underserved populations. In this chapter, we describe our findings on the racial and ethnic diversity of credential-holders across fields. Third, we explicitly considered equity in their efforts to engage stakeholders around an evidence-based outreach plan. In this chapter, we describe how equity considerations played a role in developing the outreach plan.

Potential Practices for Equity-Centered Implementation

In the month prior to implementation, we drew on our expertise around postsecondary equity and CPL to identify five practices that ODHE could adopt to center equity in the implementation. Statewide noncredit CPL policies have the potential to advance equity in Ohio postsecondary education by reducing informational and administrative barriers that individuals face in navigating a complex web of institutional CPL policies. But how these policies are implemented matters, and ODHE and the funders wanted to ensure that the state was considering implementation practices that might ensure that the initiative reaches individuals of color and other historically underserved populations. In this section, we describe these five practices that we suggested that Ohio leaders and practitioners consider, and we provide some examples of how Ohio stakeholders have aligned ITAG implementation with these practices.

Equity-centered implementation practice 1: Prioritize certifications and licenses that are more likely to reach and improve career outcomes for individuals of color and other historically underserved populations. Approving ITAGs takes time and resources, and the state reports that it can only establish ITAGs for 15 to 25 industry credentials per year and that it is looking for ways to prioritize credentials for approval. This provided an opportunity to consider how to prioritize credentials that could help to advance equity. First, the state might

prioritize the approval of credentials and pathways that are commonly held by individuals of color and other historically underserved populations. Although we were unable to find existing evidence on the racial and ethnic diversity of those holding industry credentials, we know that students of color are disproportionately concentrated in certain fields when they enroll in certificate programs in Ohio (Daugherty et al., 2020). Second, the state could place a special emphasis on fields and credit-bearing credentials that are more likely to promote upward mobility and provide a pathway into the middle class (Escobari, Seyal, and Contreras, 2021). It might be the case that fields with large populations of color might not always command strong economic returns, therefore, it is important to balance these two considerations. RAND researchers contributed some data and analysis (as described in the following section) to help inform ODHE's understanding of the racial and ethnic diversity of credential-holders. ODHE leadership reported that they used this evidence alongside earnings data and other indicators of which fields had pressing workforce needs to consider which ITAGs to approve.

Equity-centered practice 2: Include diverse perspectives in the planning process through advisory groups, faculty panels, and other implementation teams with broad representation.

It will be important to ensure a wide variety of voices are included in the ITAG planning process, including college staff, industry leaders, and individuals. The inclusion of individuals with diverse backgrounds and identities and deep awareness of the historically underserved populations that ITAGs aim to reach on advisory boards, industry workgroups, and implementation teams could lead to insights and decisions that would be useful in advancing equitable outcomes for target groups (Mandviwalla et al., 2015; Williams, Smith, and Boyd, 2022). Including the individuals being targeted by ITAGs (credential-holders, with a particular focus on those of color and from historically underrepresented communities) might be particularly valuable for groups that are working on student-facing components of implementation, such as outreach and verification processes. Additionally, when it comes to advisory board and faculty panel meetings, state and campus leaders can be intentional about how meetings are facilitated, including the agenda and prompts planned to encourage open and candid discussions on equity and opportunity for individuals from underserved communities. ODHE leadership report that the ITAG implementation process engages a wide variety of stakeholders. For example, the ITAG steering committee includes administrators from technical centers, community colleges, and universities that serve large populations of color, and industry representatives also play an important role. Components of meetings are often led by different members.

Equity-focused implementation practice 3: Design processes for seeking and receive credit that minimize administrative burden on incoming students and automate the articulation processes. Ensuring that industry-recognized credentials are properly assessed and applied can require administrative processes that overwhelm students and dissuade them from moving

forward in their education. Administrative processes can vary greatly by campus and might include the submission of personal and professional documents; campus applications and associated fees; and navigating campus and department-level policies and cultures (Kilgore, 2020; McKay and Douglas, 2020; Palmer and Nguyen, 2019). The impact of these administrative processes on students are often considered *burdens*, in part because not all students have the experiences and resources to equally navigate the challenges emerging from the administrative process (Herd and Moynihan, 2018). Satisfying administrative requirements, for any program, can take a toll on students who are anxious when engaging with office professionals, unsure about the required materials, do not have the means to pay any of the associated fees, or do not have the time to visit campuses (Ray, Herd, and Moynihan, 2023). State and campus leaders should consider intake and articulation processes that minimize the need for individuals to seek out information on ITAGs and pursue various administrative tasks to receive the credit and more systematically articulate credit (McKay and Douglas, 2020; Palmer and Nguyen, 2019).

There are several ways we heard that stakeholders in Ohio are tackling administrative burden. At the state level, ODHE leadership have focused on identifying a streamlined way for incoming students to verify their credentials and how to provide clear information to individuals and institutions on this process. In addition, ODHE has been working with school districts and colleges to minimize administrative burden for students and staff around the implementation of its related CTAGs initiative by creating opportunities for high schools and colleges to exchange information on the completion of coursework that can be articulated to credit. At the institutional level, several institutions described efforts to streamline intake processes and CPL administrative requirements for students. Continuing to prioritize efforts to tackle administrative burden will be critical to driving take-up of ITAGs and ensuring that implementation is equitable.

Equity-focused implementation practice 4: Develop outreach strategies to inform and engage individuals, with a focus on underserved groups. To ensure that all students are well-informed about ITAGs and other CPL policies, state and campus leaders will need to develop outreach strategies that effectively reach and engage underserved groups. The backgrounds and experiences of individuals might have implications for the types of messaging and communication modalities that would be most effective in informing and engaging target groups (Scull & Cuthill, 2010), and outreach approaches should be informed by data and reflect an understanding of the barriers that students of color and rural and low-income students face (Herbaut and Geven, 2020). ODHE is engaging with RAND and a wide variety of stakeholders to develop an outreach plan that is strategic about engaging individuals and key messengers around ITAGs. This is described in greater detail in the next section of the report. However, more work might be needed to identify the strategies that are most likely to be effective for individuals of color and historically underserved groups.

Equity-focused implementation practice 5: Ensure that credits are comprehensively awarded and tracked and that evidence on outcomes and equity is assessed. Many states and institutions have not tracked CPL in a consistent way (Palmer and Nguyen, 2020; Kilgore, 2020). One of the main purposes of the ITAG initiative—and a benefit of state CPL frameworks more broadly—is to ensure that students can feel assured about their ability to transfer their credits across institutions. To ensure this happens, states must establish consistent ways of tracking credits and ensuring they show up on student transcripts (Kilgore, 2020; Sherman and Klein-Collins, 2015). ODHE has worked to develop a comprehensive approach to tracking ITAG credit at the individual level through its Higher Education Information system and has been training institutions to ensure that they are tracking ITAG credit as it is awarded and verifying that ITAG credit is being reported. This kind of tracking can be essential to ensuring that a state holds itself accountable for an initiative’s mission to expand access and opportunity to higher education (Alexander, 2000), and it would also inform the state and campuses about the types of students who are and are not taking advantage of these benefits (Stensaker, 2003). Moreover, information on which individuals are using ITAGs could help to identify persistent disparities by race or income and inform state and campus leaders to re-tailor their outreach efforts. ODHE should also evaluate evidence on outcomes and assess the impact of the initiative to understand how it might be advancing equity. We provide a potential plan for doing this in Section 4 of this report.

Selecting Credentials According to Considerations Around Equity

The second area in which RAND researchers provided support to ODHE to inform equity-based implementation was to provide data on the racial and ethnic diversity of individuals holding credentials to inform which ITAGs the state prioritized. As noted earlier, ODHE and the steering committee considered the representation of individuals of color and other historically underserved populations, as well as average earnings. A detailed description of the analysis and the results are included in Appendix A. We focused on the largest fields, occupations, and racial and ethnic groups for the tables in this report, and we classified fields and occupations according to the size of the population earning credentials and the percentage of individuals earning credentials who were White, non-Hispanic.

Findings in Tables A.1 through A.3 in Appendix A demonstrate that individuals of color were well-represented among short-term credential-holders across a wide variety of fields. Such fields and occupations as Culinary Arts, Computer Technician, and Healthcare Support were among the most diverse in terms of the racial and ethnic makeup of those holding short-term credentials. Some of the least diverse fields were Criminal Justice and Protective Services; Emergency Medical Technician and Firefighting; and Industrial Technician. We found mixed evidence on racial and ethnic diversity in some fields, such as Business and Management or Installation, Maintenance, and Repair (e.g., license-holders were less likely to be individuals of

color, while certificate-holders were more likely), so the implications for equity of ITAGs related to these occupations is unclear.

When comparing the ITAGs that were approved in 2022 with the evidence in Tables A.1 through A.3, we find that credential holders in the fields in which ITAGs were approved were more racially and ethnically diverse than the overall population. For example, individuals of color represented 56 percent of all Culinary Arts certificate-completers, 40 percent of all Computer Technology certificate-completers, 31 percent of Licensed Vocational Nursing certificate-completers, 27 percent of Computer and Information Science certificate-completers, and 27 percent of Electrical Engineering Technician certificate-completers. This compares with 19 percent of all certificate-completers who were individuals of color.

As noted earlier, the racial and ethnic diversity of credential-holders is only one factor being considered around equity. ODHE is also considering the representation of other underserved populations (e.g., rural populations) and the potential for credit-bearing credentials to lead to career growth and a middle-class wage. For example, industrial technician might be a popular credential among rural Ohioans and might therefore be important for advancing equity for that group, despite lacking racial and ethnic diversity. And credit-bearing credentials in such fields as culinary arts and some health care support fields might not offer opportunities for substantial career advancement and middle-class wages, so ODHE might not want to prioritize ITAGs in these areas.

Considering Equity in Conducting Outreach

The third area in which RAND researchers provided evidence to support equity-centered implementation was around the outreach plan. RAND and ODHE worked collaboratively on an outreach plan as part of this project (as described extensively in the next section), and there were several ways in which we sought to consider equity in our stakeholder engagement efforts around an outreach plan. We targeted institutions and industry partners that served large populations of low-income students and students of color, and we built a question into our protocols that explicitly probed on strategies considering individuals of color. However, our efforts were limited in that we did not have an opportunity to talk directly with individuals from historically underserved communities, and our interviews and literature reviews did not focus extensively on unpacking the specific needs of these groups of students.

There were several themes that emerged from our 26 interviews with stakeholders and review of literature (described in more detail in Chapter 3) around how approaches to outreach might support equitable implementation of ITAGs. For individuals of color and other historically underserved communities of individuals who were not actively seeking out credit-bearing credentials and college coursework, outreach about ITAGs could offer a *hook* that increases enrollment for these populations. There was a broad consensus among interviewees that outreach and messaging around ITAGs to individuals should be closely linked to the individual's

priorities (e.g., career advancement, balancing education with other responsibilities) and should be conveyed in words and through communication channels that those credential-holders commonly access. However, stakeholders and the literature typically suggested universal outreach plans that aimed to reach eligible individuals broadly; we did not hear about efforts to explicitly consider students of color or Pell Grant–eligible students in designing outreach around CPL.

For incoming and current students, the specific intake and CPL processes at each of their institutions will be the primary determinant of how students learn about ITAGs, more so than any statewide outreach efforts. The literature on informational asymmetries and administrative burden in postsecondary education suggests that the most equitable approaches to outreach might be those that take the responsibility off of the student to track down information and navigate systems and instead more systematically assess and award CPL through the intake process (McKay and Douglas, 2020; Palmer and Nguyen, 2019). Some institutions we spoke with reported efforts to integrate CPL screening questions into enrollment forms and require that advisors engage in one-on-one conversations with students as they enroll and discuss CPL opportunities. In this case, traditional marketing approaches (e.g., flyers, websites) are likely to be less valuable because individuals have already made the decision to enroll in a credit-bearing program, and those who hold industry credentials only need to know that they are eligible for credit and how to get that credit.

Using our understanding of the broader literature on student postsecondary access and success, the most effective approaches to address equity gaps might focus on building CPL opportunities and outreach into more holistic support interventions for historically underserved populations—coupled with academic tutoring, strong one-on-one advising support, and financial and basic needs resources—rather than focus on targeted outreach methods to address inequities. Pairing CPL initiatives with supplemental supports increases the likelihood of student degree completion and earnings (McKay and Douglas, 2020; Palmer, Nguyen, and Love, 2021).

Although we did not hear about efforts to target outreach to specific groups of historically underserved communities, we did hear about the importance of tailored information for individuals that links closely to their specific field and the programs they might be pursuing. Given the need to connect CPL closely to credit-bearing programs and convey the required process for articulating credit, colleges and their staff are often the primary and most appropriate sources of information about CPL opportunities (Millett, 2020; Palmer & Nguyen, 2019). Although a broad outreach plan might be developed and disseminated across the state, these institutions will need to create and share more targeted information. Industry partners and individuals will also want information on ITAGs to be contextualized to the specific industry credentials, credit-bearing credentials, and jobs in a field. In the next chapter, we describe how resources might be tailored to meet these needs.

Chapter 3. An Evidence-Based Outreach Plan for ITAGs

As described in Chapter 1, there are many different activities that state agencies must engage in to scale statewide CPL frameworks. ODHE’s efforts in the first year of ITAG implementation have largely focused on building essential infrastructure for statewide articulation (e.g., approving ITAGs, establishing course equivalencies, training institutions on reporting). ODHE and RAND determined that a strong, evidence-based outreach plan was another essential piece to successful implementation of ITAGs.

The literature suggests that CPL opportunities are often underutilized by individuals who could benefit from them (McKay and Douglas, 2020; Palmer and Nguyen, 2019). In many cases, this is because the individuals who might benefit from CPL are not aware that the opportunities exist, or individuals cannot navigate the complex system of policies and processes for articulating credit (McKay and Douglas, 2020; Palmer and Nguyen, 2019). Strategic outreach is essential to equitable implementation by supporting broader awareness of ITAGs among individuals with eligible credentials and helping individuals to access the credit. Institutional staff awarding credit also need clear information to effectively carry out the process of articulating credit (Sherman and Klein-Collins, 2015). States can play a critical role in promoting knowledge of initiatives and supporting institutions by developing or budgeting for outreach materials (Millett, 2020). ODHE will also need to leverage key messengers—educational institutions, employers, and other industry partners—to reach ITAG-eligible individuals.

This section starts with a brief description of our approach to gathering evidence and developing the outreach plan. We then describe the proposed outreach plan, including (1) the key stakeholders who will be engaged in outreach, (2) the resources ODHE should develop to support outreach, and (3) the efforts to engage stakeholders around the resources. We conclude with some specifics on a potential timeline and process for carrying out the work.

Approach to Developing the Outreach Plan

To gather evidence to inform the outreach plan, we focused on three primary questions:

1. Who should receive outreach on ITAGs?
2. What kinds of information should stakeholders receive?
3. How should the information be delivered (i.e., resources and efforts, messengers, formats)?

We first worked with ODHE and the steering committee to identify a set of stakeholder groups that might be engaged in different aspects of ITAG outreach. This initial stakeholder group helped to inform our qualitative data collection plans. We then collected evidence from

stakeholder interviews and a targeted search of the literature to address our three questions. We provide a brief description of these research activities below.

Stakeholder interviews: We conducted a total of 54 stakeholder interviews across 12 group interviews or focus groups with institutional staff (six interviews with Ohio Technical Centers, four interviews with community colleges, and two interviews with universities) and 14 interviews with other industry partners (e.g., employers, employer associations, credential-awarding bodies). We also conducted interviews with five key stakeholders from secondary school districts for a related project on the state’s career and technical education articulation frameworks, CTAGs, so we drew on those interviews to inform our discussion of high school outreach. The sample of interviewees was a purposive sample, drawn through recommendations from ODHE staff and steering committee members. The industry interviews tended to include a single individual, while the institutional interviews included between one and eight participants. Interviews were conducted according to semi-structured interview protocols, and a notetaker documented the discussion. Interview topics included a discussion of prospective ITAG users and their motivations; current approaches to providing information to adult learners on education and training; and suggestions for how the state and other key messengers might best support outreach around ITAGs. We conducted qualitative analysis of interview notes to identify key themes that emerged from the discussions and pull information relevant to our three study questions.

Literature review: We conducted a targeted review of literature in several key areas, drawing on published and peer-reviewed reports and articles returned by searches of Google Scholar, JSTOR, and Taylor & Francis Online. First, we examined the literature on CPL initiatives (e.g., key words “credit for prior learning” with “outreach” or “marketing” or “information”). We also reviewed the literature on promoting programs and initiatives to adult learners (e.g., “adult learners” and “college information” and “communication”). Finally, we reviewed the literature on effective outreach and communication strategies for college students more generally (e.g., the nudging literature on communication around promise programs and other college access programs). We scanned abstracts and paper descriptions to determine which reports might have findings relevant for our three research questions. Once we identified a pool of relevant resources, we scanned these resources and pulled content relevant to the three questions. We then identified subthemes relevant to an outreach plan. We repeated this process for articles that were cited by the initially returned articles and those manuscripts that have subsequently cited the returned articles, adding their findings to our annotated bibliography when they were deemed to be relevant and rigorous contributions to the literature.

