State Experiences Expanding Registered Apprenticeship: Findings from a Federal Grant Program

September 8, 2020

Samina Sattar, Jacqueline Kauff, Daniel Kuehn[1], Veronica Sotelo Munoz, Amanda Reiter, and Kristin Wolff[2]

[1] Urban Institute [2] Social Policy Research Associates

Submitted to:

U.S. Department of Labor
Employment and Training Administration
Office of Policy Development and Research
200 Constitution Avenue NW
Washington, DC 20210
Project Officer: Gloribel Nieves-Cartagena
Contract Number: DOLQ121A21886/
1630DC-17-U-00025

Submitted by:

Mathematica
P.O. Box 2393
Princeton, NJ 08543-2393
Project Director: Linda Rosenberg
Reference Number: 50458

Disclaimer: This paper was prepared for the U.S. Department of Labor (DOL), Employment and Training Administration by Mathematica, under contract number DOLQ121A21886/1630DC-17-U-00025. The views expressed are those of the authors and should not be attributed to DOL, nor does mention of trade names, commercial products, or organizations imply endorsement of same by the U.S. Government.

This page has been left blank for double-sided copying.

Abstract

The U.S. Department of Labor awarded $100 million in State Apprenticeship Expansion (SAE) grants to 36 states and one territory from 2016 to 2018. The key goals of the grants were to expand apprenticeship—including apprenticeship in nontraditional industries—and increase the diversity of the apprentice population. This report presents an analysis of activities under the grants, based on interviews with grantee representatives in early 2020, grant applications, and grantees' quarterly performance reports. States reported that the SAE grants were an important factor in strengthening their capacity to promote, establish, and expand registered apprenticeship. With additional staff funded under the grant and new partnerships, states reported being able to develop more apprenticeship programs and expand the pipeline for apprentices. States also described strategies to strengthen the apprenticeship system, including increasing the capacity of staff to engage employers and register programs, improving access to administrative data on apprenticeship across states, and developing the technology and infrastructure to make program development easier.

This page has been left blank for double-sided copying.

Acknowledgements

This report was made possible through the contributions of many individuals. The authors would like to thank Gloribel Nieves Cartagena from the Office of Policy Development and Research and Gabrielle Aponte Henkel from the Office of Apprenticeship in the Employment and Training Administration of the U.S. Department of Labor for their guidance and support throughout the study. We appreciate the time and thoughtfulness of the many state apprenticeship staff that provided their perspectives and experiences with apprenticeship expansion and took the time to clarify and answer questions. A team of individuals helped collect data for the study, including Rebecca Dunn from Mathematica; Lea Folsom, Ivette Gutierrez, and Leela Hebbar from Social Policy Research Associates; and Bob Lerman from the Urban Institute. Many thanks to Annalisa Mastri for review of the final report, Jennifer Brown and Kerry Kern for editing, and Colleen Fitts for formatting the final document.

This page has been left blank for double-sided copying.

Table of Contents

Abstract iii

Acknowledgements v

Executive Summary xi

I. Introduction 1

A. Overview of the study 1

B. Research questions 2

C. Conceptual framework 3

D. Data sources and analysis methods 5

E. Limitations 6

F. Road map to the report 6

II. Grantee States and Partners 7

A. Characteristics of SAE states 7

B. Coordination of apprenticeship efforts across state agencies 8

III. Grant Activities 19

A. Capacity building at the state and local levels 19

B. Types of grant activities 22

C. Shifts in the focus of activities over time 28

IV. Grant Outcomes and Management 31

A. Grant performance outcomes 31

B. Reporting and data management 32

V. Recruiting Employers and Sponsors 35

A. Employer outreach activities under the grant 35

B. Staff conducting outreach 37

C. Common challenges with recruitment of employers and sponsors 38

D. Important factors for success in employer outreach 39

Table of Contents

VI. The Role of Registered Apprenticeship in the Workforce System....41
A. Federal guidance on integration of RA and WIOA....41
B. Integration of RA into the workforce system under the SAE grants....41
C. Roles of LWDBs and staff in integrating apprenticeship....43
VII. State Efforts to Promote Diversity in RA....47
A. Focusing on specific populations....47
B. Characteristics of participants served under SAE grants....47
C. Reaching underrepresented groups....49
D. Supporting diverse apprentices....50
VIII. Lessons Learned from Expanding Apprenticeship....53
A State plans for continued expansion....53
B. State perspectives on Industry-Recognized Apprenticeship Programs....53
C. Lessons learned for federal investments in RA....54
References....57
Appendix A: State Apprenticeship Expansion Grant Information, by State....A.1

Tables

Table II.1. Industries states focused on in their grants..... 8
Table II.2. Key grant partners as reported by SAE grantees.....11
Table III.1. Employer incentives as reported by SAE states 23
Table III.2. State reports of shift from SAE to ASE grants 29
Table IV.1. SAE grants by end of 2019 31
Table VII.1. Underrepresented groups focused on by SAW states.....47
Table VII.2. Characteristics of participants and apprentices 48
Table A.1. Characteristics of SAE states..... A.3
Table A.2. State Apprenticeship Expansion grant baseline, target, and reported outcomes A.7
Table A.3. Characteristics of participants served by SAE grantee states..... A.9

Figures

Figure I.1. States that received State Apprenticeship Expansion grants in 2016 2
Figure I.2. Conceptual framework for the State Apprenticeship Expansion study 3
Figure III.1. Grant goals as reported by SAE states 19
Figure III.2. Function of new staff by states 20
Figure III.3. Types of subgrantees and subcontractors for SAE grants 21
Figure III.4. Recruitment approaches for potential apprentices as reported by SAE states.....25
Figure III.5. Examples of new apprenticeship occupations developed under the SAE grant 26

Executive Summary

The U.S. Department of Labor (DOL) awarded $100 million in State Apprenticeship Expansion (SAE) grants to 36 states and one territory (referred to as "states" in this report) from 2016 to 2018. The key goals of the grants were to expand apprenticeship—including apprenticeship in nontraditional industries—and increase the diversity of the apprentice population.

Apprenticeship is an earn-and-learn model that combines classroom learning (often called related technical instruction or RTI) with on-the-job training (OJT) and confers a credential when the apprenticeship is finished. Registered Apprenticeship (RA) programs are apprenticeships that are registered with either the federal Office of Apprenticeship (OA) at DOL or a State Apprenticeship Agency (SAA). Although the SAE grants were extended and are scheduled to end in October 2020, states received Apprenticeship State Expansion (ASE) grants in 2019, which will continue their work beyond the SAE grants.

DOL contracted with Mathematica and its partners, the Urban Institute and Social Policy Research Associates, to study the strategies that different states used to expand RA under the SAE grants, and to produce actionable information on the promising practices, implementation challenges, and lessons learned from the SAE-funded expansion effort. This report presents findings from the study, which was designed to answer seven core research questions:

1. What is the current status of states' efforts to grow RA programs and opportunities and increase the diversity of the apprentice population?
2. What activities are being implemented under the grants to expand apprenticeship and increase the diversity of the apprentice population?
3. What partnerships have been developed at the state level to promote apprenticeships and diversify the apprentice population?
4. What factors are perceived to have affected implementation of the SAE grants?
5. How are grant funds being used to promote apprenticeships and diversify the population of apprentices?
6. What state policies exist or are being developed to support expansion of apprenticeships?
7. What lessons have emerged from states' experiences that could inform future expansion efforts?

Study methods

The research team developed a conceptual framework for the study that identified the key factors, stakeholders, and activities in state apprenticeship expansion and the relationships between them. The framework was used to determine whom to interview, which topics to discuss with interviewees, and what additional program data to analyze.

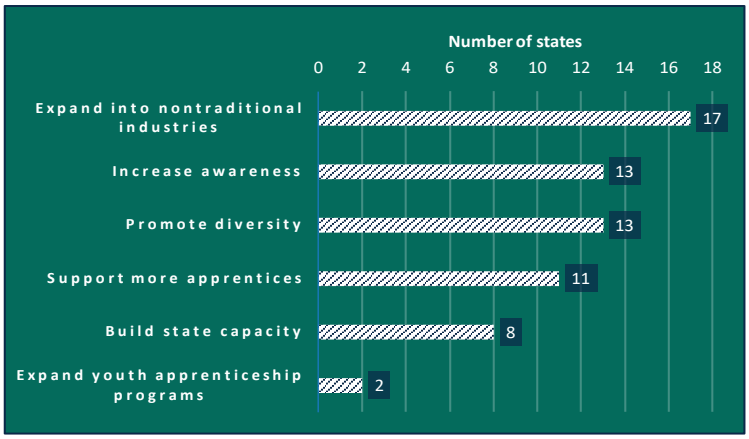
We interviewed SAE grantee representatives from 34 of the 37 states by telephone in January and February 2020. These interviews are the study's main source of data, and just three states were unable to participate in them. At the time the interviews were conducted, some of the SAE states had already received ASE grants. Although the study focuses on activities funded under the SAE grants, findings may reflect activities that were funded by both the SAE and ASE grants.

We also analyzed grant applications and grantees' quarterly performance reports (QPRs). Grant applications gave important background information on the structures and partnerships planned for the grants. Grantees' QPRs for the quarter ending December 31, 2019, provided cumulative data on participants' characteristics and grant outcomes.

Findings on grantees and partners

DOL awarded the SAE grants to 34 state agencies and 3 college systems in 37 different states. Of the 34 state agencies that were the SAE grantees, most (30) were in charge of workforce development in the state. Many (22) of the states that received grants had an SAA to register programs, and OA approved the registration of apprenticeship programs in the other 15 states. The grants funded an average of three staff to work on expanding apprenticeships in each state. Some of these staff were already working on apprenticeships. Two states reported that they did not use any of the grant to fund staff.

Figure ES.1. Grant goals as reported by SAE states



Source: SAE grantee interviews, 2020.

Note: States could identify more than one goal; N = 34 states.

States aimed to expand RA into nontraditional industries. The most commonly cited goal for the SAE grant was to expand RA into nontraditional industries (17 states; Figure ES.1). The most common industries targeted by grantees for expansion were manufacturing (28 states), health care or biotechnology (27 states), and information technology (21 states). These are all industries that do not historically have high numbers of apprenticeships. Table ES.1 provides a list of the other industries targeted by at least 7 states. Fewer than 7 states focused on a variety of other industries, such as aviation, agriculture, and business services.

Table ES.1. Industries states focused on in their grants

Industry	Number of states
Manufacturing/advanced manufacturing	28
Health care/biotechnology	27
Information technology	21
Building trades/construction	16
Transportation	10
Hospitality and tourism	9
Energy/utilities	7
Other	18

Source: SAE grantee interviews, 2020.

Note: N = 34 states. Respondents could focus on more than one industry.

Thirteen states also focused on increasing awareness of apprenticeship and improving their marketing and outreach. Thirteen states reported promoting diversity as a goal, including increasing access to apprenticeship by underrepresented groups.

Grants leveraged partnerships across state agencies and other entities in an effort to build capacity for developing apprenticeships. States leveraged partnerships with various state agencies, such as departments of education and commerce, to expand apprenticeships. Other key partners included

postsecondary schools or systems, state and local workforce boards, and industry associations and employers. Most states (28) also reported receiving support from the governor or the legislature. This support included funding appropriations, supportive legislation, statewide initiatives, and championing RA in the public sphere.

"It was clear early on that developing a successful registered apprenticeship program was not something that can be done with one entity. We need input from multiple organizations."

—State respondent

Twenty-nine states awarded subgrants or subcontracted with other entities to implement the grant and in an effort to build the community's capacity to develop apprenticeships. Fifteen states subcontracted with or awarded subgrants to educational institutions such as community colleges, technical colleges, or universities. Eleven states engaged local workforce development boards (LWDBs) through subgrants or subcontracts, and six states engaged nonprofits. Six states worked with industry-based partners to focus on a specific industry. Two states subcontracted with entities working on reentry to focus specifically on incarcerated or reentering individuals.

Findings on activities funded by the grant

About half the states provided training and technical assistance in an effort to build capacity. Fourteen states reported providing training and technical assistance under their SAE grant to build the capacity and knowledge of key state and local stakeholders. Of these 14 states, 8 reported providing training to LWDB directors or business services staff, staff at other state agencies, or local apprenticeship navigators, who are the main points of contact for interested employers in a local area. Eight states provided training and technical assistance to their own subgrantees, to employers, or to intermediary sponsors of apprenticeship programs.

Almost all states funded RTI for apprentices. Twenty-nine states reported funding RTI by either funding the RTI provider or reimbursing employers for the costs of providing RTI to their apprentices. In contrast, only four states helped employers cover the costs of OJT, including apprentices' wages. Three states that did not subsidize OJT noted that they preferred funding RTI over OJT because doing the former meant that participating employers had to invest some of their own resources in training and mentoring apprentices. These states considered this employer investment critical to the success and sustainability of the apprenticeship program.

Some states provided supportive services to individuals. Ten states reported providing supportive services for apprentices including transportation, child care, tools and safety gear, tablets, books, and testing fees for certifications.

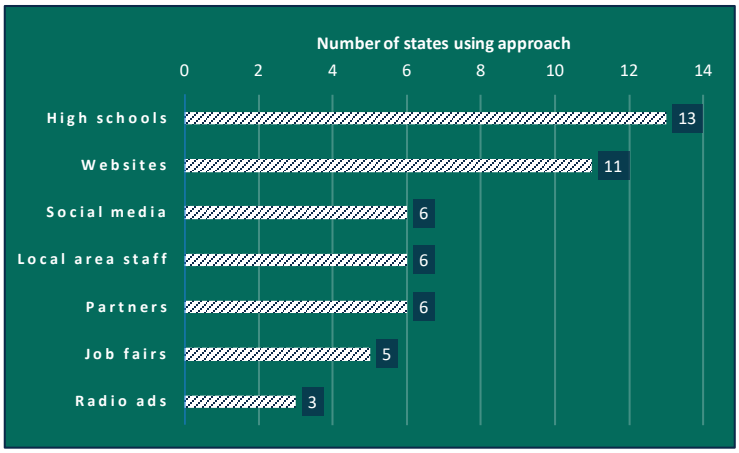
Some states provided financial incentives to employers to promote RA. Seven states gave employers incentives to offset the general costs of offering apprenticeships. States offered these incentives either once to each employer who took on any apprentices or for every apprentice. Although it was not funded by the SAE grant, 10 of the study states offered tax credits or exemptions for employers with active apprentices in a RA program.

All states interviewed (34) conducted comprehensive employer outreach. Most states (28) employed state staff to conduct outreach to employers and other partners, and six reported that their work was supported by local workforce staff or subcontractors. Nineteen states mentioned reaching out to employers directly through cold calls or follow-ups on expressions of interest. Eleven states hosted or

attended group events to get the word out to employers about apprenticeship. Examples of these events were employer forums and apprenticeship summits, industry meetings, and events hosted by community partners. Sixteen states allocated resources to improving their marketing strategy, including establishing a coordinated brand for their apprenticeship efforts across partners, developing a website, or creating marketing videos.

All but four of the states we interviewed conducted outreach to recruit potential apprentices. Thirteen states partnered with high schools to recruit youth for apprenticeships (Figure ES.2). Eleven states developed a website tailored to reach the population of interest (see Chapter III for examples), and six states relied on social media to reach potential apprentices. Other strategies were radio ads, job fairs, and connections with partners and local workforce area staff.

Figure ES.2. Recruitment approaches for potential apprentices



Source: SAE grantee interviews, 2020.

Note: States could have mentioned more than one approach; 30 states recruited apprentices.

In almost all states, the SAE grant funded the development of standards and work schedules for apprenticeship programs. In the 31 states that used funds for this purpose, the state staff were usually involved in developing work schedules and standards, with support from OA in non-SAA states. Seven of these states reported that intermediaries or RTI providers did most of the standards development.

Many states established pre-apprenticeship programs. Twenty-two states established pre-apprenticeship programs under the SAE grant. Newly established programs were reported to be as little as 1 to 3 weeks long (for example, a healthcare industry pre-apprenticeship in Alaska), while others were somewhat longer at 6 to 12 weeks (for example, an 8-week aviation industry pre-apprenticeship in Connecticut). One state reported programs varied in length depending on the employer's needs, and could be up to two years long if they were coupled with high school courses.

Lessons learned from grant implementation

States had mixed success in meeting their targets for new apprentices and programs

Most states (35) were able to expand their existing programs and/or develop new ones, increasing their apprentice numbers over the course of the grant. According to QPRs, states reported registering 142,780 apprentices under the grants and enrolling 6,614 pre-apprentices as of the end

Table ES.2. SAE grants by end of 2019

Registered apprentices	142,780
Pre-apprentices	6,614
New programs	2,525
Expanded programs	4,201
Businesses engaged	13,559

Source: Based on grantee reports as of December 31, 2019.

of 2019 (Table ES.2). They also added 2,525 new RA programs, expanded 4,201 existing apprenticeship programs, and engaged 13,559 new businesses.

Each state was required to serve a target number of apprentices through its grant. For each state, the target was calculated as 15 percent of the number of apprentices in the state at the beginning of the grant in 2016, or 200 apprentices, whichever was greater. The target numbers ranged from 200 to 10,267. Thirteen of the 37 states had reached or exceeded their target by the end of December 2019. States also had to register a target number of new programs based on their 2016 baseline, and those numbers ranged from 5 to 231 programs. Fifteen of the 37 states met or exceeded their targets for registering new programs.

States that struggled to meet their targets reported confronting a variety of obstacles. These included employers' misconceptions about apprenticeship, challenges with the registration system, and limited expertise in the workforce system to support their efforts. Fifteen states also reported challenges with tracking and reporting data for the grant because of a lack of appropriate reporting systems at the grantee level, and issues related to understanding how apprentices could be counted for reporting purposes.

States reported that employers are essential partners for RA, but recruiting them requires resources and thoughtful messaging

Employers are required partners in any RA program, and states found it essential to figure out how to generate employer interest and participation. States reported that they needed enough staff to work with employers to be able to develop programs successfully. States that added staff capacity through the grant found it easier to talk one-on-one to more employers, which they considered instrumental to gaining employer buy-in. In states with more staff capacity, staff were reported to specialize in certain aspects of apprenticeship work, such as employer outreach, program development and registration, and apprentice support.

During interviews, individual states shared some of their recommendations for working with employers to promote apprenticeship based on their experiences, including:

- Use registered apprenticeship as one tool in a kit of solutions to help employers meet their workforce needs. States found that employers were more responsive to this approach than they were when apprenticeship was marketed as a universal solution to any problem.
- Emphasize the positive return on investment for apprenticeship, instead of marketing the subsidies or tax credits available to employers who offer apprenticeships (see Chapter V, Section D for an example of a return on investment estimator tool). States reported that, in their experience, employers who recognized that apprenticeship requires work and investment on their part were more likely to overcome challenges and sustain apprenticeships in the longer term.
- Demonstrate the state's commitment to apprenticeship. Agency leaders are more visible to the public than other staff, and can generate interest in apprenticeship through their regular activities.
- Gain the trust of employers by using experienced sponsors as champions and advocates for apprenticeship. Many large companies that work across states and have deep experience with apprenticeship could be featured in such campaigns.
- Find ways to develop programs faster and at lower cost for small businesses. Two states reported that it was too expensive to maintain the staff resources necessary to develop standards from scratch for small businesses. Strategies to streamline apprenticeship development could in theory support the

expansion of apprenticeship to a wider range of employers and to rural areas, where many employers are small businesses.

Most states integrated RA into the public workforce system

The funding announcement for the SAE grant program (U.S. Department of Labor 2016)[1] encouraged integration of apprenticeship into states' workforce development systems. Sixteen states reported increased day-to-day interactions between RA and Workforce Innovation and Opportunity Act (WIOA) staff through workgroups, training, joint marketing efforts, and integrated referral and co-enrollment. Eleven states reported providing subgrants or subcontracts to some or all of the state's LWDBs to encourage their role as intermediaries in developing RA programs, often for specific industries.

Select local boards in Illinois act as intermediaries, navigators, or both under Illinois' SAE grant. These boards are building apprenticeship capacity in their own areas and helping the state improve and structure its approach to these roles going forward.

Twenty-nine states used at least one of four different levers to link RA and WIOA programs, and 12 states reported using all four levers:

1. **Leverage existing workforce customers.** Twenty-seven of 34 states reported working with LWDBs to increase job seekers' interest in RA programs. States encouraged local workforce staff to promote RA to their customers seeking services at American Job Centers (AJCs).
2. **Use individual training accounts (ITAs).** Twenty states encouraged LWBDs to use these accounts to offset the costs of apprenticeship training, particularly RTI. Some states that did not use ITAs for apprenticeship said it was too difficult because they focus on short-term job training and not on longer-term, career-focused RA programs.
3. **Add RA programs to lists of eligible training providers.** Twenty states placed RA programs on the states' list of eligible training providers, making it easier for local programs to support RTI and other training with WIOA funds.
4. **Engage business services staff.** Twenty-one states reported engaging business services staff of LWDBs or AJCs in apprenticeship expansion. Business services staff conducted outreach, served as liaisons with federal or state apprenticeship offices, trained other AJC staff on apprenticeship, and led efforts to position local workforce agencies as sponsors and intermediaries.

Three states reported they were not working to integrate the two systems, giving one of two main reasons: (1) the leadership in these states believed that RA and WIOA-funded training were different models that should remain separate and (2) the states' leadership believed the community college system was a more appropriate partner than WIOA-funded programs. Even a few states that were using levers to integrate the two systems noted a possible conflict, pointing out that many employers look to apprenticeship to upskill their own workers, whereas many WIOA programs serve unemployed people.

[1] https://www.dol.gov/sites/dolgov/files/ETA/grants/pdfs/FOA-ETA-16-13.pdf

States attracted a diverse pool of apprentices

Twenty-six states reported actively conducting outreach to underrepresented populations—including women, youth, people with disabilities, veterans, and Hispanic or Latino individuals—to increase diversity in the apprentice population. A comparison of QPR data as of December 31, 2019, with data from select states in 2016 shows that the population of SAE participants in 2019 appeared more diverse than the population of apprentices in 2016.[2] The percentages of female, Hispanic, and Asian participants was higher for SAE participants, whereas percentages of Black and White participants were lower (Table ES.3).

