

Expanding Registered Apprenticeship in the United States

Description of American Apprenticeship Initiative Grantees and Their Programs



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About This Report

The U.S. Department of Labor (DOL) American Apprenticeship Initiative (AAI) provided funding to 46 grantees across the country to expand registered apprenticeship into new sectors, such as healthcare, and to populations underrepresented in apprenticeships. DOL commissioned an evaluation of the AAI grants to build evidence about the effectiveness of registered apprenticeship for apprentices and employers. This report presents implementation study findings. The primary data source is a Grantee Survey administered to all grantees approximately four years into their five-year grants, when grantees implemented most activities. The report documents the design and operation of the grantee apprenticeship programs and identifies potentially promising practices and challenges that can inform policy and program design.

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Contents

Glossary of Terms	xi
Executive Summary	ES-1
1. Introduction	1
1.1. Registered Apprenticeships	2
1.2. Overview of the American Apprenticeship Initiative and Implementation Study.....	4
1.2.1 AAI Grantee Survey	6
1.2.2 Site Visits	7
1.2.3 Quarterly Performance Report System Data	7
1.3. Overview of the Report.....	9
2. Characteristics of Grantees	10
2.1. Types of Grantees and Their Roles	10
2.2. Partnerships	13
2.3. Occupations of Registered Apprentices and Apprenticeship Programs.....	15
2.4. Grantee Target Populations	17
3. Engaging Employers	18
3.1. Sources for Recruitment of Employers.....	18
3.2. Grantee Use and Perceived Helpfulness of Approaches to Find Employers	19
3.3. Additional Grantee Strategies for Employer Recruitment.....	21
3.4. Employer Reservations about Apprenticeship	24
4. Apprenticeship Program Registration	26
4.1. Determining Occupations to Target for Registered Apprenticeship	26
4.2. Time to Register Apprenticeship Programs.....	29
4.3. Challenges to Registering Apprenticeship Programs	31
4.4. Grantee Roles in Registration	33
5. Identifying Apprentices	36
5.1. Grantees' Progress in Registering Apprentices	36
5.2. Grantee Recruitment and Screening of Apprentices.....	38
5.3. Characteristics of Registered Apprentices	41
6. Apprenticeship Components	43
6.1. Structure of and Advancement through Apprenticeship Programs	43
6.2. Related Technical Instruction	47
6.3. On-the-Job Learning	49
6.4. Credentials and College Credit	52
7. Pre-Apprenticeship Programs	55
7.1. Use of Pre-Apprenticeship Programs by AAI Grantees	55
7.2. Screening for Pre-Apprenticeship Programs.....	57
7.3. Characteristics of Pre-Apprentices.....	59
7.4. Content of Pre-Apprenticeship Programs.....	60
8. Support Services for Apprentices and Pre-Apprentices	62
9. Summary of Findings	65
9.1. Key Findings.....	65
9.2. Future Evaluation Reports.....	67

References..... 68

Appendix A: Overview of AAI Grantees..... 70

Appendix B: AAI Logic Model..... 77

Appendix C: Grantee Survey Detailed Occupations..... 78

Appendix D: Grantee Survey Supplemental Data Tables..... 80

List of Exhibits

Exhibit ES-1.	Distribution of Grantees' Registered Apprenticeship Programs and Registered Apprentices, by Occupational Field.....	ES-4
Exhibit ES-2.	New Programs versus Expansions, by Occupational Field	ES-5
Exhibit ES-3.	Prevalence of Use of Financial Supports or Incentives, by Grantees' Progress toward Their Apprentice Registration Target	ES-6
Exhibit ES-4.	Prevalence of Cited Challenges to Adoption of Apprenticeship, by Grantees' Progress toward Their Apprentice Registration Target	ES-7
Exhibit ES-5.	Characteristics of Registered Apprentices	ES-8
Exhibit ES-6.	Average Related Technical Instruction and On-the-Job Learning Hours, by Occupational Field.....	ES-9
Exhibit 1-1.	Distribution of Grantees' Progress toward Their Apprentice Registration Target	8
Exhibit 2-1.	Number of Grantees, by Grantee Type	10
Exhibit 2-2.	Prior Experience with Apprenticeship, by Grantee Type	11
Exhibit 2-3.	Grantees' Role in Sponsoring Registered Apprenticeship Programs, by Grantee Type	12
Exhibit 2-4.	Grantees' Role in Developing Registered Apprenticeship Programs	13
Exhibit 2-5.	Grantees' Partners	14
Exhibit 2-6.	Distribution of Grantees' Registered Apprenticeship Programs and Registered Apprentices, by Occupational Field.....	16
Exhibit 2-7.	Populations Targeted by Grantees.....	17
Exhibit 3-1.	Partner Types Contributing to Grantee Employer and Sponsor Recruitment.....	18
Exhibit 3-2.	Strategies for Recruiting Employers and Other Sponsors Used by Grantees.....	20
Exhibit 3-3.	Prevalence of Dedicated Employer Recruitment Staff, by Grantee Type.....	21
Exhibit 3-4.	Prevalence of Dedicated Employer Recruitment Staff, by Grantees' Progress toward Their Apprentice Registration Target.....	22
Exhibit 3-5.	Prevalence of Use of Financial Supports or Incentives, by Grantees' Progress toward Their Apprentice Registration Target	24
Exhibit 3-6.	Prevalence of Challenges Cited by Employers in Creating and Registering Programs.....	25
Exhibit 4-1.	Grantees' Reasons for Developing an Apprenticeship Program in an Occupation	27
Exhibit 4-2.	New Programs versus Expansions, by Occupational Field	28
Exhibit 4-3.	Reasons for Selecting Occupations for Apprenticeship Programs, by Grantees' Progress toward Their Apprentice Registration Target.....	29
Exhibit 4-4.	Time to Register Apprenticeship Programs.....	30
Exhibit 4-5.	Time to Register Apprenticeship Programs, by Approving Entity	31

Exhibit 4-6. Prevalence of Challenges Cited in Registering Programs.....32

Exhibit 4-7. Prevalence of Cited Challenges to Adoption of Apprenticeship, by Grantees’ Progress toward Their Apprentice Registration Target33

Exhibit 4-8. Frequency of Grantees’ Roles in Registering Apprenticeship Programs33

Exhibit 4-9. Prevalence of Grantees’ Most Common Partners in Registering Programs34

Exhibit 5-1. Distribution of Grantees’ Targets for Registered Apprentices36

Exhibit 5-2. Grantees’ Progress toward Their Apprentice Registration Target, by Grantee Type37

Exhibit 5-3. Grantees’ Progress toward Their Apprentice Registration Target, by Grantee Experience38

Exhibit 5-4. Grantees’ Participation in Apprentice Recruitment and Screening for an Occupation, by Grantee Type39

Exhibit 5-5. Prevalence of Partners Assisting in the Intake, Screening, and Recruitment of Apprentices, by Occupation.....39

Exhibit 5-6. Prevalence of Grantees’ Partnerships for Apprentice Recruitment, by Grantees’ Progress toward Their Apprentice Registration Target.....40

Exhibit 5-7. Characteristics of Registered Apprentices42

Exhibit 6-1. Average Related Technical Instruction and On-the-Job Learning Hours, by Occupational Field.....44

Exhibit 6-2. Apprenticeship Training Models for Delivering Related Technical Instruction and On-the-Job Learning45

Exhibit 6-3. Apprenticeship Training Models for Delivering Related Technical Instruction and On-the-Job Learning, by Occupational Field45

Exhibit 6-4. Methods Used to Determine Apprentices’ Mastery of Related Technical Instruction Material46

Exhibit 6-5. Prevalence of Methods to Determine Apprentices’ Advancement through the Wage Progression47

Exhibit 6-6. Prevalence of Types of Related Technical Instruction Providers48

Exhibit 6-7. Prevalence of Local Colleges Being Used as RTI Providers, by Occupational Field.....48

Exhibit 6-8. Average Duration of Related Technical Instruction, by Provider Type49

Exhibit 6-9. Prevalence of Methods of Delivering On-the-Job Learning50

Exhibit 6-10. Percentage of Time Mentors Typically Spend Instructing or Mentoring Apprentices50

Exhibit 6-11. Years of Mentor Experience in an Occupation, as a Supervisor, as an Instructor, and as a Mentor51