Co-developing and vetting plan components: We first drafted outreach plans for each broad stakeholder group (high schools and Ohio Technical Centers [OTCs]; community colleges and

universities; and industry partners) using themes from the stakeholder interviews and targeted literature review. We then aggregated stakeholder-specific plans into a single overarching outreach plan. We shared various components of the outreach plan with ODHE and the steering committee to get several rounds of feedback. Finally, we refined and finalized the suggested outreach plan.

There are several limitations to our approach. First, we talked to a limited set of stakeholders. Our initial plans had included more interviews with employers and a handful of focus groups with individuals holding credentials, but we struggled to gain access to these stakeholders and eventually decided to shift the focus to high-level industry partners. Future work should do more to examine which outreach strategies are perceived to be most effective by individuals with industry credentials and identify ways to effectively engage employers in promoting education and training initiatives. Because we relied on a small, purposefully selected sample, we cannot assume that the perspectives represent the broader set of institutions and industry partners. On the other hand, these stakeholders are leaders in promoting Ohio initiatives and might have insights into optimal outreach strategies that other less-engaged stakeholders might not have considered.

Second, we were able to pull some relevant lessons from interviews, but the discussions were often focused at a high level on the individuals who could benefit, key messengers, and general principles for communicating with these groups, leaving gaps in detail on how to execute the plan. The literature was similarly well-positioned for providing high-level takeaways about communication with college students and adult learners around CPL opportunities and other key initiatives but was limited in terms of practical guidance on details around outreach.

Finally, the strength of evidence for our findings is limited; the findings are simply descriptions of outreach approaches that have been used or might be used, and there is limited rigorous data on the efficacy of different outreach approaches. The plan described in this chapter should be interpreted as a stakeholder-informed outreach plan rather than a collection of best or evidence-based practices.

Key Stakeholders Engaged Through ITAG Outreach

Mapping out the set of stakeholders who will require ITAG outreach or play some role in delivering outreach was a critical first step in our efforts to develop an outreach plan. In this section, we provide a description of the stakeholders who will need outreach and might be leveraged to amplify outreach. We provide a summary of the roles each stakeholder group plays and the information they need on ITAGs in Table 3.1.

Primary Targets of ITAG Outreach

As Table 3.1 indicates, there are two groups that are most deeply involved in ITAG implementation and need the most information: (1) individuals with ITAG-relevant credentials and (2) staff at credit-awarding institutions. These two groups are the primary targets of ITAG outreach. ODHE staff will be responsible for overseeing and establishing an outreach plan and creating a core set of resources that will be used to inform individuals and institutional staff about ITAGs and provide staff with tips for successful implementation. But ODHE will also need to engage and leverage a wide variety of different messengers who can amplify their outreach and ensure broad awareness of ITAGs. These messengers might include other state agencies, educational institutions, employers, and a wide variety of intermediaries that help to support educational institutions and industry.

Individuals with ITAG-Eligible Credentials

The type of individual that can benefit from the state's CPL initiative is an individual that holds a current industry credential in the areas in which ITAGs have been approved (e.g., health care, information technology [IT], manufacturing). For an individual to see value in an ITAG, they must also have some interest in pursuing additional credit-bearing credentials. Individuals who benefit from CPL initiatives tend to be adult learners with work experience (Klein-Collins and Framularo, 2022). The characteristics of individuals vary across different ITAG-eligible credentials; for example, we described evidence on racial and ethnic variation across fields in the prior section.

Different groups of individuals with ITAG-eligible credentials will likely require different information and might benefit from outreach through different messengers. The set of individuals who are most primed for ITAG use and might require more-limited outreach efforts are those who are already actively seeking out credit-bearing education and training options (i.e., those who are already enrolled in college or planning to enroll and who have some idea of the program they will be pursuing). These individuals (and all potential ITAG users) might need to know the value of ITAGs and the opportunity to earn credit for their industry credential, as well as the steps they must take to get credit for that credential. For these prospective and incoming college students who are actively engaged in communication with a public institution in Ohio, the literature suggests that academic advisors, the course catalog, and the institution's website are the three most common sources of information about CPL for students (Kilgore, 2020), so all these will be critical components of outreach to students on ITAGs.

ITAGs could also potentially offer a valuable promotional hook for college to individuals with industry credentials who might not be actively seeking out credit-bearing programs. The initiative can communicate to individuals that their industry credentials are valued and that they have a clear on-ramp into Ohio colleges and can save some time and money on a credential. But individuals who are not actively pursuing college enrollment will need more information to influence their decisionmaking and provide support as they take steps to enroll in college.

According to discussions with stakeholders, these individuals will need information on the value of credit-bearing credentials for career growth (e.g., additional job options, salary growth), the specific programs they might access to get a credit-bearing credentials (e.g., institutions with ITAG-equivalent courses, links of ITAGs to credit-bearing programs), and the supports necessary to make college enrollment possible (e.g., financial resources, ability to balance coursework with work and personal responsibilities). This is consistent with what is discussed in other CPL literature (Klein-Collins and Framularo, 2022; McKay and Douglas, 2020; Palmer, Nguyen, and Love, 2021)

Because they are spread across different settings, individuals who are not actively pursuing college enrollment might also be harder to reach with ITAG information; these individuals might be best reached with different messengers. For example, individuals who are receiving training from high schools, OTCs, bootcamp providers, and other education and training entities in preparation for an industry credential might benefit from knowing that there are opportunities to continue on with credit-bearing credentials. In this case, their current noncredit training provider is likely to be the best messenger. For individuals who are employed, the most compelling message around the value of ITAGs might relate to the impact on their career opportunities at their current organization or new organizations in the field. In this case, their employer or another trusted industry messenger (e.g., credential-awarding body, union) is likely to be the best messenger; a study indicates employers and coworkers can be valuable sources of information on CPL for older learners (Kilgore, 2020). Individuals with ITAG-relevant credentials who are unemployed might be receiving information on education and training opportunities from OhioMeansJobs centers and other industry messengers. Later in this chapter, we provide additional details on how ODHE might leverage these different messengers to reach individuals in various segments of the credentialed workforce.

It is worth noting that interviewees had mixed opinions about the size of the population who could benefit from ITAGs; some interviewees raised concerns that there might not be many individuals in the workforce with industry certifications that were interested in pursuing college certificates and degrees. This was a particular concern in IT and manufacturing, in which industry stakeholders reported perceptions that credit-bearing credentials did not always provide clear opportunities for career advancement and industry certifications might be sufficient. For example, several industry experts in IT described large populations of certification-holders that already held degrees and many different options for upskilling within the IT sector outside a degree.¹ Further evidence on the population of credential-holders that might be most interested in ITAGs could help to target and tailor outreach.

¹ Related research in progress at RAND and ODHE will do more to identify and describe the population of individuals who might benefit from ITAGs.

Table 3.1. Stakeholders for ODHE to Engage in ITAG Outreach

Stakeholder Group	Role in ITAG Outreach and Implementation Processes	Information Needed on ITAGs
<i>Primary Targets of ITAG Outreach</i>		
Individuals with an ITAG-relevant industry credential	<ul style="list-style-type: none"> • Enroll in credit-bearing credential program • Take steps to articulate credit 	<ul style="list-style-type: none"> • Basic description of ITAGs, value of ITAGs • Steps to articulating credit • Value of a credit-bearing credential for career • Program details (e.g., requirements, costs) for credit-bearing credentials • Supports offered by college (e.g., financial aid)
Leadership and staff at community colleges and universities	<ul style="list-style-type: none"> • Take steps to map, verify, and articulate credit • Inform prospective and incoming students about ITAGs • Inform other key stakeholders • Pilot and advise on outreach materials 	<ul style="list-style-type: none"> • Detailed information and guidance to help with ITAG implementation (e.g., course equivalency approval, on-campus processes) • Examples of successful implementation • Outreach strategies and materials for individuals with credentials, staff, and other messenger partners • Relationship to other CPL initiatives
<i>Key Messengers to Individuals with Industry Credentials</i>		
Leadership and staff at Ohio Technical Centers and high schools	<ul style="list-style-type: none"> • Provide outreach to current and former students with credentials 	<ul style="list-style-type: none"> • Basic description of ITAGs, value of ITAGs to students • Outreach strategies and materials for individuals with credentials • Credit-awarding institutions with aligned programs • Relationship to other high school-to-college initiatives
Credential-awarding bodies, employee associations	<ul style="list-style-type: none"> • Connect credential-holders to information on ITAGs 	<ul style="list-style-type: none"> • Basic description of ITAGs, value of ITAGs to individuals • Pre-built marketing materials for credential-holders
Staff at OhioMeansJobs centers	<ul style="list-style-type: none"> • Connect to jobseekers and employers to information on ITAGs 	<ul style="list-style-type: none"> • Basic description of ITAGs, value of ITAGs jobseekers • Outreach strategies and materials for individuals with credentials • Credit-awarding institutions with aligned programs
Employers	<ul style="list-style-type: none"> • Connect employees to information on ITAGs 	<ul style="list-style-type: none"> • Basic description of ITAGs, value of ITAGs to the organization and employees • Pre-built marketing materials for credential-holders
<i>Intermediaries who Can Engage Messengers in Getting the Word Out</i>		
Ohio Department of Education and Ohio Department of Jobs and Family Services	<ul style="list-style-type: none"> • Co-develop outreach materials • Amplify ODHE outreach to high schools, OhioMeansJobs centers, workforce boards, industry partners 	<ul style="list-style-type: none"> • Overview of ITAGs, value of ITAGs to students • Outreach strategies and materials for high schools, OhioMeansJobs centers, industry partners, individuals with credentials • Credit-awarding institutions with aligned programs

Table 3.1 (cont). Stakeholders for ODHE to Engage in ITAG Outreach

Stakeholder Group	Role in ITAG Outreach and Implementation Processes	Information Needed on ITAGs
<i>Intermediaries who Can Engage Messengers in Getting the Word Out</i>		
Intermediaries for credit-awarding institutions ^a	<ul style="list-style-type: none"> • Advise on outreach materials • Amplify ODHE outreach to institutional leadership and staff • Provide implementation support 	<ul style="list-style-type: none"> • Detailed information and guidance to help with ITAG implementation (e.g., course equivalency approval, on-campus processes) • Examples of successful implementation • Outreach strategies and materials for individuals with credentials, staff, and other messenger partners
Industry intermediaries ^b	<ul style="list-style-type: none"> • Connect employers and industry partners to information on ITAGs 	<ul style="list-style-type: none"> • Overview of ITAGs, value of ITAGs to industry • Outreach strategies and materials for employers • Pre-built marketing materials for credential-holders
Policymakers, Office of Workforce Transformation	<ul style="list-style-type: none"> • Fund ITAG outreach • Set ITAGs as a priority for high-level stakeholders 	<ul style="list-style-type: none"> • High-level information about ITAGs and their value to Ohio’s economy and workforce

^a Examples include the Ohio Association of Community Colleges and the Inter-University Council of Ohio.

^b Examples include Chamber of Commerce, Ohio Jobs Board, employer associations (e.g., the Ohio Manufacturers’ Association), region-specific employer partnerships (e.g., Cleveland Partnership), the Ohio Department of Jobs and Family Services (ODJFS)’s workforce boards, and industry advocacy groups (e.g., OhioX).

Leadership and Staff at Community Colleges and Universities

As described in Chapter 1, institutions that award credit-bearing credentials in Ohio (community colleges and universities) and the staff within these institutions play a critical role in the implementation of statewide initiatives that award CPL. First, institutions must electronically submit details regarding their coursework to be reviewed by a panel of faculty experts and determine equivalency. This process engages instructional departments and faculty. Second, institutions must determine how they will inform students about CPL opportunities, and whether and how they will screen students to identify those who might be eligible. These efforts might involve staff across several different departments, including the registrar, advising, and CPL-focused departments. Finally, institutions must determine their process for verifying credentials and documenting credit in student information systems and statewide administrative data. Again, these efforts might involve different departments (Millett, 2020). For each of these critical roles in implementation, institutional staff need clear guidance on ODHE expectations and information to address common areas of uncertainty. We also heard that institutional staff would value examples of promising options for implementation from leading institutions.

College leadership and department heads receive, simplify, and communicate information about ITAGs to their staff. As described earlier, faculty, advisors, CPL departments, enrollment staff, and the registrar will all need certain information to successfully carry out their role in ITAG implementation. This information includes the statewide expectations about how ITAGs

should be implemented and the specifics of the credit-awarding and outreach processes at the institution. We also heard in interviews that institutional staff needed clear information on how ITAGs should be implemented and communicated to incoming students, and they also needed to understand how the new initiative fit into Ohio's broader set of statewide and institutional articulation agreements.

Credit-awarding institutions will also play a critical role in providing information to prospective and incoming students and in amplifying outreach to individuals holding credentials, institutional staff, and other messenger organizations (i.e., high schools, OTCs, and industry partners). To use ITAGs, individuals need detailed information on programs and specific information allowing them to receive credit for their industry credentials, and the staff at credit-awarding institutions are the only messengers suited for this detailed, institution-specific information. Institutions in Ohio have been reforming their intake processes and the enrollment experiences for students through their Guided Pathways efforts; depending on the specific processes designed by institutions, approaches to informing students about CPL and awarding credit could rely on enrollment officers, advisors, CPL departments, and registrars. Ensuring consistent information on ITAGs across different staff interacting with prospective and incoming students will be essential; literature indicates that building awareness of CPL among community college faculty and prospective and enrolled students can increase uptake (McKay and Douglas, 2020). Institutions have existing approaches to outreach around related state articulation frameworks and institutional CPL initiatives, so they can build on these existing efforts.

It is important to note that the types of information that institutions will provide to students on ITAGs and the information that messengers will require to support outreach will depend on the specific processes that an institution uses to award ITAG credit. For example, some institutions might rely on students to proactively seek out CPL; in this case, websites and other student-facing informational resources might be necessary. Yet, the literature indicates that the typical approaches to marketing CPL through websites and other traditional approaches have not been sufficient in broadly ensuring awareness of CPL (Klein-Collins and Framularo, 2022) and suggests that institutions build more systematic approaches to informing students about these opportunities, such as building in one-on-one advising sessions or sharing the information with students in first-year freshman seminar courses (McKay and Douglas, 2020; Palmer and Nguyen, 2019). In this case, the advisor or faculty member is the key messenger, and it is essential to ensure that these individuals are trained to systematically provide information to students. Other institutions might build questions into the application as a tool for screening students and targeting information to those who are eligible. As noted in the previous section, processes that reduce administrative burden for students and ensure that all students learn about ITAGs in a common way can help to ensure that ITAGs are implemented equitably (McKay and Douglas, 2020; Palmer and Nguyen, 2019).

Finally, college leadership and staff can serve as sources of information and outreach on ITAGs to other key messenger organizations. In building out strong pipelines for technical

training, some colleges have engaged in efforts to establish relationships with high schools, OTCs, and industry partners, and the literature calls for efforts to strengthen and expand these types of partnerships (Karam, Goldman, and Rico, 2022). For example, institutions have industry advisory boards that allow them to regularly connect with industry partners and engage them around new education and training initiatives. Colleges can leverage these partnerships, where they exist, to amplify outreach from ODHE to these messengers around key initiatives, such as ITAGs.

Other Key Messengers for Individuals Who Hold Industry Credentials

Community colleges and universities serve as the primary messengers for individuals who are actively seeking out information on credit-bearing programs, but there are many individuals who hold industry credentials in the workforce who cannot be reached by these institutions. The hope is that ITAGs might provide an opportunity to spark interest in college for individuals who hold industry credentials and are not actively engaged with colleges in exploring credit-bearing education options. To reach these individuals in the broader workforce, ODHE can leverage a wide variety of messengers to get the word out about ITAGs. However, it is important to note that the direct payoff of ITAGs to these organizations is minimal and that these messengers are already busy individuals; ODHE will need to make outreach on ITAGs easy and provide adequate motivation for messengers to devote time to providing this outreach. We provide a brief description of each of these messengers below.

Leadership and Staff at High Schools and Ohio Technical Centers

Some high schools and OTCs provide training that prepares students to sit for certification and licensing exams; given that individuals will have built trust with staff at these institutions, these staff members can serve as valuable messengers to potential ITAG users. We heard that instructors tended to be the most important messenger to students about CPL opportunities in high schools and OTCs; however, instructors often learn about these initiatives from leadership and advising departments and advisors occasionally might provide broad outreach to students about these opportunities. These institutions might also have an interest in promoting ITAGs if they view opportunities to earn college credit and work toward credit-bearing credentials as a valuable outcome for their graduates.

To engage in outreach, leadership, instructors, and advisors will need some understanding of what ITAGs are and how they offer value to their students. To provide outreach to students, instructors and advisors will need marketing materials and could also benefit from tips and strategies for outreach, including when and how to share materials with students and ways to systematically target outreach to all eligible students to support equity. For example, in our interviews, one OTC mentioned the value of noting where coursework might be eligible for statewide CPL directly on transcripts and attaching descriptive information on these opportunities for eligible students to transcripts. We also heard that it might be important to link

ITAGs to other initiatives that high schools and OTCs are more familiar with and might see as more relevant in offering college credit (e.g., CTAGs, College Credit Plus) to engage stakeholders and explain how ITAGs fit into this context.