Table ES.3. Characteristics of participants and apprentices

Characteristic	SAE grants in 2019	RAPIDS states in 2016
Female	13%	7%
Age		
16–24	34%	N/A
25–54	63%	N/A
55+	2%	N/A
Disability	1%	N/A
Veteran	5%	N/A
Race and ethnicity		
White	39%	58%
Hispanic	39%	23%
Black/African American	12%	14%
Asian	3%	2%
Native Hawaiian/Other Pacific Islander	2%	2%
Native Indian/Alaska Native	1%	1%
Unknown	4%	N/A

Source: SAE grants reflect participants served based on grantee reports as of December 31, 2019. Data by state are available in Appendix Table A.3. RAPIDS data are based on calculations presented in Kuehn 2017 and represent new apprentices registered in 2016.

Note: For SAE grants, data on characteristics were not available for all participants across all categories, so figures might not total 100 percent. Total number of SAE participants, including those for whom characteristics were missing, is 158,663. Total number of new apprentices in RAPIDS states is 113,988.

N/A = not available.

Thirty-four percent of SAE participants were under age 25, reflecting several states' focus on youth. Although the percentages of participants who had a disability or veteran status were small overall, Arkansas and Texas served relatively high proportions of these populations. Communities of Practice and/or future research could explore the experiences of these and other states in more depth to understand the strategies they used to recruit these underrepresented populations.

[2] These comparisons should be considered with caution because (1) the grantee states and the states included in the 2016 RAPIDs data are not the same states and (2) the grantee QPR data included pre-apprentices, while the 2016 data did not.

States identified two potentially useful strategies for increasing diversity in the apprentice population

Across the states, two strategies emerged as potentially useful for supporting diversity while expanding apprenticeship:

1. **Develop the pipeline** by implementing career readiness programs, pre-apprenticeship programs, and educating employers on how to increase hiring from underrepresented groups. Pre-apprenticeships were often cited as an important tool in developing a pipeline for RA programs, and particularly for creating a diverse pool of work-ready candidates for employers to recruit from. Encouraging funding and development of pre-apprenticeships could help support goals for increased diversity.
2. **Support apprentices** by addressing barriers to participation and completion of apprenticeship. These supports can include transportation, child care, and mentors to provide ongoing help and guidance.

Most states did not have plans to incorporate Industry-Recognized Apprenticeship Programs (IRAPs) into their expansion efforts

At the time that interviews with states were conducted in early 2020, DOL was working on a proposed rule to amend the labor standards for registering apprenticeship programs by allowing the establishment of IRAPs, which are apprenticeships approved by third-party Standards Recognition Entities and not registered with OA or SAAs. Of those states interviewed for the study that discussed how IRAPs would affect their efforts to expand, 16 did not plan to focus on IRAPs, 6 did not have plans but needed more information on IRAPs before they could decide on an approach, and 7 planned to incorporate IRAPs into their expansion efforts.

Conclusion

The SAE grants were an important factor in strengthening the capacity of states to promote, establish, and expand registered apprenticeship. With additional staff funded under the grant and new partnerships, states were able to develop more training programs and expand the pipeline for apprentices. States also mentioned strategies to strengthen the apprenticeship system, including developing the technology and infrastructure to make program development easier, connecting employers to apprentices faster, and embedding RA more deeply into existing systems.

As the federal government considers additional investments in the RA system, we highlight several key takeaways below based on findings in the report:

- More states preferred funding RTI to paying for wages for OJT, suggesting that it was important for sustainability of the apprenticeship program that employers invest in training and mentorship.
- Intermediaries and the workforce development system are key partners in states' expansion efforts; intermediaries can build on their existing relationships with employers to help promote RA, and local areas can leverage their knowledge of local job markets.
- Overcoming employers' misconceptions about RA remains a significant challenge. The use of experienced sponsors as champions and advocates for apprenticeship was reported as effective at gaining other employers' trust.

- Pre-apprenticeships were cited as an important tool in developing a pipeline for RA programs. In addition, the experiences of states such as Arkansas and Texas that served high proportions of participants with a disability or veteran status could provide valuable lessons for increasing access for these populations.

States planned to continue working with their partners to make apprenticeship a more integral part of developing their workforce. Although only 13 of the 37 states had met their target of 15 percent growth in apprentices by December 2019, almost every state reported that the SAE grant had allowed them to expand their capacity and knowledge around apprenticeship. The grant also helped them elevate RA as a central workforce development strategy, and most states will continue working to expand apprenticeship with funding from the ASE grant.

This page has been left blank for double-sided copying.

I. Introduction

The apprenticeship model has experienced a surge in interest over the past decade from public and private entities, and evidence has accumulated on the positive benefits of apprenticeship and work-based learning for workers and employers (Reed et al. 2012; Hollenbeck and Huang 2016; Helper et al. 2016; Nightingale 2017). Accordingly, the federal government and state workforce agencies have been increasingly focused on promoting apprenticeship as a workforce development strategy for both job seekers and business customers. This report discusses findings from a study of the strategies used by states to expand apprenticeship under the State Apprenticeship Expansion (SAE) grants awarded by the U.S. Department of Labor (DOL) in 2016.[3]

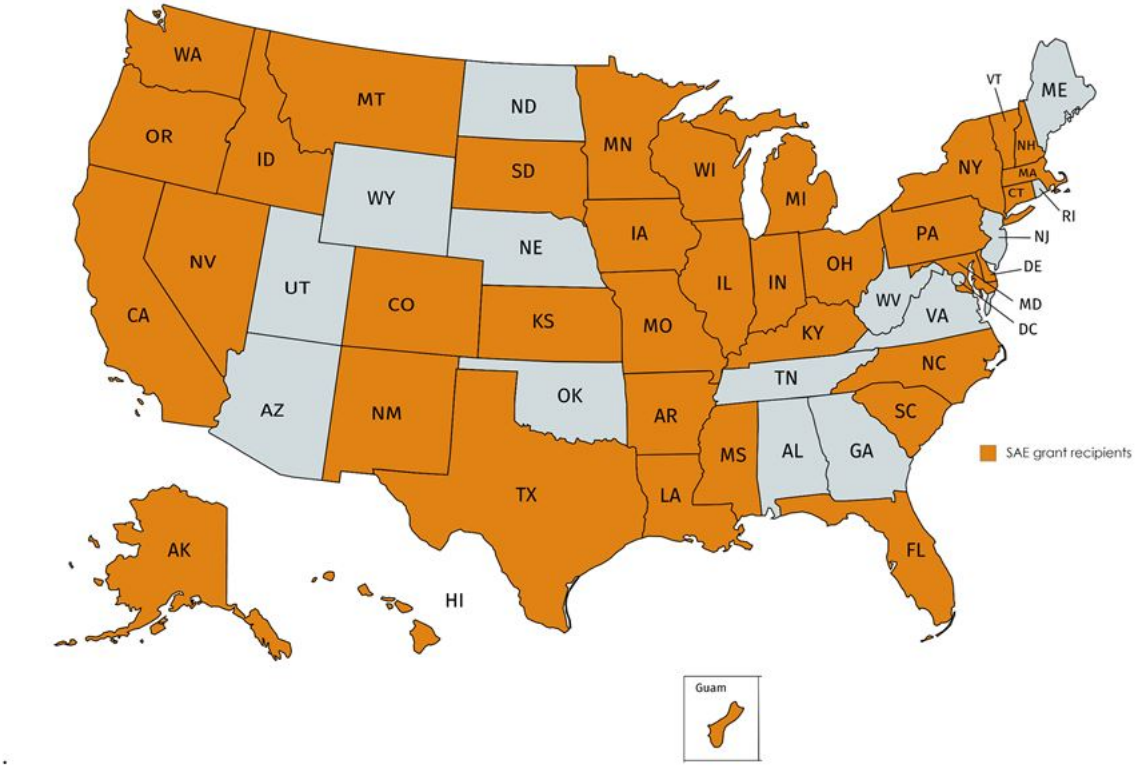
A. Overview of the study

Apprenticeship is an earn-and-learn model that combines classroom learning (often called related technical instruction or RTI) with on-the-job training (OJT) and a credential upon completion. Registered apprenticeship (RA) programs are registered under either DOL's Office of Apprenticeship (OA) or through recognized State Apprenticeship Agencies (SAAs). Research has found that workplace-based job training has positive impacts on individuals' employment and earnings outcomes, with higher impacts than other types of job training (Nightingale 2017). Apprenticeship is one of the most intensive workplace-based training models, and research in the United States has found that apprenticeships generate substantial benefits for individual apprentices and employers. One multistate evaluation found RA participants earned in excess of $200,000 more over their lifetime than nonparticipants (Reed et al. 2012), and a study in Washington State found a lifetime net benefit of $338,560 for apprentices and $126,023 for the public (Hollenbeck and Huang 2016). Research indicates that employers of apprentices also benefit from the reliable talent pipeline that apprenticeship provides, as well as increased worker productivity and reduced turnover (Muehlemann and Wolter 2014). Studies estimated a rate of return on apprenticeship investment for one health care system of at least 40 percent and of at least 50 percent for Siemens USA (Helper et al. 2016).

Billions of dollars have been invested by the public and private sectors to expand the apprenticeship model of career training both within the traditional building trades as well as to other industries where apprenticeship is less common. To assist with development and adaptation of apprenticeship models, DOL provides program and capacity development grants to states, intermediaries, industry, and other partners. Building on an earlier round of small state "accelerator" grants, DOL awarded $50.5 million in SAE grants to 36 states and one territory[4] in 2016 (Figure I.1) to support them in developing and implementing comprehensive expansion strategies for apprenticeships. Thirty-six of the 37 SAE grants were subsequently renewed with an additional $49 million through October 2020. In 2019, DOL awarded an additional $73 million to a different set of states through the Apprenticeship State Expansion (ASE) grants. In 2016, DOL also awarded $20.4 million in contracts to industry and equity intermediaries, nonstate entities that work with industry to develop apprenticeship, for additional expansion and diversity and inclusion efforts.

[3] https://doleta.gov/grants/pdf/FOA-ETA-16-13.pdf.
[4] We refer to the 36 states and one territory as "states" for convenience in this report.

Figure I.1. States that received State Apprenticeship Expansion grants in 2016



Source: Data on State Apprenticeship Expansion grants from U.S. Department of Labor.

DOL contracted with Mathematica and its partners, the Urban Institute and Social Policy Research Associates, to provide actionable information on the best practices, innovative approaches, implementation challenges, and lessons learned from the SAE expansion effort and the contracts to intermediaries. This report documents the activities carried out under the SAE effort, including states' expansion of RA and the implementation of the grants, and their progress through an assessment of states' operations and strategies. Two additional reports present findings from (1) an analysis of the work conducted under intermediary contracts (Lerman and Kuehn forthcoming), and (2) an analysis of data from a survey of state apprenticeship efforts beyond the grants (Rosenberg and Dunn forthcoming).

B. Research questions

The study was designed to document the approaches used, catalogue lessons learned, and assess progress toward the two main objectives of DOL's apprenticeship investments: expanding and diversifying apprenticeships. This report explores seven core research questions:

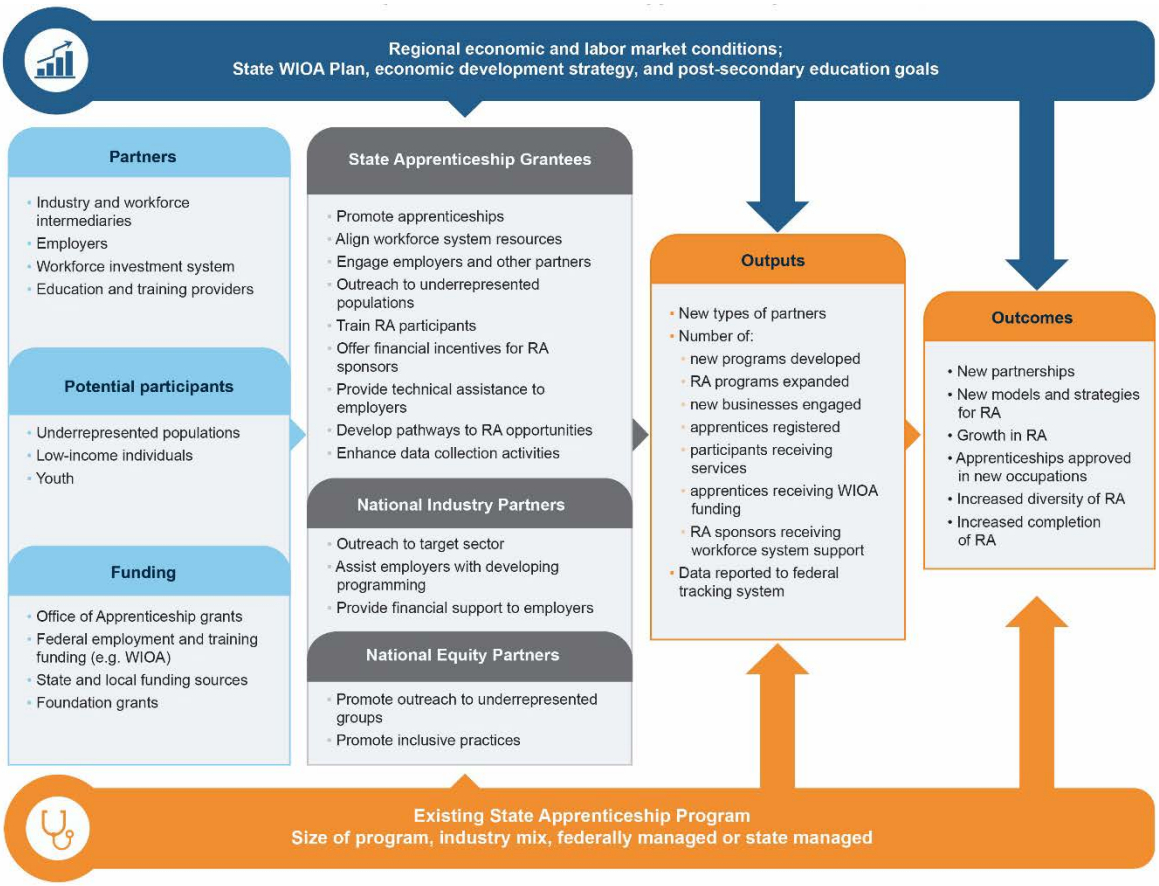
1. What is the current status of states' efforts to grow RA programs and opportunities and increase the diversity of the apprentice population?
2. What activities are being implemented under the grants to expand apprenticeship and increase the diversity of the apprentice population?
3. What partnerships have been developed at the state level to promote apprenticeships and diversify the apprentice population?

4. What factors are perceived to have affected implementation of the SAE grants?
5. How are grant funds being used to promote apprenticeships and diversify the population of apprentices?
6. What state policies exist or are being developed to support expansion of apprenticeships?
7. What lessons have emerged from states' experiences that could inform future expansion efforts?

C. Conceptual framework

The study was guided by a conceptual framework that underpinned the study's design, data collection, and analysis approach (Figure I.2). The framework illustrates how the efforts of the state grantees and national contractors[5] were focused on expanding apprenticeships and enhancing the participation of underrepresented groups.

Figure I.2. Conceptual framework for the State Apprenticeship Expansion study



RA = Registered Apprenticeship; WIOA = Workforce Innovation and Opportunity Act.

Key partners. The SAE grants required recipients to develop strong partnerships that leveraged different stakeholders in the RA system. Successful implementation required engagement of different key groups:

[5] See Lerman and Kuehn (forthcoming) for an analysis of the national contractors' efforts.

- **Industry and workforce intermediaries.** The national industry and equity partners and other intermediaries play an important role in bringing employers together, informing program design, identifying the necessary skills and credentials, identifying career pathways, assisting with program implementation, and collecting employer feedback on the performance of workers completing training.
- **Employers.** Employers sponsor apprenticeship programs, provide work-based learning opportunities, and supply participants with jobs. Employers can ensure that education and training offerings align with their labor market needs.
- **Workforce investment system.** Meeting apprenticeship expansion targets requires better integration of the apprenticeship and the workforce systems. With better integration, apprenticeships are more likely to become a more common approach for workers seeking publicly funded training. The workforce system can help recruit and screen candidates to be apprentices and provide basic skills preparation and supportive services.
- **Education and training providers and K–12 schools.** Community and technical colleges play an important role in developing and delivering training and granting credentials to apprenticeship participants. They can also provide apprenticeship participants with access to financial aid and supportive services. In states that aim to grow youth apprentices and other pre-apprenticeship pathways, K–12 school systems are important partners.

Potential participants. Apprenticeships could appeal to a broad pool of potential participants. The SAE grants encouraged states to focus on traditionally underrepresented populations. These populations could include youth, women, communities of color, Native Americans, and people with disabilities.

Roles in the workforce system: Apprenticeship sponsors, intermediaries, and navigators

Apprenticeship sponsors are responsible for the overall operation of apprenticeship programs. They establish apprenticeship committees and register programs with the state or federal apprenticeship agency. Sponsors can be individual firms, consortia, industry associations, or other intermediary organizations.

Apprenticeship intermediaries are emerging with important roles in RA and youth apprenticeship (Sullivan 2016; Education Strategy Group 2019). Although there is no single model or definition, these entities are typically firms, nonprofit organizations, colleges, chambers of commerce or other organizations that convene and connect industry, education, and community-based partners and facilitate collaboration, boosting the capacity and expertise of these partners.

Apprenticeship navigators help apprenticeship customers access what they need. This assistance role, borrowed from successful models in education, health care, and services for people with disabilities, is also emerging in apprenticeship to connect individuals to opportunities.

Funding. Grantees leveraged other funding sources, including the Workforce Innovation and Opportunity Act (WIOA), the Carl D. Perkins Career and Technical Education Act, as well as other federal, state, and local public funding and private investment from industry groups or foundations.

Grantee and contractor activities. The states and national contractors pursued a variety of strategies to expand and diversify apprenticeships. The activities included an effort to leverage different workforce

system resources and train frontline staff on apprenticeships. States also engaged employers and other partners, including industry intermediaries. They used grant funding to develop pathways to RA opportunities, train RA participants, provide technical assistance for employers, and offer financial incentives for sponsors.

Outputs and outcomes. With SAE investments, new types of partners entered the apprenticeship system. In addition, new apprenticeship programs were developed and new businesses engaged. Existing RA programs expanded, and the overall number of apprentices registered increased. States increased services to participants on pathways toward apprenticeships. As apprenticeships become more integrated with the overall workforce system, more apprentices receive WIOA funding, including training and supportive services. Apprenticeship sponsors receive more support from the workforce system. With the new partnerships and business engagement, workers have access to apprenticeships in new occupations. Outreach to underrepresented populations, development of apprenticeship pathways, and the availability of supportive services should increase the diversity of apprenticeship participants and overall completion rates. Ultimate workforce outcomes for the SAE initiative, although not shown in the framework, include employers having a diverse and accomplished workforce to meet their workforce needs and individuals acquiring the skills needed for employment in jobs and careers with good earning potential and growth.

Regional context and apprenticeship infrastructure. Regional economic and labor market conditions, the states' WIOA plans, economic development strategy, and postsecondary goals are contextual factors that influenced the implementation of SAE activities; as well as, states' ability to achieve desired outputs and outcomes. Implementation was also influenced by states' existing apprenticeship infrastructure, which oversees the number of programs, apprenticeship sponsors, and apprentices; the diversity of the programs; and whether states' RA programs are registered with OA or an SAA.

D. Data sources and analysis methods

For this report on SAE grantee activities, the study used three primary data sources:

1. **Grant applications.** The grant applications provided useful context to understand state plans for implementing their grants and proposed outcome targets. Information extracted from the applications included planned project activities, partners, target populations, and performance goals.
2. **Grantee quarterly performance reports (QPRs)**. The study team reviewed QPRs from the quarter ending December 31, 2019. The QPRs provided data on new and existing programs expanded under the grant, individuals served and hired as apprentices, and the demographic characteristics of the individuals served.
3. **Interviews with grantees.** The study team reached out to all 37 of the original SAE grantees to schedule phone interviews with grantee representatives. We completed calls with 34 grantees in January and February 2020. These calls with grantee leadership lasted one to two hours and sometimes included representatives from partner agencies with a key role in the grant. Interviewers summarized the calls in grantee-specific write-ups that were then coded in the NVivo statistical analysis software for analysis.

The study team used a comprehensive and integrated approach to incorporate data from across the different data sources to answer the research questions. Both quantitative and qualitative analysis techniques were used.

- **Quantitative analysis.** Data from grant applications and QPRs were tabulated and descriptive statistics were generated to enable comparison across grantees and to characterize the trends in the data for context. Data from these two sources were also used to inform the interpretation of the data from grantee interviews.
- **Qualitative analysis.** The study team used qualitative techniques to analyze the data gathered through telephone interviews. A coding scheme was developed with implementation constructs informed by the study's conceptual framework. Notes from the interviews were converted into a structured format according to the coding scheme with a manageable number of topics and themes for analysis. The data were entered into NVivo to enable cross-grantee analysis and further exploration of themes.

E. Limitations

It should be noted that the interviews are based on the perspectives of the interview respondents and the study team's interpretations of those perspectives; these perspectives may not represent the full experience under the grant in each state. Interviews were conducted using semi-structured protocols, and thus the topics discussed in each interview varied by state. Respondents were state staff, and any reports on activities being conducted by and in local areas have not been independently confirmed. In addition, since the grants were awarded in 2016 and the interviews were conducted in early 2020, respondents were asked to reflect on several years of past activity under the grant. The elapsed time could affect respondents' ability to recall the past, as well as their ability to differentiate between activities conducted under the SAE grant and under other apprenticeship investments from state and federal sources.[6] Also, some respondents were not in their positions at the start of the grant and thus could not reflect on all the changes that had occurred.

F. Road map to the report

The remainder of this report presents findings from the analysis of data collected about the SAE grants. Chapter II gives an overview of the states that received grants and their partners. Chapter III discusses the different activities states funded with the grants, as well as challenges and promising practices. Chapter IV presents data on state progress toward grant targets and discusses grant management. Chapter V summarizes challenges and lesson learned from the outreach to and engagement of employers in apprenticeship expansion. Chapter VI discusses efforts to integrate RA with the workforce development system under the grants. Chapter VII assesses state efforts to diversify the apprentice population. Chapter VIII ends the report with state plans for continuing work after the grant and a summary of key lessons learned.