Exhibit 6-12. Prevalence of Types of Credentials Awarded by Occupations.....52

Exhibit 6-13. Prevalence of College Degrees vs. Non-Degree College Certificates, by Occupational Field.....53

Exhibit 6-14. Prevalence of College Credit Awarded for Related Technical Instruction, by Provider Type54

Exhibit 7-1. Grantee Support of Pre-Apprenticeship, by Occupational Field..... 56

Exhibit 7-2. Prevalence among Grantees of Goals for Their Pre-Apprenticeship Program.... 57

Exhibit 7-3. Prevalence of Types of Pre-Apprenticeship Assessments..... 58

Exhibit 7-4. Characteristics of Pre-Apprentices59

Exhibit 7-5. Prevalence of Types of Instructional Content in Pre-Apprenticeship Training Curricula60

Exhibit 8-1. Responsibilities of Grantee Program Staff Assigned to Support Apprentices and Pre-Apprentices..... 63

Exhibit 8-2. Prevalence of Academic Supports Offered to Apprentices and Pre-Apprentices 64

List of Grantee Survey Supplemental Data Tables (Appendix D)

Table 1. Grantees’ Prior Experience with Apprenticeships80

Table 2. Grantees’ Role in Developing Registered Apprenticeship Programs, by Grantee Type80

Table 3. Grantees’ Partners, by Grantee Type.....81

Table 4. Grantees’ Experience with ATRs, by Grantee Type.....81

Table 5. Grantees’ Experience with ATRs, by Grantee Prior Experience with Apprenticeship.....81

Table 6. Grantees’ Experience with ATRs, by Grantees’ Progress toward Their Apprentice Registration Target.....82

Table 7. Grantees’ Selling Points to Engage Employers.....82

Table 8. Grantees’ Selling Points to Engage Employers, by Grantees’ Progress toward Their Apprentice Registration Target.....82

Table 9. Grantees with Dedicated Employer Recruitment Staff83

Table 10. New Programs versus Expansions.....83

Table 11. Time for Registration, by Grantee Prior Experience with Apprenticeship.....83

Table 12. Prevalence of Cited Challenges in Promoting, Creating, and Registering Programs, by Planned Occupations Registered.....84

Table 13. Grantees’ Role in Registering Apprenticeship Programs, by Grantee Type84

Table 14. Assistance Provided to the Grantee by the Office of Apprenticeship When Registering Programs.....85

Table 15. Assistance Provided to the Grantee by the State Apprenticeship Agency When Registering Programs85

Table 16. Satisfaction with Role of Federal or State Agency in Assisting Grantee to Register Apprenticeship Programs.....85

Table 17. Grantees’ Role in Developing Apprenticeship Programs, by Grantee Prior Experience86

Table 18. Related Technical Instruction Costs Paid by Apprentices86

Table 19. On-the-Job Learning Delivery Mode, by Occupational Field86

Table 20. Duration of Training Grantee Provided to On-the-Job Training Providers and/or Mentors Among Those Who Receive Training.....87

Table 21. Types of Training Grantee Provided to On-the-Job Training Providers and/or Mentors Among Those Who Receive Training.....87

Table 22. Prevalence of Direct Pathways from Pre-Apprenticeship Programs into Apprenticeship Programs87

Table 23. Expectations That All Pre-Apprentices Will Be Placed into Apprenticeship Slots87

Table 24. Reasons Pre-Apprentice Graduates Do Not Transition to Apprenticeships88

LIST OF SUPPLEMENTAL TABLES

Table 25. Duration of Pre-Apprenticeship Programs..... 88

Table 26. Components of Application for Pre-Apprenticeship Programs 88

Table 27. Required Screenings for Pre-Apprenticeship Programs..... 88

Table 28. Availability of Any Support Services for Apprentices..... 88

Table 29. Provider of Support Services for Apprentices..... 89

Table 30. Availability of Any Support Services for Pre-Apprentices 89

Table 31. Provider of Support Services for Pre-Apprentices..... 89

List of Boxes

Key Findings from the AAI Grantee Survey Report	ES-1
Box 1: Elements of Registered Apprenticeship.....	2
Box 2: AAI Grant Objectives	5
Box 3: Grantee Survey Topics	6
Box 4: Types of AAI Grantees	10
Box 5: Workforce Agency Partnerships (<i>Grantee Case Study</i>)	15
Box 6: AAI Grantee Employer Outreach (<i>Grantee Case Study</i>)	19
Box 7: Dedicated Employer Outreach Staff (<i>Grantee Case Study</i>)	22
Box 8: Use of Financial Supports (<i>Grantee Case Study</i>).....	23
Box 9: Justifying Selection of Occupations (<i>Grantee Case Study</i>)	26
Box 10: Steps to Develop and Register an Apprenticeship Program	29
Box 11: Grantee Assistance with Registration Paperwork (<i>Grantee Case Study</i>).....	34
Box 12: Apprentice Recruitment (<i>Grantee Case Study</i>)	40
Box 13: RTI from Community and Technical Colleges (<i>Grantee Case Study</i>)	47
Box 14: Training for Mentors (<i>Grantee Case Study</i>).....	51
Box 15: Pre-Apprenticeship with Pathway to Apprenticeship (<i>Grantee Case Study</i>)	56
Box 16: Pre-Apprentice Recruitment (<i>Grantee Case Study</i>)	57
Box 17: Pre-Apprenticeship Content (<i>Grantee Case Study</i>).....	61
Box 18: Support Services (<i>Grantee Case Study</i>)	62
Box 19: Support Staff (<i>Grantee Case Study</i>).....	63

Glossary of Terms

Apprenticeship agreement: A written agreement between an apprentice and the apprentice’s program sponsor, or sometimes an apprenticeship committee acting as agent for the program sponsor, that contains the terms and conditions of the employment and training of the apprentice.

Apprenticeship Training Representative (ATR): U.S. Department of Labor (DOL) staff chiefly concerned with promoting and advising on apprenticeship training and other occupational skill development programs for workers in industry.

Instructor: Provides the related technical instruction (RTI) for an apprenticeship program. The RTI provider might be a community college instructor, but it could also be an instructor associated with other types of RTI partners.

Mentor: Provides on-the-job learning (OJL) opportunities for apprentices. Mentors are other employees of the hiring employer.

Occupation, occupational field: The specific job associated with an apprenticeship program. The DOL Office of Apprenticeship or a State Apprenticeship Agency, which assigns the job a distinct occupational code, must approve occupational fields. Grantees can operate multiple apprenticeship programs within an occupational field, and sponsors can operate multiple programs across different fields.

On-the-job learning (OJL): Every apprenticeship program includes OJL. Apprentices get hands-on training from an experienced mentor at the job site for typically not less than one year. Structured OJL experiences are developed by mapping the skills and knowledge that the apprentice must learn over the course of the program in order to be fully proficient at the job. Employers traditionally bear most training-related costs. American Apprenticeship Initiative grant funds could be used to support the OJL to reimburse employers for mentor time.*

Partner organization: Any partner of the grantee, besides an employer or a union, that provides support for grant activities. Partner organizations can include public agencies, community colleges, nonprofits, and industry associations.

Pre-apprenticeship program: Prepares individuals to enter and succeed in an apprenticeship program through an approved training curriculum based on industry standards. Can include educational and pre-occupational services (e.g., career and industry awareness workshops, job readiness courses), hands-on training in a simulated lab experience or through volunteer opportunities, and assistance in applying to apprenticeship programs. Pre-apprenticeship programs involve formal partnerships with at least one apprenticeship program sponsor.

Registration Agency: The DOL Office of Apprenticeship or a federally recognized State Apprenticeship Agency act as a Registration Agency, responsible for evaluating an apprenticeship program’s apprenticeship standards and for ongoing evaluation of apprenticeship programs to determine whether they comply with federal regulations related to program design, worker protections, and other criteria.

* For information on components of registered apprenticeship, including OJL, see, https://www.doleta.gov/oa/employers/apprenticeship_toolkit.pdf

Programs that are in compliance are “registered.” Registered programs can access federal resources, State tax credits where available, and technical assistance.

Registered apprenticeship program: A structured program of work-based learning under mentors, providing both value to employers and formal technical instruction to workers, and culminating in an industry-recognized credential that meets standards for registration by a Registration Agency. An apprenticeship sponsor for a specific occupation runs the training program. Sponsors are responsible for registering individual apprentices and determining whether they have successfully completed the apprenticeship program.