Credential-Awarding Bodies and Other Individual Membership Organizations

The bodies that award ITAG-eligible certificates and licenses have the most comprehensive lists of individuals who hold the relevant credentials, and marketing departments at the organizations communicate directly with credential-holders to promote their resources and encourage individuals to keep credentials updated. As a result, credential-awarding bodies could be critical partners in sending information about ITAGs to credential holders in the workforce. These organizations might also have detailed information on the individuals who hold their credentials and might have insights on how best to package and target information.

Credential-awarding bodies might be motivated to send information about ITAGs because ITAGs make the credentials they award even more valuable (i.e., the credentials can confer credit in addition to job opportunities). However, our interviews suggest that credential-awarding bodies see the promotion of education and training opportunities like ITAGs as outside their main function. As a result, it will be important for the information and resources these credential-awarding bodies receive to be easily accessible and to include basic information on ITAGs and their value to credential-holders and other pre-built marketing materials that can be easily transferred into an email or other communication channels.

Other organizations that serve individuals in particular fields (e.g., unions or regional workforce associations) can also be valuable sources of information on education and training for individuals in particular fields in which ITAG-relevant credentials are common. For example, Community Health & Wellness Partners is a nonprofit consortium of clinical healthcare providers who have developed a network to ensure that individuals in a region of Ohio counties have access to healthcare. These types of organizations could serve as trusted messengers on ITAG initiatives, distributing information to individuals through job boards, emails, and in-person events.

OhioMeansJobs Centers

OhioMeansJobs centers serve as a hub for information on employment and education and training opportunities for individuals who are unemployed. Staff at these centers can therefore serve as valuable messengers about ITAGs and the value they offer to those jobseekers who hold ITAG-eligible credentials. The centers also distribute information on key education and training initiatives to local employers. Center staff can therefore amplify outreach to employers around ITAGs and ensure they are promoting ITAGs to their employees who are considering opportunities to upskill.

Staff at these centers can benefit from information similar to what is provided to high schools and OTCs, including a basic description of ITAGs and their value to jobseekers who hold ITAG-

relevant credentials; marketing materials for individuals; and tips on suggested ways to provide information and resources.

Employers

For credential-holders who are employed, the employer serves as a primary source of information on education and training opportunities that might lead to career advancement within a field. Many employers provide education and training resources to support their workforce, including directly providing on-site training opportunities, offering opportunities for individuals to earn and maintain industry-recognized credentials, and providing tuition reimbursement. Organizations see these education and training resources as tools for upskilling their workforce and valuable benefits for individuals who value professional growth (i.e., they are likely to attract and retain these individuals). However, there is wide variation across fields and employers in the degree to which education and training opportunities are emphasized. Some employers see education and training as unnecessary, too costly, or detrimental to employee retention.

Our interviews with industry stakeholders suggest that both leadership and human resources (HR) staff will need to be informed about ITAGs; HR departments will most likely oversee communication to employees, but leadership sets the agenda and plays an important role in determining the prominence of initiatives and the resources devoted to promoting them. Leadership, HR leadership, or other staff in unique workforce development or education partnership roles at organizations might be the individuals receiving ITAG information from the state and other messenger organizations (e.g., workforce boards, colleges, employer associations) and working within the organization to identify how this information will be pushed out to individuals.

Intermediaries Who Can Support ITAG Outreach

There are several other organizations that provide education and training information to industry and to education and training institutions; ODHE can leverage these organizations to get the word out about ITAGs to different stakeholder groups. Many of these organizations view information-sharing around education and training and statewide initiatives as a core focus of their work and might therefore be willing to engage more deeply with ODHE to provide input on how best to communicate about ITAGs to different groups and provide more robust outreach efforts.

Ohio Department of Education and Ohio Department of Jobs and Family Services

In its role overseeing Ohio's K–12 educational system, the Ohio Department of Education (ODE) is a key partner to ODHE in providing outreach around other major initiatives that involve high school–to–college transitions, such as the state's dual enrollment initiative College Credit Plus and the CTAGs initiative that articulates credit for career and technical education coursework. Secondary school district staff whom we interviewed told us that staff seek

information about postsecondary education and CPL initiatives from ODE's website. As a result, it will be critical for ODHE to coordinate closely with ODE on outreach to high schools around ITAGs. This will ensure that high schools are hearing from a trusted messenger and will allow ODE to package and deliver information to high school leadership and staff in accessible ways rather than requiring these individuals to seek out information through alternative channels.

ODJFS is a key partner to both ODHE and ODE on initiatives related to workforce development, career pathways (i.e., an initiative that promotes embedding of industry credentials in education pathways), and the engagement of educational institutions and industry partners. ODJFS oversees OhioMeansJobs centers, which exist in all 88 counties within the state and work with both individuals and employers. OhioMeansJobs centers provide services to Ohioans seeking employment and information on education and training opportunities and work with employers to help meet their workforce needs. ODJFS also oversees workforce boards, which serve as resources for driving regional workforce development efforts in partnership with industry. The communications infrastructure of ODJFS and OhioMeansJobs centers and ODJFS's close communication with industry partners make the agency an important partner in ITAG outreach efforts.

Both ODE and ODJFS can play a valuable role in passing along information to entities they oversee; therefore, both agencies need to closely coordinate with ODHE to ensure a detailed understanding of the initiative and the suggested approaches and resources available for outreach. Both agencies can also play a valuable role in advising on or co-developing resources for the entities they oversee and providing opportunities for ODHE to pilot marketing materials in high schools and OhioMeansJobs centers.

Intermediaries for Credit-Bearing Institutions

In addition to the support that ODHE provides to community colleges and universities, there are intermediaries that serve as critical sources of information and training on key initiatives. The Ohio Association of Community Colleges and its Ohio Success Center play an important role in supporting community colleges as they implement CPL opportunities through other initiatives (e.g., Guided Pathways) and will therefore be motivated to partner with ODHE as critical messengers to community colleges on ITAGs. At the university level, the Inter-University Council of Ohio could play a similar role in facilitating and providing outreach, particularly on outreach to regional universities that might be more likely to have ITAG-aligned programs.

Given that credit-bearing institutions require detailed support with implementation in addition to information and resources for outreach, the intermediaries for these institutions will require similarly detailed information and resources on implementation and outreach. ODHE will want to consider engaging deeply with these organizations to get ongoing feedback on resources and co-develop plans for pushing resources out through various training activities that target leadership; enrollment and advising staff; and faculty at these institutions.

Industry Intermediaries

There are a variety of intermediaries that regularly convene and communicate with employers. These include such organizations as the Chamber of Commerce and the Ohio Job Board, which represent employers across different fields and industries; the Ohio Manufacturers' Association and OhioX, which advocate on behalf of specific industries or sectors; and organizations that convene employers around economic and workforce development across Ohio or at the regional level, which include Jobs Ohio, local workforce boards, and such region-specific groups as the Columbus Partnership and the Cleveland Partnership. As mentioned earlier, ODJFS and its network of workforce boards are another important source of information on education and training initiatives for employers. These intermediaries often serve as important conduits of information on education and training initiatives and will be important amplifiers of ITAG outreach to industry. These organizations will need information on ITAGs; outreach materials for employers that closely link the initiative to industry and employer priorities; and marketing materials for individuals that communicate the value of ITAGs in terms of career advancement.

Policymakers and the Office of Workforce Transformation

Policymakers and the Office of Workforce Transformation help to set the agenda for state agencies; provide funding and develop systems for institutions; and work closely in partnership with industry to ensure a strong economy Ohio. These individuals can therefore bring attention to initiatives that are playing an important role in supporting a strong Ohio workforce. Ensuring that high-level policymakers understand the value of ITAGs and are speaking about them can help to amplify ODHE's efforts to engage stakeholders in providing outreach. Because these individuals are extremely busy, they will require very targeted information on ITAGs that makes a strong case for its importance to supporting a strong economy and workforce in Ohio.

Key Resources Supporting ITAG Outreach

In this section we describe 11 resources that will serve as the primary communication materials for ITAGs. Some of these resources have already been developed by ODHE; others will require some additional work over the next year. We describe the purpose of these resources, the information they might contain, progress to date, and next steps. This information is also summarized in Table 3.2.

Websites for Individuals, Institutions, and Employers

Across the board, interviewees mentioned the importance of websites as hubs for information and communication about ITAGs. Websites were mentioned as valuable because they allow materials to be updated and easily accessed by all stakeholder groups. However, as we note in the previous sections, there are limitations to the value of websites as outreach tools for

individuals: Websites might provide some initial information on ITAG eligibility and illustrate generally how ITAGs can feed into established credential pathways in a field, but to enroll in credit-bearing programs, individuals eventually will need more tailored information from staff at credit-bearing institutions about how ITAGs feed into specific programs and institutional processes for CPL.

It is most important for the ODHE to host websites for individuals, postsecondary institutions, and employers and industry partners; it might be preferable for ODE to host the high school website because this is where staff at secondary institutions are most likely to seek out information. Although we describe these as separate websites, it is more likely that they will be different pages within a common site that allow individuals to move easily between them in case individuals end up on the wrong site. Some of the major components of each website can be common across ITAGs and fields, with slight changes to tailor information to different stakeholder groups (individuals, institutions, and employers). For example, each website can describe what ITAGs are and why they offer value to the given end user; include a frequently asked questions (FAQ) page or document; and provide the individual with a way to get responses to questions through a helpdesk option. Each website could also host a basic set of marketing materials for individuals holding credentials. At minimum, this could consist of an informational sheet or brochure that targets individuals; with additional resources, ODHE could consider other more highly designed marketing materials, such as a short video that could be shared on the website and through social media. In addition to individual-facing marketing materials, the websites for institutions and industry might contain tailored informational sheets that target various messenger groups (e.g., one for institutional staff and one for industry partners) and brief guides on outreach that offer strategies and tips for sharing information of ITAGs. This general set of materials will be applicable across the universe of ITAGs, will be relatively stable over time, and might not need to be updated frequently.

There is another set of resources on the websites that offer tailored information on specific ITAGs and aim to connect individuals in specific fields with the information they need on the ITAGs relevant to them. These resources will need to be updated each time a new ITAG is approved. For example, institutions require more detailed guidance to facilitate the awarding of credit for specific industry credentials. Informational sheets developed by faculty panels lay out key details on the guidance for awarding credit and course equivalency and details on verification; these documents are posted to the institutional ITAG website on a page that has headings for each ITAG. Individuals also need to know several ITAG-specific details: whether their industry credential is eligible, which postsecondary institutions are offering programs aligned with that particular ITAG, and the courses approved for equivalency. ODHE has created search tools that allow individuals to quickly access this information. These search tools might also be valuable for high schools, OTCs, or industry partners that are looking to determine which credentials and institutions to send individuals to. Finally, we heard frequently from stakeholders that pathways maps are important tools for communicating how ITAGs feed into credit-bearing

programs and offer individuals support. Pathways maps are visual tools that show how credentials map onto each other and feed into careers and could convey how ITAGs offer on-ramps into these pathways. We describe these resources in greater detail later in this chapter.

ODHE will want to consider working with its trusted thought partners representing institutions and industry to pilot-test and refine the websites. According to discussions with key stakeholders, outreach information should be written in clear and concise language; omit acronyms where possible; and make a clear and compelling case for the value of ITAGs that is specific to each stakeholder group.

We also suggest that ODHE carefully consider how to link information on ITAGs to other key initiatives. In some cases, outreach might be targeted explicitly to individuals with industry credentials, and in such cases, ITAG-specific information might be valuable. But, in many cases, individuals will not (and should not) be able to distinguish between different state and institutional CPL policies, so presenting this information in a siloed way could lead to confusion and limit the opportunities for individuals to access CPL. Linking the individual ITAG website to other information on CPL opportunities or integrating all CPL opportunities into a single website will help simplify the information-seeking process for individuals. Stakeholders at institutions and across industry reported challenges distinguishing between different, related articulation efforts and reported a need for unified information that laid out the relationships and differences between different opportunities. For example, high school staff suggested that information on ITAGs should be presented alongside information on College Credit Plus (the state's dual enrollment program) and CTAGs (statewide CPL frameworks for noncredit career and technical education coursework). Industry representatives suggested that information on ITAGs would be more compelling to industry stakeholders if it was connected to other popular initiatives, such as TechCred. This suggests that websites and other informational materials might need to provide integrated information that cover the variety of CPL opportunities and related initiatives to allow stakeholders to access the information on related initiatives in one place.

Frequently Asked Questions Document

As we spoke with institutional staff and industry representatives, it was clear that there were common areas of uncertainty and limited information across stakeholders. For example, many stakeholders asked about the requirement that an industry credential be awarded within the past three years; how the initiative compared with or related to other initiatives; and what the steps were for verifying a credential. An FAQ landing page or document offers a simple, accessible way to address some of these common areas of uncertainty, and it can be stored on the website and shared with marketing materials as needed. Although some of the content will be common across groups, some content might need to be tailored for individuals with ITAG-eligible credentials; high school and OTC staff; community college and university staff; and industry partners. The material in an FAQ document could be easily compiled by ODHE staff according

to questions commonly received and could be updated relatively infrequently (e.g., quarterly) in a short amount of time.

Table 3.2. State-Developed Resources for ITAG Outreach

Resource	Purpose	Progress and Next Steps
Individual-facing website	Serve as a central place where individuals who are not actively engaging with colleges around enrollment can learn about ITAGs	Webpage mostly completed; continue to populate with resources
Institution-facing website	Serve as a central place where institutional leaders and staff can access informational resources and outreach materials	Webpage mostly completed; continue to populate with resources
Industry-facing website	Serve as a central place where industry partners can access informational resources and outreach materials	Webpage still needs to be designed by ODHE and web designer and populated with resources
FAQ document	Provide responses to common issues in an easy-to-digest way	ODHE staff still needs to draft and tailor for different audiences; update on a quarterly basis
Helpdesk	Provide responses to unique issues that cannot be addressed through FAQs and other informational resources	ODHE staff still needs to build into website; check at least daily or weekly
Marketing materials and templates (for individuals and messengers) and outreach guides (for messengers)	Provide core marketing content that can be pushed out through emails, social media, and other outreach efforts; offer tips to messengers on pushing the marketing materials	Some materials created, but many remaining; get input from key stakeholders and support (as needed) from designers; update materials rarely
Materials for webinars and presentations	Provide brief verbal and visual overview of key information on ITAGs for virtual and in-person settings	ODHE staff to develop and record for different audiences; periodically update as info changes
Pathways maps and templates	Provide complex information on credentials and career growth opportunities associated with each ITAG in a simple way	Contract with consultant for template; ODHE staff (and possibly institutions) to update for each new ITAG
ITAG announcements and informational documents	Provide critical information on credit mapping and verification to institutions for each specific ITAG	Already developed by panels and posted to website; updated for each new ITAG
Search tools on ITAG-eligible credentials, institutions, and course equivalencies	Allow individuals to search to find institutions in which ITAG-eligible programs are offered and the approved course equivalents	Completed and on website; add pathways maps as developed; regularly update with new ITAGs, institutions, and courses as approved
Toolkit on outreach and implementation for credit-bearing institutions	Provide state expectations and tips on implementation and outreach, resources in a single comprehensive guide	ODHE to partner with institutional stakeholder group to develop; rarely updated

Helpdesk

The FAQ document can offer information on the most common areas of uncertainty and informational needs, but institutions, individuals, and industry partners might need to access ODHE staff to ask additional questions about the policy. Our ITAG interviewees did not explicitly mention the need for a helpdesk, but in our prior work on CTAGs, high school staff and other stakeholders described challenges with students getting credit they were promised and suggested that a hotline or helpdesk function was needed to address questions or address issues for students as they came up. This feature could also be valuable in dealing with implementation issues at postsecondary institutions or questions from industry partners about how best to promote ITAGs to the workforce. At minimum, the helpdesk might include a designated email address displayed on the website and other resources and a designated ODHE staff person with knowledge of ITAGs who checks the email daily or several times per week and responds to questions. Depending on the volume of inquiries and resources available, the resources required to address helpdesk questions could vary. A more resource-intensive option that ODHE could consider if there were a large influx of questions is adding a phone line for live help.

Marketing Materials and Outreach Guides

There are a wide variety of marketing materials that ODHE could consider, but the most essential resource we heard about in our interviews with stakeholders was an informational document (e.g., one-pager, brochure) that can be shared as a portable document format (PDF) file and printed and distributed by various messenger groups to individuals with ITAG-relevant credentials. According to stakeholders and the literature, this document will be most effective if it is short; is highly designed to be appealing; clearly and concisely articulates the value of ITAGs to potential users in plain language (i.e., no acronyms); and contains a clear call to action (e.g., “Contact your local community college to learn how you can get credit!”). Similar informational documents can be created for various targets of outreach and messengers: high schools and OTCs; staff at community colleges and universities; and employers and industry partners. To ensure a clear and consistent message in social media posts and emails, ODHE might provide sample text in marketing resources. A short video targeted to individuals with industry credentials is another potentially high-impact marketing resource that ODHE could develop to post on the website and distribute through social media. ODHE might need to work with marketing consultants to develop these materials and pilot them to solicit input from the key stakeholder groups targeted by the materials.