[6] At the time the interviews were conducted, ASE grants were already awarded to states. Although the study focuses on activities funded under the SAE grants, findings may reflect state activities that were funded by both the SAE and ASE grants.

II. Grantee States and Partners

DOL awarded the SAE grants to 34 state agencies and 3 college systems across 37 states. These grantees all shared the same goal of increasing apprentices in their respective states, but they embedded grant activities within the state and implemented partnerships in different ways. In this chapter, we discuss some of these dimensions based on primary data collected from in-depth interviews with SAE grantees and QPRs.

A. Characteristics of SAE states

The SAE states differed on many dimensions, including whether a state agency received the grant, whether apprenticeship programs were registered with an SAA or OA, how many staff worked on apprenticeship across the state, and how many staff were funded by the grant. Appendix Table A.1 presents these and additional characteristics for each of the 37 states except where data was not available.

Federal versus state RA system. OA directly oversees the registration of apprenticeship programs in 15 states (called OA states), and SAAs registered programs in 22 states (called SAA states). SAA states have more control over the registration process for programs that they support, which in theory could influence their implementation of the grant. OA states are more likely to be integrated with federal reporting systems for apprenticeship, which in theory could make grant management easier. OA states also have the additional support of OA state directors and other OA staff in their efforts to conduct outreach and develop programs.

State staff working on apprenticeship. Based on interview responses, the number of state staff working on apprenticeship ranged from 2 to 70. However, some of the figures reported in Appendix Table A.1 are estimates, as many respondents found it difficult to provide the exact number of staff working on apprenticeship across multiple offices and agencies in their states. Thirteen SAA states reported that anywhere between 3 to 30 individuals worked on apprenticeships in their states, with an average of 12 staff members. Excluding the grantee that reported 70 staff members, the average number of staff in OA states was approximately 6 individuals. At least 3 states have recently expanded their apprenticeship presence by launching work-based learning and apprenticeship offices, allowing states to consolidate staff, key partnerships, initiatives, and funding.

Staff funded by the grant. The states interviewed reported that between 0 and 12 staff were funded by the SAE grant. Two states reported that they had no staff funded by the grant. Among the remaining states, the SAE grant funded an average of 3.4 full-time staff equivalents. Some staff were already employed by the state, while others were hired for the grant. The grants supported a number of positions, including administrative support staff (clerks, secretaries, grant assistants and administrators), apprentice and employer outreach specialists, and program or project coordinators.

Industries of focus. The industries grantees focused on for expansion most often were manufacturing or advanced manufacturing (28 grantees; Table II.1), health care or biotechnology (27 grantees), and information technology (IT; 21 grantees). These industries do not historically have high numbers of apprenticeships. Sixteen states focused on the building trades, while a smaller number of states focused on hospitality, transportation, and energy or public utilities, among others. Although one state did not target specific industries because LWDBs determined the programs that would be pursued, this state developed programs in the health care and IT industries. Fewer than 7 states focused on a variety of other

industries, such as aviation, agriculture, and business services. Appendix Table A.1 lists the industries targeted by each state, as reported to the study team.

B. Coordination of apprenticeship efforts across state agencies

As states expanded their capacity and initiatives under SAE, they leveraged other partners and funding, both inside and outside of the workforce system. Many of these partnerships existed before the SAE grant. These partnerships likely played a key role in the nature of activities conducted under the grant across states. We discuss these partnerships below and how they influenced RA activity.[7] We also discuss the role of partners in the program registration process.

Table II.1. Industries states focused on in their grants

Industry	Number of states
Manufacturing/advanced manufacturing	28
Health care/biotechnology	27
Information technology	21
Building trades/construction	16
Transportation	10
Hospitality and tourism	9
Energy/utilities	7
Other	18

Source: SAE grantee interviews, 2020.
Note: N = 34 states. Respondents could focus on more than one industry.

1. Coordination between grantees and other state agencies

Of the 34 state agencies that were the SAE grantees, most (30) were in charge of workforce development in the state. This pre-existing integration of the grant and the workforce system could explain the close partnership with workforce boards and American Job Centers (AJCs) reported by grantees in many states. The application for SAE funding required states to describe their plans to align RAs with not only the workforce development system (see Chapter VI), but also educational institutions and economic development agencies. SAE grantees reportedly engaged other types of state agencies primarily to expand their reach to underserved populations or to new industries. These partner agencies' roles in the RA system are described below.

- *Education.* State departments of education, such as those in Connecticut, Florida, and Idaho, often provide technical assistance on curricula and standards for RA programs. They can champion apprenticeship and pre-apprenticeship to help facilitate institutional partnerships; for example, the Ohio Department of Education facilitated a partnership with the Department of Higher Education and the Ohio Association of Community Colleges. Departments of education can also incorporate RA information into high school graduation standards, as South Dakota does. In addition, these entities can support RA by developing targeted tools and initiatives. For instance, the Iowa Department of Education runs Career Coach, an online database that helps individuals figure out their career interests, identify a specific occupation that is best for them, and then determine whether it is an apprenticeable occupation. Eighteen states reported partnering with their departments of secondary or higher education.
- *Vocational rehabilitation.* State departments of vocational rehabilitation can help to expand apprenticeship to individuals with disabilities. For instance, the apprenticeship team in Mississippi met with representatives from the Mississippi Department of Rehabilitation Services to initiate

[7] It was not always clear in the interviews when the partnerships discussed were directly involved in activities funded by the SAE grant; when possible we note activities funded by the grant.

discussions on developing an apprenticeship program for individuals with disabilities. In Pennsylvania, the Office of Vocational Rehabilitation (within the Department of Labor and Industry) encourages employers to develop RA programs for individuals with disabilities. Seven states reported partnerships with their vocational rehabilitation agencies.

"It was clear early on that developing a successful registered apprenticeship program was not something that can be done with one entity. We need input from multiple organizations."

—State respondent

- *Commerce and tourism.* State departments of commerce can be useful in marketing and conducting outreach to employers. Maryland and North Carolina both identified their departments of commerce as critical for the successful implementation of the SAE grant. Departments of tourism can offer training programs, pre-apprenticeship programs, and develop industry-related RA programs. Six states reported partnering with their departments of commerce or tourism.
- *Corrections.* Departments of correction can help to expand apprenticeship to incarcerated and formerly incarcerated individuals. Missouri identified its Department of Corrections as a critical partner for successful implementation of the SAE grant. It offers apprenticeships in wastewater management, heavy equipment operation, and horticulture and farming, using simulators to give incarcerated students practical experience within the correctional facility's classrooms. Four states reported partnerships with their departments of corrections.

In some instances, states mentioned coordinating with other state agencies, such as departments of children and families, health, or agriculture. For example, in Pennsylvania, the State Department of Agriculture helped sponsors develop agricultural apprenticeship programs for occupations ranging from farm mechanics to dairy farmer. In Washington State, the Department of Health helped to align apprenticeship standards to licensing and other health-related occupational requirements as apprenticeship continued to make inroads into medical occupations**.**

In all states, respondents reported that grant activities facilitated communication across agencies. One respondent noted that before the grant, state agencies operated in silos; since the grant, agencies were becoming more engaged with each other and communicating around RA on a weekly basis.

2. Advisory committees

In 16 states (11 SAA and 5 OA states), respondents reported that advisory committees facilitate coordination among state agencies involved in the RA system.[8] Committees typically consist of 8 to 12 members representing state agencies and other partners, and typically meet every one to three months. In some SAA states, these committees (known as State Apprenticeship Councils) have a direct role in the registration process (described below). In most states, the committees oversee grant efforts and may also provide specific types of support to the SAE grantee and its partners. For example:

- In Connecticut, an SAA state, a 12-member gubernatorial-appointed State Apprenticeship Council recommends minimum standards for apprenticeship and RTI to the State Department of Labor's Office of Apprenticeship Training (the SAE grantee). The council encourages employers to establish apprenticeships and individuals to participate in them.

[8] Although only mentioned by 16 states, it is possible that they existed in other states as well.

- In Illinois, an OA state, an Apprenticeship Committee functions as a statewide partnership for apprenticeship. It includes representatives from state agencies, colleges, businesses, nonprofits, and private training and other service providers. Respondents described it as "a big-tent committee with good representation from all corners of the state and many different stakeholders."
- In Nevada, an SAA state, a committee made up of many of the grant and employer partners advises on grant efforts and building sustainability.

3. Leveraged funding

OA encouraged states to leverage funds to support expansion activities, including from federal and state sources as well as foundations. However, it required that SAE grant funds supplement rather than supplant existing funding streams that currently support their RA systems (such as resources allocated to SAAs or state-based apprenticeship initiatives like tax credits). In guidance to help SAE grantees implement their projects, OA specifically encouraged grantees to "maximize the use of their resources and minimize duplication of efforts through partnership building, system alignment, and leveraging federal and nonfederal sources" (U.S. Department of Labor 2019). States tapped a myriad of sources for financial resources to support their apprenticeship efforts. Only 2 of the 34 states interviewed did not report leveraging funding from other sources.

WIOA funds. WIOA was the most common source of financial support for states' RA efforts. Twenty-one states reported leveraging WIOA funding. One-third of them referenced using these funds to provide supportive services to apprentices or pre-apprentices and one-third referenced using these funds for OJT. Some states used WIOA funds in more specific ways. For example, Alaska used WIOA Title I Youth Program funds for pre-apprenticeship efforts and WIOA statewide funds to cover one-quarter of an RA project coordinator position at the SAE grantee agency.

State funds. Nineteen of the SAE grantees reported relying on support from state agencies or general funds. About 10 leveraged general state funds for a variety of activities, including reimbursements to schools for RTI, supportive services for pre-apprenticeship participants, tuition assistance, GED testing, and support for data systems. Nine others leveraged funds from state agency partners, including 3 that tapped their state department of education or community college system and 2 that tapped resources from the state department of commerce.[9] Four referenced leveraging specific grants to state partner agencies:

- Missouri leveraged Trade and Economic Transition National Dislocated Worker Grant funding provided by DOL to the Missouri Department of Economic Development.
- Nevada leveraged the New Skills for Youth grant funding provided by JPMorgan Chase to the Nevada Department of Education.
- North Carolina leveraged a Partnership to Advance Youth Apprenticeship grant provided by a national nonprofit organization, New America, to the North Carolina Community College System.
- Vermont leveraged a National Emergency Grant (which later became the National Dislocated Worker Grant) provided by DOL to the Vermont Department of Labor.

[9] Two other states noted using Pell Grants to support apprentices on a degree path.

Employers. Three states reported benefitting from resources employers were able to contribute to their RA efforts. In one state, employers provided tuition assistance; in another, employers self-funded RTI; and, in the third, employers supported technology and curricula development.

Foundations. Local foundations can also be a valuable source of support for targeted one-time or ongoing efforts. Only three states reported receiving this type of support, however. Massachusetts received a $500,000 grant from a local foundation to support initial program development, and South Carolina received a grant from Duke Energy Foundation to support pre-apprenticeship for its line workers. In Illinois, funding from the Chicagoland Workforce Funders Alliance is not directly supporting state RA activities but is complementing them. This alliance acts as a thought partner, particularly around a model for developing an apprenticeship navigator role and planning for sustainability of apprenticeship initiatives.

4. Roles of intermediaries and other partners

Partnerships with other nonstate entities were critical to the implementation of RA and the grant in all states. In addition to acting as intermediaries between sponsors and the registration agency, partners brought unique expertise to inform specific aspects of the RA process. Partnerships were often a way of increasing demand for RA, expanding RA into new sectors, and bringing diversity to and serving more underrepresented populations in apprenticeship. Some states tapped or built on pre-existing partnerships, and others developed new collaborations. Most states reported that their partnerships with other entities worked well and were easy to manage. However, one state noted that coordinating with multiple partners can be challenging when staff resources at the grantee are thin and responsibility for managing partnerships and other aspects of the RA system falls to a few individuals. Another state noted that it can be challenging to identify the key players at partner organizations from whom to obtain buy-in for RA, particularly in nonprofits whose management structures may not be as top-down as in other agencies.

In addition to the state agencies described in the previous section, states reported that the partners most critical to successful implementation of their grants were individual postsecondary schools or systems, state and local workforce boards, and industry associations and employers (Table II.2). States also noted partnerships with their governor's office or state legislature, secondary schools, community-based organizations, and others. The value that these partners bring to states' RA efforts is described below.

Table II.2. Key grant partners as reported by SAE grantees

Partner	Number of states that reported partner as most critical for the grant	Number of states that reported any partnership
Community or technical colleges	19	30
State/local workforce boards	12	26[a]
Industry associations and employers	10	22
Governors or state legislatures	0	7
K–12 and technical high schools	0	7
Other partners	2	7

Source: SAE grantee interviews with 34 states, 2020.

[a] Among the eight states that did not report a partnership with workforce boards, seven of the eight grantees were also the agencies with oversight of the workforce system. These states may have assumed that involvement of state and local workforce boards was implicit given their workforce structure.

a. Community and technical colleges

Almost all (30) states reported direct partnerships with community or technical colleges, and almost two-thirds of those states (19) reported that these partnerships were most critical to their successful implementation of the SAE grant. These colleges tend to operate statewide and are well funded, so they were reported to be solid, reliable institutions. Respondents noted that perhaps the most value that community and technical colleges bring to states' RA efforts is that they have broad reach in the community. They tend to have excellent partnerships with local employers and can engage multiple employers as sponsors for one program. At the same time, they enroll and therefore can recruit a lot of potential apprentices, and they are in the unique position of being able to gauge the interests and needs of the apprentice population.

Beyond their outreach capacity, community and technical colleges are in a strong position to support RTI. They have the experience in working with industry to develop curricula around skills development that meet the needs of employers. They are also well equipped to address the remedial needs of apprentices. For example, Vermont noted that the need for remedial math and literacy training is common among their apprentices and that postsecondary institutions provide the support needed to succeed in apprenticeship.

b. State/local workforce development boards

Twenty-six states reported partnering with state workforce boards or local workforce development boards (LWDBs), and almost half of those states (12) reported that these partnerships were most critical to their successful implementation of the SAE grant. The state and local workforce system can play multiple roles in RA. In some instances, the workforce development system provided direct service by helping to recruit and screen candidates to become apprentices and providing apprentices with case management, basic skills preparation, and supportive services. LWDBs also could conduct outreach to employers and identify ways that WIOA funding could support apprentices and other RA partner organizations. It should be noted that among the 8 states that did not report a partnership with workforce boards, in 7 of the 8 states the grantee agency had oversight of the workforce system. These states may have assumed that involvement of state and local workforce boards was implicit, given their workforce structure, and therefore they did not highlight the partnership in the interview.

"That's the advantage of partnering with the boards, that they can case manage and find where connection can be made with WIOA."

—State respondent

c. Industry associations, employers, and unions

Twenty-two states reported that industry associations and employers were key partners, and almost half of those states (10) reported that these partnerships were most critical to their successful implementation of the SAE grant. Industry associations can offer pre-apprenticeship programs (as the Hotel and Restaurant Association and Contractors Association did in Guam) and help develop RTI (as the electrical trade industry did in Montana). South Carolina reported partnering with many associations (including the South Carolina Manufacturers Alliance, South Carolina Air Conditioning and Heating Association, South Carolina Council on Competitiveness, and South Carolina Restaurant and Lodging Association) and reported that these entities actively promote RA to peers and partner firms more effectively than the state could ever do.

Many industry association and employer partners are health systems. States reported that the key benefits of engaging health systems are that they can deliver scale (due to both the size and scope of the health

care workforce) and speed (as industry standards exist that can quickly drive program and curriculum development). They also typically follow a stackable credentials model so that apprentices earn certificates that can aggregate up to degrees, and they typically offer career pathways that promote mobility. Some health system partners are nonprofit member associations that work with health centers to promote, expand, and optimize access to quality care, such as the Alaska Primary Care Association or the Washington Association for Community Health. They serve as intermediaries and RA sponsors for multiple employers. Others are corporations that serve as the employer of record for health center staff (including staff in clinical, dining, recreational, administrative, and housekeeping and environmental services), such as Trilogy Health Services, which is a key partner in Indiana and Ohio.

In four states, labor unions were key partners in the RA system. In California and Hawaii, unions helped to develop apprenticeship programs for the civil service and for women in construction and carpentry, respectively. Hawaii is also working with unions to identify opportunities to adapt entrance tests that often preclude individuals with disabilities from participating in apprenticeship. In Michigan and Indiana, unions offered support for training efforts and RA more generally.

d. Governors or state legislatures

Twenty-eight states reported receiving support from the governor or legislature, and seven of these reported that the governor or legislature was a key partner in their RA efforts.[10] Seven of the 28 states said that the governor was generally supportive of RA but did not specify how or provide examples of the support other than declarations of "apprenticeship weeks" to raise awareness of RA. The rest identified specific ways in which the governor or legislature provided support, described below. These efforts may or may not be related to the SAE grant; many are likely the result of coalition building that has been cultivated over years.

Appropriated funding. In six states, legislatures appropriated state funds to support apprenticeship. For example, Pennsylvania created a line item in the state budget in 2018 for "PA Smart," a workforce initiative that connects industry partnerships, apprenticeships, and career pathways for individuals. Of this $30 million investment, $7 million was dedicated to apprenticeship. Washington State appropriated funding to support its apprenticeship tracking system, as well as a smaller amount for RTI to help seed apprenticeship in IT. In California, the governor has approved approximately $15 million every year since 2017 to support the development of new and innovative apprenticeship programs through the California Apprenticeship Initiative.

Other legislation or policy. In 12 states, legislatures passed bills that improve RA policy or promote the expansion of RA. Examples include:

- **Colorado:** The legislature enacted a bill to create a new directory of RAs that would collect detailed information on each apprenticeship program in the state, including the application process, costs, program outcomes, and requirements for enrollment. The directory launched in January 2020. The legislature also enacted a bill called the Colorado Quality Apprenticeship Training Act of 2019, which mandates that state-commissioned public projects employ contractors that participate in apprenticeship.

[10] Six states did not respond to the specific question about governor's support or could not confirm any support had been received.

- **New Hampshire:** Legislation is under consideration that would create a commission to study various apprenticeship models and opportunities to expand them in partnership with current efforts of the Community College System of New Hampshire.
- **North Carolina:** The legislature enacted a law in 2016 that waives postsecondary tuition for high school apprentices who graduate and remain in apprenticeship.
- **Washington:** The legislature enacted the Skilled Trades Workforce bill, modeled after a California law that requires outside contractors and subcontractors in state refineries and chemical plants to employ journey-level workers who have graduated from state-approved apprenticeship programs. The state also recently enacted legislation requiring, as of January 1, 2023, that individuals go through an RA program to become a commercial electrician in the state; this legislation aligns requirements with those in neighboring Oregon.
- **Illinois, Montana, and South Carolina:** These three states recently passed legislation creating tax credits to incentivize new employers to use RA programs. Other grantee states already offer tax credits (see Chapter III).

Executive orders and statewide initiatives. In six states, governors took action to support RA without involvement of the legislature. Governors in two states did so through executive orders. In California, Governor Gavin Newsom established the Future of Work Commission through an executive order. A specific objective cited in the order is to propose workforce development, training, education, and apprenticeship programs for the jobs of the future. In Missouri, an executive order established the Office of Apprenticeship and Work Based Learning, which includes an interagency council to help expand apprenticeship in the state.

Statewide initiatives in four other states also promoted RA:

- **Iowa:** Through the Work Ready Iowa initiative, the state set a goal that 70 percent of state residents would obtain some sort of education after high school by 2025. The state has hosted Work Ready Iowa summits through which RA is highlighted as one means of reaching the goal.
- **Nevada:** Together with Governor Brian Sandoval, the Nevada Department of Education, multiple partner agencies, and private industry have come together to develop a plan to prepare students for in-demand careers in the Nevada economy, including apprenticeship.
- **North Carolina:** The Experience More initiative is a result of North Carolina's involvement in the Work-Based Learning Policy Academy facilitated by the National Governors Association Center for Best Practices and funded by the Siemens Foundation. This work focuses on scaling high-quality, work-based learning opportunities that connect young adults with careers in STEM-based industries. The Experience More initiative promotes apprenticeship as a key mode of work-based learning and is a collaborative effort between the Office of the Governor, North Carolina Business Committee for Education, the Department of Public Instruction, the Department of Commerce, NCWorks (the state's workforce development system), and the community college system.
- **Texas:** In 2015, the governor instituted the tri-agency—Texas Education Agency, Texas Higher Education Coordinating Board, and Texas Workforce Commission—"60 by 30 TX" plan to ensure that all three agencies work toward workforce-minded education. Two of the goals of the initiative are that, by 2030, (1) at least 60 percent of Texans ages 25–34 will have a certificate or degree, and (2) all graduates from Texas public institutions of higher education will have completed programs with identified marketable skills. Apprenticeship is part of the state's overarching plan.

Other forms of support: Five states described other ways governors supported RA. In Delaware, the governor's office has hosted construction career expos to highlight the career opportunities in this field, 90 percent of which are appropriate for apprenticeship. Montana's governor held a one-year term as chair of the National Governors Association, during which one of his goals was to incorporate RA. Governors in New Hampshire, Ohio, and South Carolina have championed apprenticeship by helping to make connections between state partner agencies and employers.

e. K–12 schools and technical high schools

In states that aim to grow youth apprenticeship and pre-apprenticeship pathways, K–12 school systems and technical high schools may be important partners for both grant and nongrant activities. Seven state respondents indicated partnerships with these systems. In Maryland, 15 of the state's 24 school systems have youth apprenticeship programs, designed as an entry point for RA. In Connecticut, the SAE grantee is working with the Connecticut Technical High School System to operate a pre-apprenticeship aviation program. Secondary high schools and technical schools can play other roles in the RA process as well. In Delaware, vocational and technical high schools provide RTI for RA programs. One technical high school in South Carolina is conducting business outreach and developing partnership standards for the SAE grantee. Two states, New Hampshire and New Mexico, mentioned that Job Corps is a feeder to the states' RA programs.[11]

f. Other partners

States named other types of partners, as well. Community-based and nonprofit organizations were mentioned by five states as grant partners:

- **California:** Jewish Employment and Vocational Services—a national nonprofit organization providing skills development, job readiness and career services, vocational rehabilitation, recovery services, adult residential and community participation services, and in-home personal assistance—helped build RA programs in the state.
- **Hawaii:** The state recently began working with Lanakila Pacific, a nonprofit that provides job training and supports for individuals with disabilities, with a goal of increasing pipelines to apprenticeship for individuals with disabilities.
- **Michigan:** Several nonprofits serve as workforce intermediaries.
- **New Hampshire:** Easter Seals provides supportive services for apprentices (such as child-care assistance, scholarships, and transportation) and helps to recruit apprentices in the state.
- **Pennsylvania:** The state contracts with one nonprofit as an intermediary: the Keystone Development Partnership, whose mission is to create labor management and workforce development programs that serve local communities.