Registered apprenticeship program addition, expansion, maintenance, or revision: Changes to an existing registered apprenticeship program, including the development of programs in additional occupational fields by an existing apprenticeship sponsor. Maintenance or expansion may also entail transitioning from a time-based apprenticeship to a competency-based or a hybrid apprenticeship.

Related technical instruction (RTI): Instruction that complements the apprentice’s on-the-job learning, delivering the technical concepts and workforce and academic competencies needed to succeed on the job. A community college, a technical school, an apprenticeship training school, or the employer itself can provide the instruction. Education partners collaborate with employers to design the curriculum to deliver the skills and knowledge needed by apprentices. All partners work together to identify how to pay for the RTI, including the cost to the employer and other funds that can be leveraged.

Sponsor: Entity responsible for the overall operation of the registered apprenticeship program, working in collaboration with the partners. Sponsors can be a single employer or a consortium of employers. Alternatively, the sponsor can be any of a range of workforce intermediaries including an industry association or a joint labor-management organization. Community colleges and community-based organizations can also serve as sponsors.

Standards of Apprenticeship: Document describing apprenticeship components for a specific job role. Its individual standards include the purpose of the proposed apprenticeship program, the term of the apprenticeship, the provision of related technical instruction, wage progression for the apprenticeship, supervision of apprentices, safety, registration of apprentices, work process schedule, probation period, periodic evaluation of apprentices’ performance, completion requirements, and apprentice/mentor ratio.

Executive Summary

Introduction

The U.S. Department of Labor (DOL) launched the American Apprenticeship Initiative (AAI) in October 2015 to expand registered apprenticeship in the United States into sectors with few apprenticeships, such as healthcare and information technology (IT), and for populations underrepresented in apprenticeship.¹ DOL awarded \$175 million in five-year AAI grants to 46 grantees across the country.^{2, 3}

Apprenticeships are structured work-based training programs that combine technical instruction in a classroom with learning and mentoring experiences at an employer's worksite. Apprentices are employed during their training and earn progressively higher wages.⁴ Apprenticeships provide training in a specific occupation and deliver occupational skills that are recognized and transferable across employers.

AAI supports efforts to expand apprenticeships that are registered either with DOL's Office of Apprenticeship (OA) or with a federally recognized State Apprenticeship Agency (SAA). A registered apprenticeship adheres to guidelines around the length of related

Key Findings from the AAI Grantee Survey Report

- DOL awarded AAI grants to a diverse array of public and private organizations, the majority with prior experience developing registered apprenticeship programs.
- Most grantees successfully registered apprenticeship programs and diversified occupations under the first large-scale federal apprenticeship expansion initiative in the U.S.
- Many grantees sponsor registered apprenticeship programs, most commonly college grantees and other nonprofits, as well as sector-based organizations.
- Most grantees successfully recruited apprentices from women and other underrepresented populations with close to three-quarters of AAI apprentices from underrepresented groups, as of December 2019.
- The majority of apprentices are incumbent workers indicating that employers use apprenticeship not only to train new workers but also to train existing workers to become competent in a skilled occupation.
- The Office of Apprenticeship registered apprenticeship programs more quickly than did State Apprenticeship Agencies.
- Dedicated recruitment staff and financial supports to employers are associated with progress towards apprenticeship targets.
- A greater share of grantees most successful in meeting their apprentice registration targets use Apprenticeship Training Representatives to recruit employers and other sponsors.
- Although most grantees successfully registered programs and apprentices, employer recruitment challenges remain stemming particularly from employer reluctance to develop apprenticeships.

¹ The AAI Funding Opportunity Announcement describes underrepresented populations as women, young men and women of color, people with disabilities, veterans, including transitioning service members and others. See <https://www.dol.gov/sites/dolgov/files/ETA/grants/pdfs/FOA-ETA-15-02.pdf>.

² One grant ended prior to the start of data collection for the evaluation. This report presents findings for 45 grantees.

³ In 2020, DOL announced that grantees could apply for an extension to their five-year grants of up to 12 months, through September 30, 2021.

⁴ For example, wage increases can be tied to demonstration of skills mastery, completion of specified components, and time in the program (e.g., increases annually).

technical instruction (RTI) and on-the-job learning (OJL) a mentor provides at the employer’s worksite. Apprenticeship programs must be at least one year long to meet regulatory requirements, but are typically two to five years long. A sponsor is responsible for the program and maintains the Standards of Apprenticeship, which documents the RTI, OJL, wage increases, and other aspects of the apprenticeship. Apprenticeship completers receive an industry-recognized credential.

Evaluation of the American Apprenticeship Initiative Grants

In 2016, DOL commissioned an evaluation of the AAI grants to build evidence about the effectiveness of registered apprenticeship for apprentices and employers. The evaluation will also generate lessons for developing and operating these programs, particularly in occupations that do not traditionally use apprenticeship for training.

The evaluation comprises four sub-studies:

1. An **implementation study** of the grantee apprenticeship programs;
2. A study of apprentice employment and earnings **outcomes**;
3. A study measuring the **return on investment** of apprenticeship to employers; and
4. An **employer outreach and recruitment demonstration** that explores the impacts of training grant staff to organize and market to employers the creation of new apprenticeship programs.

This is the first of three reports presenting findings from the implementation study. It answers the following research questions:

- How are AAI apprenticeship programs structured?
 - How are programs designed? Which entities—that is, grantees, employers, other partners, or a combination—are involved in program design?
 - What is the nature and content of RTI and OJL?
 - What supports are available to apprentices?
- Who is responsible for registration? Where are programs registered?
- How do grantees identify employers for apprenticeships?
- What strategies do grantees and employers use to identify strong candidates for apprenticeships?
- How are pre-apprenticeship programs structured?

The data presented in this report depict the status of grantee activities about four years into the five-year grants when grantees likely implemented most planned activities and grantee activities were operating at a steady state. The report documents the design and operation of the grantee apprenticeship programs and identifies potentially promising practices and challenges that can inform policy and program design. Its findings also provide important context for the other three sub-studies. A second implementation study report describes in more detail activities implemented by 10 grantees selected for site visits (Copson et al. forthcoming). A third and final implementation study report describes AAI grantees and their performance over the life of the grant. Through an analysis of the administrative data provided by the grantees, the report will share the extent to which AAI grantees met their targets and trends over the grant period, and the evaluation team’s identification of factors that may relate to grantees meeting their targets.

Data Sources

The report uses three data sources:

- An online **survey of the 45 AAI grantees**, administered in June and July 2019. The survey collected information on grantee characteristics, occupational fields where the grantee is active, and individual employers associated with the grant. Grantee responses on questions about their experiences in specific occupations typically summarized the experiences of many different apprenticeship programs operating in the same occupational field.
- **Site visits conducted with 10 grantees** between March and June 2019. The site visits collected information on grantee characteristics, grant partners, RTI providers, apprenticeship programs, and individual employers associated with the grant. Follow-up telephone calls with the grantees, conducted in fall 2020 focused on changes to grant activities, grantee responses to COVID-19, and plans to sustain activities post grant. The report includes case studies drawn from site visit findings.
- **Quarterly Performance Report (QPR) data** provided by grantees to DOL through December 31, 2019, to align with the year that the Grantee Survey was fielded. The data characterize the cumulative progress of grantees in achieving apprentice registration targets set forth in their applications.

Categorizing Grantees' Progress toward Apprentice Goals

From the QPR summary data, the evaluation team divided the 45 grantees into equally sized categories by their progress toward registering their target number of apprentices as of December 31, 2019. The three progress categories are (1) less than 60 percent of the target number of apprentices registered, (2) at least 60 percent, but less than 100 percent of the target; and (3) 100 percent or more of the target. The evaluation team analyzed responses to certain Grantee Survey questions against these progress categories in order to explore whether there were common features or activities among those grantees that had been more or less successful in achieving their target number of registered apprentices.

Summary of Findings

This summary first describes the characteristics of the 45 AAI grantees and their programs. It then examines how grantees report they engage employers, register programs, and recruit apprentices to participate in those programs. The final three sections focus on RTI and OJL delivery in the programs, pre-apprenticeship programs, and support services available to apprentices and pre-apprentices.