In addition to the marketing materials, key messengers (institutional staff and industry partners) could benefit from brief guidance or a more detailed outreach guide on creating a plan to share the materials and tips for successful delivery. For example, the literature indicates that outreach might be most effective when it is simple, high-touch, well targeted, focused on time-sensitive administrative processes, and delivered by trusted messengers (Page et al., 2022). For

industry, we heard from stakeholders that this guide should be very brief and focus exclusively on tips for how industry intermediaries might share information with employers and how employers, credential-awarding bodies, and other industry organizations might share information about ITAGs with individuals. For institutions, this guide might be more detailed and discuss communication and marketing to students, staff, and industry partners. The guide for institutions might also provide guidance on updating websites; having one-on-one conversations with students; addressing common questions that come up among staff and students; and other critical issues to consider as institutions engage various groups around ITAGs.

Materials for Webinars and Information Sessions

In addition to the need for brief, highly engaging marketing materials, we also heard about a need for longer informational sessions provided virtually through web meetings and in-person at key gatherings for stakeholder groups (e.g., technical assistance sessions for institutions, employer economic development events). Virtual and in-person sessions offer an alternate way to convey the key details about ITAGs; answer questions and collect feedback; and drive traffic to key informational resources. We heard from stakeholders that anecdotal evidence of success and word of mouth from other institutions and employers can be valuable, so these presentations might feature examples or case studies of institutions that carried out successful outreach and implementation efforts. Sessions should be carefully targeted to specific stakeholders according to their informational needs and motivations.

ODHE staff might invest time in creating a standard slide deck for each stakeholder group that could be shared on websites; these slide decks could be modifiable so that messengers could tailor the slide decks for different stakeholders. In addition to presenting on ITAGs live, both virtually and in-person at professional events, ODHE could post a recorded presentation of an informational session on the websites for each stakeholder group. The disadvantage of recorded sessions relative to live sessions is that they do not provide opportunities for engagement and questions, but the advantage is that they can be accessed continuously and sent out virtually to key stakeholders. Recorded sessions can provide detailed content for an individual who was actively seeking out ITAG information and share links to promotional videos or other resources; these recorded sessions would be more detailed than marketing videos, which would try to quickly promote ITAGs to an individual who is unaware they exist.

Pathways Maps

Pathways maps were raised again and again by stakeholders as an important communication tool that can offer compelling information in a simple way for multiple stakeholder groups. These pathways maps could be integrated with general marketing materials to offer a visual representation of how the articulated credit from specific ITAGs will feed into credit-bearing credentials of differing lengths (i.e., six-month certificate, two-year associate's degree) and how these different credentials then tie to jobs and salaries. Interviewees continuously underscored

the importance of emphasizing expanded career opportunities and salary growth as the *hook* for individuals into credit-bearing programs. Although marketing materials can provide this information in a general way, interviewees emphasized the need for ITAG-specific information to tailor outreach to individuals in specific fields and industries.

Ohio has already begun developing postsecondary pathways. Section 333.16(D) of the Ohio Revised Code led to the creation of an initiative known as the Ohio Guaranteed Transfer Pathways (OGTPs). The OGTPs are developed by faculty panels to provide students a clear pathway from associate's degree to bachelor's degree completion and to offer insight into the academic credentials needed for various career pathways. ODHE plans to incorporate ITAGs, along with other state initiatives, into the OGTPs and beyond to demonstrate how college credit can be stacked together to lead to certificates and degrees. This work will serve as the building blocks for the robust pathways available to students in Ohio. To assist with the incorporation of ITAGS in OGTPs and other stackable pathway models, ODHE could draw from maps created by ODJFS to incorporate its career pathways efforts and institutional and industry experts to provide relevant career projection information. Industry-specific groups, such as Ohio TechNet, have also developed pathway maps and resources for specific industries, and ODHE could work with these groups to integrate ITAGs into these informational resources.

A few stakeholders mentioned concerns that pathways maps could easily become outdated and that they were often too general to be relevant to particular institutions or employers. To address this concern, editable templates could be made available to update and tailor pathways maps. ODHE is exploring technology advances that would improve the efficiency of updating pathways maps and enhance the user experience by being able to apply types of credits from all ODHE initiatives into a thorough plan of future educational opportunities and, eventually, job projections. Because of the complexity and scope of this work, this is likely to be a multiphase project.

ITAG Announcements and Informational Documents

ODHE develops two documents as part of its process for releasing an ITAG: an institutional announcement and an ITAG document. These resources currently sit on the institutional website, though the general announcement could also sit on the industry website once developed. The institutional announcement and ITAG document are targeted to institutions, particularly credit-awarding institutions that need more detailed guidance to inform the processes for verifying credentials and articulating credit. These documents describe the industry credential and the verification process; the course and credit equivalencies; the learning outcomes associated with the credential; and the relationship between the ITAG and other CPL frameworks that award credit for technical coursework and military experience. After these documents are created by ODHE staff and panels as a part of the approval process, they will not need to be updated unless there are fundamental changes to the ITAG.

Search Tools for ITAG-Eligible Industry Credentials and Institutions

As described previously, individuals who are going to make use of ITAGs to enroll in credit-bearing programs will need at least two types of information. The first is general information about ITAGs, including which credentials are available and why ITAGs are of value. The second is more detailed information about specific credit-bearing programs offered by institutions that ITAGs feed into and other aspects of the college enrollment process and supports for students. Institutional staff will be the best messengers for the more detailed information on the institution's specific programs, policies, and supports, but ODHE can play an important role in helping individuals to understand ITAGs, determine the eligibility of their credential, and connect with institutions that offer ITAG-equivalent courses.

Search tools and dropdown menus on websites can offer accessible ways to connect students to lists of information on ITAG-relevant credentials and institutions. ODHE's individual-facing website currently offers a dropdown menu in which students can select an eligible industry credential from the currently approved list. Once the credential is selected, individuals see a list of colleges that offer equivalent courses and can click on each institution to receive more detailed information on the specific course equivalencies. The other resource that we suggest ODHE add to these landing pages for each ITAG is a pathways map. Many individuals will need accessible information on the connection of ITAGs to specific credit-bearing credentials and careers to take the next step and seek out the detailed information on specific programs and institutions.

These tools and landing pages that offer information on specific ITAGs will need to be updated each time a new ITAG is offered, and institutional credit equivalencies will also need to be updated as institutions submit their paperwork; ODHE staff will need to develop ongoing processes to update this information.

Outreach and Implementation Toolkit for Credit-Awarding Institutions

In the section on marketing materials, we described the value of a relatively robust outreach guide for credit-awarding institutions that would offer tips on providing outreach to students, staff, and industry partners. Given the added complexities that credit-awarding institutions face in their roles verifying credentials and awarding credit, additional guidance on implementation could be valuable. We suggest that ODHE consider working with staff at credit-awarding institutions that are leaders in implementing statewide CPL frameworks to pull this information together in an outreach and implementation guide that clearly lays out the steps to successful ITAG outreach and implementation in an accessible way for institutional leaders and staff. Because of the need to deeply engage institutions in developing this resource, it would take time and resources to develop. But, once created, this resource might not require updating for many years.

In addition to covering the content on outreach, the implementation guide would offer tips on how to improve processes for staff and students. Our interviews with institutions suggest that some staff see the many different CPL opportunities as challenging to keep track of and burdensome to implement. Yet, some leader institutions we spoke with have dedicated teams of individuals thinking through opportunities to streamline communication and articulation processes. We heard that tips and anecdotes from these leader institutions and ODHE staff on effective strategies for implementation could be valuable in improving processes and building buy-in among key stakeholders. In addition, the literature suggests that CPL processes are often burdensome and inequitable for students. For example, a study of one set of CPL programs found that many programs neglected to connect students to the new program and that, as a result, many students at participating institutions were not aware of the CPL opportunities or how to take advantage of them (Palmer and Nguyen, 2019). Another study found that lack of information was a leading barrier to taking advantage of CPL (Kilgore, 2020). This suggests that institutions can benefit from tips on how to streamline and automate processes for awarding credits and how to ensure that individuals are proactively screened and provided with information on the opportunities.

Engaging Key Stakeholders Around ITAG Resources

Developing the resources described earlier is only a first step; it is critical that ODHE and various messengers engage in a coordinated effort to push materials out and drive traffic to the websites. This effort will require particular attention in the early years of implementation and then will require some lower level of effort in later years. In this section, we describe a proposed plan for this effort, including ODHE's central role in coordinating outreach and the approaches ODHE might take to engaging institutional and industry stakeholders through ITAG outreach.

ODHE's Role in Driving Outreach Efforts

As described earlier, ODHE will play a central role in maintaining websites and creating and updating the various outreach resources. ODHE staff will also play an important role in getting the word out to key stakeholders. Active outreach from ODHE staff should focus on leadership and staff at postsecondary institutions; state agencies and policymakers; and industry intermediaries (e.g., the Chamber of Commerce, Ohio Manufacturers' Association). ODHE should rely on other messengers for direct communication to individuals with ITAG-eligible credentials, employers, and high schools, both to save time and resources and to rely on other trusted messengers that can play an essential role in packaging the materials and getting the information out through channels that are most likely to engage stakeholders. This role for ODHE is consistent with literature on the role of state agency partners (Millett, 2020) and trusted messengers (Page et al., 2022) in implementing postsecondary education initiatives.

We heard about a variety of different ways that ODHE and other state agencies share out information and drive traffic back to the website and resources, including press releases, emails, newsletters, presentations, and social media. These active efforts to push out information on ITAGs and engage with stakeholders will need to happen more frequently in the early years of the initiative. ODHE staff might invest time in establishing a detailed plan each year that lays out the frequency of these active promotional efforts to institutional, industry, and policymaker groups and identifies ideal opportunities for embedding the information into existing events and communication tools. This could be coordinated with outreach on related initiatives, such as CTAGs, rather than being viewed as a standalone effort.

Engaging Institutions in Outreach

The process through which ODHE might engage institutions and other intermediaries in outreach is represented in Figure 3.1. ODHE can coordinate closely with ODE and intermediaries that support credit-bearing institutions to ensure consistent messaging and a robust outreach plan that reaches the different groups of staff within institutions that require information. ODHE, ODE, and the intermediaries commonly share information through presentations (live and recorded, virtual and in-person) and emails to leadership and staff. These efforts will drive traffic back to the institutional websites that ODHE will maintain for credit-bearing institutions with ITAG approval information; FAQs and the helpdesk; marketing materials and outreach guidance; and implementation guidance and to the websites that ODHE and ODE will maintain for OTCs and high schools with marketing materials and outreach guidance. Getting input from institutional staff on resources throughout the process is another way that ODHE will help to spread the word about these resources.

Communication from ODHE, ODE, and the intermediaries should focus primarily on leadership and administrators from enrollment and advising departments. Because of their deeper awareness of their context and staff and because of variation in the information individuals will need across institutions and departments, leadership and department heads can then determine how best to train and communicate with frontline advising and enrollment staff and faculty and instructors. ODHE's outreach guides for credit-bearing institutions and for OTCs and high schools (developed with input from institutional staff) could offer a sample plan for institutional outreach and tips for successful communication with staff. This plan could include information on an institutional website, emails, formal trainings, word of mouth, and other approaches.

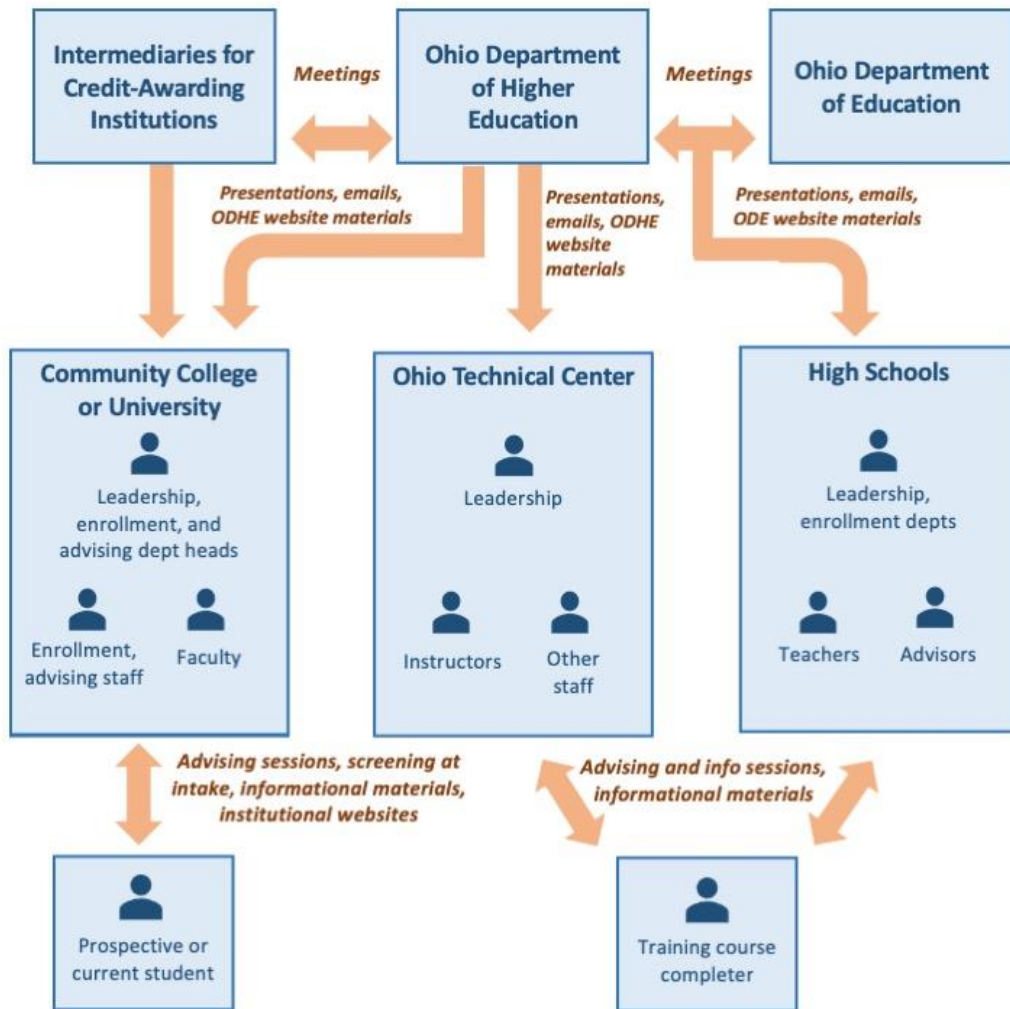
The staff communicating with credential-holders about ITAGs might vary across institutions; in credit-awarding institutions, they are most likely to be intake staff (i.e., enrollment, advising), while in OTCs and high schools, they will most often be instructors communicating with students as they earn credentials and complete programs. The involvement of intake staff in providing ITAG outreach to prospective and incoming students and the resources and outreach strategies they might use might vary somewhat across institutions according to how institutions structure their intake and ITAG verification processes. Some institutions might focus on pushing

out marketing materials through advising offices, websites, and social media and rely on students to come to advisors to ask about ITAGs and the process for articulating credit. However, research indicates that traditional outreach approaches on CPL have not been sufficient, and many individuals lack information about CPL policies, especially communities of color (Klein-Collins and Framularo, 2022). A more effective and equitable approach to ITAG implementation might identify ways to screen students more systematically for ITAG eligibility (e.g., embedding ITAG eligibility screening in enrollment forms) and establish a system for targeted communication with eligible students to verify credentials and award credit. Under this approach, the distribution of traditional marketing materials on ITAGs to incoming students and the use of social media might be unnecessary, although the marketing materials might remain relevant as a hook for prospective students with industry credentials. The more robust implementation and outreach guide can offer a more detailed description of these tradeoffs and profile institutions taking different approaches.

Although our outreach plan focuses primarily on state-level efforts, we have acknowledged that institutions and academic departments will play a central role in communicating about CPL with students, and institutions will need to consider how to integrate ITAG outreach into communication around their broader set of CPL opportunities. For example, websites with information on CPL opportunities will need to be updated to integrate current ITAG information (many already have been). In many cases, it might not be useful to have ITAG-specific outreach materials; institutions will want resources that can adapt to cover different types of CPL opportunities. We suggested that ODHE develop modifiable templates for marketing materials, pathways maps, and presentations so that institutions and departments can tailor them to include information on the ITAG and pathway details for a specific institution and field and potentially to expand relevance beyond ITAGs to a broader set of CPL opportunities. Credit-bearing institutions might want to distribute tailored materials to their local OTCs and high schools to show how ITAGs and other CPL opportunities feed into their programs.