Several public/private partnerships act as intermediaries providing technical assistance or facilitating RA in specific industries. One example is TransPORT, a national industry intermediary selected by DOL to expand RA in the transportation industry. TransPORT is a key partner in Kentucky. Other examples include the Manufacturing Extension Partnership, which is supporting the RA system in New Mexico,

[11] Job Corps is a residential program administered by DOL that helps eligible young men and women ages 16 to 24 complete their high school education, trains them for meaningful careers, and assists them with obtaining employment.

and Apprenti, which is providing RA programs in the IT industry in Ohio. Both TransPORT and Apprenti received industry intermediary contracts from DOL in 2016, which are the focus of another study report (Rosenberg and Dunn forthcoming).

A few states (Florida, Iowa, and Pennsylvania) mentioned communications and marketing contractors as key partners. Such organizations can develop and disseminate hard-copy and online material that promotes and encourages new employers to participate in RA.

5. Registration of RA programs

The registration of apprenticeship programs also requires partnerships at the state and federal levels. In OA states, OA state directors generally oversee the registration of state programs. In SAA states, the state has its own oversight body to register programs. This difference did not appear to influence states' experience with the SAE grant in particular, although OA states reported more challenges with the length of the registration process.

a. Registration process in OA states

In the 15 OA states, the role of the state apprenticeship staff can involve outreach and promotion of RA, assistance with program development, and technical assistance to employers and sponsors. Staff in these states reported different levels and types of involvement in the registration process. In one state, staff reported that part of their role is helping to create standards; another reported leaving that to its federal partners. In another state, staff described their role as "supporting OA from beginning to end" and that OA are involved in every step of the registration process. In other states, respondents reported that apprenticeship staff were involved in more specific ways. In one state, once programs are approved, the staff provide instructions on using DOL's Registered Apprenticeship Partners Information Data System (RAPIDS), interpret regulations, and provide general support.

In these states, the involvement of other entities in the registration process, such as intermediaries, community colleges, workforce centers, and group sponsors like unions, was fairly common. In one state, apprenticeship staff reported not being directly involved in the process but that contracted workforce partners and other intermediaries, such as colleges and industry associations, help sponsors through the registration process. Altogether, eight states named other entities involved in the registration process. Four specifically stated that no other entities were involved in the process, and the remaining three did not specify either way.

The main challenge OA states reported with the registration process was the capacity of OA staff. Six of the 15 OA states reported this concern, with 3 noting that there was only one OA representative in the state office. As a result, the OA representative was spread thin, which could create a backlog. The only other challenge reported by a few states was uncertainty and lack of standardization around the timing of the registration process. As one state noted, "It puts the state in a frustrating position when they cannot tell employers when a program will be subject to approval or how long the process generally takes. Is it 30 days? 60 days? Then what?"

b. Registration process in SAA states

In some of the 19 SAA states, the RA agency has authority to approve RA program applications, while in others a state council or committee approves applications. Specifically, a council or committee in 5 SAA states—Maryland, Nevada, Oregon, Pennsylvania, and Vermont—has approval authority; in a sixth

(Hawaii), a council reviews applications and makes recommendations, but the RA agency director makes the ultimate decision. Respondents reported a key advantage of the involvement of a council or committee is broader input into the approval decision. A key disadvantage is that applications must wait until the committee or council meets; in states without such bodies, the RA agency can review and approve applications as they come in and as often as daily.

The length of the approval process varied substantially in SAA states according to respondents. Once standards are developed and all application paperwork is submitted, approval can take as little as one to two days and up to a month, with most states reporting in the two- to four-week range. Developing a program from scratch, however, can take as little as two weeks and as long as a year. The timeframe tends to be longer for new employers in new industries who might be determining standards and work schedules for their positions from scratch, or to accommodate negotiations with collective bargaining unions, when necessary.

Few SAA states reported challenges with the registration process. Two states discussed limited agency staff capacity for registration but did not report any substantial implications on registrations. Another talked about challenges registering programs in new industries when the parameters of the registration process and application are tailored specifically to the construction industry, noting, “Our system is set up for construction. Sometimes dealing with a nontraditional program can be like trying to get a round peg into a square hole; there might be something that is not acceptable in construction but is ok in another industry because there are no safety concerns.”

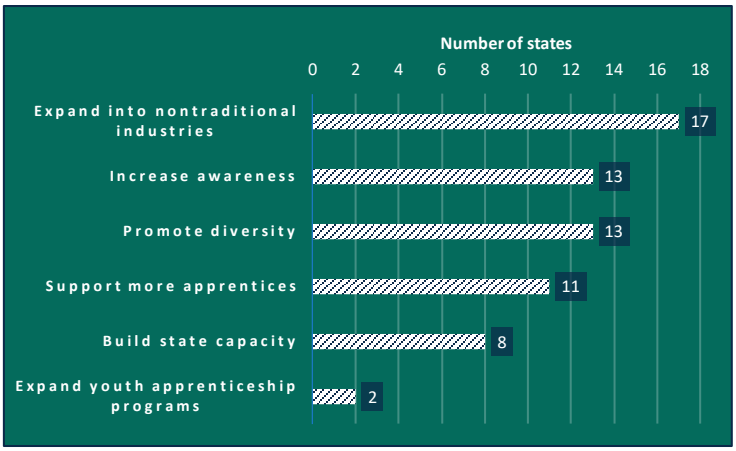
This page has been left blank for double-sided copying.

III. Grant Activities

The SAE grants were awarded by DOL to "support States in their efforts to expand and diversify Registered Apprenticeship" (U.S. Department of Labor 2016). DOL's goals were to: (1) help states advance RA as a strategy, (2) support state capacity to meet demand, and (3) catalyze innovations that increase opportunities, particularly for underrepresented populations. States focused on these and other goals for their SAE grants (Figure III.1).

The most frequently cited goal for the SAE grant was to expand RA into nontraditional industries, such as health care, IT, manufacturing, and aviation. Seventeen of the 34 grantees interviewed for the study cited the expansion into nontraditional industries as one of their primary goals. Thirteen states noted that they also were focused on increasing awareness of apprenticeship in their state and improving their marketing and outreach to do so. The same number of states reported promoting diversity as a goal, including increasing access to apprenticeship by underrepresented groups. States also noted goals of increasing the overall number of apprentices and increasing capacity in the apprenticeship infrastructure. Two states reported that expanding youth apprenticeship and pre-apprenticeship was a key goal, including South Carolina where all youth apprenticeships are registered.

Figure III.1. Grant goals as reported by SAE states



Source: SAE grantee interviews, 2020.

Note: States could identify more than one goal; N = 34 states.

Two significant shifts in state grants for apprenticeship occurred since the SAE grants were first awarded in 2016. First, DOL provided additional SAE "continuation" funding to 36 of the 37 states in 2018 and extended the period of performance for the grants until October 2020—a full 48 months. Second, DOL awarded the ASE grants in 2019. Fifty-one states and territories received an ASE grant, including 32 of the 37 SAE grantees. This chapter discusses the types of activities states engaged in to meet their goals, the successes and challenges they experienced conducting these activities, and how the activities shifted in some states over the course of the grant due to continuation and ASE funding.

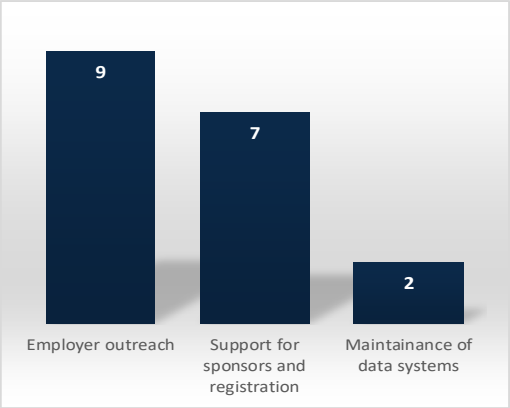
A. Capacity building at the state and local levels

States used SAE funds in an effort to build capacity at the state level and across the apprenticeship system in their state. To build capacity within the grantee agency, states used grant funds to add new staff to their team or upgrade infrastructure, such as apprenticeship tracking and monitoring systems. They also made efforts to build capacity within the broader system by funding subcontracts to partner organizations and by providing training and technical assistance on developing apprenticeship programs to AJC staff and other partners.

1. State agency capacity

Using the SAE grant, 11 states added new staff to conduct activities related to development of apprenticeship programs (Figure III.2).[12] New staff were most often hired to conduct employer outreach (9 states) or support sponsors with the registration and development of programs (7 states). Respondents in one state noted that having enough staff to follow up with employers has been key to their efforts to expand and increase the excitement around apprenticeship in the state. Two states also hired staff to maintain data systems.

Figure III.2. Function of new staff by states



Source: SAE grantee interviews, 2020.

Note: Eleven states reported adding staff funded by the grant. States could report more than one function.

Seven states reported using SAE funds to support infrastructure upgrades for their apprenticeship system. Of these, three states reported that they used the funds to develop a new data system for apprenticeship and two states used the funds to modernize an older system. Massachusetts is developing a database to improve the registration and sponsor application experience and to facilitate monitoring and compliance for programs. Washington State is working to "go paperless" with its system and better integrate with WIOA and other state systems. Two of the seven states reported they are developing portals to connect potential apprentices to sponsors. South Carolina is developing an asset map that would catalog the physical, technical, and human resources developed for apprenticeship in the state, in order to more easily expand and develop new programs.

2. Capacity across the system

Most of the states (29 of the 34 interviewed) used subgrants and subcontracts to implement the grant and in an effort to build capacity outside of the main grantee. One state reported that its goal was to "build up an intermediary system in the state" and said that this approach helped increase cost efficiency and accelerate the establishment of apprenticeships. Fifteen states subcontracted with or awarded subgrants to educational institutions, such as community colleges, technical colleges, or universities. Eleven states engaged LWDBs through subgrants or subcontracts, and 6 states engaged nonprofits (see Chapter II for discussion of the types of work these organizations conducted).

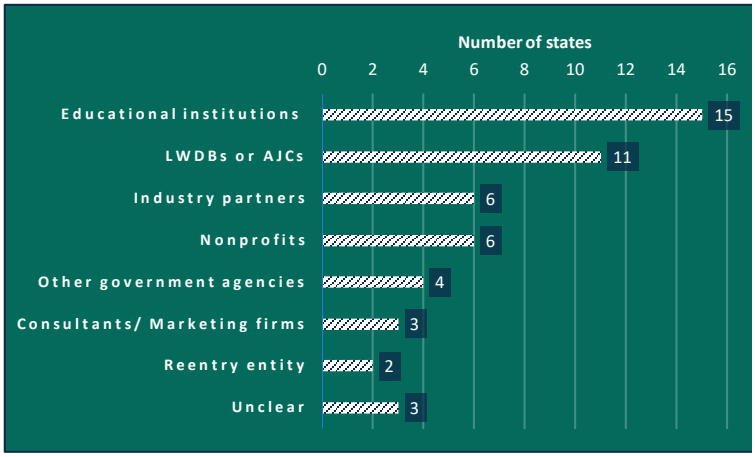
Typically, different types of partners were engaged to do similar work (Figure III.3). Colorado contracted a majority of its SAE activities to AJCs, colleges, and a nonprofit called CareerWise. The organizations were responsible for employer and participant outreach, program development (including developing standards, registration, providing RTI, and organizing OJT and supportive services), and marketing.

[12] States also added grant managers to their staff for administrative purposes, but that role is not discussed here. See Chapter II for discussion of total full-time equivalents added by grantees under the SAE grant.

Six states engaged industry-based partners to focus on a specific industry. For example, Guam engaged the Guam Hotel and Restaurant Association and the Guam Contractors Association to develop programs in their respective industries. Apprenti and Trilogy were two of the subcontractors in Ohio that led apprenticeship development in the IT and health care industries, respectively.

In addition, two states provided subcontracts to reentry entities to focus specifically on incarcerated or reentering individuals. It was not clear from interviews what types of organizations were involved in assisting with capacity building in 3 of the 29 states. Four of the 5 states that did not use subgrants or subcontracts were SAA states, although those states did not mention their status as a reason for not using the approach.

Figure III.3. Types of subgrantees and subcontractors for SAE grants



Source: SAE grantee interviews, 2020.

Note: States could have engaged more than one type of organization; 29 states reported subgrants or subcontracts.

AJCs = American Job Centers; LWDBs = local workforce development.

Generally, the states reported that outsourcing was a useful approach for expanding apprenticeship and hoped that it would be a key factor for sustainability of activities after the end of the grant. Specifically, states noted that community colleges already had the infrastructures in place to support the work, including many with workforce development divisions. Another state that exclusively engaged LWDBs noted that it was able to identify specific projects to fund according to the industry needs in the particular region being served by an LWDB. One state reflected that although it has many successful private sector drivers of apprenticeship in the state, efforts to build capacity were motivated by a desire to create opportunities statewide, especially in smaller, less-resourced communities. Only one state specifically expressed challenges around managing a large number of subcontracts at one time (15 at the start) and reduced the number of organizations it worked with over the course of the grant.

Funding to the Iowa Department of Corrections supported apprenticeship programs in each of nine correctional facilities across the state, including a program for building modular homes and a program in IT occupations.

3. Training and technical assistance

Fourteen states reported providing training and technical assistance under their SAE grant to build the capacity and knowledge of key state and local stakeholders.

- **For state and local staff.** Eight states reported providing training to LWDB directors or business services staff, staff at other state agencies, or local apprenticeship navigators who are the main points

of contact for interested employers in a local area. Topics included apprenticeship models, rules and policies, advantages of the apprenticeship model, and how to conduct outreach to businesses.

Minnesota also provided training on diversity and equity in apprenticeship. Although some states perceived positive results from providing these trainings, such as greater expansion of programs, two states reported limited impact. One of these states felt that local business services staff lack the capacity to add apprenticeship to its workload at sufficient depth, and another state reported that it had limited participation from local areas in the trainings it held.

- **For subgrantees and sponsors.** Eight states provided training and technical assistance to their own subgrantees or to employer or intermediary sponsors of apprenticeship programs. Seven of the eight states organized statewide presentations or seminars on the apprenticeship model and how to get a program up and running. South Carolina also organized trainings for apprenticeship mentors, providing certifications in OJT and mentor-apprentice communication. South Dakota provided targeted technical assistance to cohorts of new sponsors, helping them work together to build their programs and encouraging the sharing of standards.

Arkansas contracted with local workforce boards to provide apprenticeship training in their respective areas of the state. For example, an IT industry project in the northwest part of the state funded 200 apprenticeships in software development, cyber security, and other occupations in partnership with the Arkansas Center for Data Sciences.

B. Types of grant activities

The types of activities allowed under the grant covered the typical activities that states engage in to support apprenticeship, such as employer outreach and development of standards. This section discusses the activities most closely related to program activity rather than administration of the grant, which is discussed in Chapter IV. Some of these activities were carried out by the grantee, while others may have been conducted by subgrantees or subcontractors. Although the grants allowed many activities, states had grant targets for new apprentices and new and expanded programs, which implicitly encouraged them to focus on activities that would contribute to generating progress toward those targets. We discuss four key activity areas below, as well as activities that were funded under cap breakers in a fifth section.[13]

South Carolina hosted mentor development trainings in June 2019 in two regions of the state. Nearly 60 participants completed certification in on-the-job and communication training. The trainings covered topics such as understanding the importance of two-way communication in mentoring, recognizing how perception impacts communication, and becoming knowledgeable about key behaviors in mentor-apprentice communication. Participants were also given tools on how to address the training needs of a new apprentice, and how to identify the elements of the "tell-show-do-check" method of on-the-job training. Source: Apprenticeship Carolina™

[13] DOL awarded select grantees with supplemental funding earmarked for specific purposes, known as cap breakers. Cap breakers could either be industry- or equity-focused.

1. Financial assistance for sponsors, employers, and apprentices

States used the SAE grant to offer subsidies to offset the cost of apprenticeship programs. Subsidies were earmarked to cover the cost of RTI, OJT costs and wages, and supportive services for apprentices. Some states also provided incentives to employers that could be used to help offset any costs related to participating in a RA program.

RTI. Of the 34 states interviewed, 29 reported funding RTI for RA, either by providing funding to the RTI provider or by reimbursing the employer for the costs of RTI for their apprentices. Most states appeared to have a flexible limit on the amount of RTI per apprentice that was subsidized, and four states noted they tried to balance between supporting the training that an employer wanted for their apprentice and wanting to spread funds across more employers to support more apprentices. Eight states noted in their interviews that they had a general limit for RTI costs—ranging from $500 to $10,000—and 3 of the 8 states said that their limit was approximately $1,000 per apprentice.

OJT costs and wages. Four of the 34 states interviewed reported that they offered employers financial support to cover the costs of OJT, including apprentice wages. Two of the 4 states offered $5,000 per apprentice, although in one of these 2 states that $5,000 covered both training and wages. Three states that did not offer OJT subsidies explained that they resisted providing funds for OJT because of concerns that apprenticeship programs would be less sustainable if employers were not asked to invest their own resources in the program.

Supportive services. Ten states reported providing supportive services for apprentices. The types of services included transportation, child care, tools and safety gear, tablets, books, and testing fees for certifications.

Incentives to offset costs. Seven states reported offering incentives to employers to offset general apprenticeship costs (Table III.1). These incentives were offered either once to each employer who took on an apprentice or for each apprentice. Two states offered higher incentives for apprentices from a specific population. Iowa offered $350 to all employers, but it increased to $500 if the employer took on an apprentice from an underrepresented population. Wisconsin offered $2,500 for construction industry apprenticeship sponsors who hired a pre-apprenticeship completer.

Table III.1. Employer incentives as reported by SAE states

State	Description of incentive
Alaska	Employers receive funding for tools and other equipment when they sign up.
Iowa	Employers receive $350 or $500, depending on whether they are serving an underrepresented population or not, for related training or supportive services.
Kentucky	The state offers up to $1,000 for either the apprentice or the employer.
Michigan	Incentives vary, but could include $3,000 to support establishing a registered apprenticeship program.
Missouri	Intermediaries help subsidize employer costs on a case-by-case basis.
Montana	Employers with an apprentice receive $500.
Wisconsin	Sponsors receive $1,500 per active apprentice. Employers that hire a pre-apprenticeship program completer into a construction apprenticeship program receive up to $2,500 per apprentice.[a]

Source: SAE grantee interviews, 2020.

[a] Wisconsin's incentive structure was still in the planning process as of the interview.

Tax credits. Although not funded by the SAE grant, 10 of the study states offer tax credits or exemptions for employers with active apprentices in a RA program. States reported working with employers to make sure they took advantage of the eligible tax credits. Some tax credits came into effect after the SAE grant was awarded, including the current tax credits in Illinois and Massachusetts.

Tax credits typically involve a lump sum (ranging from $750 to $4,800 in these 10 states) or a percentage of the cost of wages or other materials related to training. In Massachusetts, employers in three specific industries—advanced manufacturing, health care, and IT—can apply for a tax credit for each apprentice they sponsor. They can use the funds to help subsidize the cost of training and offset administrative costs of adopting an apprenticeship program. The state offers $4,800 per apprentice and up to $100,000 per year per employer. Both Arkansas and Missouri have tax credits specifically targeted to youth apprentices. Montana also offers a tax credit specifically for employers that hire veterans, offering $1,500 per year for up to five years while each veteran is employed and active in the program.

2. Marketing and outreach to employers and potential apprentices

As indicated by their stated goals, increasing the awareness and understanding of apprenticeship in the broader public was a goal for most state grantees. Under the SAE grant, all states conducted outreach to employers to some extent, and all but four states, as discussed further below, also conducted outreach to potential apprentices.

a. Employer outreach

Most of the states (28) had state staff within their offices that were tasked with conducting outreach to employers and other partners, and 6 reported that their work was supported by local workforce staff or subcontractors. As mentioned previously, nine states hired new staff to conduct outreach. Only six states indicated that grantee staff did not focus on outreach under the SAE grant. Three of those six reported that local workforce area staff and, in one case, subgrantees were primarily responsible for outreach. The other three states noted that they outsourced their marketing and outreach to a marketing company.

The most frequent method of outreach mentioned was direct contact with employers. Nineteen states mentioned reaching out to employers directly through cold calls or follow-ups on expressions of interest. Staff in Montana spend one week out of the month on the road visiting new employers to discuss setting up apprenticeship programs. Then they return to the office to fill out the relevant paperwork for those employers' programs.

Eleven states also reported hosting or attending group events to get the word out to employers about apprenticeship, including employer forums and apprenticeship summits, industry convenings, and events hosted by community partners. States described these forums as beneficial because they were able to reach more employers in less time, and employers were able to engage with their peers who could share their experiences with apprenticeship.

> Indiana hosted 32 public meetings in 2019 around apprenticeship within a span of six weeks. The meetings emphasized nontraditional sectors and occupations, partnerships, and pathways for youth. They were also planning a series of webinars with a similar focus.