Grantee and Program Characteristics

AAI funds a diverse array of grantees. About half of the grantees are government agencies, including State-level agencies (27 percent of grantees) and local agencies such as local workforce development boards (20 percent). Colleges and nonprofit organizations account for 22 percent of grantees each. The

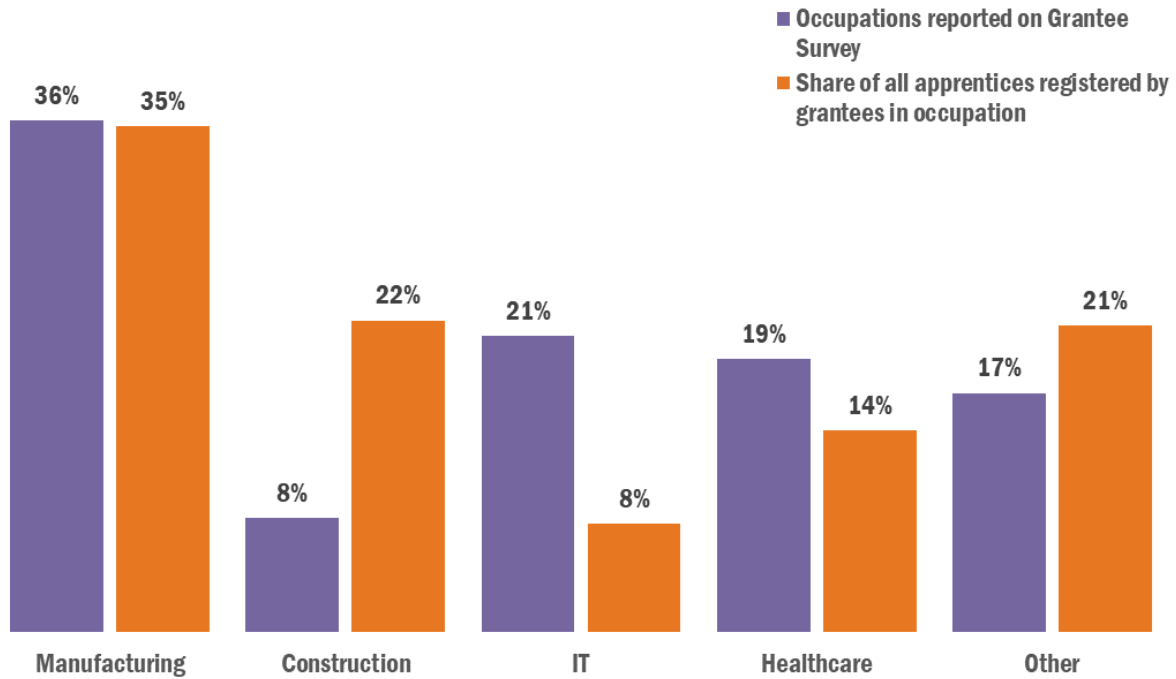
remainder are sector-based organizations, including industry associations and labor organizations, or joint labor-management committees.⁵ Most grantees (67 percent) have prior experience with apprenticeship.

Manufacturing occupations account for the largest share of apprenticeship programs and apprentices.

As Exhibit ES-1 shows, the most common occupational field of apprenticeship programs reported on in the Grantee Survey is manufacturing (36 percent of programs). Twenty-one (21) percent of reported occupations are in IT and 19 percent are in healthcare.⁶

The Exhibit also shows that manufacturing also accounts for the largest share of apprentices registered through December 31, 2019. About one-third of all AAI apprentices are in manufacturing occupations, followed by construction occupations (one-fifth of all AAI apprentices). Healthcare accounts for 14 percent of all AAI apprentices, and IT accounts for 8 percent.

Exhibit ES-1. Distribution of Grantees’ Registered Apprenticeship Programs and Registered Apprentices, by Occupational Field



Source: AAI Grantee Survey Occupations data: AAI Evaluation Grantee Survey. Reported at the occupation level. N=126. Apprentice data: AAI Quarterly Performance Report, as of December 31, 2019. Reported at the apprentice level. N=22,121 apprentices. Sample size is less than 23,392 because some apprentices did not have occupations reported.

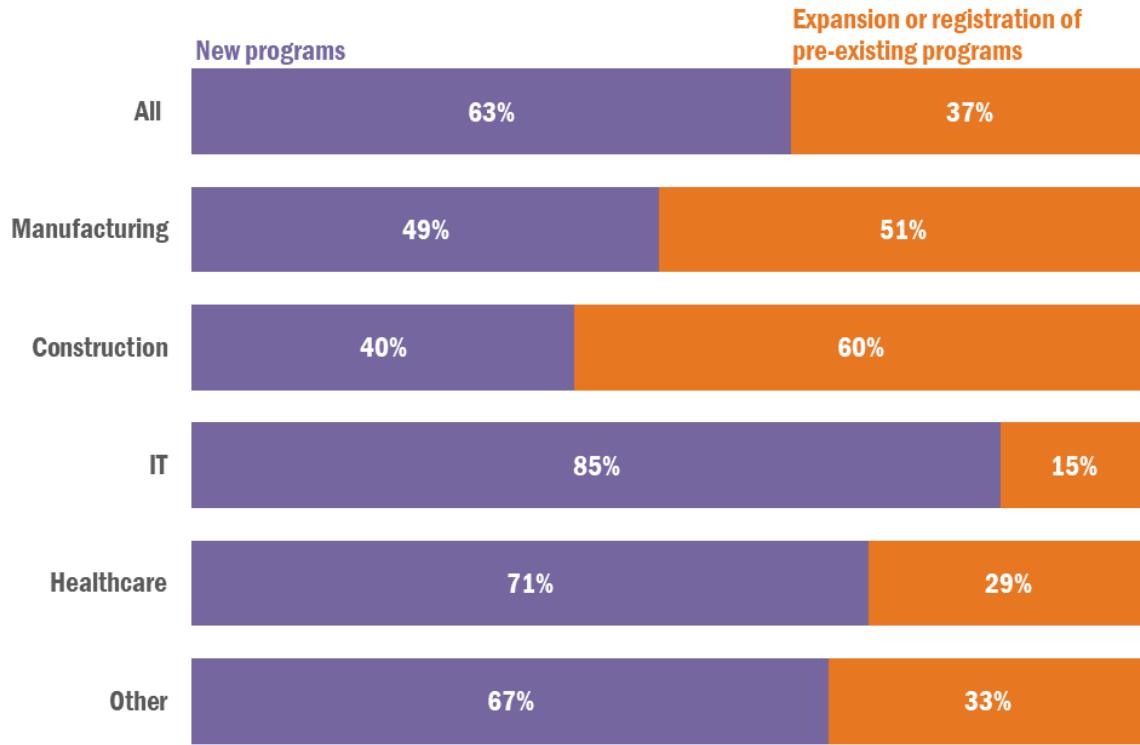
Note: The Grantee Survey requested that grantees report on their apprenticeship programs in up to three occupational fields. These programs are not necessarily statistically representative of all AAI apprenticeship programs.

⁵ In some cases, the joint labor-management committees (which have nonprofit status) identified as nonprofit organizations rather than as sector-based labor organizations. Grantees self-identified their organization type on the survey.

⁶ Appendix C provides the detailed occupations reported on in the Grantee Survey.

Most occupations are newly registered. Overall, apprenticeship programs in 63 percent of occupations supported by the grantees are newly registered, rather than expansions of pre-existing registered or unregistered programs (37 percent) (Exhibit ES-2). Expanded programs are most common in the construction industry, which has long accounted for most apprenticeships. By contrast, 85 percent of apprenticeship programs in IT occupations are new, as are 71 percent of programs in healthcare occupations.

Exhibit ES-2. New Programs versus Expansions, by Occupational Field



Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=126.

Employer needs and skills shortages determine the occupational focus of most grantees. Grantees typically report more than one reason for targeting occupations for registered apprenticeship programs. Grantees cited “documented employer needs” and “skills shortage” as reasons for selecting over 80 percent of occupations. Grantees target almost 60 percent of occupations because of existing relationships with employers hiring in that field. Conversely, few grantees report the availability of appropriate classes or RTI was a factor in determining where to expand apprenticeship.

OA registers apprenticeship programs more quickly than SAAs. Among occupations where grantees register apprenticeship programs only with OA, 61 percent of registrations took two months or less to approve, on average. Only 22 percent of occupations received approval in a two-month window when grantees register all programs with the SAA. Overall, program registration took on average about four months when registering only with OA and about seven months when registering only with the SAA.