Tailored websites and materials might be valuable, but they are not sufficient; institutions will need to engage with individuals in a more systematic way to ensure all students have access to ITAGs and the wider variety of CPL opportunities. Interviewees suggested that some of the outreach around ITAGs will continue to center on individualized advising conversations that allow information to be tailored to a specific individual's circumstances and provide the space for deep, holistic discussions around enrollment that touch on the costs and program requirements for the credit-bearing credential and the supports offered by the institution. This underlines the importance of connecting individuals with the credit-bearing institutions where they plan to pursue further education and ensuring that these credit-bearing institutions are systematically connecting individuals to well-trained staff who can provide accessible information on ITAGs as part of these holistic discussions. This is also consistent with the literature, which indicates websites and in-person advising as the most critical resources for CPL outreach (Kilgore, 2020).

Figure 3.1. Engaging Institutions in Outreach

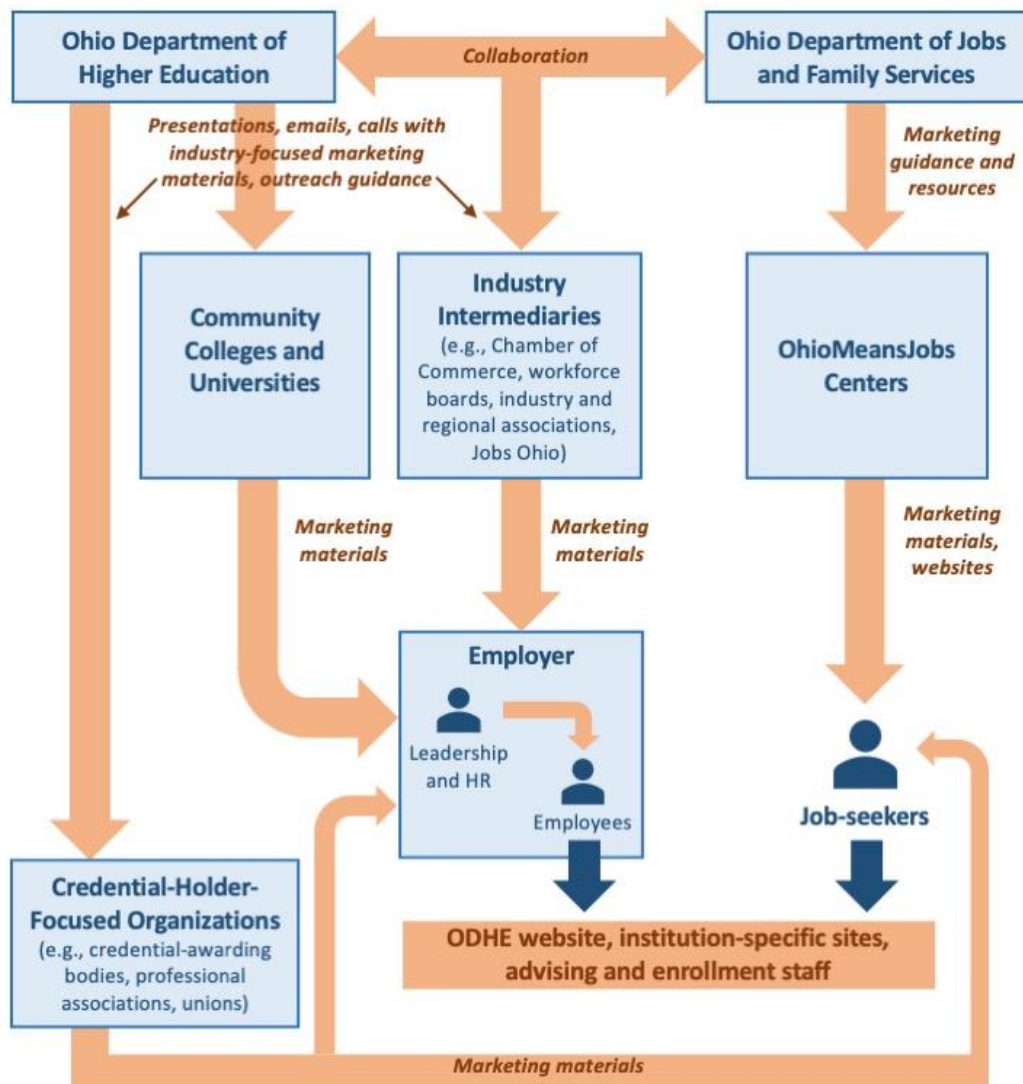


Engaging Industry Partners in Outreach

Figure 3.2 provides a visual depiction of the ways that ODHE might engage industry partners in ITAG outreach based on our conversations with key stakeholders. As noted earlier, there are three industry groups most directly engaged in outreach around education and training opportunities to individuals with industry credentials: credential-awarding bodies, employers, and OhioMeansJobs centers. ODHE might want to engage directly with credential-awarding bodies because these bodies have access to the broadest population of ITAG-eligible individuals in the state and are not in frequent communication with other industry intermediaries about education and training initiatives. ODHE is directly engaging with these bodies as part of the ITAG approval process and can build in a consistent plan for communicating with them and requesting outreach at the time an ITAG is approved. To engage employers and OhioMeansJobs

centers, ODHE should leverage other messengers, including postsecondary institutions, industry intermediaries, and ODJFS. ODHE engages in many meetings with these intermediaries for the purposes of information-sharing on new initiatives. Once ODHE creates industry-focused outreach materials (e.g., website, marketing materials, pathways maps), staff can engage in a broader effort to get the word out to credential-awarding bodies and industry intermediaries and drive traffic to these resources.

Figure 3.2. Engaging Industry Partners in Outreach



Employers are highly valued messengers for the employees at their organizations and can potentially distribute marketing materials to their employees through the various venues that the employer uses to share education and training initiatives (e.g., website, emails, presentations). Leadership and HR employer stakeholders would receive information from industry

intermediaries and local postsecondary institutions through virtual and in-person events, email, websites, and other communication strategies, and these intermediaries can make connections to industry priorities and other key initiatives that have employer buy-in. Employers also engage with postsecondary institutions through advisory groups and other industry or institution partnerships (e.g., work-based learning) and could receive information about ITAGs through these channels.

OhioMeansJobs centers are important sources of information on education and training for unemployed individuals with credentials. Because these centers are overseen by ODJFS, that agency is best positioned to provide information and marketing materials to center staff. More generally, ODJFS will be an important partner in outreach across industry stakeholders: The agency is in close communication with industry partners and employers through workforce boards and is a trusted messenger on workforce development initiatives.

Ideally, employers and other industry partners will be willing to distribute marketing materials to individuals with credentials through emails, social media, presentations, or other approaches. A few interviewees suggested that ODHE and other industry messengers package marketing materials and guidance on outreach in a way that requires as little time and effort as possible for industry partners to pass to employers and for employers to pass down to individuals (e.g., embedding email language that can be easily copied and pasted or including the materials that need to be passed down as an email attachment). ODHE and intermediaries will want to distribute two sets of resources: (1) basic marketing materials and a brief outreach guide for industry messengers and (2) marketing materials for credential-holders that the messengers can easily pass along. Emails, presentations, and guides for industry partners should be brief and engaging, given the literature's findings that industry stakeholders have more limited interests and time in engaging around educational initiatives (Karam, Goldman, and Rico, 2022). We also heard that ODHE and other messengers could link outreach efforts to workforce development priorities and other education and training initiatives that industry partners feel positively about (e.g., TechCred) to provide a more compelling case for investing time to distribute the informational materials. By offering pathways maps and outreach resources that can be tailored by industry intermediaries, the state can support more compelling, field-specific outreach about ITAGs that can act as on-ramps to credit-bearing education.

In addition to providing basic information on ITAGs, a primary focus of the marketing will be to drive traffic to ODHE's website for individuals and its search tools. Ultimately, individuals in industry with ITAG-relevant credentials will need to understand whether their credentials qualify for an ITAG; find a credit-bearing program and institution to enroll in; and get more holistic information on enrollment. The ODHE search tools can point individuals in the direction of institutions and programs. However, individuals will ultimately need to seek out information on institutional websites and talk with enrollment and advising staff to identify a specific program, navigate the institution's CPL processes, and learn about the broader set of enrollment requirements and supports.

Executing the Outreach Plan

It will take time and resources to execute this proposed outreach plan. Because of their greater awareness of internal capacity; the resources available for outreach and stakeholder engagement; and the priorities within the agency, ODHE leadership and staff are best positioned to determine the resources and timeline for carrying out the outreach plan. However, in the interest of informing ODHE's plan, we provide some additional thoughts about the resources needed and a potential timeline for carrying out the work.

Resources for the Outreach Plan

The resources required for outreach would be higher in the initial years of implementation as ODHE creates the resources and spreads the word about ITAGs, but outreach in later years would require somewhat fewer resources. In conversations with ODHE, it was revealed that ODHE anticipates that implementation and outreach work on ITAGs and related credit articulation initiatives would require at least two full-time equivalent staff members in the initial few years. This would cover resource creation, stakeholder engagement, and direct support at the institutional level and is in addition to the full-time time staff member that is needed to support the continued development of new ITAGs after initial grant money that ODHE received ends in June 2023. Leadership from ODHE would also need to devote some time to support outreach and provide direction and oversight.

ODHE staff would be responsible for overseeing the development of all resources that have not yet been developed, including FAQs and help desk features on the websites; marketing content, outreach guidance, and presentation materials for different stakeholder groups; pathways maps and templates; the toolkit for credit-bearing institutions; and the website for industry partners. These resources require front-end effort and have some ongoing needs for updating, but the helpdesk feature and the website tools and resources that need to be created and updated each time an ITAG or institutional course equivalency is approved will require some ongoing staff time. It should be noted that considerable monetary resources will be required if the state expanded pathways maps from simple single-page documents to more interactive pathways maps and credit transfer tools, as noted in an earlier section of the outreach plan.

ODHE staff would also be responsible for outreach through emails, presentations, and calls to other state agencies, policymakers, postsecondary institutions, industry intermediaries, and credential-awarding bodies. These materials and the outreach process could be standardized and streamlined to the degree possible to cut down on staff time required for each interaction. These efforts would largely be concentrated in the first year or two of outreach and would then be conducted only periodically to remind key stakeholders of the initiatives.

ODHE staff would need help from others to support the development of some of the resources. We recommended that ODHE staff engage staff at credential-awarding institutions in co-developing the toolkit and engage various institutional and industry partners to get input on

marketing materials. These advisors and co-developers might require honoraria to cover their time providing this input; these costs would largely be concentrated in the initial year as these resources are developed. A consultant with design and marketing experience can help ODHE to develop marketing materials and pathways maps that will be visually appealing and convey information effectively, and the costs for this consultant could vary widely depending on the level of design and the number of materials created. To conserve resources, ODHE should have the designer create pathways templates and marketing materials templates that can be updated to tailor the information to specific fields and institutions. We do not anticipate any costs associated with the support provided by messengers with the amplification of ODHE outreach and distribution of resources.

Efforts to provide outreach around ITAGs should be integrated with outreach around other statewide CPL frameworks, and pathway maps for ITAGs should be fully integrated into Ohio's various credit transfer tools. Other aligned initiatives that ODHE and state agency partners are pursuing to enroll adult learners and ensure a strong workforce should also be included in outreach strategies. This will allow the state to leverage a broader set of resources and identify where outreach around these initiatives can be streamlined and conducted more efficiently.

Potential Timeline for the Outreach Plan

Although outreach around ITAGs will take place over multiple years, we illustrate a potential timeline for the first year of ITAG outreach work in Table 3.3. In the first quarter, ODHE would focus on creating the industry-facing website, presentation materials for different messengers (e.g., institutional staff, industry partners), FAQ documents, and a helpdesk option. ODHE would also begin to think about content for pathways maps and marketing materials and would work to identify a consultant organization that can create highly designed and accessible graphics. ODHE would engage closely with other state agencies in mapping out a more detailed outreach plan and would convene a group of trusted thought partners from institutions and industry to provide input on the websites and marketing resources as they are created over the first year.

ODHE is already engaging in substantial outreach to institutional staff and is beginning to spread the word with industry partners, and this work should continue and expand in the first quarter. Institutional leaders and enrollment and advising departments should already be passing down information to other staff. As new resources are created and posted to websites, these resources can be pushed out by ODHE and other messengers through presentations, emails, and calls.

Table 3.3. Potential Timeline for Executing the ITAG Outreach Plan

Timeframe	Action
Q1	<ul style="list-style-type: none"> • ODHE staff: <ul style="list-style-type: none"> – Engage closely with other state agencies and groups of key stakeholders to co-develop an outreach plan and get input on resources as they are developed – Begin work on industry website; refine other websites as needed using stakeholder input – Add presentations, FAQ documents, and helpdesk to websites – Identify consultant and start to draft content for marketing materials for individuals and institutions and outreach guides – Identify process for building pathways maps and adding to websites – Continue with presentations, press releases, and other ongoing outreach activities to postsecondary institutions • ODE and ODJFS staff: <ul style="list-style-type: none"> – Build ITAG information into websites and begin to inform stakeholders through emails, presentations, and other venues for communication – Provide support to ODHE with pathways maps • Community colleges and universities: <ul style="list-style-type: none"> – Leadership and department heads provide outreach to staff – Enrollment and advising staff develop a plan to integrate ITAGs alongside existing CPL opportunities and resources (i.e., detailed outreach and articulation processes); begin to execute plan • High schools and OTCs: <ul style="list-style-type: none"> – Leadership and counseling departments share information and marketing with instructors – Instructors and counselors share information and marketing materials with individuals earning ITAG-relevant credentials • Groups of institutional stakeholders and industry representatives, state agency staff: <ul style="list-style-type: none"> – Convened to provide input on websites, marketing materials and outreach guides, info session materials, implementation guide for credit-bearing institutions • Consultants: <ul style="list-style-type: none"> – Support the design of a pathways map template and some marketing materials
Q2	<ul style="list-style-type: none"> • ODHE staff: <ul style="list-style-type: none"> – Continue to develop marketing materials and outreach guides and push out to all groups – Complete pathways template and pathways maps for all approved ITAGs – Update website content and tools with pathways maps and ITAG informational docs as ITAGs are approved – Begin presentations, press releases, and other outreach activities for industry partners; continue outreach to institutions – Begin to regularly engage credential-providing organizations to request outreach as new ITAGs are released – Begin to create the implementation guide for community colleges and universities in partnership with staff from leader institutions • ODE and ODJFS staff: <ul style="list-style-type: none"> – Distribute marketing materials and outreach guides, pathways maps to high schools, workforce boards, and OhioMeansJobs centers • Community colleges and universities: <ul style="list-style-type: none"> – Continue to provide outreach to staff; prepare staff for implementation – Build marketing materials into websites and distribute to individuals – Continue to execute and refine an equitable plan for outreach and implementation • Intermediaries for credit-awarding institutions: <ul style="list-style-type: none"> - Share information and marketing materials with institutions - Provide implementation support • Industry intermediaries: <ul style="list-style-type: none"> – Share information and marketing materials with employers • Employers, credential-awarding bodies, OhioMeansJobs centers, individual membership organizations: <ul style="list-style-type: none"> – Distribute marketing materials to individuals through emails and texts, job boards, presentations, and other forums for sharing information on educational opportunities

Table 3.3 (cont). Potential Timeline for Executing the ITAG Outreach Plan

Timeframe	Action
Q3	<ul style="list-style-type: none"> • ODHE staff: <ul style="list-style-type: none"> – Finish developing marketing materials and outreach guides, continue to push out – Finish developing the implementation guide for community colleges and universities and push out through leadership emails and presentations to institutional staff – Update website content and tools with pathways maps and ITAG informational docs as ITAGs are approved • Community colleges and universities, intermediaries for credit-awarding institutions: <ul style="list-style-type: none"> – Push implementation guide out to staff and use the guide to improve outreach and implementation • All messengers: <ul style="list-style-type: none"> – Continue to push out information and resources
Q4	<ul style="list-style-type: none"> • ODHE staff: <ul style="list-style-type: none"> – Solicit feedback to assess outreach progress and make adjustments as needed – Continue to push out resources to institutions and key messengers – Update website content and tools with pathways maps and ITAG informational docs as ITAGs are approved • All other messengers: <ul style="list-style-type: none"> – Continue to push out information and resources

In the second quarter, ODHE will begin to develop and refine marketing materials and outreach guides and can more aggressively push these resources out to messengers. Messengers should then be pushing materials out to individuals. This will be a particularly important time for starting to get the word out to industry partners (e.g., employers, OhioMeansJobs centers, and credential-awarding bodies) and encouraging them to engage in active outreach to individuals they communicate with. ODHE could also formalize processes for developing and posting pathways maps as part of the core set of ITAG approval materials. With many of the more basic resources developed or under development, ODHE could turn to the process of developing a more robust implementation guide for colleges and universities in close collaboration with staff from leading institutions.

In the third quarter, ODHE will finalize the remaining marketing resources and the ITAG implementation toolkit. The newly completed ITAG implementation guide will be released to community colleges and universities and will be a primary focus of ODHE promotional efforts for the quarter. ODHE and messengers will continue to push out marketing resources through emails and text messages; presentations; and social media.