States recognized that they needed to develop resources for outreach and marketing in order to make it more effective. Colorado reported that although AJCs and other subgrantees conducted the bulk of

outreach in the early days, there was a need for materials and resources that could help them share a coordinated message. The grantee developed outreach tools, such as flyers, slide decks, and talking points, as well as websites to promote apprenticeship and youth apprenticeship. Of the 16 states that reported allocating grant resources for the purposes of improving their marketing capacity:

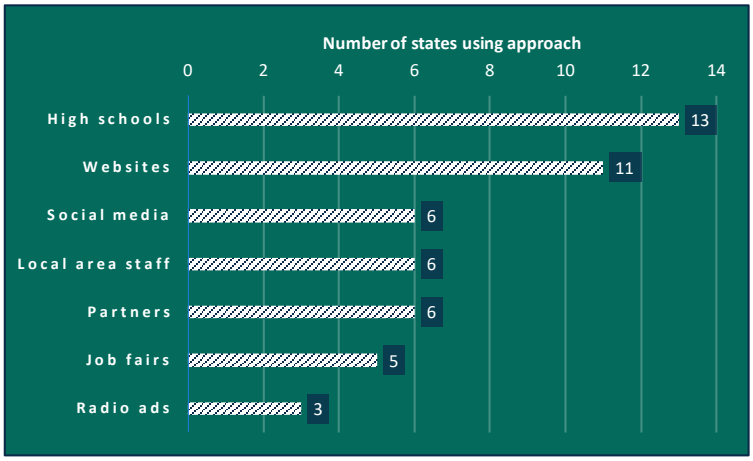
- Four states, including Florida, mentioned that they worked on establishing a brand image and a coordinated marketing campaign with logos and print materials.
- Five states, including Iowa, worked on developing a new website.
- Four states, including Indiana, mentioned that they developed videos or were in the process of developing them to market apprenticeship.
- Eight states, including New Hampshire, reported outsourcing at least some of their marketing efforts to a marketing company.

States also shared lessons and promising practices from their experiences conducting outreach to employers, which are discussed in Chapter V.

b. Apprentice outreach

All but four of the states interviewed conducted outreach directed at potential apprentices. The four states indicated that they did not actively recruit apprentices because they already had unmet demand for apprenticeship slots, or that they focused on employers to guarantee program opportunities. Recruiting apprentices without the ability to match them to an existing opportunity was seen as potentially frustrating for job seekers.

Figure III.4. Recruitment approaches for potential apprentices as reported by SAE states



Source: SAE grantee interviews, 2020.

Note: States could have mentioned more than one approach; 30 states recruited apprentices.

Across the states that engaged in outreach to potential apprentices, the most popular route was in high schools and career technical schools (Figure III.4). Thirteen states reported that they partnered with high schools in some capacity to recruit individuals into apprenticeship. Five of the 13 reported conducting presentations on apprenticeship for high school students. Four reported providing training for staff located at high schools, such as guidance counselors and education outreach specialists. Nevada reported that recent legislation had required each school district to have a work-based learning navigator, and the state provided information on apprenticeship to these navigators. Two states mentioned attending high school career fairs, including a career fair in Kentucky just for matching high school students to RA. Kentucky also funded soft skills training for high school students.

States also relied on digital marketing to recruit potential apprentices. Eleven states said that they have a website tailored to reach individuals. Maryland developed a website where individuals can locate sponsors with active hiring opportunities, with information by county, industry, and sponsor. At the time of our interviews, Missouri was in the process of launching a portal called Missouri Apprenticeship Connect that will link potential apprentices to sponsors. Respondents in six states noted that they rely on social media to market apprenticeship to potential apprentices. Three states also mentioned using radio ads to market apprenticeship to individuals.

Five states mentioned hosting job fairs for individuals interested in apprenticeship or attending job fairs and booths to share marketing materials. States also relied on partners and local workforce area staff to recruit apprentices. Six states reported that their local workforce areas or AJCs were marketing apprenticeship to their clients. Maryland reported hosting quarterly apprenticeship-only job fairs where local workforce boards would refer individuals. Six states mentioned that community or industry partners were recruiting potential apprentices through their programs and networks.

Several states discussed targeting specific populations in their outreach, including groups underrepresented in apprenticeship, such as women and veterans. Efforts to diversify the apprentice population are discussed in Chapter VII.

3. Program development

All but three states interviewed reported that the SAE grant funded the development of standards and work schedules for apprenticeship programs. Among the 31 states reporting using funds for this purpose, state staff were usually involved in the development of work schedules and standards, with support from OA in non-SAA states. Seven of these states reported that intermediaries or RTI providers were responsible for most of the standards development under the grant.

Employers have spoken to 7,000 high school juniors and seniors about apprenticeships at career fairs in Jefferson County, Kentucky, and surrounding areas. Kentucky's SAE grant also funds a soft skills training for students.

All states worked to develop programs where apprenticeship already existed, but many states (16 of the 34 interviewed) reported that some of their program growth was in new occupations that did not have

Figure III.5. Examples of new apprenticeship occupations developed under the SAE grant

- Direct support professional
- Licensed practical nurse
- Registered nurse in the perioperative area
- Surgical technologist
- Medical assistant
- Dental assistant
- Paramedic
- Community health worker
- Biomedical research technician
- Biotechnology lab support assistant
- Software developer
- Cyber security
- Employment services specialist
- State police dispatcher
- Commercial vehicle inspector
- Manufacturing group leader
- Advanced manufacturing quality control
- Advanced manufacturing process technician
- Paving engineer
- Teacher's assistant
- Early childhood education teacher
- Home health aide
- Restaurant professional
- Butcher
- Organic farm manager
- Professional brewer
- Hotel manager
- Financial services professional

Source: SAE grantee interviews, 2020.

existing apprentices in their states. For example, Montana reported that it was able to expand apprenticeships in health care from 2 to 25 occupations in the span of two years, including some online programs. Figure III.5 lists some of the many new occupations that generated apprenticeships across the grantees.

Although states were successful at creating apprenticeship programs within existing and new occupations under the grant, they also faced obstacles in their efforts to create programs. Some of these challenges were unique to specific industries, while others were related to contextual factors.

- **The high cost in terms of time and manpower needed to develop programs.** One state noted that it tried to make inroads into the IT industry but found that developing the competency-based models that were preferred in that industry was time consuming. Most apprenticeship programs still utilize a time-based model, and it can be difficult to find competency-based models to use as a template. As a result, employers were reluctant to invest the time it would take to start a program from scratch. Florida found that their early efforts to build new programs for small businesses were highly costly, and instead shifted to developing industry-centered models that could be adapted by small businesses. Although using existing models could potentially save time in program development, one state noted that investing time to build the work process and standards based on the needs of the employer resulted in potentially more sustainable programs.
- **Limited capacity of OA**. Six states noted that their efforts to register programs were limited by the capacity of OA staff. They described backlogs in the establishment of programs because of the time required by OA to approve them. However, many other states noted that OA staff provided extensive support during the grant in developing standards. Some states mentioned taking advantage of federal repositories of work processes and standards to streamline program development.[14]

4. Pre-apprenticeship programs

Twenty-two states reported that they established pre-apprenticeship programs under the SAE grant. Twelve states did not report funding a pre-apprenticeship program under the SAE grant, although they may have pre-apprenticeship programs funded through other sources. Established programs were reported to be as short as 1 to 3 weeks, others were somewhat longer at 6 to 12 weeks, and one state reported programs could be up to two years long when coupled with high school, depending on the employer's needs.

Most pre-apprenticeships were described as being closely linked to a RA program, with some programs offering credit toward RTI

Alaska's Preparing Alaskans for Training in Health (PATH) Academies are pre-apprenticeship programs designed to prepare adult participants for the health care workforce and to explore potential career pathways. They explore resume building, interview skills, and networking in addition to providing an introduction to a variety of health-related professions, including public health, medicine, nursing, diagnostics, and therapies. Students can speak with professionals and participate in hands-on training. They can also earn certifications, such as a bloodborne pathogens certification, mental health first aid certification, and/or a CPR/first aid certification. PATH Academies can be one to three weeks in length. The PATH Academies feed into registered apprenticeship programs in health care that are also funded by the grant.

[14] For example, the DOL Work Processes Dropbox, accessible at https://www.dropbox.com/sh/r6uucemwyhnywdn/S6-2ETX030

and OJT in a registered program. For example, North Carolina has a line worker pre-apprenticeship program that feeds directly into a line worker RA program. Participants learn the skills needed for the trade in 6 to 10 weeks and receive classroom training on topics such as workplace safety.

Interview respondents noted that pre-apprenticeship programs often targeted underrepresented populations. Six states mentioned that the programs were intended to increase access to apprenticeship for women, people of color, individuals with disabilities, justice-involved individuals, or other underrepresented populations.

5. Industry and equity cap breakers

Eleven states received cap breaker funding to supplement their SAE grant. Eight states received an industry cap breaker, four states received an equity cap breaker and one state received both types. For those states in receipt of the industry cap breaker funding, activities conducted were similar to those conducted under the base funding, and often supported specific intermediaries. Washington State, for example, used its industry cap breaker to support the Washington Association of Community Health in developing health care apprenticeships. An exception was Michigan, where the industry cap breaker supported a subsidy of $3,000 per employer to help establish apprenticeship programs.

Meanwhile, the equity cap breakers supported more unique initiatives than the base grant. Examples include:

- **Connecticut:** The state used its equity cap breaker to train women through a building trades pre-apprenticeship program. The state reported that it graduated 48 women from the program, most \ of whom were placed into apprenticeship programs and have a case manager that continues to support them. The program is no longer funded by the SAE grant but continues to operate with other funding sources.
- **New Hampshire:** The cap breaker was used to strengthen supportive and wraparound services for apprentices from underrepresented populations in their first few weeks in apprenticeship programs. In addition, an outreach coordinator worked with employers to develop a recruitment plan that included connecting to AJCs for referrals and to identify resources to support apprentices.

C. Shifts in the focus of activities over time

Many of the SAE states interviewed reported that their efforts to expand apprenticeship evolved under the continuation funding and then under the ASE grant. This sometimes resulted from lessons learned under the original SAE funding and, at other times, because of grant requirements. We discuss here how some states shifted their focus under these two phases.

1. SAE continuation funding

The SAE continuation funding requirements were similar to the original grant but added a requirement that states work to identify existing unregistered apprenticeship programs and apprentices in the course of their efforts. Still, many states reported that they pivoted or narrowed their focus for the grants with the addition of continuation funding. Of the 33 states interviewed that received continuation funding, 27 reported some type of change to their apprenticeship expansion efforts under the extension and 6 reported no significant changes.

The most common change reported by nine states was in the organizations they subcontracted with for grant activities. Two of the nine states moved to engage LWDBs and AJCs more closely in their expansion efforts. Three of the nine reduced the number of organizations they worked with under the grant, identifying high performers and discontinuing less successful performers. Three states spread the funding more widely; South Dakota initially provided grants to a few organizations of its choosing but then found that using an application process generated more interest and eventually more development of programs.

Six states reported changing their approach to employer engagement with continuation funds, based on lessons they learned in the early SAE grant period. Two of these states experienced challenges trying to engage individual employers and moved toward relying on intermediary organizations. One of the states noted that working with individual employers, especially small businesses, can be time consuming and expensive, and that intermediaries can be better placed to develop models that might work for a greater number of employers. Conversely, a third state found the industry consortium it was working with as an intermediary to be difficult to engage and found more success targeting individual employers in that industry. The remaining three states found that they needed to bolster their outreach approach with more supports for employers. Both Kentucky and Montana increased their financial and technical assistance for employers developing programs, and Minnesota presented employers with labor market and workforce information to help them understand how apprenticeship can support their own workforce goals.

States also reported changing how they used their SAE funds. Six states reported using continuation funds for different industries than under the original grant; three of the six narrowed efforts in industries that showed more success under the original grant, and the other three expanded to new industries. Four states reported adding staff capacity to support more aggressive outreach to employers, program development, and partnerships. Two states reported shifting from focusing on pre-apprenticeship to RA, and one shifted from RA to pre-apprenticeship. Two additional states reported increasing their allocation of funds to support classroom training and OJT under the continuation funds.

2. ASE funding

Of the 37 SAE grantees, 32 received ASE grants and only 29 of the 32 were interviewed for the study. Of those 29 states, 19 reported that their focus under the ASE grant was different from their SAE focus. Nine of the 29 states reported that the ASE grant was basically an extension of their work under the SAE grants. It was unclear to staff of one state how the ASE funds were being used. Six states reported expanding their industry focus under the ASE grant or expanding into nontraditional occupations within the same industries. Among the remaining 13 states that reported a different focus, there seemed to be an understanding that the ASE grant was meant to emphasize two approaches to expanding apprenticeship: (1) increasing integration with the workforce system to serve more underrepresented groups, and (2) more directly supporting training and supportive services for apprentices.

Table III.2. State reports of shift from SAE to ASE grants

Focus after ASE grant award	Number of states
Same as SAE grant	9
Serve more underrepresented populations or work more closely with the workforce system	7
More directly reach and support apprentices	6
Expanding into new industries or nontraditional occupations	6
Unclear	1

Note: Of 34 SAE grantees interviewed, only 29 received an ASE grant.

- Seven states reported that a focus of their ASE grant was to serve more underrepresented target populations or work more closely with the workforce system through their local boards and AJCs. States that sought to integrate with the workforce system saw it as a conduit to reaching underrepresented groups and leveraging supportive resources for those populations through WIOA. As one state noted, "Unlike anyone else, the boards can leverage the whole system." Other states also focused more on working with individuals from underrepresented populations through WIOA and other partnerships, including individuals with disabilities (Florida) and individuals in the correctional system (Wisconsin).
- Six states reported that they were trying to more directly reach and support apprentices under the ASE grant, whether through funding training or providing supportive services to help apprentices complete their apprenticeship programs. Florida reported that 68 percent of their ASE funding will go to apprentices and programs, including supporting apprentices with books, uniforms, curriculum development, gas cards, health programs, and updates to software and equipment for RTI. Idaho also reported adding supportive services for apprentices under ASE, including tools for work, work boots, gas cards, and wraparound services to address barriers to entrance and completion.

IV. Grant Outcomes and Management

The SAE states had specific targets for new apprentices and new programs for their SAE grant, based on their established baseline numbers at the time the grant was awarded. OA required SAE states to submit QPRs on grant activity and progress toward grant targets, financial reports that track the spending of grant funds, and individual-level data on apprentices and sponsors as part of their management of the grant. This chapter looks at the 37 SAE states' progress toward their target outcomes as of the quarter ending December 2019, as well as some of the challenges states experienced with managing the grants.

A. Grant performance outcomes

States were required to meet growth targets for apprentices and programs that were based on baseline figures established when the grant was awarded in 2016. The initial grant required states to achieve 5 percent of their baseline (or an increase of 100 apprentices, whichever is greater) by the end of the grant. The continuation funding revised this target to 15 percent of their baseline by the end of the 48-month period (or an increase of 200 apprentices, whichever is greater). Table IV.1 provides a snapshot of the key outcomes, and Appendix Table A.2 provides outcome baselines, targets, and reported numbers for apprentices and apprenticeship programs by state as of December 2019.

Table IV.1. SAE grants by end of 2019

Registered apprentices	142,780
Pre-apprentices	6,614
New programs	2,525
Expanded programs	4,201
Businesses engaged	13,559

Source: Based on grantee reports as of December 31, 2019.

1. Number of registered apprentices

The number of registered apprentices at baseline ranged from 553 (Guam) to 68,448 (California). Grantees served a total of 142,780 registered apprentices across the grants. The number of new apprentices added ranged from 0 (four states) to 103,151 (California). Only registered apprentices served are counted toward the grant target, although many states also reported pre-apprentices served, including states that reported no new registered apprentices, as discussed below. Grantees enrolled a total of 6,614 pre-apprentices (not shown in table). The number of pre-apprentices ranged from 0 (eight states) to 781 (Indiana).

Based on the cumulative number of registered apprentices served under the grant as reported in QPRs for the period ending December 31, 2019, 13 states exceeded the 15 percent of baseline target. Ten states met the 5 percent of baseline target but not the 15 percent of baseline target. The remaining 14 states did not meet either the 5 percent or 15 percent of baseline targets.

Some states that reported no new registered apprentices also reported that they had proceeded with the grant for several months before fully understanding how apprentices could be counted toward the grant. As a result, much of their grant funds had been spent toward activities that did not generate apprentices that could be counted toward the target. One state was unsuccessful at establishing an RA program through the grant as of the latest QPR, and hence did not report any apprentices.

2. Number of new programs

The number of apprenticeship programs at baseline ranged from 34 (New Mexico) to 1,540 (Connecticut). Grantees added a total of 2,525 new RA programs across the grants. The number of new programs added ranged from 0 (two states) to 304 (Montana). As of December 2019, 15 states exceeded the 15 percent of baseline target for new programs. Thirteen states met the 5 percent of baseline target but not the 15 percent target. The remaining 9 states had not met either the 5 percent or 15 percent of baseline targets.

3. Number of programs expanded and businesses engaged

States also reported the number of existing RA programs that were expanded (as in, adding occupations or apprentices registered to an existing program) under the grant and the number of new businesses they engaged through the grant. They did not have specific targets for these outcomes. Grantees expanded a total of 4,201 existing apprenticeship programs. The number of existing programs expanded ranged from 0 (five states) to 1,795 (New York). Grantees engaged a total of 13,559 new businesses in their outreach. The number of new businesses engaged ranged from 0 (two states) to 1,486 (Montana).

B. Reporting and data management

In order to track data on apprentices and programs served under the grant, states used either the federal RAPIDS system or their own state-specific data systems. States used these systems to generate their QPRs to submit to OA. In order to provide OA with individual level data on apprentices and sponsors, states either shared their data through the RAPIDS system or, for states that did not have RAPIDS integrated into their existing data systems, submitted data in Excel spreadsheets with their QPRs.

Ten states did not report challenges with using RAPIDS or other data systems for reporting, and interviews with nine states did not include discussion of data systems. Fifteen of the states interviewed mentioned specific challenges with managing data over the course of the SAE grant. The challenges were related to (1) data systems, (2) staff capacity and experience, and (3) access to apprenticeship data.

1. Data systems

Without data systems in place to track their progress toward grant targets, states found it difficult to comply with reporting expectations. States were required to collect quarterly data on apprentices and programs during the period of the grant. The main data system challenge reported by three states was that they did not have an appropriate data system in place to collect or manage the information required for reporting. Four other states explicitly stated that data systems were "a really cumbersome task" and a "huge challenge." One state noted that it did not have direct access to RAPIDS, which prevented it from developing appropriate strategies for expanding in particular industries and occupations. One reported that they did not have the appropriate reports built into their system to monitor and report on grant progress. Without the proper reporting, they could not track the participation of specific populations, such as women or those who have disabilities.

"Prior to legislation that created the directory, [we] did not even have the ability to know what apprenticeships are available in the state. There was no baseline information. It's hard to create a strategy without a baseline.... It really hurt the state's ability to be responsive and made it even more difficult for locals."

—State respondent

In response to these challenges, states have hired additional staff, expanded their existing databases, and purchased new databases to house required grant information.

- One state that hired additional staff to integrate existing data management systems into RAPIDS remarked that "the integration of the state data system into RAPIDS appears to be working very well and as intended."
- Another state expanded an existing database to allow it to track relevant grant information that it was not previously tracking, such as Social Security numbers.
- Another state evaluated an existing data system and uncovered inadequacies with storage capacity and data integrity; it chose to purchase a new database rather than reconstruct the current one.
- One state decided to purchase a database system to manage the grant; however, it experienced challenges with identifying and hiring a vendor to construct the database. The delays in procurement of a database caused delays in mandatory reporting under the grant.

2. Staff capacity and knowledge of reporting systems

Staffing capacity and experience was critical in states' experiences managing the SAE grant. One challenge expressed by five states was staff turnover and leadership changes within their agencies. When these changes occurred, the agency lost important institutional knowledge around grant requirements for reporting.

For example, one state struggled with when and how apprentices could be counted toward the grant goals. This confusion led the state to count apprentices in programs where financial support was not provided. The state has since sought guidance from OA to ensure it is reporting apprentices accurately.

3. Access to apprenticeship data

Two states felt that they lacked sufficient access to data maintained by OA about apprenticeship. One state requested information regarding the industries and occupations that are available for apprenticeship as part of its planning process but was unable to obtain that information from OA. Another state reported that potential sponsors of RA programs often request data to evaluate whether they would like to set up an RA program, but the state did not have access to data held by OA on existing programs.

This page has been left blank for double-sided copying.

V. Recruiting Employers and Sponsors

Naturally, employers are required partners in any RA program, regardless of whether the employer serves as the sponsor for the program or another type of organization is the sponsor. Recruiting employers to participate in apprenticeship was therefore reported to be an essential activity for all grantees. Grantees reported using multiple approaches in their outreach, but they also faced challenges with employer misconceptions and barriers within the workforce system—especially for employers in nontraditional industries. States' experiences with outreach point to potentially useful practices for employer outreach, discussed at the end of this section.

A. Employer outreach activities under the grant

States described five main approaches to engaging employers under the SAE grants. These approaches included direct outreach by the agency to employers and through partners, such as the public workforce system. One respondent described the combination of outreach activities and partnerships as a "web of activities" and emphasized the importance of giving employers multiple touchpoints and opportunities to engage the apprenticeship system.

1. Direct outreach through following leads or making cold calls

California emphasized that the most effective way to reach employers was to have "direct, tailored outreach" by people with a "strong sales background." This strategy was echoed by staff in Maryland and South Carolina, which both use trained apprenticeship specialists to conduct outreach, develop programs, and register them with the SAA. Direct outreach can occur when apprenticeship specialists follow up on leads developed through other grant activities or by reaching out to employers through cold calling (high-volume direct outreach to employers initiated by agency staff). Maryland shared that their leads come from cold calling by agency staff, and South Carolina noted that large accelerator events are an important source of leads.

Cold calling was used but rarely considered an ideal outreach strategy, either because it was too labor intensive or yielded positive results less frequently than other more intensive forms of outreach. One state reported that it conducts direct phone outreach to employers only after learning that the employer might be hiring. Two states, Idaho and Maryland, noted the importance of having a process to address backlogs of employers who expressed interest in apprenticeship or whose programs have been inactive. Maryland staff pointed out that these employers were easy to reach out to because the state already had their contact information, and they had previously expressed interest in apprenticeship (or even operated a program in the past).

> Instead of cold -calling, Delaware used a mass email service to initiate contact with new employers. The emails generate interest, which the state attributes to having the "Secretary's stamp" on them.