Employer Engagement

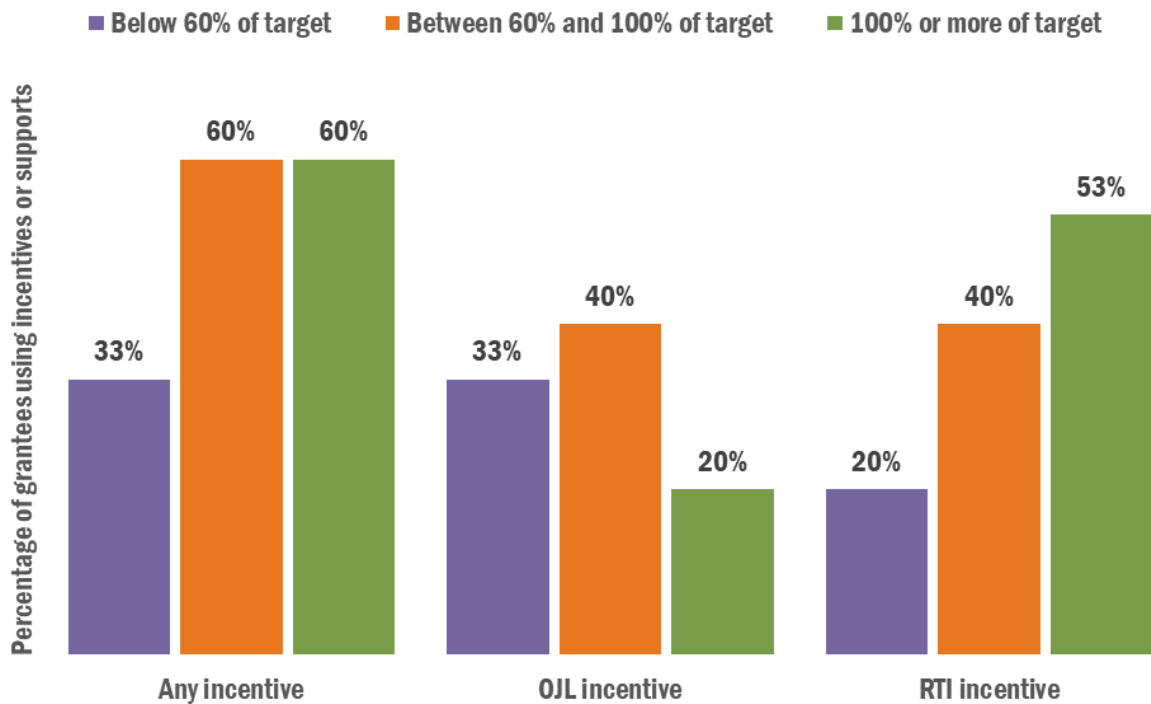
Most grantees contact employers directly to engage them and have dedicated staff members to do so. Grantees report a variety of employer outreach methods, including in-person visits (98 percent of grantees) and industry association networking (96 percent). In-house networking, community networking, word of mouth, and asking employers to recommend other businesses are also common methods, each reported by 93 percent of grantees.

A majority of grantees (78 percent) have staff dedicated exclusively to employer recruitment. Dedicated staff is associated with progress towards apprentice registration goals. Eighty-seven (87) percent of grantees making the most progress toward their targets dedicate staff full-time to employer recruitment; 60 percent of grantees making the least progress do so.

More than half of grantees use financial supports or incentives to recruit employers. To generate employer interest in apprenticeship, 38 percent of grantees offer incentives for RTI, such as funds for apprentice tuition. About one-third (31 percent) offer incentives for OJL, such as defraying costs of mentors’ wages.

Use of financial incentives for employer recruitment is also associated with more grantee progress toward apprentice registration targets (Exhibit ES-3). Sixty (60) percent of the most successful grantees use financial incentives, but only 33 percent of those reaching less than 60 percent of their target do so. Incentives for RTI, but not for OJL, are positively associated with greater apprentice registration progress.

Exhibit ES-3. Prevalence of Use of Financial Supports or Incentives, by Grantees’ Progress toward Their Apprentice Registration Target

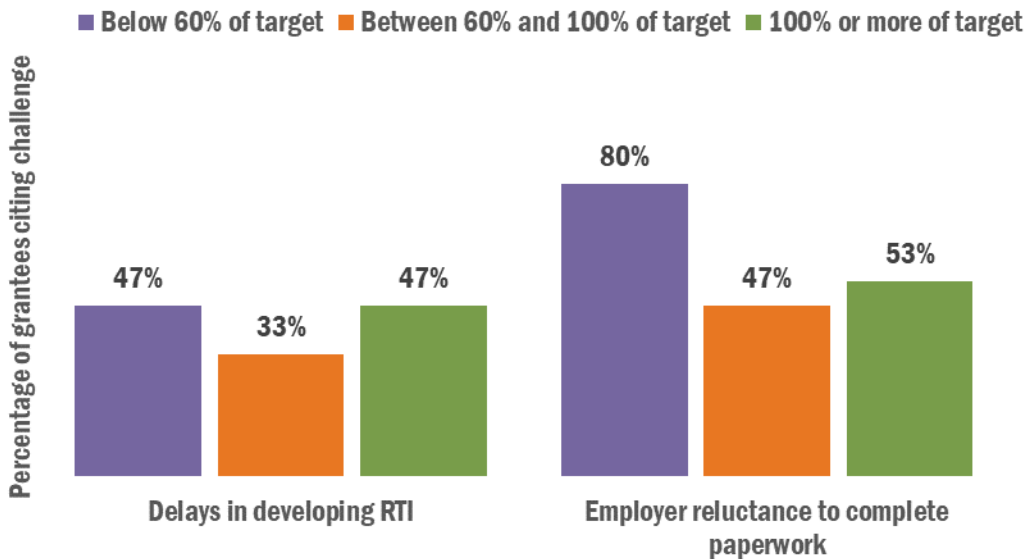


Source: AAI Quarterly Performance Report, as of December 31, 2019, and AAI Evaluation Grantee Survey. Reported at the grantee level. N=45.

More than 40 percent of grantees received Apprenticeship Training Representative (ATR) assistance in recruiting employers. Forty-two (42) percent of grantees report that OA’s ATRs help with employer recruitment.⁷ ATR assistance is associated with grantee progress towards apprentice registration goals. Among the grantees making the most progress toward their target (100 percent or more), 67 percent receive help from an ATR. By contrast, among grantees making the least progress toward their target (less than 60 percent), only 20 percent receive help from an ATR.

More than 60 percent of grantees report employer reluctance to adopt apprenticeship is a challenge to creating and registering apprenticeships. By way of comparison, less than half of grantees report challenges related to RTI development (43 percent) and completing work process schedules (41 percent). Employer reluctance to adopt apprenticeship is inversely related to grantee progress toward apprenticeship registration goals (Exhibit ES-4). Eighty percent of grantees making the least progress toward their apprentice registration targets report employer reluctance as a challenge. In contrast, only half of grantees making the most progress report employer reluctance as the primary challenge.

Exhibit ES-4. Prevalence of Cited Challenges to Adoption of Apprenticeship, by Grantees’ Progress toward Their Apprentice Registration Target



Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=45.

Apprentices

Almost 70 percent of AAI apprentices are from populations underrepresented in apprenticeships, and over half are incumbent workers. Employers hire apprentices, but many grantees assist with recruitment of potential apprentices. Grantees report they target underrepresented populations, including women, veterans, and racial and ethnic minorities; as of December 31, 2019, 69 percent of AAI apprentices are from these populations (Exhibit ES-5). Specifically, more than a quarter of apprentices are women (26 percent), 17 percent are non-Hispanic Black, 14 percent are Hispanic any race, and 10 percent are

⁷ ATRs recruit employers and develop and register programs. Some SAA States call State-level staff in similar roles “Apprenticeship Training Representatives,” as well.

veterans. For some groups, these increases represent a large improvement relative to registered apprenticeships nationally; for example, only about 10 percent of registered apprentices since 2015 are women.⁸

The average AAI apprentice is 33 years old, thus not typical postsecondary school age. About one-quarter are age 24 or younger. One factor potentially driving up the average age of apprentices is the proportion that are incumbent workers. Fifty-three (53) percent of apprentices worked for their employer prior to starting the apprenticeship.