In the fourth quarter, ODHE will gather stakeholder feedback to reflect on the outreach plan and make adjustments. ODHE and messengers will continue to push informational resources out through the end of the year and during future years.

Chapter 4. A Plan for Analyzing the Impact of ITAGs

As described in Chapter 1 and illustrated in Figure 1.1, statewide initiatives that aim to standardize opportunities to award credit for industry credentials like ITAGs have the potential to improve postsecondary outcomes for individuals. The opportunity to receive college credit for noncredit learning can save incoming students time and tuition dollars on unnecessary coursework. This reduced cost of achieving a credential should encourage more individuals on the margin to pursue credit-bearing credentials. CPL initiatives can also encourage enrollment by providing a clear message to learners that their experience and the knowledge and skills they have gained through work experience and industry credentialing is valued rather than something considered separate and of lesser importance than college coursework. Statewide CPL frameworks offer particular advantages over locally determined policies because they offer a more streamlined environment for individuals and institutional staff to navigate and an opportunity for clearer and consistent communication about the value of noncredit learning to individuals who might or might not be considering college enrollment.

In rolling out an initiative like ITAGs, it is important to evaluate implementation and impact to determine whether it offers value to Ohio; how it is working to improve postsecondary credential completion and earnings; and who it is benefiting (i.e., the implications for equity). This evaluation evidence can be used to facilitate continuous improvement, scaling, and replication. We are unaware of rigorous evidence on the implementation and impact of statewide or systemwide CPL agreements, although there are some studies demonstrating that CPL exams and other approaches have improved student outcomes when implemented by institutions (Boatman et al., 2019; Klein-Collins et al., 2020).

Although the focus of this chapter and the project task was on describing an impact analysis plan, it is equally important to examine the implementation and take-up of ITAGs. Evidence on implementation can provide valuable feedback to Ohio to inform continuous improvement; offer a roadmap for other states looking to replicate and scale these initiatives; and build broader awareness in the field around how to support students as they transition between noncredit and credit credentials. There are several types of analysis that could be valuable. First, it is critical to understand how statewide CPL frameworks shape the way that CPL is awarded within institutions. This is akin to understanding whether the policy is being implemented with fidelity at the institutional level and can also determine whether the state frameworks drive changes toward more systematic approaches to screening individuals for CPL on intake, which could have important implications for awareness, take-up, and equity. Barriers and facilitators to implementing ITAGs at the state and institutional levels will also be important to document. The state might also be interested in assessing the implementation and effectiveness of its broad outreach efforts that were carried out around the initiative and exploring whether these

approaches helped to build awareness and take-up of ITAGs. Student experiences with ITAGs might also be important to document, including students' awareness of the opportunities, decision-making process around enrollment, experiences with the CPL process, and experiences integrating into credit-bearing programs. RAND received some additional funding from the National Science Foundation to carry out this work in partnership with ODHE.

We follow with an overview of our impact analysis plan for the ITAG initiative, including our proposed approach to assessing impact and the key measures and data sources required to carry out the approach. The hope is that this could serve as a guide for future work and inform planning and data collection in Ohio.

Proposed Approaches to Measuring Impact

As with many statewide changes in policy, elements of ITAGs are being rolled out gradually over time, and the primary approach we propose to assess impact uses these changes over time to identify some naturally occurring comparison groups. We describe each of the two sources of variation we propose to leverage below.

Gradual approval of ITAGs over time: Because of the work required by ODHE staff, the steering committee, and faculty panels to approve ITAGs, there are limitations to how many certifications and licenses can be approved for ITAGs in a given year. To date, approximately 15 ITAGs have been implemented, and ODHE plans on approving an additional set of ITAGs each year for the next few years. This results in variation across fields of study in the degree to which students have access to opportunities for statewide credit for industry credentials. We can compare outcomes in the fields most closely related to approved ITAGs before and after their adoption with changes in outcomes for fields in which ITAGs have not yet been approved over the same period. The advantage of this approach is that we can make comparisons to students within the same college and region, which accounts for differences in programs and initiatives across institutions and variation in workforce and populations across regions. The disadvantage of this approach is that we cannot account for differences between fields in the characteristics of their credential-holders and workforce demands.

Differences in the timing of when institutions establish course equivalencies: After the state approves an ITAG, institutions must establish a course equivalency with ODHE. The timing of this process varies across institutions, so individuals in some institutions have access to ITAGs earlier than individuals at other institutions. We can compare outcomes across these institutions before and after establishing a course equivalency with changes in outcomes for institutions that did not establish a course equivalency over the same period. The advantage of this approach is the ability to make comparisons in outcomes within the same field, for individuals with similar characteristics facing demands for credentials. The disadvantage of the approach is that we

cannot account for differences in regional workforce composition or college-level programs and initiatives.

Given these limitations, we can also employ models that use both sources of variation to address the limitations of each method. To the extent that results are stable across models, we can be more assured of our estimates. To the extent that they differ, we can use the estimates to judge possible sources of bias and use the combined model to account for them.

To carry out this analysis, we would identify individuals who enroll in credit-bearing programs and classify those individuals as being enrolled in a program that is or is not tied to an approved ITAG at an institution with a registered course equivalency. This student-level data will be used to estimate effects on such student outcomes as time to degree, degree attainment, employment, and earnings, as well as the types of students who enroll in ITAG-related programs. These student-level data can be aggregated to the program level to understand program level effects on the number of students enrolled in these programs.

The approach described above would serve as the primary strategy for assessing impact, but there are other approaches that could be paired with this analysis to build additional evidence on the impact of ITAGs. For example, Chapter 3 describes outreach plans that involve broad, statewide sharing of marketing information with individuals who hold credentials through credential-awarding bodies and employers. These outreach efforts could be incorporated into a randomized encouragement design (e.g., half of those holding a certain certification receive an email and text with marketing materials and linking to the ITAG website while the other half do not receive these materials). To the extent that the intervention increases the likelihood of take-up, this additional take-up of ITAGs and college enrollment can then be used to estimate changes in outcomes. Because we would be comparing individuals with the exact same certifications and randomizing who received the information among that group, we could be certain that any differences in education and employment outcomes across the two groups are driven by ITAGs.

We anticipate that a full evaluation of the implementation and impact of ITAGs might take four to five years, with the final two years focusing to a greater degree on the impact analysis. As ITAGs are being rolled out, ODHE will need to ensure that data are being collected on ITAGs credentials and student articulation of credit (more on these data sources and measures below). These initial implementation years are also when randomized encouragement efforts might take place to expand the possibilities for rigorous impact analysis. We anticipate that two years into implementation, we will begin to have the variation needed across fields and institutions and the numbers of students enrolling in ITAG-related programs to begin to measure impacts, and we can continue to measure impacts over two to three years to allow sufficient time for individuals using ITAGs to complete credentials.

Data Sources and Measures for Assessing Impact

As we note above, a robust evaluation will examine data and measures on both implementation and impact; we focus here on what is needed for the impact analysis. The analysis would potentially draw on three sources of data:

- *Data on when ITAGs were established:* ODHE should compile a data set that documents information on how ITAGs are rolled out across certifications and licenses and how course equivalencies are adopted across institutions. This information is largely being collected as part of the agency's approval and tracking processes but might need to be captured in a more structured way, updated regularly, and shared with researchers for the purposes of assessing the implementation and impact of the policy.
- *Administrative records on education and employment:* The Ohio Longitudinal Data Archive provides access to individual-level records that come from several sources. ODHE provides data from its Higher Education Information system, which includes information on enrollees in credit-bearing programs and public community colleges and universities. ODJFS provides data from the state's unemployment insurance system, which excludes self-employed workers, unpaid family workers, workers in certain not-for-profit organizations, and several other small (primarily seasonal) worker categories that are not covered by unemployment insurance systems.
- *Randomized encouragement data:* If outreach around ITAGs were provided in a randomized way, we would need to merge identifying information to flag which individuals in the state administrative data were randomized to receive (or not receive) this outreach.

We provide an overview of key measures for the impact study in Table 4.1, including measures that will be used to capture access to an ITAG (e.g., enroll in program aligned with ITAG, enroll in institution during term when ITAG is available), use of an ITAG, and outcomes (e.g., persistence, credit accumulation, completion). We do not have data on which individuals hold industry credentials, so our sample needs to be limited to individuals enrolled in credit-bearing programs to allow us to construct a proxy measure: *enrolled in credit-bearing program associated with an ITAG*. This variable will require the administrative data on enrollment and ITAG implementation that links in the timing and crosswalk of ITAGs to fields. Another important measure is whether an individual *used an ITAG*. ODHE has been working with college staff across the state to provide training on the proper way to report articulated credit from ITAGs, and it is these fields that will be used to track ITAG use. Earlier measure of college progress that we had examined include *persistence* and *credit accumulation*, which can be particularly important indicators of college momentum and success in early semesters of enrollment. And in the longer-term, completion of credential and time to credential are critical to capturing impact. Finally, we would be interested in understanding how ITAGs affected employment outcomes. The analysis could examine short-term employment outcomes as individuals enroll in credit-bearing programs to determine whether enrollment is associated with decreases in *employment* and *earnings*. And in the long-run, it would be critical to understand

whether going on to earn credit-bearing credentials helped to support greater employment and increased earnings.

We are particularly interested in the implications of ITAGs for equity; therefore, it will be important to capture socio-demographic characteristics of individuals and assess outcomes for historically underserved groups wherever we have sufficient data and variation in student characteristics to do so. We identify race, ethnicity, Pell eligibility, rural college enrollment, gender, and age as potential groups that we might want to assess outcomes for relative to their peers.

Table 4.1. Key Measures, Data Sources, and Underlying Variables

Key Measure	Data Source	Underlying Variables
Institution's adoption of ITAG	Postsecondary administrative data	Date each ITAG course equivalency approved for each institution
Enrolled in credit-bearing program	Postsecondary administrative data	Date/term of enrollment, credit hours attempted
Enrolled in credit-bearing program that is associated with an ITAG (proxy for ITAG eligibility)	Postsecondary administrative data	Date/term of enrollment, credit hours attempted, program of enrollment (Classification of Instructional Programs [CIP])
	Data on when ITAGs established	Date of ITAG approval, crosswalk of ITAG to course equivalency and related programs (CIP)
Used an ITAG	Postsecondary administrative data	ITAG indicator code, credit indicator
Persisted in credit-bearing program 1, 2, <i>n</i> th terms	Postsecondary administrative data	Date/term of enrollment, credit hours attempted
Credits earned in the first 1, 2, <i>n</i> th terms of enrollment	Postsecondary administrative data	Date/term of enrollment, credit hours earned
Completed a credential	Postsecondary administrative data	Credential award date, credential award level
Time to credential	Postsecondary administrative data	Date/term of enrollment, credential award date
Employed	Unemployment insurance data	Quarterly earnings, industry code
Employed in relevant industry	Unemployment insurance data	Quarterly earnings, industry code
Earnings	Unemployment insurance data	Quarterly earnings
Historically underserved population	Postsecondary administrative data	Race, ethnicity, Pell eligibility, rural college, age, gender

A more robust evaluation might extend data collection and measures beyond those described in Table 4.1 to understand more about how the policies were implemented, how they shaped access to CPL (i.e., how statewide CPL agreements altered access to CPL relative to the counterfactual of what institutions offered previously), and what short-term outcomes individuals experienced during initial enrollment (e.g., sense of belonging, perceptions of saved time and

money). This evidence, as well as the evidence we describe on implementation and student experiences, can help to unpack and explain the impact results and can also provide evidence to inform the adoption and scaling of statewide CPL frameworks across other states. Cost data can also be valuable to collect alongside impact data to assess the return on the state's investment in the initiative.

Limitations to the Analysis Plan

The impact study will occur during the first five years of implementation of the ITAG program. Thus, the impact study will measure the effects of a relatively new policy that will likely be refined and improved over time. To the extent that the program effects evolve during the observed period, our study will be able to capture these improvements. However, follow-up studies will be needed to understand how a more established and mature policy is affecting future cohorts of ITAG adopters. An early impact study, however, including an analysis of take-up, could provide valuable formative feedback to ODHE and spur discussions on ways to improve implementation, including testing interventions using behavioral science.

Second, our approach to forming comparison groups and assessing impact is imperfect. Our main assumption is that our comparison group would experience the same trends in outcomes over time as our ITAG adopters if ITAGs never existed. To the extent that our comparison group faces different pressures over time that cause their trends to vary, our results could be biased. For example, if we use students pursuing credit-bearing credentials in non-ITAG fields as a comparison group, our results could be biased if these fields face different macroeconomic pressures over time that affect earnings or incentives to enroll in credit-bearing programs. If we use students pursuing the same degrees in colleges that have not yet adopted ITAGs, any contemporaneous change in policies in comparison colleges that affect enrollment and credential completions could bias our results. We will consider these threats to the study before choosing a comparison group and ensure that ITAGs and comparison groups historically share similar trends in outcomes. Furthermore, to the extent that we implement different approaches and obtains similar results, it is less likely that any one approach is fatally flawed, and, as previously mentioned, models that combine both sources of variation can be used to mitigate those concerns.

Finally, we face data limitations that restrict our sample and our ability to fully observe the set of individuals eligible for ITAGs because we do not have access to data on the industry credentials held by the Ohio workforce. This prevents us from being able to concentrate the sample on the population of students with eligible credentials; instead, we concentrate the sample on the population of students in ITAG-related fields. The estimates can therefore be interpreted as the effect of the offer of ITAGs on the enrolled population of students in relevant programs and will likely understate the effect on individuals that used an ITAG. The randomized encouragement approach described earlier and other efforts to merge in data on full populations

of industry credential holders could offer opportunities to estimate impacts on a more targeted population. We might also need to collect additional data from individuals to understand awareness, take-up, and enrollment decisions.

Chapter 5. Conclusion

CPL opportunities can offer significant value to individuals by saving time and tuition dollars and building on the knowledge and skills that individuals bring into college. However, these opportunities are often underused because individuals are not aware of them; are not able to navigate the complex system of varying standards across institutions and departments; or do not have the time and resources to complete administrative requirements. Statewide frameworks for CPL, such as Ohio's efforts to award common statewide credit for industry credentials, offer a promising approach to improving on the existing CPL environment in many states. The coordinating efforts of states and systems can help to streamline CPL policies and amplify outreach across the state and, thus, overcome some of the barriers that have hindered access to CPL and postsecondary education for students of color and other historically underserved populations.

RAND's role in the project was to provide targeted support to Ohio around the implementation of its statewide CPL frameworks, with a particular focus on centering equity. We engaged in a variety of activities to support ODHE, including literature review, descriptive analysis of quantitative data, stakeholder engagement, and design of outreach and impact analysis plans. The hope is that these evidence-based approaches will be supportive in helping ODHE to center equity in implementation, provide robust outreach around ITAGs, and prepare for impact analysis.

This project was limited in scope, and there is still much to be learned about statewide CPL initiatives. Ohio stakeholders have been deeply engaged in implementation efforts and will continue with these efforts over the next several years. Documenting and assessing this implementation can help to describe how these initiatives are rolled out and identify barriers and facilitators to implementation. We also need to understand whether and how these statewide CPL frameworks improve on the status quo of institution-level agreements and whether there are areas in which statewide agreements are not an improvement. We gathered some stakeholder insights to inform an outreach plan, but there is much more that could be learned from individuals with credentials about the best means of providing outreach around ITAGs. Understanding the costs of these initiatives is also important, and it will be critical to understand the impacts of the program on enrollment and completion.

Appendix A. Evidence on Racial and Ethnic Diversity among Credential-Holders

To prioritize ITAGs (and industry certifications and licenses) that reach individuals of color, it is useful to identify the racial and ethnic characteristics of those who might benefit from the policy. In this section, we provide evidence from Ohio administrative data and national survey data on the characteristics of individuals holding credentials related to ITAGs.

Neither of the two data sources are a perfect measure of the target population for ITAGs, but they each provide valuable information on the racial and ethnic characteristics of individuals earning short-term credentials:

- *Ohio administrative data on individuals recently completing credit-bearing certificates:*

Ohio's Longitudinal Data Archive does not contain individual-level data on those who hold industry credentials (no state we are aware of holds centralized data on industry credentials). However, we did have data on the individuals who were completing educational certificates that were most closely aligned to the industry credentials being considered for ITAGs. We assume that those who are likely to be moved to enroll in college because of ITAGs might be similar to those who recently enrolled in those programs, so evidence on the racial and ethnic distribution of certificate-earners can shed light on the potential diversity of the population holding related industry credentials and guide ODHE on where to focus ITAG approvals.

- *National survey data on certification and license-holders:*

The eligible population for ITAGs are those who hold industry certifications and licenses, and, though not captured in state administrative data, these characteristics are captured in national survey data. The Current Population Survey is a national survey that is conducted to capture information on U.S. residents, and it asks questions about the occupational fields that individuals work in and whether they hold an industry certification or license. We can examine the occupational fields that have the most diverse populations among individuals holding industry certifications and licenses to guide ODHE to priority areas for ITAG approvals.