2. Outreach events

Accelerators and other events were common employer outreach activities. For example:

- Colorado found that the most effective approach was using industry convenings in tandem with follow-up direct outreach, such as in-person calls or visits.

- A respondent from Michigan noted that industry events were not used for employer outreach before the SAE grants, but now they are an important part of the state's strategy.
- Pennsylvania's 2019 "apprenticeship summit" was targeted at employers.
- In Texas, the statewide apprenticeship conference includes opportunities for workforce boards and colleges to conduct roundtables and reach out to employers. The Texas conference also offers employers a "train the trainer" session to guide mentors in how to train apprentices.

3. Local workforce partnerships

As noted in Chapter II, local workforce boards and AJCs were one of the most commonly cited partners for the SAE grants. Some states highlighted the unique knowledge that AJC staff had that could be leveraged to expand apprenticeship. For example:

- Massachusetts shared that the LWDBs were able to talk about apprenticeship "in a way that businesses understand."
- Texas emphasized that the public workforce system was a crucial partner for apprenticeship expansion in the state and highlighted that the local boards were "more familiar with local needs and the gaps that apprenticeship can fill" than anyone else.

When LWDBs and AJCs did not have adequate background on apprenticeship and needed assistance from the state's apprenticeship agency, the state provided training. For example, the Connecticut apprenticeship agency delivered "Apprenticeship 101" presentations to AJC staff to familiarize them with the distinctive features of apprenticeship.

4. Employers with apprenticeship experience

Several states noted that employers themselves were important means of outreach on apprenticeship. One respondent shared that "nothing sells it [apprenticeship] better than one business telling another business about it." States reported that when employers were involved with referrals and recruitment, they enjoyed a higher level of trust with other employers. Some respondents highlighted the importance of cultivating employer champions to help promote apprenticeship. Although many states noted the value of employers as partners in outreach, one respondent said that large employers with visibility "on an industrial scale" could make especially important contributions. Large employers could "do a thousand apprentices and then do a flashy big press release." One state called these large employer representatives its "ambassadors" and "champions," and noted that testimonials from large employers are particularly persuasive to other employers.

5. Intermediaries

Twenty-nine states provided subgrants or subcontracts to intermediary organizations (or to colleges that functioned like apprenticeship intermediaries). One state found that employers were more responsive to outreach from an intermediary organization, particularly a familiar employer association, than from the government. Another state made a similar point, explaining that "they speak the language of industry" and were more effective than employer outreach at the state level. In Ohio and Pennsylvania, intermediaries supported by the grant promoted model apprenticeship programs that employers could easily adopt.

B. Staff conducting outreach

Using the SAE grant, some states were able to hire or allocate staff who could be devoted exclusively to recruiting employers. These employer outreach staff directly contacted employers, helped develop and register programs, and participated in public events. A larger apprenticeship staff strengthened employer outreach in two complementary ways. First, staff could devote more time to recruiting employers. For example, North Carolina respondents reported that the increased number of staff supported by the SAE grants allowed them to conduct more face-to-face meetings with employers and with local workforce development boards. Without sufficient staff, states reported relying more on industry conferences and chamber of commerce events to reach multiple employers at once, rather than one-on-one meetings.

Second, a larger apprenticeship staff allowed certain staff to specialize in employer outreach instead of dividing their time between employers and other tasks, such as program and standards development. In states with larger apprenticeship agencies, employer outreach staff served in different roles or specializations, and complemented other staff members that worked on different aspects of apprenticeship:

- In Maryland the outreach work was divided between Navigators and Apprenticeship Training Representatives (ATRs).[15] Navigators conducted the initial outreach and marketing to employers and then directed employers to the ATRs to actually develop an apprenticeship program. At the end of the SAE grant period, Maryland began cross-training Navigators to serve as ATRs, to ensure that there was no bottleneck in program development preventing the registration of new programs.
- Nevada's staff were assigned to specific partners. Employer outreach was the responsibility of the Employer Engagement Specialist, who primarily worked with workforce agencies, industry groups, and employers. Other staff specialized in working with community colleges and youth, although they were less involved in employer outreach.
- South Carolina's apprenticeship staff included apprenticeship consultants and registered program specialists. Apprenticeship consultants specialized in program development and direct outreach to employers to organize programs, and Registered Program Specialists assisted sponsors in operating programs and supporting apprentices after they were registered.
- Wisconsin added Navigators with detailed knowledge of apprenticeship to its staff to provide case management and make connections to the public workforce system. These Navigators complemented the work of business services staff, who previously provided apprenticeship outreach in addition to other types of employer assistance.

States also had to grapple with how to train the new staff that would be conducting employer outreach. States emphasized the importance of having a "sales background" and detailed knowledge of apprenticeship. Staff had to learn how to have conversations about registering new occupations or reactivating older apprenticeship programs that did not have active apprentices. South Carolina's apprenticeship agency staff were already trained to conduct employer outreach before the grant, but some of their partners required additional training before they could work successfully with employers.

[15] The federal Office of Apprenticeship also employs ATRs, who are assigned to specific states or regions. Maryland's ATRs are state employees who have the same title as federal representatives.

C. Common challenges with recruitment of employers and sponsors

Respondents from the 34 states interviewed reported common challenges that they and their partners faced in engaging employers. These challenges included employers' misconceptions about apprenticeship and barriers originating in the apprenticeship or public workforce system itself.

1. Employer misconceptions

In interviews, respondents mentioned several beliefs about RA that made employers reluctant to sponsor or participate in a program.

- **"Apprenticeship is for building trades and unions."** In five states, state staff indicated that employers thought of apprenticeship as only for the building trades, with one respondent noting that in nontraditional industries "too few employers do it [apprenticeship] to normalize it." This problem was reported in states with both high and low unionization rates. Two states mentioned that prior to the grant, their apprenticeship activities leveraged the work of unions and relied heavily on expanding joint programs. This close partnership with unions gave nontraditional employers the impression that apprenticeship was linked to labor unions. Another state with a low unionization rate and a "lack of deep roots in apprenticeship" still found that employers associated apprenticeship with organized labor.
- **"Apprenticeship is heavily regulated."** Another reported stereotype was that apprenticeship is heavily regulated or that it would involve substantial state or federal government interference. One state reported that employers often felt overwhelmed by equal employment opportunity regulations and regulations related to program registration, and noted that employers reportedly worry that regulatory compliance requires a large amount of paperwork. Two states focused their outreach approach on reducing the amount of paperwork that employers had to complete.
- **"Apprenticeship is too expensive for small businesses."** Small businesses worry that apprenticeship is too expensive or feel that they do not have the capacity to develop a program. Three states mentioned that this is a common concern they hear from small businesses.
- **"Competitors will 'poach' apprentices."** Two states reported that they have heard from employers who worry that after they made a large training investment in their workers, other employers would hire them away at higher wages.
- **"Existing industry training models work better."** Some industries reportedly have found it difficult to buy in to the idea of apprenticeship over existing models of training. One state respondent shared that employers in the IT industry considered the registration process too slow and preferred more standard unpaid internships over a paid apprenticeship. Another state reported IT employers were committed to hiring workers who already had college degrees and were hesitant to hire apprentices.

2. Challenges in the apprenticeship system

State respondents also reported challenges originating in the apprenticeship system itself. These challenges did not originate with employers but did impact states' ability to conduct employer outreach effectively.

Bottlenecks in registration. The limited capacity of OA state directors to process registrations was cited as a challenge in six states. Respondents from a state where programs are registered with OA reported

registration delays as the greatest challenge associated with employer outreach. They described OA representatives in the state as "thinly spread."

Limited workforce system expertise. The public workforce system and local workforce development boards also posed challenges for two states. One of the states noted that business service representatives (BSRs) in the workforce system are expected to promote apprenticeship, but that they do not have sufficient technical knowledge to do this properly (see Chapter VII for more information on the role of BSRs in the apprenticeship system). To remedy this problem, the state is shifting its outreach to specialized apprenticeship consultants rather than business services staff.

D. Important factors for success in employer outreach

These challenges shaped states' experiences with expanding apprenticeship, especially in non-traditional industries. Over time, states adjusted how they approached employers and shared their thoughts on how to preemptively address employer concerns about apprenticeship and make it easier to develop programs, discussed below.

1. Give employers solutions rather than leading with apprenticeship

Many employers have reservations or misunderstandings about apprenticeship, so staff in Indiana and Maryland advise initiating the conversation by talking about workforce issues in a sector or occupation, not leading with apprenticeship as a universal solution. This point was closely related to another state's advice to use language that businesses understand and talk to them about their onboarding and training processes first. Staff warned that "the language used in registered apprenticeship isn't business friendly" and could turn off employers.

Outreach fatigue was also a risk. One state reported that in the early years of the grant, its intensive apprenticeship marketing campaign was tiring for employers. This respondent explained that employers "get tired of hearing it" and emphasized the importance of "being mindful of the full spectrum of work-based learning opportunities" and identifying the right solution for the employer rather than always talking about apprenticeship.

Respondents from two states noted that employers want to be listened to, and that employer outreach efforts should be structured by what employers say they need. Staff in one of the states reported that they "moved from creating a program and presenting it to an employer to listening to the employer about what they actually need, and then developing a program side by side with them."

2. Streamline the process, but be upfront about what an apprenticeship involves

To encourage employers to start a program, states recommended removing obstacles and making the process as easy as possible. One state attributed its success in employer outreach to making the program development and registration process easy for employers, noting that marketing apprenticeship is considered a secondary concern because "if it solves a problem, it will market itself."

One state respondent emphasized the importance of assisting employers through their challenges without telling employers that apprenticeship was "easy." The respondent insisted that ignoring the challenges was "unhelpful; apprenticeship is not easy, but it's worth doing." For this respondent, effective employer outreach meant realistically communicating both the challenges and the value of apprenticeship, and helping employers overcome certain challenges that the state could address.

3. Highlight the potential benefits of apprenticeship for employers' bottom line

Respondents from multiple states suggested that employer outreach staff need to develop and present employers with a business case for apprenticeship. Employers may recognize the educational and social benefits of apprenticeship training, but to commit to a program they have to be persuaded that apprenticeship pays off for them. Oregon developed a return on investment estimator tool just for this purpose.

Incentives for employers and training were frequently used under the SAE grant as discussed previously, but they were often not the central feature of outreach. Staff in one state described incentives as a "talking point," rather than the primary reason employers adopted apprenticeship. Two states indicated that employer outreach efforts should present apprenticeship as a training model and not as a funding stream. Respondents felt that even though incentives or other public funds might be available to support employers, outreach that leads with funding will yield programs that are less dedicated to apprenticeship as a model and less sustainable. One state even ended its subgrant payments to new programs under the continuation funding, because it found that larger payments to intermediary partners were more effective than smaller levels of financial support to employers. One state, however, noted that it often struggles with outreach to employers who prefer to register their programs with a neighboring state that pays for RTI, indicating that incentives may matter in some employers' decisions.

4. Enlist agency leadership

States emphasized that senior staff in the responsible apprenticeship agency need to be committed to expanding apprenticeship and provide leadership. For example, a respondent from Maryland described how a cabinet secretary promotes apprenticeship at every event the secretary attends, and that within an hour of any event several employers email to ask about apprenticeship. Massachusetts staff shared that the agency or department head's job "must be about apprenticeship," rather than being divided between multiple priorities.

VI. The Role of Registered Apprenticeship in the Workforce System

Under the SAE grant effort, states embraced—and largely realized—apprenticeship expansion as a goal. On the whole, they also made significant progress integrating apprenticeship into the broader workforce system by boosting the capacity of local workforce boards, adding consulting expertise that programs could draw on, and supporting training and promotion activities intended to help local areas learn about apprenticeship and increase interest in the model. States employed different approaches, including changing state statutes; amending policies; and establishing new roles, such as apprenticeship navigators, to facilitate the expansion. Most state respondents reported that these efforts have helped RA become a high-quality training option for more (and more diverse) students, workers, and employers in their state than at any time in recent history.

A. Federal guidance on integration of RA and WIOA

Three main sources of guidance informed states' efforts to integrate their RA expansion efforts with the public workforce system:

1. WIOA, the primary federal legislation guiding workforce programs, makes RA sponsors automatically eligible for inclusion on states' eligible training providers (ETP) list. This provision enables local workforce boards to spend their WIOA Title I funds on RA training (U.S. Department of Labor no date)[16]. WIOA also requires coordination between state apprenticeship staff and OA to maintain current information about RA programs and that RA programs be represented on state and local workforce boards. These provisions create institutional linkages between RA and local boards at both policy and governance and program levels.
2. DOL guidance calls for "leveraging registered apprenticeship as a workforce strategy," and explains how RA can help local areas (and states) achieve performance measures and advance employer-centered initiatives and career-pathway efforts (U.S. Department of Labor 2017)[17]. WIOA performance was a focus for 4 local workforce boards, which are also often at the center of these employer and industry partnerships and career pathway strategies.
3. The funding announcement for the SAE grant program (U.S. Department of Labor 2016)[18] encouraged system integration in its goals and cited working with local boards to "support state alignment" by integrating programs into "the suite of training services in the workforce system" as a strategic approach.

Based on these legislative and funding mandates, DOL's emphasis on work-based and career-connected learning, non-degree credentials, and sector-based training under WIOA has encouraged the integration of apprenticeship, pre-apprenticeship, and RA into the workforce system.

B. Integration of RA into the workforce system under the SAE grants

States sought to scale apprenticeship under the SAE grants by increasing the number of programs (and apprentices) and launching apprenticeship programs in new industries and occupations. Integration of the

[16] https://www.dol.gov/apprenticeship/docs/WIOA-RA-Fact-Sheet.pdf
[17] https://wdr.doleta.gov/directives/attach/TEGL/TEGL_13-16.pdf
[18] https://www.dol.gov/sites/dolgov/files/ETA/grants/pdfs/FOA-ETA-16-13.pdf

SAE grants with WIOA programs, especially local boards, and with the wider workforce system was seen as a means of achieving expansion goals. States employed four key levers to link SAE RA efforts and WIOA programs:

1. **Encouraging WIOA customers under Titles I, II and other titles to apply for entry into RA programs through LWDBs and AJCs.** Most states (27 of 34 interviewed) reported that they were actively encouraging customers of WIOA programs to apply for entry into RAs, reflecting a simple and low-stakes effort to expand access to apprenticeship opportunities and increase participation in apprenticeship programs. Eight of the 27 states indicated referrals were happening but to a limited extent—either in some local areas, only for select workers or programs, or had only recently begun. Two states reported they were not encouraging these referrals because their key apprenticeship partners under the SAE grants were community colleges and not workforce agencies.
2. **Encouraging LWBDs to use individual training accounts (ITAs) to support apprenticeship training.** Twenty states reported encouraging the use of ITAs to offset costs for training. ITAs are agreements to pay for training by ETPs on behalf of WIOA customers. Four states had not used ITAs initially, but they shifted approaches as they saw new opportunities. Three states reported using ITAs to support pre-apprenticeship training but not RTI in RA programs; in two other states, the approach varied by local area. Several states reported difficulty with employing ITAs because they were designed to support short-term job training rather than longer-term, career-focused RA programs. Locally determined funding caps also posed challenges for workforce staff assisting employers in hiring apprentices from different jurisdictions.
3. **Placing RA programs on the state ETP list.** Twenty states reported progress in placing RA programs on their ETP lists, making it easier for local programs to support participants in RA programs by paying for RTI and supportive services. Workforce development boards, states, employers, colleges, and intermediaries all assisted in this process. In three states, the effort was focused on particular sectors or geographies where apprenticeship is more common. In at least three states, all RA programs will be placed on the ETP list automatically going forward, and three other states are just setting up the process for placing programs on the list.
4. **Supporting business engagement staff in working with employers to launch new RA programs.** Twenty-one states reported engaging business services staff of local boards or AJCs in launching new RA programs. They reported some difficulty, owing largely to WIOA program staff's limited experience with apprenticeship and the challenging technical requirements of the training model. Standards and work processes are required components of RA programs, but they are not as common in traditional WIOA training programs or even the customized services WIOA business services staff typically offer.

In Massachusetts, MassHire North Shore Workforce Investment Board and MassHire Hamden County Workforce Board are key partners in the SAE effort. Both became RA sponsors and serve as apprenticeship intermediaries in their areas. They recruit employers in target industries and develop programs. In turn, their respective workforce boards employ all the key integration levers—encouraging clients to apply for apprenticeships, using ITAs to support RA, encouraging business engagement staff to work with employers to start RA programs, and placing RA programs on the state ETP list.

Twelve states reported employing all four strategies to better integrate the two systems. Still, two of these stated that RA and WIOA were not well integrated in their states, although the effort was ongoing.

1. States where integration with WIOA was limited

Fifteen states reported that, prior to the SAE grants, RA was not well understood by key workforce and education policymakers and training providers. Although integration with the workforce system often emerged as a goal for these states, it was not an explicit focus early in the grant period. All but a few of these states used their SAE grants to educate stakeholders about apprenticeship models and to introduce apprenticeship as a workforce strategy to interested WIOA programs and community college partners.

In three states, apprenticeship expansion did not include integration with WIOA programs for one of two reasons. One reason was that the lead state agency perceived RA and WIOA-funded training programs as different training models and sought to preserve both. The second reason was that RA was seen as a complement to career pathway efforts managed by community colleges. The colleges were perceived as more logical partners than WIOA programs in RA expansion efforts.

"Apprenticeship is another tool in our toolbox, but it's a specific one. Using it well requires some education about new ways of looking at employers and clients and how best to serve them."
—State respondent

2. Challenges in utilizing apprenticeship as an expanded workforce training approach

Many respondents expressed enthusiasm about apprenticeship and saw it as a high-value opportunity for both workers and employer customers of the workforce system. They also valued the large-scale investment in apprenticeship that brought new program resources to their states and neighboring states.

But this work came with challenges. All states spoke to the difficulty of countering enduring and unhelpful myths—that apprenticeship is for blue-collar trades or implies the participation of labor unions. States that aimed to integrate apprenticeship into their workforce systems—and leverage WIOA in particular—reported challenges with alignment across the systems:

- In some local areas, caps on training dollars or limits on program duration designed to help boards achieve WIOA performance targets made accommodating apprenticeship difficult. In addition, these caps vary from one area to the next, which can confuse employers working with LWDBs or AJCs to recruit apprentices from different jurisdictions for the same jobs.
- Making apprenticeship accessible to job seekers in local workforce areas who may have barriers to employment also proved a challenge. One respondent noted that aligning the state's strategic goals for disadvantaged populations was particularly difficult when apprenticeship programs were enrolling incumbent workers.

C. Roles of LWDBs and staff in integrating apprenticeship

Notwithstanding these challenges, workforce boards were still one of the most common partners across the states. As discussed in Chapter II, workforce boards (or their AJCs) were named as grant partners by nearly all states and as one of the most critical grant partners in 12 states.

1. The changing role of LWDBs and AJCs

Interviews with SAE states indicate that the participation of LWDBs and AJCs was increasing in nearly all states. Generally, respondents indicated that the SAE grants, together with other state and federal level investments in apprenticeship, had raised the profile of apprenticeship in their states and within the workforce and education systems. This increasing focus on apprenticeship encouraged the participation of LWDBs and AJCs, regardless of the specific levers or incentives states employed. Even in states where participation of LWDBs in SAE activities was limited to referral and outreach, respondents expressed confidence in the value of collaboration between RA and WIOA programs and systems.

Respondents in 16 states described early examples of collaboration as "capacity building." They pointed to significant increases in day-to-day interaction between RA and WIOA programs—staff from state RA agencies and the workforce system's LWDBs and AJCs met together in new committees or workgroups, engaged in training, worked on joint marketing, or some combination. For example, Kentucky engaged local workforce agencies in focused activities such as large-scale employer outreach. Five of these states were not actively integrating the two systems but reported collaborating more effectively so that employers and customers interested in RA could access the information and assistance they needed. Eight states identified effective referral and co-enrollment as examples of increased integration and most were generally working toward these goals. Twelve states were using WIOA resources to provide supportive services, help pay for training, or subsidize OJT for workers in RA programs.

LWDBs as intermediaries

In **Missouri,** the St. Charles County AJC became the first workforce agency in the state to be certified as an official sponsor of registered apprenticeship programs. This intermediary model has helped connect LWDBs to RA and made it easier for employers to participate.

In **Ohio**, the LWDB serving the Springfield area (and many rural areas in the state) became an apprenticeship sponsor. Another one of the state's 15 boards is also working toward sponsorship.

Select local boards in **Illinois** acted as intermediaries, navigators, or both under Illinois' SAE grant. These boards were building apprenticeship capacity in their own areas and helping the state improve and structure its approach to these roles going forward.

As described in Chapter II, LWDBs in 11 states supported the implementation of the SAE grant as subgrantees or subcontractors. States contracted with select LWDBs to support, develop, or sponsor apprenticeship programs in their areas, often as a strategy for supporting key industries. One state awarded subgrants to all local areas, while another held a competitive process open to all areas to encourage widespread participation and local experimentation. Connecticut connected to their LWDBs with a consultant model, hiring apprenticeship experts who could facilitate new programs and serve as a resource for boards and AJCs looking to connect customers with programs or work with employers to launch new ones.

Four states also modeled high-quality apprenticeship by establishing programs for workforce professionals themselves—board and AJC staff—that include apprenticeship competencies. These programs were established with the idea to both learn by doing and ensure deep, first-hand knowledge of apprenticeship within the WIOA system.

Three of the states that did not engage workforce boards and AJCs as critical partners in their initial round of funding but made them more central to grant and apprenticeship expansion efforts in subsequent rounds (including under the ASE grants). For example, Illinois moved to a "capacity building model," under their continuation funding, contracting with partnerships led by workforce boards and investing in convenings, training, statewide learning activities, and committees, supported by Northern Illinois University and other partners. Now the state is supporting a network of apprenticeship navigators and intermediaries, together with technical assistance and evaluation partners, so that different workforce agencies can become regional leads in specific sectors (for example, manufacturing in the northern part of the state, health care in the southern part) or approaches (career pathway, rural or small business approaches, and others). State respondents see this increased capacity and connected network as the foundation for sustaining RA over time.