Exhibit ES-5. Characteristics of Registered Apprentices

Characteristic	Total
Gender (%)	
Women	26
Men	74
Race and ethnicity (%)	
Hispanic, any race	14
White, Non-Hispanic	61
Black, Non-Hispanic	17
Asian only	4
Native Indian only	2
Native Hawaiian only	1
Non-Hispanic, other race or multiple races	4
Age (%)	
24 years or younger	27
25 to 34 years	35
35 to 44 years	20
45 to 54 years	13
55 years or older	5
Average age (years)	33
Veterans (%)	10
People with disabilities (%)	2
Incumbent workers (%)	53
From underrepresented populations (%)	69

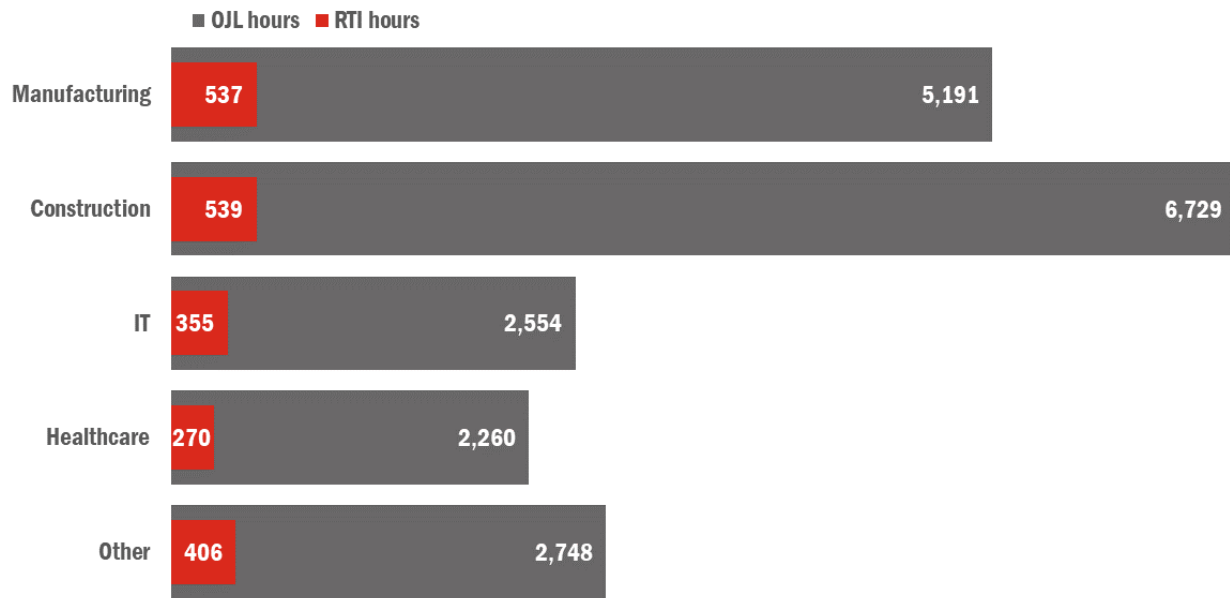
Source: AAI Quarterly Performance Report, as of December 31, 2019. Reported at the apprentice level. Gender N=23,341; race and ethnicity N=21,586; age N=23,387; veteran and people with disabilities N=23,392; incumbent worker and underrepresented population N=23,962. Note: the DOL FOA defined underrepresented populations as women, young men and women of color, people with disabilities, veterans, including transitioning service members and others.

⁸ The calculation of share of women among apprentices nationally uses Registered Apprenticeship Partners Information Data System (RAPIDS) data on all U.S. apprentices registered in States reporting to RAPIDS. Publicly accessible RAPIDS data is available on the DOL site at <https://www.dol.gov/agencies/eta/apprenticeship/about/statistics/2020> (and see links for prior years of data).

Apprenticeship Components

Apprenticeship program duration and structure vary by occupation and employer. In construction, apprenticeships typically last for several years. However, employers of apprentices in non-traditional occupations often implement shorter-duration training. For example, programs in IT (such as Information Support Specialist and Software Developer) and healthcare (such as medical assistant and pharmacy technician) have shorter apprenticeship durations than do manufacturing or construction programs (Exhibit ES-6).

Exhibit ES-6. Average Related Technical Instruction and On-the-Job Learning Hours, by Occupational Field



Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=122. Sample size is less than 126 because of non-response on the survey.

Programs take different approaches to sequencing RTI and OJL. Most commonly, apprenticeship programs deliver RTI and OJL concurrently (69 percent). For one quarter of occupations, RTI occurs prior to OJL. The remainder alternate RTI and OJL.

Apprenticeship programs use multiple methods for determining an apprentice’s mastery of RTI material. Most commonly, apprenticeship programs use a skills demonstration to show mastery (79 percent of occupations). Apprenticeship programs in a similar share of occupations (77 percent) assess mastery using written tests and presentations. Less common are instructor assessment (54 percent) and grades in college classes (44 percent).

Programs in most occupational fields use achievement of specified competencies to advance apprentices through wage levels. Sixty-nine percent of occupational programs use the achievement of specified competencies, 56 percent use regular annual wage increases and 46 percent use completion of RTI.

Most apprenticeship completers earn a short-term credential or license. In addition to a DOL or State completion certificate, apprenticeship programs in 44 percent of the occupations award a State credential or license, followed by 38 percent that award a non-degree college certificate. Apprenticeship programs

also award other, more specific types of certificates, including OSHA-10⁹ (programs in 33 percent of occupations), A+ certificates in IT (14 percent of occupations), and NIMS credentials¹⁰ in manufacturing (10 percent of occupations). Fewer programs award college degrees (12 percent) than non-degree college certificates.

Pre-Apprenticeship Programs

Almost three-quarters of grantees implemented a pre-apprenticeship program. Seventy-three (73) percent of grantees implemented a pre-apprenticeship program as part of AAI activities, generally to improve access to apprenticeship and ensure that apprentice applicants have the level of basic skills required to successfully complete an apprenticeship. Pre-apprenticeships are typically shorter than apprenticeships. The average AAI pre-apprenticeship lasts almost 12 weeks, although these programs range from one to 35 weeks of training.

As of December 31, 2019, grantees implemented 243 pre-apprenticeship programs, serving almost 9,000 pre-apprentices, 89 percent of whom come from underrepresented populations. Pre-apprenticeship is most common in construction. Grantees report that less than half of pre-apprentices transition to an apprenticeship, most commonly because they pursue a different occupation or find alternative work.

Support Services

The grantee survey inquired specifically about academic supports (e.g., academic counseling, tutoring, or tuition assistance) and one-on-one case management (e.g., career, personal, or financial counseling; referrals to services in the community).

More than two-thirds of grantees provide support services to apprentices and pre-apprentices. Sixty-nine (69) percent of grantees report that support services are available to apprentices. Of the grantees that implement pre-apprenticeship programs, 79 percent report that support services are available to pre-apprentices.

Among grantees that offer supports, most provide the supports as opposed to a partner organization (76 percent). About three-quarters of the grantees that offer support services assign a staff member to work one-on-one with each apprentice (73 percent) or pre-apprentice (71 percent) throughout the program.

⁹ The Occupational Safety and Health Administration (OSHA) Outreach Training Program provides training on the recognition, avoidance, abatement, and prevention of workplace hazards. The 10-hour training program is primarily intended for entry-level workers (<https://www.osha.gov/training/outreach/overview>).

¹⁰ Each National Institute for Metalworking Skills (NIMS) credential represents a collection of skills and knowledge, and a person who earns one has demonstrated competency in that occupational area. As that person earns more of these stackable credentials, they show that they have an array of skills that have been verified against an industry-written standard.

Looking Ahead

This report is the first of two implementation study reports that describe grantee characteristics and program implementation. A second report summarizes the activities of the 10 grantees selected for in-depth site visits (Copson et al. forthcoming). The visits, conducted in spring 2019, gathered detailed information about grantees' target occupational areas, approaches to employer engagement, identification of apprentices, and apprenticeship programs. Follow-up telephone calls in fall 2020 focused on changes in grant activities, grantee responses to the COVID-19 pandemic, and plans to sustain activities post grant.

A final implementation study report will update these point-in-time findings using QPR data. Together, data collected for the implementation study will provide important context for the other AAI evaluation reports.