We provide a more detailed description of the specific analyses we conducted and the results of our analyses in subsections for each data source below.

There are several possible benchmarks for what makes a field *diverse* in terms of race and ethnicity. One possibility is to ensure that the percentage of credential-holders is more diverse than the racial and ethnic distribution of the overall population (or the younger population most likely to be entering college); another possibility is to use the average distribution of individuals holding industry credentials in Ohio. As of 2017, approximately 81 percent of the adult population between 18 and 64 was White. In data from the 2015 and 2016 Current Population

Surveys, approximately 80 percent of individuals holding certificates without licenses and 81 percent of individuals holding licenses in Ohio were white. This suggests that 20 percent or more of credential-holders being individuals of color might be one possible benchmark, and ODHE might want to set higher benchmarks.

State Administrative Data on Individuals Earning Certificates

ODHE's Higher Education Information data system provides a comprehensive record of every student enrollment and graduation from all public community colleges and universities in Ohio. We focused on individuals who earned a credit-bearing certificate between the 2016–2017 and 2018–2019 academic years at Ohio public institutions, and we broke out the analysis by short certificates and long certificates. The tables are limited to the larger fields (i.e., those that account for at least one percent of all certificates earned over the three-year period), and the bolded rows represent the largest fields (i.e., those that account for at least 3 percent of all certificates earned).

We calculated the number of individuals earning a certificate and the race and ethnicity of those who earned certificates (Tables A.1 and A.2). To classify the diversity of fields, we looked to the diversity of Ohio's adult working-age population and the population of individuals holding industry credentials. Overall, 80 percent of all Ohioans were White in 2017, and approximately 80 percent of all Ohioans who reported earning industry certifications and licenses in 2015 and 2016 survey data were White. We use this benchmark to shade the most diverse fields in green (less than 77 percent white), the least diverse fields in red (more than 83 percent white), and the ones that fall in the range around the population average in yellow.

Overall, recent certificate-earners were more diverse than the overall population and the population of industry credential holders; this is driven by recent certificate-earners being younger than the overall population and our data being older. Many fields were therefore classified in the *most diverse* range, and ODHE might consider higher benchmarks. The fields in which certificates were most commonly earned by students of color were varied: They included certificates in business, health care, IT, and manufacturing and engineering technology. Some of the less racially and ethnically diverse fields in which certificates were commonly earned include emergency medical technician (EMT), industrial technician, and welding; however, these fields might be serving other such historically underserved populations as low-income or rural students.

Many of these *most diverse* certificates are related to ITAGs that Ohio approved in 2022. For example, licensed practical nursing was one of the first ITAGs approved, and 31 percent of individuals earning certificates in this field were individuals of color. Several of the ITAGs focus on network and security certifications, and these might feed into certificates in computer and information sciences and computer technology. The ITAG for the automotive service excellence

certification might feed into automobile mechanics technician certificate programs, and the ServeSafe ITAG might feed into hospitality management and culinary arts certificate programs.

Table A.1. Racial and Ethnic Characteristics of Individuals Earning Short Certificates by Field of Study

CIP	Field of Study—Short Certificate	White (%)	Black (%)	Hispanic (%)	Certs Awarded
520411	Customer Service Support/Call Center/Teleservice Ops	48	26	1	1,285
520901	Hospitality Administration/Management, General	54	20	2	682
511501	Substance Abuse/Addiction Counseling	56	27	1	944
440701	Social Work	63	22	1	564
513902	Nursing Assistant/Aide and Patient Care Assistant/Aide	64	18	2	2,645
520201	Business Administration and Management, General	66	16	3	2,095
521501	Real Estate	67	19	2	1,187
500401	Design and Visual Communications, General	67	12	2	586
430107	Criminal Justice/Police Science	69	12	2	1,585
500406	Commercial Photography	70	15	2	486
110101	Computer and Information Sciences, General	73	13	1	449
511009	Phlebotomy Technician/Phlebotomist	73	12	4	367
150399	Electrical and Electronic Engineering Technician	73	4	4	465
520203	Logistics, Materials, and Supply Chain Management	74	10	2	771
470604	Automobile/Automotive Mechanics Technician	78	7	2	667
511199	Health/Medical Preparatory Programs, Other	78	13	1	888
510904	Emergency Medical Technician (EMT Paramedic)	79	9	2	1,177
480508	Welding Technology/Welder	80	5	3	915
510810	Emergency Care Attendant (EMT Ambulance)	80	5	2	415
150612	Industrial Technology/Technician	85	5	1	504
430203	Fire Science/Fire Fighting	89	3	1	1,095

SOURCE: Authors' calculations using data from the Ohio Longitudinal Data Archive.

NOTE: The sample included students who earned their first certificate from a public community college or university in Ohio between July 1, 2016, and June 30, 2019. Only fields accounting for more than 1 percent of all certificates awarded during this period are reported. The bolded rows represent fields that account for more than 3 percent of all certificate-earning students. Percentages do not sum to 100 percent because several racial groups are excluded from the table. Fields are sorted by the percentage of certificate-completers who were white. Fields with less than 77 percent White are shaded green, 77 to 83 percent White are shaded yellow, and more than 83 percent White are shaded red.

Table A.2. Racial and Ethnic Characteristics of Individuals Earning Long Certificates by Field of Study

CIP	Field of Study—Long Certificate	White (%)	Black (%)	Hispanic (%)	Certs Awarded
520703	Small Business Administration/Management	41	27	2	176
120503	Culinary Arts/Chef Training	44	40	1	142
513902	Nursing Assistant/Aide and Patient Care Assistant/Aide	48	28	1	139
151202	Computer Technology/Computer Systems Technology	60	21	3	253
511504	Community Health Services/Liaison/Counseling	64	15	0	247
521001	Human Resources Management/Personnel Admin	69	16	3	177
513901	Licensed Practical/Vocational Nurse Training	69	20	1	1,423
510801	Medical/Clinical Assistant	71	14	3	539
520201	Business Administration and Management, General	73	13	2	1,250
220302	Legal Assistant/Paralegal	74	12	1	187
520302	Accounting Technology/Technician and Bookkeeping	75	12	2	498
470607	Airframe Mechanics and Aircraft Maintenance Technician	75	10	1	145
470604	Automobile/Automotive Mechanics Technician	75	8	1	371
513501	Massage Therapy/Therapeutic Massage	78	11	1	309
510909	Surgical Technology/Technologist	78	8	1	144
510713	Medical Insurance Coding Specialist/Coder	80	9	1	240
90902	Public Relations/Image Management	82	5	1	188
430107	Criminal Justice/Police Science	83	5	4	336
131003	Education of Individuals with Hearing Impairments	83	9	1	156
510904	Emergency Medical Technician (EMT Paramedic)	84	4	2	579
520301	Accounting	88	3	2	150
150612	Industrial Technology/Technician	89	0	1	281
520101	Business/Commerce, General	89	5	0	244

SOURCE: Authors' calculations using data from the Ohio Longitudinal Data Archive.

NOTE: The sample included students who earned their first certificate from a public community college or university in Ohio between July 1, 2016, and June 30, 2019. Only fields accounting for more than 1 percent of all certificates awarded during this period are reported. The bolded rows represent fields that account for more than 3 percent of all certificate-earning students. Percentages do not sum to 100 percent because several racial groups are excluded from the table. Fields are sorted by the percentage of certificate-completers who were White. Fields with less than 77 percent White are shaded green, 77 to 83 percent White are shaded yellow, and more than 83 percent White are shaded red.

National Survey Data on Individuals Holding Industry Credentials

Table A.3 presents data on the racial and ethnic distribution of individuals who hold industry certifications and licenses in different occupations. The table uses self-reported survey data from the 2015 and 2016 Current Population Survey. All percentages are estimates using Ohio-specific data, with some adjustments using national data to account for small sample sizes. The rows are shaded similarly to Tables A.1 and A.2: Rows shaded in green indicate the occupations in which

certification or license holders are the most diverse and rows shaded in red indicate occupations with the least diverse industry credential-holders.

Table A.3. Racial and Ethnic Characteristics of Individuals with Industry Credentials by Credential and Occupational Field

Occupational Field—Certificate, No License	White (%)	Black (%)	Hispanic (%)	Total Ohio Residents
Food preparation and serving related occupations	49	17	18	1,095
Healthcare support occupations	53	26	19	7,666
Transportation and material moving occupations	60	28	9	8,761
Protective service occupations	72	16	23	1,062
Construction and extraction occupations	73	7	22	9,856
Personal care and service occupations	77	20	13	5,475
Healthcare practitioner and technical occupations	78	21	11	4,380
Computer and mathematical science occupations	79	16	9	5,475
Sales and related occupations	82	2	11	4,380
Office and administrative support occupations	83	10	14	5,475
Production occupations	83	6	6	6,570
Arts, design, entertainment, sports, and media	81	4	9	1,859
Education, training, and library occupations	85	6	6	3,285
Management occupations	88	9	5	9,856
Installation, maintenance, and repair occupations	89	9	8	8,761
Occupational Field—License (With or Without Certificate)	White (%)	Black (%)	Hispanic (%)	Total Ohio Residents
Building and grounds cleaning and maintenance	69	22	9	17,521
Healthcare support occupations	69	22	6	45,993
Installation, maintenance, and repair occupations	75	18	7	15,331
Personal care and service occupations	76	13	7	33,948
Food preparation and serving related occupations	77	20	8	14,236
Office and administrative support occupations	79	11	8	37,233
Production occupations	79	5	11	27,377
Healthcare practitioner and technical occupations	81	15	4	36,138
Sales and related occupations	81	8	5	26,282
Community and social service occupations	82	11	11	5475
Transportation and material moving occupations	83	11	6	82,131
Protective service occupations	84	7	7	22,997
Construction and extraction occupations	88	10	6	37,233
Management occupations	92	3	4	31,757

SOURCE: Authors' calculations using data from the 2015 and 2016 Current Population Survey.

NOTE: All percentages and numbers are estimates. The table focuses on individuals who hold a certificate or a license but do not have a college degree. Results are split out by individuals with a license (with or without a certification) and individuals with a certification and no license. Occupational field is the field of their current job, and the table is limited to occupational fields that account for more than 1 percent of all residents in Ohio, with occupations accounting for at least 3 percent of all residents in Ohio in bolded text. Rows shaded in green indicate occupations in which fewer than 77 percent of industry credential-holders are White, rows shaded in yellow indicate

occupations in which 77 to 83 percent of industry credential-holders are White, and rows shaded in red indicate occupations in which more than 83 percent of industry credential-holders are White.

There is substantial overlap between Table A.3 and Tables A.1 and A.2 on credit-bearing certificate-earners. Food preparation occupations have the most diverse population of industry credential-holders, and culinary arts in Table A.2 was one of the most diverse credit-bearing credentials. Healthcare support and personal care and support occupations also had a diverse set of industry credential-holders, as did credit-bearing certificate-earners in related fields. The least diverse occupations in terms of those holding industry credentials were management and protective service occupations. Interestingly, the results varied for license-holding individuals and those with industry certifications in installation, maintenance and repair and construction and extraction occupations. For one group, those occupations showed up among the least diverse; for the other group, those occupations showed up among the most diverse.

Appendix B. Findings Related to the Outreach Plan

The report focuses on describing a possible outreach plan that ODHE might pursue around ITAGs. This outreach plan was informed by findings from our interviews with key stakeholders and a targeted review of the literature. In this section, we describe some of the detailed themes from our stakeholder interviews and our targeted review of the literature.

Key Findings from Institutional Interviews and Focus Groups

Who Should be Involved with ITAG Outreach

- **Campuses will be critical partners and hubs for ITAG outreach.** We heard from OTC and college staff that they have extensive experience reaching out to adult learners and valuable expertise on how best to reach these individuals. We also heard that individuals will need in-depth information to select and enroll in credit-bearing programs (e.g., required courses, program length, and tuition cost) and that colleges are ideally positioned to provide this information. In addition, colleges will need to communicate with students about the process for receiving credit through articulation agreements. OTCs and community colleges will be especially well-positioned to communicate information about credit articulation programs to employers through their program advisory boards. Community colleges will be especially important hubs for information and will require the highest level of outreach from ODHE to support them in their role.
- **Despite the central role of campuses, campus staff we spoke with were not consistently well-informed about the ITAG and CTAG initiatives.** These staff seemed interested in receiving more information about the initiatives, reinforcing the idea that reaching out to campuses should be a high priority for ODHE.
- **Within college campuses, advisors, registrars, and instructors will need to receive outreach.** Several college staff told us that individuals often learn about CPL through individual advising sessions and described how local relationships among campuses and advising staff can help disseminate information about programs and resolve problems with the credit articulation process. Colleges also noted the central role that registrars play in informing students about credit articulation programs. In addition, several colleges told us that instructor concerns about credit articulation can be a barrier to implementing credit articulation programs or approving credit for non-credit learning experiences. These findings underpin the recommendation that college advisers, registrars, and instructors need outreach.
- **High school and OTC instructors appear to constitute students' most important source of information about credit articulation programs.** Staff told us that these instructors provide information and encouragement about postsecondary education and that students often communicate with instructors after graduation to ask questions about credit articulation. Staff also told us that limited focus on career and technical education

and limited capacity among high school advising staff might be hindering sharing of information about CTAGs, reinforcing the importance of instructors as a source of this information. However, staff told us that instructors face competing demands and constraints on their time.

- **High school and OTC administrators could receive information about credit articulation programs and relay it to instructors.** Campus staff told us that high school and OTC administrators work with instructors to create program recruitment materials and present information to students and their families. Administrators were more likely than instructors and counselors to report interacting with state education agencies to clarify information and answer questions about credit articulation.
- **Employers need to know about articulation agreements so they can help distribute information and develop programs.** Many OTC and college staff described how their campuses partner with employers to inform employees about their programs. They described how employers can communicate the value of credentials for career advancement and encourage employees to work toward credentials through incentives, such as tuition assistance. Moreover, they described how some campuses partner with employers to develop education and training programs, which can help ensure that these programs meet employers' needs and increase value for employees.

What Kinds of Information Should Stakeholders Receive

- **To engage campus leaders and staff in outreach and implementation of ITAGs, ODHE might need to communicate why the initiative is valuable.** Institution staff we talked to had mixed opinions about the value of statewide credit articulation agreements. Some staff described them as valuable, while others described them as duplicative of existing prior learning assessment opportunities and confusing alongside the related statewide articulation agreements that already exist.
- **Some institution staff perceive that there is a limited pool of individuals who would be interested in or benefit from ITAGs and CTAGs.** A recurring theme among OTC staff we talked to was that many of their students were not interested in college. Rather, staff told us that these students were primarily interested in “getting to work and getting paid.” Staff emphasized that credit-bearing credentials are more helpful for career advancement in some fields, such as nursing, than in others, such as electricians, welding, and precision machinery operation, where certificates are valued. This reinforces the need for ODHE to clarify and communicate the value of ITAGs and CTAGs to campuses and students.
- **College staff need clarification about the details of the various credit articulation agreements that exist in Ohio.** Community college and university staff described confusion or difficulty learning about the various agreements, including among such staff as registrars and advisors, who might need to know the details of these agreements to help students articulate credit. Staff described the volume of information about the different agreements and lack of alignment between agreements as contributing to these challenges.
- **College staff need suggestions and best practices for implementing ITAGs and CTAGs, as well as an explanation of program features that they see as barriers.** OTC and college staff described various process-related barriers to ITAG and CTAG use, including the course alignment process, the need to gain buy-in from faculty, the

complexity of validating credentials, the possibility of four-year colleges not accepting credit upon transfer, and the three-year time limit on credit. Colleges need information on how they can overcome these barriers, as well as messaging to help explain the three-year time limit to individuals.

- **High school and OTC staff might need information and materials that they can provide to instructors.** As described earlier, high school and OTC instructors are the most important source of information about postsecondary opportunities, but instructors face competing demands on their time and might not have bandwidth to process detailed information about ITAGs. High school and OTC staff we spoke to suggested that administrators and advisers could receive more detailed information and updates about ITAGs and help share this information with instructors to use with their students. High school and OTC administrators might also receive marketing materials from ODHE, tailor the materials to their campuses, and transmit the materials to instructors for distribution to students.
- **Individuals need to know the earnings they can gain from credit-bearing credentials and how the credentials will improve their lifestyle.** OTC and college staff emphasized that individuals need “real-world” information about the benefits of credit articulation to them. As one staff person stated, individuals need to know: “If I get a degree, it will provide me with X salary.” In addition to knowing that credit-bearing credentials can increase their earnings, individuals need to know that credit articulation can save them time and money. Flexibility to work while completing a program is also important to individuals, and communicating the flexibility of credit-bearing programs offered by a campus might encourage individuals to take advantage of articulation agreements. OTC and community college staff consistently emphasized the need to communicate this information to individuals.
- **Individuals need clear information about the pathways between credentials and the pathways from credentials to better careers.** OTC and community college staff said that students might be overwhelmed by information about college and unclear about the pathways within college. Referring to information about credentials and careers, these staff described the need to “break it down” or “map it out completely for them.”
- **Industry stakeholders might need less information than campuses.** Our interviews indicate that the best role for industry stakeholders—including employers, employer associations, credential-awarding bodies, and OhioMeansJobs centers—might be serving as a conduit of information from ODHE or colleges to employees and job seekers with credentials. Stakeholders told us that industry leaders and employer HR departments are busy and might lack time to learn the details of articulation agreements and present them to their workforces. In addition, we encountered difficulty recruiting industry stakeholders for interviews about credit articulation, which could indicate that these stakeholders see credit articulation for their workforces as low-interest or low-priority. These findings indicate that industry stakeholders might need simple information packaged as easy-to-use marketing materials that they can distribute directly to employees and job seekers.
- **ODHE could provide information directly to individuals, but campuses might need to tailor and provide much of the information.** It was mentioned that statewide communication from ODHE could be valuable because it saves institutions time and

lends credibility to initiatives. However, campuses might often need to tailor their materials and communication approaches to reach their staff and students.