2. The changing role of local workforce staff

In states that engaged WIOA programs as critical partners in the SAE effort, business services representatives (BSRs) in local workforce agencies were key staff in apprenticeship expansion efforts. These staff, some of whom are board staff and others who are AJC staff, played a variety of roles within and across states.

In the states that described working with workforce boards and AJCs, BSRs typically acted as apprenticeship leads for their workforce boards, AJCs or local areas. They learned about apprenticeship, participated in statewide events, and acted as the primary apprenticeship contacts in their areas. More specifically, states reported that these staff were engaged in:

- Conducting outreach to people, firms, schools, and communities interested in apprenticeship
- Leading local efforts to engage employers in apprenticeship
- Helping employers join, build, or register apprenticeship (or pre-apprenticeship) programs, often in combination with community colleges or industry associations
- Serving as liaisons between state or federal apprenticeship offices and employers (and colleges) building new apprenticeship programs or offering incentives (for example, tax credits)
- Training and assisting AJC program staff on apprenticeship and how to engage their clients in apprenticeship opportunities
- Leading efforts to register their own organizations as sponsors (and/or designated navigators or intermediaries)

Prior to the SAE grant, **Arkansas** had been working to boost the quality and consistency of business services by providing more guidance, tools, and structure for BSRs. Adding apprenticeship to BSRs' portfolio of services also required them to become knowledgeable on this training strategy. The state contracted a consultant to develop high-quality training, technical assistance, and resources, and to conduct paired employer visits so that BSRs could build their employer engagement skills and learn how to introduce apprenticeship more confidently. The state also used existing structures like the statewide WIOA Business Engagement Committee to offer events and training on apprenticeship and related topics. While local BSRs promote apprenticeship to businesses, state apprenticeship staff can focus on supporting employers in developing and registering programs.

- Helping to integrate apprenticeship using the key levers—co-enrollment, ITA support for apprenticeship, inclusion of RA programs in states' ETP lists—and building organizational capacity to support apprenticeship
- Developing strategies for solving common challenges (for example, engaging small businesses, building apprenticeship programs in rural communities, or launching apprenticeship efforts in nontraditional industries and occupations)

However, some concerns were expressed about the BSR role in apprenticeship. Two states specifically reported limiting the role of BSRs over time as challenges emerged. These states either perceived apprenticeship as a technical specialty that BSRs should not be expected to master or expressed concern about misaligned incentives (for example, apprenticeship is about getting employers to invest in long-term talent development, and most of the tools BSRs offer are short-term incentives to train people for jobs). One state apprenticeship office respondent said of BSRs, "They do the opposite of what we're trying to do."

Colorado offered a potentially useful approach to these issues. AJCs were key partners in the early implementation of the SAE grant in Colorado. They were involved in all aspects of employer engagement, program development, and registration, generally through the BSRs. But the state found that the BSRs "wear too many hats" to serve as apprenticeship intermediaries in all local areas as the state had originally envisioned. Going forward, select AJCs will operate as "hubs" of apprenticeship activity, taking a lead role on behalf of peer organizations in their areas or regions. Two (new) apprenticeship consultants will support these centers in developing and managing apprenticeship programs.

VII. State Efforts to Promote Diversity in RA

Although 13 states reported that increasing equity and diversity in their apprenticeship programs was a top priority, many more actively recruited potential apprentices from underrepresented groups. RA models can be instrumental in helping underrepresented workers transition into high-quality jobs; the apprenticeship model can reduce the opportunity cost of higher education and provide career pathway opportunities to middle-skill and high-skill jobs. Intermediaries can support sponsors with targeted recruitment and wraparound services for underrepresented apprentices.

A. Focusing on specific populations

Consistent with OA's goal of recruiting a diverse pipeline of apprentices, 26 of the 34 states interviewed reported actively conducting outreach to underrepresented or underserved populations. Nineteen states mentioned focusing on specific populations such as youth, veterans, individuals with disabilities, and women (Table VII.1). Youth were the most common focus, with 9 states focusing on youth enrolled in high school for apprenticeship or pre-apprenticeship, and 1 state focusing on outreach to foster care youth through nonprofits.

Race and ethnicity were also considered in targeted outreach by some grantees. Three states reported specifically recruiting Hispanic populations. Two states focused on Native American populations; Montana used cap breaker funding to help tribal colleges develop their own RA programs. Specifically, the funding was used for a new Apprenticeship Equity Director, local demonstration projects, and training subsidies to employers. Montana has partnered with seven Indian Nations, five of which have set up pre-apprenticeship and RA programs.

Table VII.1. Underrepresented groups focused on by SAE states

	Number of states focusing on group for apprenticeship
Youth	9
Women	8
Individuals with disabilities	6
Veterans	4
Hispanic	3
Native Americans	2
Reentering citizens	2
Rural job seekers	1

Source: SAE grantee interviews, 2020.

Note: Based on reports of 19 states; states could report targeting more than one group.

B. Characteristics of participants served under SAE grants

According to the quarterly reports submitted by SAE states to DOL as of December 31, 2019, they served 158,663 participants. Appendix Table A.3 provides the characteristics of participants served by state. Just under 150,000 of these participants were counted as registered apprentices and pre-apprentices. These reports allowed us to look at the characteristics and diversity of participants served. They provided data to examine five characteristics (Table VII.2):

- **Gender.** Thirteen percent of participants self-identified as female. The percentage of females served varied by state, from as low as 5 percent in one state to 76 percent in another. The three states with the highest percentages of female participants served were Alaska, Connecticut, and Ohio.

- **Age.** The majority (63 percent) of participants served by the grant were ages 25 to 54, and 34 percent were ages 16 to 24 years. For approximately two-thirds of the grantees, more participants between the ages of 25 to 54 were served than those in the youngest age group. In the other states, the youngest age group was the largest percentage of participants. The oldest age group, those 55 years and older, represented the smallest percentage of participants in all states but made up 10 percent or more of the participants in four states.
- **Disability.** One percent of participants self-identified as having a disability. The two states that served the largest percentage of participants with disabilities were Arkansas (29 percent) and Texas (10 percent).
- **Veteran status.** Five percent of participants self-identified as veterans, with state tallies ranging from no veterans to 24 percent. The three states with the largest percentages included Texas (24 percent), Arkansas (19 percent), and Idaho (14 percent).
- **Race and ethnicity.** Thirty-nine percent of the participants self-reported as Hispanic, ranging across states from 1 percent to 55 percent in California, which served more than 90 percent of all Hispanics served by states under the SAE grants (state shares of each category not shown in Table VII.2). Thirty-nine percent of the participants self-reported as White and 12 percent self-reported as Black/African American. Some states reported serving relatively high percentages of Black participants, including Illinois (74 percent), Mississippi (57 percent), and Maryland (51 percent).

Table VII.2. Characteristics of participants and apprentices

Characteristic	SAE grants in 2019	RAPIDS states in 2016
Female	13%	7%
Age		
16–24	34%	N/A
25–54	63%	N/A
55+	2%	N/A
Disability	1%	N/A
Veteran	5%	N/A
Race and ethnicity		
White	39%	58%
Hispanic	39%	23%
Black/African American	12%	14%
Asian	3%	2%
Native Hawaiian/Other Pacific Islander	2%	2%
Native Indian/Alaska Native	1%	1%
Unknown	4%	N/A

Source: SAE grants reflect participants served based on grantee reports as of December 31, 2019. Data by state are available in Appendix Table A.3. RAPIDS data are based on calculations presented in Kuehn 2017 and represent new apprentices registered in 2016.

Note: For SAE grants, data on characteristics were not available for all participants across all categories, so figures might not total 100 percent. Total number of SAE participants, including those for whom characteristics were missing, is 158,663. Total number of new apprentices in RAPIDS states is 113,988.

N/A = not available.

Although data on the characteristics for registered apprentices before the grants began were not available for the grantees, we compared some characteristics[19] of the participants served under SAE to historical information from RAPIDS for 2016 across all RAPIDS-reporting states, as reported in a study by Kuehn (2017). This information is also presented in Table VII.2. It should be noted that the RAPIDS data in 2016 included 33 states; some states in RAPIDS are not SAE grantees, and only a subset of the SAE grantees were in RAPIDS at that time. In addition, these comparisons should be considered with caution, because the individuals in RAPIDS were all apprentices, while the numbers reported for SAE grantees included both apprentices and pre-apprentices. A number of grantees noted that pre-apprenticeship programs were a key strategy in increasing diversity within apprenticeship, and the characteristics of pre-apprentices may be driving some statistics. Although these comparisons are provided only to provide some context for understanding who the SAE grants served, they suggest that SAE participants may be more diverse than apprentices before the grants:

- The proportion of SAE participants who were female, 13 percent, was higher than the estimated 7 percent of women RA included in RAPIDS in 2016.
- The proportion of SAE participants who were Hispanic, 39 percent, was higher than the 23 percent of Hispanics in RA in RAPIDS in 2016.
- The proportion of SAE participants who were Black, 12 percent, is lower than the 14 percent of Blacks in RA in RAPIDS data in 2016.
- The proportion of SAE participants who were White, 39 percent, is lower than the 58 percent of Whites in RA in RAPIDS in 2016.
- The proportion of Asian, Native Hawaiian and other Pacific Islander, and Native Indian and Alaska Native participants was similar to RAPIDS data in 2016.

While we were unable to look at how SAE participants compared to apprentices before the grant in terms of disability or veteran status, the relatively high percentages of these individuals served in certain states, such as Arkansas and Texas, suggest that it would be worth taking a more in-depth look at how these states approached recruiting and placing these populations in apprenticeships. Similarly, it may be valuable to explore how states that were more successful at recruiting women approached their recruitment and partnerships. We discuss some findings based on analysis of data across grantees below, but further research would be necessary to understand the strategies of individual states in more detail.

C. Reaching underrepresented groups

SAE states found creative ways to reach underrepresented groups and tackle some of the challenges associated with recruitment of and outreach to populations not traditionally represented in apprenticeship programs.

1. Tailored messaging

Nine states reported the importance of tailoring their messaging and approach to address the barriers to access for underrepresented groups. Dismantling misconceptions can go a long way in encouraging more people to apply for apprenticeship, including underrepresented groups. One state targeted outreach to

[19] Information on age, disability, and veteran status was not available in Kuehn (2017).

women by bringing women journey workers (more experienced professionals) to events and addressing the need for greater representation of women in the building trades. Targeted outreach has allowed three states to make great strides in their ability to increase apprentices from diverse backgrounds. One state attributed a 58 percent increase in people of color participating in RA to its program, in part due to outreach events and targeted marketing.

2. Strategic partnerships and networks

A promising practice to increasing diversity was to create working relationships and partnerships with organizations that serve these groups. Twelve states reported engaging in partnerships to improve their outreach and recruit hard-to-serve groups. Seven states worked with their vocational rehabilitation departments to increase recruitment of people with disabilities. One state reported significant uptake in their recruitment after targeted referral from their vocational rehabilitation department. The college system in one state offered "information nights" in Spanish in order to target Spanish-speaking parents and students. In contrast, states that lacked networks for specific groups and relevant data had a harder time increasing access for underserved populations. One state respondent mentioned how the apprenticeship division works in silo from other departments, making it difficult to reach out to agencies that support underrepresented groups. Two states attributed a lack of experience recruiting underrepresented groups or lack of awareness of how underrepresented groups get information with amplifying the difficulties associated with outreach.

D. Supporting diverse apprentices

To support diversity and inclusion in the apprentice population, states also credited efforts such as increasing access to opportunities and supporting completion of apprenticeship programs.

1. Increasing access to apprenticeship opportunities

States described three main strategies to increase placement of underrepresented groups into apprenticeship programs:

- **Career readiness services.** Twelve states described using apprenticeship readiness programs as a possible solution for increasing apprentices from underserved communities, seven of which were targeted towards youth. One state described how it was using career readiness programs to prepare adult participants for the health care workforce and to explore possible career pathways. Another state included soft skills training as part of readiness services.
- **Pre-apprenticeships.** While most SAE grantees developed pre-apprenticeships, a few states created specialized pre-apprenticeships programs for underrepresented groups. Eight states reported having pre-apprenticeships targeting youth, three states reported pre-apprenticeships for communities of color, and two states mentioned pre-apprenticeships for women. One state described setting up a seven-week pre-apprenticeship program for women in construction trades. At the end of the program, case managers follow up

"Setting up a pre-apprenticeship program for women in the construction trades has been the most promising to both expanding apprenticeship and for reaching out to underrepresented populations."

—State respondent

with completers. The state reported this program was successful and most of the women were placed into apprenticeship programs.

- **Outreach to employers.** As mentioned elsewhere in this report, states reported that some employers may lack understanding about apprenticeships, which makes it difficult for them to diversify their apprentices and workforce. One state respondent explained that employers might be unaware of how to increase diversity within their workforce. Employers may also have misconceptions about individuals with disabilities and their participation in the workforce. One state specifically described how individuals with disabilities might have a harder time entering specific occupations because there is a misunderstanding on the part of employers on how to properly accommodate them. Three states described reaching out to employers and educating them as a remedy for addressing possible misconceptions. For example, teaching employers that even though potential apprentices may have a disability, it may not impact their ability to perform the job. Addressing these basic misconceptions can improve employers' receptiveness for inclusion and their ability to hire more diverse workers.

2. Supporting completion of apprenticeship

Lack of support systems can hurt retention and completion rates for underrepresented groups once they are in a program. Two approaches reported by states to support them included:

- **Supportive services.** Generally, states reported a need for supportive services that address the barriers target groups may face, including transportation, child care, and the cost of work-related tools.
- **Mentorship.** Wisconsin reported having a higher cancellation rate of RAs among underrepresented groups. To address this challenge, it created an RA mentor program in construction. The mentoring program was designed to decrease attrition rates and help women and people of color feel more included in a predominantly White-male–dominated industry.

"Some of the barriers facing people from underserved communities are the need for childcare, transportation, those things are universal to the workforce all around. If you're in a community that has issues accessing those services, you'd have issues with apprenticeship."

—State respondent

The case of Minnesota: A meaningful connector

The Minnesota Department of Labor and Industry implemented several strategies that may lead to positive results in promoting diversity and inclusion in apprenticeships. From the early stages of the grant, Minnesota envisioned its goal as facilitating greater diversity in apprenticeships and increasing participation of people of color and women. Diversity and inclusion were an integral part of the overall functioning and implementation of the RA program, from training their field representatives on Diversity Equity and Inclusion, to creating a pipeline for women and people of color, to changing how they talk with employers.

Minnesota was able to address this goal by positioning state staff as "meaningful connectors". The state intended for connectors to be bridge builders between existing sponsors and community-based organizations to help meet their diversity recruitment goals. As meaningful connectors, they worked to build partnerships and think strategically about ways to increase access for underrepresented groups. They used four strategies:

1. **Employer survey.** Minnesota conducted targeted outreach to underrepresented communities by exploring information sources that influence those communities. Minnesota asked employers questions about their own outreach efforts, such as where they announce job openings and how often, to better understand how they are reaching underrepresented populations. The findings from this survey informed Minnesota's approach to recruitment needs of their program.
2. **Local organizations.** Minnesota matched sponsors with organizations that serve diverse communities to help widen employer's recruitment goals. In addition to this matching process, Minnesota also contracted with various entities and intermediaries, such as trade organizations, schools, industry associations, and workforce development boards, to recruit specific populations. Partnerships have also been meaningful in supporting marketing efforts by contracting with organizations that work with communications and marketing. Through the use of marketing and communication consultants, Minnesota was able to develop social media campaigns and videos to strengthen their brand by targeting employers, potential apprentices, and those that influence future apprentices.
3. **Demographic data.** State staff conducted presentations to employers with a demographer present to convey demographic trends and other labor market information to help them understand the need for information. Rather than using a traditional diversity and inclusion lens, this approach helped to persuade employers of the value of hiring diverse apprentices from an economic standpoint.
4. **Pre-apprenticeships.** Minnesota tried to increase pathways and supports for people of color and women through pre-apprenticeship programs. The pre-apprenticeship programs were operated by organizations that are sponsors of existing RA programs and helped them build a recruitment pipeline into their RA programs.

VIII. Lessons Learned from Expanding Apprenticeship

Looking across the interviews with state staff, it is clear that the SAE grants were an important factor in strengthening the capacity of states to promote, establish, and expand registered apprenticeship. The interviews also make clear that states plan to continue on this path of growing the apprenticeship system, adapting their approaches based on what they learned implementing the grant, and trying new strategies and partnerships as they move forward. In this chapter we discuss changes states are planning to make as they continue to work on expansion, how states are responding to changes in the regulation of apprenticeship programs, and lessons learned for future federal investments in RA.

A State plans for continued expansion

When asked what plans they have for their apprenticeship work going forward, states reported efforts to continue expanding the number of programs and apprentices in new and traditional industries. All but five states will continue working on apprenticeship with funding from the ASE grant. States also mentioned strategies to strengthen the apprenticeship system, including developing the technology and infrastructure to make program development easier, connecting employers to apprentices faster, and further embedding RA within existing systems. Examples of activities that states are conducting or exploring to continue growing RA include the following:

- Developing smartphone applications that would make it easier for sponsors to search for potential apprentices and vice versa.
- Developing "apprenticeship pathway programs" that would help employers make the transition to RA. Pathway programs involve creating a pilot program that would incorporate some elements of a traditional RA program, usually with subsidized training. Once the employer is able to see the benefits of the pilot, the state would encourage them to transition to an RA program.
- Working to increase the number of four-year universities that provide apprenticeship training, as these types of programs offer the opportunity for advanced credentials.
- Working with other state agencies to determine where they can incorporate RA into contracts for services, including jobs for workforce development specialists. The construction industry has RA built into public works contracts, and states hope to use that model in other occupations and to come up with new policies that could increase access for underrepresented groups.
- Surveying existing sponsors to gather feedback on how to improve the sponsorship process and meet sponsors' needs. That feedback could inform technical assistance for sponsors on topics such as mentorship and recruitment of a diverse workforce.

B. State perspectives on Industry-Recognized Apprenticeship Programs

At the time that interviews with states were conducted in early 2020, DOL was working on a proposed rule to amend the labor standards for the registration of apprenticeship programs by allowing the establishment of Industry-Recognized Apprenticeship Programs (IRAPs), which would be unregistered apprenticeships approved by third-party Standards Recognition Entities (SREs). The motivation for this amendment was to facilitate greater application of the apprenticeship model outside of the registered system. The final rule has since gone into effect and DOL has begun accepting applications from

proposed SREs in industries other than construction. States and local governments are eligible to apply to become SREs, and states can support IRAP development in other ways as well. States can set policy regarding the placement of IRAPs on ETP lists, eligibility for tax credits, and allocation of state set-asides or other discretionary grants to support development of IRAPs.

Although there are similarities between IRAPs and RA programs, states had different perspectives on how IRAPs would affect their apprenticeship expansion efforts. States either did not plan to focus on IRAPs, needed more information on IRAPs before they could decide an approach, or were planning to incorporate IRAPs into their expansion efforts.[20]

No focus on IRAPs. Sixteen states did not have plans to integrate IRAPs into their existing apprenticeship expansion work. Four states reported IRAPs would not be a focus of their future apprenticeship efforts because they were concerned about a lack of parity between RA programs and IRAPs and that IRAPs would not be of similar quality to RA programs. States also expressed concern that IRAP credentials would not be transferable in the way that RA credentials are transferable across states, and adapting their infrastructure for a new type of apprenticeship model would be an added burden. One state felt that it lacked the structural or regulatory capacity to support IRAPs. For these 16 states, their focus continues to remain on RA and building on their efforts under the SAE grant.

Need more information about IRAPs. Six states did not have current plans to incorporate IRAPs but reported that they were continuing to keep apprised of national efforts. These states expressed interest in seeing how IRAPs will be regulated and how much guidance will be provided by DOL for IRAPs.

Plan to incorporate IRAPs. Seven states viewed IRAPs as "another tool" in the workforce development toolbox. The states reported being approached by LWDBs, industry associations, and businesses within their states about IRAPs. These entities were encouraging the state to consider how it can support development of IRAPs as an option for training. Two states reported that they are aware of national companies working to build IRAPs in their states, although the plans are still in their infancy.

C. Lessons learned for federal investments in RA

After the SAE grants end in October 2020, states will likely seek different sources of funding for the apprenticeship work that grew under the SAE grant program and, in many states, continued through the ASE grant. As the federal government considers additional investments in the RA system, we summarize several key takeaways from this report for apprenticeship expansion:

Investment helped to expand RA. Although only 13 of the 37 states had met their target of 15 percent growth in apprentices by December 2019, state staff in every state reported that the SAE grant had allowed them to expand their state's capacity in terms of staffing and knowledge around apprenticeship and elevated RA as a prominent and central workforce development strategy. With additional staff funded under the grant and new partnerships formed, grantees were able to develop more programs and build the pipeline for apprentices. They were able to expand even though a few states were unable to count apprentices served or programs developed toward the grant. It may be useful for states without a

[20] Five of the 34 states did not discuss IRAPs during their interviews.

comprehensive data system in place to establish such a system to enable them to document the success of their efforts for future funding and sustainability purposes.

Additional supports are still needed to develop capacity. OA state directors are critical supports for OA states in their efforts to expand apprenticeship. The capacity of OA staff to process registrations and their ability to provide technical assistance to state apprenticeship staff will affect how well states are able to realize growth in RA programs. Smoother registration processes will help address employer concerns about burdensome processes as well as enable state staff to devote more time to employer outreach. Access to data on existing apprenticeships and standards was also an issue for some states; ensuring all states have access to the data they need to engage with employers, and providing technical assistance on RAPIDS or other ways of tracking apprenticeship administrative data, could facilitate better planning and responsiveness on the part of states. At least 3 states have recently launched work-based learning and apprenticeship offices to consolidate staff, key partnerships, initiatives, and funding, and future research could explore how well this approach works to increase capacity in the system.

Support of policymakers is critical for ongoing growth. State-level leadership and initiatives around apprenticeship, including from governors and legislatures, provided a supportive environment for state apprenticeship staff, and facilitated work under the SAE grant. State leaders can sustain and further build upon and support apprenticeship work accomplished with these grant funds by allocating funding for specialized staff and consolidating apprenticeship staff and funding streams in a central department with a dedicated champion. State-level support also is important for encouraging LWDBs to make RA an integral part of their workforce services.