1. Introduction

The U.S. Department of Labor (DOL) launched the American Apprenticeship Initiative (AAI) in October 2015 to expand registered apprenticeship in the United States, into sectors with few apprenticeships, such as healthcare and information technology (IT), and for populations underrepresented in apprenticeship. DOL awarded \$175 million in five-year AAI grants to 46 grantees across the country.

Apprenticeship is a workforce-training model where apprentices complete a structured work-based training program that combines related technical instruction (RTI) in a classroom with on-the-job learning (OJL) by a mentor. As designed, apprentices are productively employed during their training and earn progressively higher wages. Unlike other work-based learning experiences such as job shadowing or even some internships, apprentices produce output for their employers like any other employee. Apprenticeships provide training in a specific occupation and deliver occupational skills that are recognized and transferable across employers.

Apprenticeship is a common training approach in other countries. At any given time, about 4 percent of the workforce in Germany and Australia, 3 percent in Canada, and 2 percent in England are employed as apprentices (Lerman 2016). In contrast, less than a half of a percent of American workers participate in registered apprenticeships.¹ Registered apprenticeships, however, are growing. Between fiscal years 2013 and 2018, the number of U.S. apprentices grew by 56 percent, from 375,000 to 585,000.²

In 2016, DOL commissioned an evaluation of AAI to build evidence about the effectiveness of registered apprenticeship for apprentices and employers and generate lessons for developing and operating these programs, particularly in non-traditional occupations. The evaluation comprises four sub-studies:

1. An **implementation study** of the grantee programs;
2. A study of apprentice employment and earnings **outcomes**;
3. A study measuring the **return on investment** to employers; and
4. An **employer outreach and recruitment demonstration** that explores the impacts of training staff to market apprenticeships to employers on employer demand for apprenticeship.

This report is the first of three to present findings from the implementation study. This initial report primarily uses data from an online survey completed by all grantees, which documented the planning and implementation of grant-supported programs, including characteristics of grantees and their partners, strategies to engage employers, registering apprenticeship programs, identifying and recruiting apprentices, and the major components of apprenticeship programs, including RTI and OJL. For grantees

¹ The evaluation team estimates that 0.39 percent of workers are apprentices, using the most recent data from DOL/ETA of 585,000 apprentices in fiscal year 2018 (“Registered Apprenticeship National Results, Fiscal Year 2018 (10/01/2017 to 9/30/2018),” https://www.doleta.gov/oa/data_statistics.cfm); and monthly non-farm employment estimates from the Current Employment Statistics establishment survey for Fiscal Year 2018 (<https://data.bls.gov/timeseries/CEU0000000001>).

² “Registered Apprenticeship National Results, Fiscal Year 2018 (10/01/2017 to 9/30/2018),” https://www.doleta.gov/oa/data_statistics.cfm.

that operate a pre-apprenticeship program, the survey asked about content of the program, participant characteristics, and linkages to registered apprenticeships.

The remainder of this chapter provides background on registered apprenticeships, presents an overview of the AAI grants and the implementation study, and discusses the data sources used for the report.

1.1. Registered Apprenticeships

Apprenticeships combine structured OJL with classroom instruction in a program to achieve full competence in an occupation. There are different types of apprenticeship programs in the United States. AAI supports efforts to expand apprenticeships that are registered either with DOL's Office of Apprenticeship (OA) or with a federally recognized State Apprenticeship Agency (SAA).³ A registered apprenticeship adheres to guidelines around the length of RTI and OJL a mentor provides at the employer's worksite (Box 1). Apprenticeship programs must be at least one year long to meet regulatory requirements,⁴ but are typically two to five years long. A sponsor is responsible for the program and maintains the Standards of Apprenticeship, which documents the RTI, OJL, and other aspects of the apprenticeship. Apprenticeship completers receive an industry-recognized credential.⁵

Apprentices participating in a registered apprenticeship program are also registered by the same entity as the apprenticeship program (the OA or SAA). Registered apprentices sign an apprenticeship agreement that commits them to abiding by the Standards of Apprenticeship associated with their program.

Box 1: Elements of Registered Apprenticeship

- Approved by DOL's Office of Apprenticeship or a State Apprenticeship Agency, or sometimes both
- Related technical instruction (RTI) of at least 144 hours in a physical or virtual classroom
- On-the-job learning (OJL) of at least 2,000 hours overseen by a mentor at the employer site
- Wage increases over the course of the apprenticeship, which can be tied to time in the program or to demonstration of skill competency
- An industry-recognized credential upon completion of the apprenticeship
- A Standards of Apprenticeship document that formally describes the work process schedule (skill standards) and specifies the RTI, OJL, and wage structure for the registered apprenticeship program
- A sponsor oversees the program and maintains the standards of apprenticeship and basic data on apprentices; sponsors can be employers, consortia of employers, unions, community colleges, State or local workforce agencies, or nonprofits
- A written apprenticeship agreement between an apprentice and either the program sponsor or an apprenticeship committee acting as an agent for the sponsor

³ The grants also support some pre-apprenticeship programs. AAI grantees are required to register programs developed or expanded using grant funds, and some AAI grantees operate pre-apprenticeship programs (which cannot be registered) along with their registered apprenticeship programs. Other types of apprenticeships include youth apprenticeships (which may be registered, but are not always) and unregistered apprenticeships.

⁴ Competency-based programs can be completed in less than a year if an apprentice demonstrates mastery of certain occupational competencies, but even these programs are expected to last approximately one year (2,000 hours of OJL) for most apprentices.

⁵ More information on policies and other guidance on registered apprenticeship is available on DOL's site at <https://www.dol.gov/agencies/eta/apprenticeship/policy>.

In the United States, construction occupations (the “building trades”) historically account for most registered apprenticeships. When DOL awarded the AAI grants in fiscal year 2016, the most common registered apprenticeship occupations were electrician (41,490 active apprentices), plumber/pipefitter/steamfitter (23,000), carpenter (20,000), and construction laborer (14,000).⁶ In fiscal year 2018, the most recent year that data are available for the grants, the same occupations continue to have the most active apprentices.⁷ Some AAI grantees sponsor construction apprenticeships.

In the construction trades, unions generally have a role in registered apprenticeship through joint apprenticeship training committees (JATCs). The committees administer the apprenticeship programs and comprise both labor and management representatives.⁸ Joint apprenticeship programs can include a single employer (“independent joint”) or multiple employers (“group joint”). In a joint program, the apprentice does not work for the JATC, but rather for one or more of the participating employers.⁹

Although apprentices are most common in the building trades, registered apprenticeship is also a potential workforce training strategy for other, non-construction middle-skill jobs, those that generally require postsecondary education but not a four-year degree (Holzer and Lerman 2009). Apprenticeship is growing in occupations that are non-traditional for such training. By fiscal year 2018, pharmacy support staff (2,200 active apprentices) and nurse assistants (1,900) are among the top 25 occupations.¹⁰ Some AAI grantees sponsor apprenticeships in these and other healthcare occupations.

A number of factors can act as barriers to registering more apprenticeship programs and apprentices in the United States. Many employers do not understand how an apprenticeship can address their particular workforce needs. They may not have the time to invest in learning about apprenticeship or in developing

⁶ “Registered Apprenticeship National Results, Fiscal Year 2018 (10/01/2017 to 9/30/2018),” https://www.doleta.gov/oa/data_statistics.cfm.

The Registered Apprenticeship data referenced here and in subsequent footnotes are derived from several sources with differing abilities to provide disaggregated data. DOL/ETA’s “Apprenticeship” website explains: “The 25 federally-administered States and 16 federally-recognized State Apprenticeship Agencies (SAAs) use the Employment and Training Administration’s Registered Apprenticeship Partners Information Database System (RAPIDS) to provide individual apprentice and sponsor data. This subset of data is referred to as RAPIDS data and can be disaggregated to provide additional specificity. The federal subset of that data (25 States plus national programs) is known as the Federal Workload. The remaining federally recognized SAAs and the U.S. Military Apprenticeship Program provide limited aggregate data on a quarterly basis that is then combined with RAPIDS data to provide a national data set on high-level metrics (apprentices and programs) but cannot generally be broken out in greater detail beyond the data provided.”

<https://www.dol.gov/agencies/eta/apprenticeship/about/statistics>.

⁷ “Registered Apprenticeship National Results Fiscal Year 2018 (10/01/2017 to 9/30/2018),” https://www.doleta.gov/oa/data_statistics2018.cfm.