How Should Information Be Delivered

- **Campus staff described specific types of materials that would be useful to them, including pre-built materials and customizable templates.** Several staff mentioned that specific materials from ODHE would be helpful. These included a brief one-pager or flyer and an FAQ document. Some materials could be pre-built, while others could be provided as templates that campuses could modify. Materials could be packaged into a toolkit.
- **Key messengers should consider distributing information using social media and online resources, as well as more traditional forms of marketing.** Many OTC and college staff mentioned using social media or online marketing to distribute information. One staff person described a website as preferable to hard-copy materials because it can be easily updated. Staff also mentioned traditional marketing and in-person events, including billboards, television, stories in the local news, campus tours, open houses, and word of mouth.
- **To increase use of CTAGs, high schools could consider using specific mechanisms for informing high school students.** OTC and community college staff offered several suggestions for improving communication to high school students. These included building notation of CTAGs directly into transcripts or other matriculation-related documents, developing clear crosswalk tools, and borrowing from the approaches used for College Credit Plus (CCP), the state’s dual enrollment program. The CCP rollout was described as well-done, with features that included FAQs, points of contact, notification of webinars, an up-to-date website, and mandatory meetings.
- **For individuals, general information about the value of articulation agreements to them might be more useful than acronyms and detailed information about specific programs.** For example, some community college staff said it would be more useful to tell individuals that articulation agreements can help them raise their salaries or give them credit anywhere in the state than to communicate acronyms or other details of different articulation programs. One staff person suggested using the words “credit for credentials” instead of “ITAGs.”
- **In line with the need for “real-world” information about the benefits of credit articulation, individuals need “success stories” from others who have used credit articulation.** OTC and college staff consistently emphasized the need to share near-peer “success stories” from students and employees who used credit articulation, completed credit-bearing programs, and advanced their careers.
- **Providers of information and materials should simplify information and avoid acronyms.** OTC and college staff consistently emphasized the need to simplify information and avoid acronyms. We also heard advice to use personalized messages and avoid requiring students to search through multiple documents for information.
- **In addition to providing the right information in the right formats, campuses might be able to reduce the need to provide information by streamlining and automating processes.** Staff described how awarding CPL has traditionally required substantial administrative work by students and campuses and often relies on personal one-on-one interactions. Streamlining and systematizing ITAG processes, such as screening students

for eligibility and awarding credit, could reduce the work required of students, reduce the need to inform them about CPL processes, and increase the likelihood of equitable administration of credit for industry credentials.

- **Some colleges have implemented changes to their credit articulation processes that reduce the burden on students and the need to inform students.** Some college staff said that their campuses have built questions about certifications and other types of prior learning into their applications or enrollment processes. This approach might reduce burden on students to take action to receive credit and reduce the need to inform students. This could be important because students might be overwhelmed with information and tasks as they enter college.

Key Findings from Industry Interviews

Contextual Information to Inform ITAG Outreach:

- **Individuals can gain skills needed in Ohio’s tech sector through multiple pathways.** These include degrees, bootcamps, on-the-job training, and self-study. Industry certifications can help an individual “get in the door” but are relatively unimportant in hiring.
- **Stakeholders offered different perspectives on the importance of degrees in Ohio’s tech sector.** Several participants described degrees as relatively unimportant for acquiring tech skills and being hired in the tech industry. However, we also heard that a degree could help individuals “get in the door” or become a manager in tech. Although a substantial portion of individuals seeking tech training or certifications already have degrees, several participants believed that a sizeable number of tech workers might be interested in using CPL to earn a degree.

Who Should Be Involved with ITAG Outreach

- **Public and private organizations at the state level play an important role in distributing information to employers.** These organizations include the Governor’s Office of Workforce Transformation, the Ohio Department of Jobs and Family Services, OhioMeansJobs, JobsOhio, the Ohio Manufacturers’ Association, the Chamber of Commerce, the Business Roundtable, and the Inter-University Council of Ohio. In addition to distributing information, some of these organizations have committees in which leading employers and education organizations meet and learn about state-led initiatives.
- **ODJFS’s OhioMeansJobs centers can help reach individual and employers.** The centers exist in all counties and have the communications infrastructure needed to push out information from ODJFS leadership to individual centers. Employers receive information from OhioMeansJobs centers, and centers in larger counties have business resource teams that work with employers to meet their workforce needs. The centers can also encourage visiting jobseekers to think about earning credentials.
- **Regional employer partnerships and local workforce boards serve as important sources of information for employers.** Examples of regional employer partnerships include the Columbus Partnership and the Greater Cleveland Partnership. Regional

organizations might be important for distributing information because Ohio has multiple prominent cities instead of only one prominent city in the state.

- **Credential-awarding bodies could push out information about CPL opportunities to credential holders.** Credential-awarding bodies have contact information for credential holders and might command the attention of credential holders because these individuals need to meet continuing education requirements. Credential-awarding bodies might be interested in promoting opportunities to earn credit for credentials because such opportunities would increase the value of credentials. However, credential-awarding bodies might be reluctant to send out this information because they do not see it as part of their mission.
- **Employers could be engaged to distribute ITAG information to employees.** We heard that some employers pass information about training opportunities from leadership to HR to employees or take information from OhioMeansJobs centers and email it directly to employees without modification. We also heard that HR might be the wrong point of contact regarding opportunities because they take care of many other issues within a company and that leadership or managers might be more effective points of contact. Several participants suggested that employers could coordinate their tuition programs with CPL opportunities, such as ITAGs: Employers could encourage employees to use their tuition assistance dollars to pursue credit-bearing programs that would use ITAG credit and that would be valued by the employer. Small employers without extensive training resources might be especially interested in CPL opportunities that provide a *hook* for earning a credit-bearing credential. However, some employers might be reluctant to promote training opportunities because they fear that employees will increase their marketability and leave.
- **The education sector should also be involved in outreach.** Some stakeholders have focused outreach for tech opportunities on middle and high school students to feed the pipeline for tech workers. Employers and colleges should communicate more so that employers understand the programs that colleges have available and colleges understand employers' needs.

What Kinds of Information Should Stakeholders Receive

- **Individuals need to know the skills they will learn through an opportunity, the credits they will need to complete to gain the skills, the kinds of jobs they will be able to get when they finish, and the wages they will be able to earn.** Individuals also need to know the amount of time that will be needed to complete a program and the program's cost. Flexibility to work or fulfill family obligations while completing a program and availability of financial assistance are important to communicate.
- **To encourage individuals to take up opportunities, employers need to communicate the earnings boost that individuals can receive with an additional credential or degree.**
- **To encourage individuals to take up CPL opportunities, programs should clearly connect having an industry credential with college credit.** Programs should communicate that having a credential means an individual is not "starting from scratch" and can receive credit for what they already have. Programs should communicate the number of college credits an individual has from a specific industry credential or other experience.

- **Employers need a concise description of the opportunity (“what is it, who’s it for”), the value for an employer, and the steps an employer would need to take to use the opportunity.** Using clear, direct language and stating that participation will be easy can encourage employer to participate. Application costs, paperwork, and lack of flexibility can discourage employers from participating.

How Should Information Be Delivered

- **In Ohio, several factors create challenges for communicating about new opportunities.** These factors include the high level of workforce development activity; the large number of different programs and credentials being offered; and confusion about the difference between initiatives. This suggests that any communication to stakeholders should clearly distinguish the new opportunity from other initiatives and indicate the correct point of contact for learning more.
- **A website should be the highest-priority communication resource.** This website should serve as a one-stop shop for all information about an opportunity. All other resources (e.g., brochures, newsletters, or videos) should be housed on the website and link back to the website. A website intended for different stakeholders should have different sections clearly identified for each stakeholder; for example, it should have an employer section that is distinct from other sections. The website should be well organized and avoid the look and feel of “a bulletin board in a grocery store.”
- **A digital brochure or one-pager could be used to communicate with individuals and employers.** The brochure could be sent to employers and forwarded to employees by email, with a link to the website for details on how to participate. The brochure could also be distributed in person at some sites, such as OhioMeansJobs centers. (We heard that employers would be unlikely to print out a brochure.)
- **Targeted one-on-one meetings, rather than webinars, should be used to reach high-level stakeholders.** Such meetings should be used to reach industry association or company leaders for the purpose of asking them to distribute information about the opportunity. These could consist of a phone call followed by an email with a brochure or other marketing material attached. The stakeholder could then easily post the material to their website or distribute it to members or employees. We also heard that in-person meetings could be useful for connecting and “translating” between industry and education partners.
- **Participants mentioned other kinds of outreach resources.** These included group meetings (e.g., a monthly industry association meeting), newsletters, and short videos to be posted on social media as ways to reach industry stakeholders.
- **Resources for employers should contain concrete information in the most concise format possible.** This information should include value to the bottom line, how to participate, and type of credentials available from an opportunity. Bullets can help make materials concise and user-friendly. Communication and any application material should be simple and streamlined and paperwork should be reduced.

Key Findings from the Literature

Credit for Prior Learning Initiatives

- CPL initiatives evaluate and award college credit for college-level learning that occurs outside postsecondary institutions. There are a variety of different methods by which CPL credits are awarded, including through exams or portfolio assessment.
- CPL opportunities are intended to accelerate individuals' progress to a credential and, in turn, contribute to both individual financial prosperity and community and regional workforce development.
- Many students enroll in college having amassed substantial prior work experience and postsecondary training. Although they might be entering college classrooms for the first time, these students have college-level knowledge and skills developed through their on-the-job experiences and career-focused credentials (Palmer, Nguyen, and Love, 2021). Awarding CPL can facilitate individuals' success in credit-bearing credential programs by accelerating their path through college.
- Although CPL opportunities have been around since the early 20th century, they have grown tremendously over the past decade: The federal government, through the \$2 billion Trade Adjustment Assistance Community College and Career Training (TAACCCT) program, and states concerned about workforce development have invested in community colleges' abilities to train individuals for in-demand jobs (Palmer and Nguyen, 2019).
- CPL opportunities have a positive effect on degree completion and earnings (Boatman et al., 2019; Klein-Collins, 2010; McKay and Douglas, 2020), and CPL is a relatively low-cost intervention with large relative returns (Boatman et al., 2019). However, offering CPL alone will not beget student success. CPL initiatives are more effective when paired with supports that address students' needs and experiences (McKay and Douglas, 2020; Palmer, Nguyen, and Love, 2021).
- One such need is informational support about CPL opportunities. Building awareness of CPL among community college faculty and prospective and enrolled students can increase uptake (McKay and Douglas, 2020).
- A survey of 458 U.S. undergraduate, degree-granting institutions showed that academic advisors, the institution's course catalog, and the institution's website are the three most common sources of information about CPL opportunities for students (Kilgore, 2020).
- A survey of a national sample of 1,184 undergraduates found that roughly three-quarters of students are aware of CPL opportunities, and high school college counselors, college academic advisors, other students and family members were cited as the most common sources of CPL knowledge (Kilgore, 2020). Adult students and those attending community colleges were more likely to report that they learned about CPL opportunities from their employer or a coworker than their younger peers and those at baccalaureate institutions (Kilgore, 2020).
- The plurality of community college students who had not pursued CPL credit cited lack of information as the primary reason they did not take advantage of the opportunity (Kilgore, 2020). Other leading reasons for lack of take-up for community college students included credit limitations, the time required to navigate the process, and not following through on intentions to pursue CPL credit (Kilgore, 2020).

Effective Outreach and Communication Strategies for College Students, in General

- Lack of information and complex administrative processes create barriers to educational opportunities and inhibit students' success in college.
- Consequently, there has been abundant practitioner initiative and a dedicated research effort to examine the impact of high- and low-touch informational interventions to promote student success. For instance, proactive advising efforts and the simplification of administrative processes have consistently shown positive impacts on student outcomes (Castleman and Page 2015; Castleman and Page 2016; Castleman and Page 2017; Page, Castleman, and Meyer, 2020).
- There is continually growing but inconsistent evidence on the impact of lower touch interventions, such as text messaging, email, and chat bots, in promoting enrollment and success for college students (Avery et al., 2021; Castleman and Page 2015; Castleman and Page 2016; Castleman and Page 2017; Goldrick-Rab et al., 2021; Kramer, 2020; Page, Castleman, and Meyer, 2020; Page and Gehlbach, 2017).
- Recent evidence suggests that outreach might be most effective when it is simple in nature, higher touch, delivered by trusted messengers, targeted to those for whom it is most relevant, and focused on acute, time-sensitive administrative processes (Page et al., 2022).

Promoting Programs and Initiatives to Adult Learners

- Informational outreach and counseling interventions might be particularly helpful for promoting college programs and initiatives to adult learners, who might not have direct connections to educational institutions. In contrast to high school students, who have opportunities to learn about credit-bearing credentials and degrees from school teachers, counselors, and administrators, informational barriers to access might inhibit the ability of adult students to learn about and access CPL and other educational opportunities.
- Colleges have increasingly built out and systematized advising and early warning systems for incoming and current students with positive outcomes (Baugus, 2020). Consequently, once students enroll, it is increasingly likely that new enrollees will receive targeted, timely information on initiatives and their performance.
- However, limited resources have been dedicated to connecting potential enrollees or already enrolled students with information about new initiatives. For instance, in a study of TAACCCT awardees' CPL program implementation, researchers found that many grantees neglected to connect students to the new programs, instead focusing their resources on policy development (Palmer and Nguyen, 2019). Consequently, many students at participating institutions were not aware of the CPL opportunities or how to take advantage of them (Palmer and Nguyen, 2019). The authors recommended that information on CPL opportunities should be integrated into recruitment efforts on the part of college staff and supported by additional resources from the state.
- In a report detailing policy recommendations for supports for various college populations, researchers from Educational Testing Service (ETS) unpacked the division of responsibility for implementation of postsecondary initiatives among various stakeholders (Millett, 2020). Although the ETS report focuses particularly on implementation of Promise scholarship programs, the findings are generalizable to other postsecondary initiatives.

- Institutions (specifically, community colleges) were deemed to be the primary sites for advising and program delivery; state government agencies were determined to be the critical decisionmakers for program planning, review, and implementation (Millett, 2020). Related research has also concluded that postsecondary institutions are primarily responsible for making students aware of CPL opportunities and their eligibility to transcript credit for their prior learning (Kilgore, 2020).
- Key activities of state agency stakeholders might include setting criteria for the design of programs and services; periodically reviewing programs; working with postsecondary institutions to promote knowledge of initiatives among key staff and to bring implementation up to standard; working with relevant employers to ensure knowledge of and alignment with initiatives; maintaining up-to-date information on the program and implementing institutions; developing mobile-friendly websites and portals to share information on programs; or developing (or providing a budget for) advertising and marketing materials for distribution across the state (Millett, 2020).
- Regional employers might facilitate the creation of CPL opportunities, build employees' knowledge of college credentialing opportunities, and facilitate employee access to such opportunities (Millett, 2020).
- Although prior literature notes the importance of partnerships among various postsecondary and workforce stakeholders, we found limited research examining the development and maintenance of these partnerships; the information needed by various stakeholders; and methods for informational delivery.
- Colleges might experience difficulty developing and maintaining strategic partnerships with local and regional employers because these partnerships require staff capacity and resources that are already scarce and engagement on the part of busy employers for whom such partnerships might not hold as much value (Karam, Goldman, and Rico, 2022).

Abbreviations

CCP	College Credit Plus
CIP	Classification of Instructional Programs
CPL	credit for prior learning
CTAG	Career and Technical Education Transfer Assurance Guide
EMT	emergency medical technician
ETS	Educational Testing Service
FAQ	frequently asked questions
HR	human resources
IT	information technology
ITAG	Industry-Recognized Credential Transfer Assurance Guide
MTAG	Military Transfer Assurance Guide
ODE	Ohio Department of Education
ODHE	Ohio Department of Higher Education
ODJFS	Ohio Department of Jobs and Family Services
OGTPs	Ohio Guaranteed Transfer Pathways
OTC	Ohio Technical Center
TAACCCT	Trade Adjustment Assistance Community College and Career Training

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