Intermediaries and the workforce development system are key partners in states' expansion efforts. Many states found that using intermediaries to deliver support to the apprenticeship system was cost effective, productive in terms of connecting employers to training and increasing access for underrepresented groups, and more sustainable than state staff working directly with employers. Intermediaries can build on their existing relationships with employers to help promote RA, and can be for-profit or community-based, non-profit entities. The workforce development system was also a key partner for states in their efforts to promote apprenticeship as a workforce strategy as well as for supportive services, and LWDBs and local staff were able to market apprenticeship and engage employers in their areas in support of states' efforts. States reported challenges, however, some stemming from the relative lack of experience and technical knowledge in apprenticeship on the part of local staff, and the focus of some services such as ITAs on short-term rather than long-term training. Having specialized apprenticeship staff to support local staff may alleviate some of these challenges. States also reported that employers may be looking to apprenticeship to upskill their own workers, while the workforce system is often looking for placements for job-seeker customers. Expansion efforts might highlight the multiple pathways through which apprenticeship can serve the needs of employers.

Pre-apprenticeship programs and education entities provide diverse pipelines for RA programs. Pre-apprenticeships were cited as an important tool in developing a pipeline for RA programs, and particularly for creating a diverse pool of work-ready candidates for employers to recruit. Encouraging funding and development of pre-apprenticeships might help support goals for increased diversity among apprentices. In addition, the experiences of states such as Arkansas and Texas that served high proportions of participants with a disability or veteran status could provide valuable lessons for increasing access for these populations. High schools, community colleges, and career technical schools were an important source of apprentice outreach and a common partner for services to support apprentices. States

would benefit from best practices on working with high schools and high school students, as well as other avenues for recruiting youth and adults to apprenticeship.

States weighed the costs and benefits of their investments in training and program development. More states preferred funding RTI to paying for wages for OJT, reflecting that it was important for the success and sustainability of the apprenticeship program that employers invest in the training and mentorship offered through the program. At the same time, states reported that the development of standards for small businesses was cost prohibitive, given the staff resources involved. Strategies to develop programs more quickly and at lower cost would support the expansion of apprenticeship to a wider range of employers and to rural areas where many employers are small businesses. One possible strategy would be to develop a central hub of state and federal repositories of work processes and standards.

Overcoming employers' misconceptions about RA remains a significant challenge. Campaigns at the national level to dispel employer-held myths about apprenticeship, such as that RA is only for the construction industry, could remove or decrease the extent that states face those barriers in their work. The use of experienced sponsors as champions and advocates for apprenticeship was reported as effective at gaining other employers' trust, and there are many large companies that work across states and have deep experience with apprenticeship that could be featured in such campaigns.

In the four years since the first SAE grants were awarded, state agencies learned many lessons about developing programs and expanding the apprenticeship system. They reported that the grants also helped them elevate RA as a central workforce development strategy, and most states will continue working to expand apprenticeship with funding from the ASE grant. Although each states' context and major players are different, the common lessons and practices highlighted in this report can help to inform future efforts to expand apprenticeship.

References

Education Strategy Group. “The Critical Role of Intermediary Organizations in Expanding Youth Apprenticeship.” Chevy Chase, MD: Education Strategy Group, 2019. Available at http://edstrategy.org/wp-content/uploads/2019/11/ESG-Youth-apprenticeship-12092019-update.pdf. Accessed June 2, 2020.

Helper, Susan, Ryan Noonan, Jessica Nicolson, and David Langdon. The Benefits and Costs of Apprenticeship: A Business Perspective. Washington, DC: U.S. Department of Commerce, November 2016.

Hollenbeck, Kevin, and Wei-Jang Huang. 2016. "Net Impact and Benefit-Cost Estimates of the Workforce Development System in Washington State." Upjohn Institute Technical Report No. 16-033. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research. https://doi.org/10.17848/tr16-033

Daniel Kuehn. “Diversity and Inclusion in Apprenticeship Expansion: Lessons from South Carolina.” Washington, DC: Urban Institute, 2017.

Lerman, Robert, and Daniel Kuehn. “Assessment of National Industry Intermediaries’ and National Equity Partners’ Efforts to Expand Apprenticeship Opportunities.” Princeton, NJ: Mathematica, forthcoming.

Muehlemann, S., & Wolter, S. (2014). "Return on investment of apprenticeship systems for enterprises." IZA Journal of Labor Policy 3(25): 1-22.

Nightingale, D., (2017). “Job Training and the Workforce Development System,” Testimony before the House Committee on Appropriations, Labor, Health and Human Services, Education and Related Agencies

Reed, Debbie, Albert Yung-Hsu Liu, Rebecca Kleinman, Annalisa Mastri, Davin Reed, Samina Sattar, and Jessica Ziegler. “An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeships in 10 States.” Oakland, CA: Mathematica Policy Research, July 2012.

Rosenberg, Linda, and Rebecca Dunn. “Registered Apprenticeship: A Descriptive Study of States’ Systems and Growth.” Princeton, NJ: Mathematica, forthcoming.

Sullivan, Myriam Milfort. “Seven Ways Intermediaries Help Develop Apprenticeship Programs.” Boston, MA: Jobs for the Future, 2016. Available at https://www.jff.org/points-of-view/seven-ways-intermediaries-help-develop-apprenticeship-programs/. Accessed June 2, 2020.

U.S. Department of Labor. “The Workforce Innovation and Opportunity Act: Advancing Apprenticeship as a Workforce Strategy.” Washington, DC: U.S. Department of Labor, n.d. Available at https://www.dol.gov/apprenticeship/docs/WIOA-RA-Fact-Sheet.pdf. Accessed June 2, 2020.

U.S. Department of Labor. “Notice of Availability of Funds and Funding Opportunity Announcement for: ApprenticeshipUSA State Expansion Grant. Funding Opportunity Number FOA-ETA-16-13.” Washington, DC: U.S. Department of Labor, 2016. Available at https://doleta.gov/grants/pdf/FOA-ETA-16-13.pdf.

U.S. Department of Labor. "Guidance on Registered Apprenticeship Provisions and Opportunities in the Workforce Innovation and Opportunity Act (WIOA)." Washington, DC: U.S. Department of Labor, 2017. Available at https://wdr.doleta.gov/directives/attach/TEGL/TEGL_13-16.pdf. Accessed June 2, 2020.

U.S. Department of Labor. "State Apprenticeship Expansion Grants: Frequently Asked Questions," Washington, DC: U.S. Department of Labor, March 2019.

APPENDIX A
State Apprenticeship Expansion Grant Information, by State

This page has been left blank for double-sided copying.

Table A.1. Characteristics of SAE states

State	OA or SAA state	Grant recipient	Staff working on RA	Staff funded by SAE grant	Industry focus								Select other apprentice-ship grants	Grantee is workforce system lead
					Manufacturing	Health care/Biotech	Information technology	Construction	Hospitality/Tourism	Transportation	Energy/Utilities	Other		
Alaska	OA	Alaska Department of Labor and Workforce Development	2	0.5		✓						Aviation	AAI, ASE	Yes
Arkansas	OA	Arkansas Division of Workforce Services	4	3	✓		✓	✓		✓		Aerospace	AAI	Yes
California	OA	California Department of Industrial Relations	70	4	✓	✓	✓			✓			AAI	No
Colorado	OA	Colorado Department of Labor and Employment	3.25	1.25	✓	✓	✓	✓				Business services	ASE	Yes
Connecticut	SAA	Connecticut Department of Labor	~8.5	1.5				✓			✓	Aerospace, aviation	AAI, ASE	Yes
Delaware	SAA	Delaware Department of Labor	4	2	✓	✓	✓	✓	✓			Automotive	ASE	Yes
Florida	SAA	Florida Department of Economic Opportunity	N/A	N/A	✓	✓	✓	✓					ASE	Yes
Guam	SAA	Guam Department of Labor	6	~1.5		✓	✓	✓	✓				ASE	Yes
Hawaii	SAA	Hawaii Department of Labor and Industrial Relations	N/A	.62		✓		✓	✓				AAI	Yes
Idaho	OA	Idaho Department of Labor	8	0	✓	✓	✓				✓		ASE	Yes

State	OA or SAA state	Grant recipient	Staff working on RA	Staff funded by SAE grant	Industry focus: Manufacturing	Health care/Biotech	Information technology	Construction	Hospitality/Tourism	Transportation	Energy/Utilities	Other	Select other apprentice-ship grants	Grantee is workforce system lead
Illinois	OA	Illinois Department of Commerce and Economic Opportunity	~15	2	✓	✓	✓	✓		✓			ASE	Yes
Indiana	OA	Indiana Department of Workforce Development	7.5	2.5	✓	✓	✓						ASE	Yes
Iowa	OA	Iowa Workforce Development	4.4	1	✓	✓	✓	✓			✓	Business services	ASE	Yes
Kansas	SAA	Kansas Department of Commerce	N/A	N/A									ASE	Yes
Kentucky	SAA	Kentucky Education and Workforce Development Cabinet	3	3	✓	✓	✓		✓	✓			ASE	Yes
Louisiana	SAA	Louisiana Workforce Commission	N/A	N/A									ASE	Yes
Maryland	SAA	Maryland Department of Labor	N/A	0	✓	✓	✓	✓	✓	✓		Agriculture	ASE	Yes
Massachusetts	SAA	Executive Office of Labor and Workforce Development	N/A	2.5	✓	✓			✓			Education, human services	AAI,* ASE	Yes
Michigan	OA	Michigan Department of Labor and Economic Opportunity	7–8	1	✓	✓	✓	✓				Agriculture	ASE	Yes
Minnesota	SAA	Minnesota Department of Labor and Industry	11	2	✓		✓	✓	✓	✓		Agriculture	AAI,* ASE	No
Mississippi	OA	Mississippi Department of Employment Security	7	2	✓							Automotive	ASE	Yes

State	OA or SAA state	Grant recipient	Staff working on RA	Staff funded by SAE grant	Industry focus								Select other apprentice-ship grants	Grantee is workforce system lead
					Manufacturing	Health care/Biotech	Information technology	Construction	Hospitality/Tourism	Transportation	Energy/Utilities	Other		
Missouri	OA	Missouri Department of Higher Education and Workforce Development	3	1	✓	✓							ASE	Yes
Montana	SAA	Montana Department of Labor & Industry	12	7	✓	✓	✓	✓			✓	Finance	Other	Yes
Nevada	SAA	Governor's Office of Workforce Innovation	10	4.5	✓	✓	✓		✓	✓	✓	Gaming and entertainment	N/A	No
New Hampshire	OA	Community College System of New Hampshire	N/A	3.5	✓	✓	✓						ASE	No
New Mexico	SAA	New Mexico Department of Workforce Solutions	N/A	3	✓								ASE	Yes
New York	SAA	New York State Department of Labor	N/A	N/A									ASE	Yes
North Carolina	SAA	NC Community College System	21	8.5	✓	✓	✓			✓			ASE	No
Ohio	SAA	Ohio Department of Job and Family Services	N/A	12	✓								ASE	Yes
Oregon	SAA	Oregon Employment Department	25	6.75								Determined by each local workforce board	AAI, ASE	Yes
Pennsylvania	SAA	Pennsylvania Department of Labor and Industry	5	~5	✓	✓				✓			ASE	Yes
South Carolina	OA	SC Technical College System	N/A	1.5	✓	✓	✓	✓	✓	✓		Education, professional services	AAI,* ASE	No

State	OA or SAA state	Grant recipient	Staff working on RA	Staff funded by SAE grant	Industry focus								Select other apprentice-ship grants	Grantee is workforce system lead
					Manufacturing	Health care/Biotech	Information technology	Construction	Hospitality/Tourism	Transportation	Energy/Utilities	Other		
South Dakota	OA	South Dakota Department of Labor and Regulation	N/A	1.5	✓	✓		✓					ASE	Yes
Texas	OA	Texas Workforce Commission	N/A	3.4	✓	✓	✓				✓	Aerospace	ASE	Yes
Vermont	SAA	Vermont Department of Labor	3	1.5	✓	✓	✓					Business services	AAI, ASE	Yes
Washington	SAA	Washington State Department of Labor and Industries	18	3	✓	✓					✓	Education, public sector	AAI, ASE	No
Wisconsin	SAA	Wisconsin Department of Workforce Development	30–35	2		✓		✓				Financial services	AAI, ASE	Yes

Source: Grantee interviews for 34 states (excluding Kansas, Louisiana, and New York) and quarterly performance reports.

*AAI grant awarded to same agency but different division.

AAI = American Apprenticeship Initiative grant; ASE = Apprenticeship State Expansion grant; OA = Office of Apprenticeship; N/A = not available; RA = registered apprenticeship; SAA = State Apprenticeship Agency.

Table A.2. State Apprenticeship Expansion grant baseline, target, and reported outcomes

State	Number of apprentices					Number of programs						New businesses engaged
	In 2016 (baseline)	5% of baseline target[a]	15% of baseline target[b]	Added by grant as of December 2019	Target met	In 2016 (baseline)	5% of baseline target	15% of baseline target	Added by grant as of December 2019	Target met	Expanded by grant as of December 2019	
Alaska	1,949	100	292	207	5%	330	17	50	7	None	36	43
Arkansas	4,489	224	673	158	None	88	4	13	6	5%	6	126
California	68,448	3,422	10,267	103,151	15%	229	11	34	153	None	432	647
Colorado	4,968	248	745	469	5%	204	10	31	17	5%	23	312
Connecticut	6,103	305	915	144	None	1,540	77	231	4	None	5	0
Delaware	986	100	200	668	15%	294	15	44	212	15%	195	212
Florida	9,040	452	1,356	28	None	199	10	30	56	15%	38	337
Guam	553	100	200	193	5%	109	5	16	18	15%	5	9
Hawaii	7,841	392	1,176	505	5%	47	2	7	23	15%	20	469
Idaho	988	100	200	359	15%	93	5	14	103	15%	3	652
Illinois	13,754	688	2,063	103	None	486	24	73	67	5%	0	339
Indiana	12,406	620	1,861	480	None	880	44	132	45	5%	111	410
Iowa	7,121	356	1,068	1,193	15%	712	36	107	47	5%	10	218
Kansas	1,780	100	267	780	15%	229	11	34	69	15%	41	1,229
Kentucky	2,422	121	363	7,324	15%	148	7	22	152	15%	53	650
Louisiana	3,513	176	527	391	5%	44	2	7	21	15%	9	66
Maryland	8,441	422	1,266	982	5%	134	7	20	63	15%	68	237
Massachusetts	8,162	408	1,224	271	None	1,308	65	196	38	None	16	126
Michigan	11,785	589	1,768	1,647	5%	928	46	139	65	5%	98	1,037
Minnesota	11,310	566	1,697	1,742	15%	210	11	32	23	5%	7	133
Mississippi	1,943	100	291	0	None	97	5	15	10	5%	2	231
Missouri	12,328	616	1,849	2,784	15%	409	20	61	65	15%	62	695
Montana	1,352	100	203	2,380	15%	710	36	107	304	15%	904	1,486
Nevada	2,833	142	425	0	None	81	4	12	1	None	0	272

State	Number of apprentices					Number of programs						New businesses engaged
	In 2016 (baseline)	5% of baseline target[a]	15% of baseline target[b]	Added by grant as of December 2019	Target met	In 2016 (baseline)	5% of baseline target	15% of baseline target	Added by grant as of December 2019	Target met	Expanded by grant as of December 2019	
New Hampshire	2,051	103	308	181	5%	296	15	44	21	5%	13	222
New Mexico	1,292	100	200	0	None	34	2	5	0	None	0	0
New York	15,780	789	2,367	9,878	15%	687	34	103	289	15%	1,795	591
North Carolina	4,312	216	647	1,245	15%	510	26	77	244	15%	48	496
Ohio	16,237	812	2,436	1,592	5%	926	46	139	51	5%	89	818
Oregon	7,878	394	1,182	76	None	155	8	23	1	None	16	22
Pennsylvania	14,088	704	2,113	0	None	724	36	109	163	15%	0	92
South Carolina	6,287	314	943	85	None	795	40	119	0	None	0	4
South Dakota	635	100	200	409	15%	96	5	14	22	15%	8	204
Texas	12,680	634	1,902	2,119	15%	399	20	60	37	5%	64	640
Vermont[c]	1,188	100	200	67	None	329	16	49	4	None	15	14
Washington	11,196	560	1,679	870	5%	180	9	27	12	5%	4	404
Wisconsin	8,424	421	1,264	299	None	946	47	142	112	5%	5	116
Total	306,563	15,694	46,338	142,780		15,586	779	2,338	2,525		4,201	13,559

Source: SAE Grantee quarterly performance reports as of December 31, 2019 unless otherwise noted.

[a] If 5 percent of baseline is less than 100 apprentices, target is 100.

[b] If 15 percent of baseline is less than 200 apprentices, target is 200.

[c] Data for Vermont is as of June 2019, the most recent data available to the study team.

Table A.3. Characteristics of participants served by SAE grantee states

State	Total Participants	Female	Disability	Veterans	Age			Race and ethnicity					
					Age 16–24	Age 25–54	Age 55+	White	Hispanic	Black/African American	Asian	Native Hawaiian/ Other Pacific Islander	Native Indian/Alaska Native
Alaska	207	76%	1%	4%	19%	71%	11%	36%	4%	0%	14%	2%	45%
Arkansas	336	18%	29%	19%	54%	40%	5%	66%	11%	14%	1%	2%	1%
California	103,151	8%	0%	4%	30%	68%	2%	30%	55%	9%	3%	2%	1%
Colorado	1,055	22%	4%	5%	62%	35%	3%	33%	18%	6%	3%	1%	4%
Connecticut	144	76%	0%	1%	33%	67%	0%	75%	8%	6%	8%	1%	0%
Delaware	795	6%	1%	4%	41%	58%	1%	60%	15%	11%	0%	0%	1%
Florida	1232	13%	7%	6%	49%	50%	2%	63%	28%	25%	1%	0%	2%
Guam	517	38%	0%	6%	31%	63%	0%	2%	26%	1%	26%	59%	1%
Hawaii	587	56%	2%	3%	29%	66%	14%	9%	13%	4%	47%	22%	2%
Idaho	359	32%	1%	14%	33%	55%	12%	34%	4%	1%	1%	1%	1%
Illinois	120	29%	4%	9%	14%	78%	8%	18%	10%	74%	0%	0%	0%
Indiana	3,792	25%	1%	1%	63%	35%	1%	35%	10%	50%	0%	0%	0%
Iowa	1,193	18%	1%	10%	21%	73%	6%	72%	5%	21%	1%	1%	1%
Kansas	1,856	7%	0%	7%	46%	53%	1%	77%	5%	6%	1%	0%	1%
Kentucky	4,411	18%	0%	12%	46%	40%	2%	47%	1%	6%	0%	0%	0%
Louisiana	399	14%	0%	9%	37%	62%	1%	62%	4%	17%	1%	0%	2%
Maryland	1,402	26%	3%	5%	37%	57%	5%	39%	10%	51%	3%	0%	0%
Massachusetts	271	46%	2%	3%	21%	72%	3%	34%	20%	13%	1%	3%	1%
Michigan	2,001	21%	4%	8%	36%	63%	2%	75%	4%	14%	1%	0%	1%
Minnesota	1,892	12%	1%	7%	38%	62%	0%	65%	11%	13%	7%	0%	3%
Mississippi	1,704	17%	0%	7%	32%	65%	3%	37%	2%	57%	1%	0%	1%
Missouri	2,921	34%	3%	4%	25%	64%	9%	48%	4%	8%	1%	0%	1%

State	Total Participants	Female	Disability	Veterans	Age			Race and ethnicity					
					Age 16–24	Age 25–54	Age 55+	White	Hispanic	Black/African American	Asian	Native Hawaiian/ Other Pacific Islander	Native Indian/Alaska Native
Montana	2,380	19%	1%	9%	38%	59%	2%	79%	3%	1%	0%	0%	4%
Nevada[a]	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
New Hampshire	203	58%	5%	6%	33%	56%	10%	91%	7%	5%	3%	0%	0%
New Mexico[a]	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
New York	9,148	11%	0%	8%	36%	63%	1%	68%	17%	21%	2%	1%	2%
North Carolina	6,783	29%	0%	7%	48%	49%	3%	65%	7%	17%	2%	0%	1%
Ohio	1,959	67%	0%	2%	41%	51%	8%	29%	1%	7%	1%	0%	0%
Oregon	560	55%	1%	1%	15%	71%	3%	63%	11%	45%	14%	3%	4%
Pennsylvania	1,606	15%	0%	4%	32%	55%	3%	72%	6%	11%	1%	1%	0%
South Carolina	1,146	30%	0%	0%	93%	0%	0%	50%	6%	33%	1%	0%	0%
South Dakota	835	5%	0%	0%	10%	2%	0%	6%	0%	0%	0%	0%	0%
Texas	2,119	16%	10%	24%	41%	58%	1%	50%	39%	14%	1%	0%	1%
Vermont[b]	168	43%	3%	4%	22%	73%	5%	45%	20%	14%	1%	4%	0%
Washington	870	58%	0%	3%	38%	58%	4%	59%	16%	6%	8%	1%	2%
Wisconsin	541	9%	1%	3%	26%	49%	2%	52%	4%	18%	1%	0%	1%
Total	**158,663**	**13%**	**1%**	**5%**	**34%**	**63%**	**2%**	**39%**	**39%**	**12%**	**3%**	**2%**	**1%**

Source: SAE grantee reports as of December 31, 2019.

Notes: Percentages of 0.49 or less are rounded down to 0 percent, so a state could have 1 or more participants in a category but a value of 0 percent.

[a] New Mexico and Nevada did not report any participants served by the grant.

[b] Vermont's data based on report as of June 30, 2019 because more recent data was not available.

This page has been left blank for double-sided copying.

Mathematica

Princeton, NJ • Ann Arbor, MI • Cambridge, MA
Chicago, IL • Oakland, CA • Seattle, WA
Tucson, AZ • Woodlawn, MD • Washington, DC

EDI Global, a Mathematica Company

Bukoba, Tanzania • High Wycombe, United Kingdom

mathematica.org