⁸ Code of Federal Regulations, Title 29, Labor. <https://www.govinfo.gov/content/pkg/CFR-2019-title29-voll/xml/CFR-2019-title29-voll-sec29-2.xml>.

⁹ Registered apprenticeship programs that do not include unions are called “non-joint” programs. Non-joint apprenticeship programs can also be operated by or with a single employer (“independent non-joint”) or multiple employers (“group non-joint”).

¹⁰ “Registered Apprenticeship National Results Fiscal Year 2018 (10/01/2017 to 9/30/2018),” https://www.doleta.gov/oa/data_statistics2018.cfm.

and registering a program. Employers also have questions and concerns about regulatory burden and costs (Lerman 2017; Lerman, Eyster, and Chambers 2009).

Because apprenticeships are traditionally associated with construction, potential workers pursuing jobs in other sectors may not be aware that apprenticeship is a possible education and training option. Some may mistakenly view college education as the only effective pathway to middle-income jobs (Ryan and Lórin 2018). As a result, many young people enter two- and four-year degree programs without considering apprenticeships. Moreover, many employers require a college degree when one may not be necessary (Scott and Nightingale 2018) or when the employee could learn many of the skills on the job.

1.2. Overview of the American Apprenticeship Initiative and Implementation Study

In October 2015, DOL awarded \$175 million in five-year grants to 46 grantees across the country to expand registered apprenticeship (see Appendix A for a list of grantees).^{11, 12} Although OA receives funds of approximately \$30 million per year to supervise, market, regulate, and publicize the registered apprenticeship system (Lerman 2018), this was the first federal grant program to support development and registration of apprenticeships. At the time, federal funding for apprenticeship on this scale was unprecedented, but since 2015, appropriations for contracts and grant programs to States, colleges, and intermediaries increased from \$90 million per year in fiscal year 2016 to \$175 million in fiscal year 2020.¹³ Along with AAI, DOL has funded other grant programs with H-1B fees, including Scaling Apprenticeship through Sector-Based Strategies grants (\$184 million) awarded to colleges and universities to expand apprenticeship in June 2019 and Closing the Skills Gap grants (\$100 million) awarded in February 2020.¹⁴

DOL's Funding Opportunity Announcement (FOA) for AAI grants specified that funds must support public-private partnerships in expanding registered apprenticeship programs in H-1B-related and high-growth occupations (DOL/ETA 2014).¹⁵ Potential partners from the public sector could include the workforce investment system, public education and training providers, or SAAs. Potential partners from the private sector could include employers or employer consortia, private education and training providers, employer-related nonprofits, or workforce intermediaries. Box 2 lists the grant objectives.

¹¹ One grant ended prior to the start of data collection for the evaluation, so this report covers 45 grantees. More information on the AAI grantees is available here: <https://www.apprenticeship.gov/investments-tax-credits-and-tuition-support/active-grants-and-contracts>.

¹² In 2020, DOL announced that grantees could apply for an extension to their five-year grants of up to 12 months, through September 30, 2021. Grant end dates will be included in the final implementation study report.

¹³ <https://www.dol.gov/agencies/eta/budget>.

¹⁴ <https://www.dol.gov/sites/dolgov/files/general/scaling-apprenticeship-through-sector-based-strategies-abstract.pdf> and <https://www.dol.gov/newsroom/releases/eta/eta20200218>.

¹⁵ In key industries, such as healthcare and IT, employers cannot find sufficiently skilled American workers to fill certain jobs; some employers use the H-1B program, which allows the temporary hiring of qualified foreign workers. For more about the H-1B program go to: <https://www.dol.gov/agencies/whd/immigration/h1b>.

Grantees could propose to expand apprenticeships by registering new apprenticeship programs, converting work-based learning programs or internship models with educational components into registered apprenticeship programs, or growing existing registered apprenticeship programs.

The evaluation team developed a logic model to guide the evaluation sub-studies; specifically, how the team expects grant activities to produce expected short- and longer-term outcomes for grantees, participants, and employers (see Appendix B). The model begins with grantee and employer *inputs* needed to initiate, register, and operate apprenticeships, such as funding, staff, employer outreach and recruitment plans, apprentice recruitment plans, and Standards of Apprenticeship. Next are *program services*, the apprenticeship programs and related services from grantees and employers. These yield *short-term outcomes*, including skills and credentials acquired by apprentices; followed by *longer-term outcomes*, which are greater employment in target occupations, improved wages and career progression for apprentices, and sustaining the apprenticeship program for grantees. All logic model elements are influenced by the underlying *context* in which grantees and employers operate, including the labor market; prominent and growth industries; the target population; grantee and workforce system relationships with employers; and federal, State, and local policies.

The AAI implementation study focuses on inputs, program services, and context, in order to (1) identify potentially promising implementation practices and challenges that can inform policy and program design, and (2) provide important context for the other three sub-studies (i.e., outcomes study, employer return on investment study, and employer recruitment demonstration).

This initial implementation study report answers the following research questions:

- How are AAI apprenticeship programs structured?
 - How are programs designed? Which entities—that is, grantees, employers, other partners, or a combination—are involved in program design?
 - What is the nature and content of RTI and OJL?
 - What supports are available?
- Who is responsible for registration? Where are programs registered?
- How do grantees identify employers for apprenticeships?
- What strategies do grantees and employers use to identify strong candidates for apprenticeships?
- How are pre-apprenticeship programs structured?

Box 2: AAI Grant Objectives

- Support high-quality and innovative registered apprenticeship programs
- Create career pathways
- Serve populations underrepresented in apprenticeships
- Implement new and innovative public policies or public-private partnerships that increase demand for apprenticeships
- Promote sustainable strategies that encourage employers to offer apprenticeships

This report uses three data sources:

- An online survey of 45 AAI grantees, administered in June and July 2019;¹⁶
- Site visits conducted to 10 grantees between March and June 2019, four years into the five-year grants, for brief case studies; and
- Quarterly Performance Report (QPR) data provided by grantees to DOL as of December 31, 2019, in order to align with the Grantee Survey time period, as described below.

A separate report presents site visit findings in greater detail and incorporates information from the follow-up telephone calls conducted in fall 2020 (Copson et al. forthcoming). A third implementation study report will describe grantee final outcomes using QPR data.

1.2.1 AAI Grantee Survey

The evaluation team administered the AAI Evaluation Grantee Survey in June and July 2019. All 45 grantees participating in the AAI grant program responded. The survey collected information on grantee characteristics, occupational fields where the grantee is active, and individual employers and other sponsors associated with the grant. Box 3 lists the survey topics. This report provides survey data at two different levels:

- **Grantee Level.** This report generally presents information on topics such as grantee partners, apprenticeship program context, pre-apprenticeship programs, and support services at the grantee level. It includes all 45 grantees.
- **Occupation Level.** To understand how grant activities and experiences vary across occupational contexts, the survey asked grantees to report up to three occupations where they support one or more apprenticeship programs. The details and labor market context of an occupation are important determinants of how sponsors design apprenticeship programs and of outcomes for participating apprentices (Lerman, Loprest, and Kuehn 2019).

Grantees can register multiple apprenticeship programs in the same occupation. For example, two different hospitals served by the same grantee might each have their own Nursing Assistant program supported by AAI grant funds. Because the Grantee Survey asked grantees about their experiences with apprenticeships in different

Box 3: Grantee Survey Topics

- Grantee background
- Apprenticeship program context
- Perspectives on mission, training, and apprenticeship
- Relationship with partner organizations not including sponsors
- Relationship with employers, unions, and other sponsors
- Marketing and outreach to employers
- Recruitment, intake, and enrollment of apprentices
- Related technical instruction
- On-the-job learning
- Pre-apprenticeship
- Support services

¹⁶ The Paperwork Reduction Act requires that agency information collections minimize duplication and burden on the public, have practical utility, and support the proper performance of the agency's mission. The Information Collection Review for the grantee survey is available at:

https://www.reginfo.gov/public/do/PRAViewICR?ref_nbr=201802-1290-002. The OMB Control Number is 1290-0017.

occupational fields, the responses to the occupational field questions in the survey potentially capture experiences across several apprenticeship programs in the same occupation.

The survey collected information on topics such as RTI and OJL design and content, perceived occupational surpluses and shortages, and average hourly wages at the occupation level. The 45 grantees responded with information on programs for 126 occupations (see Appendix C). This report categorizes programs in these occupations into five broad occupational fields: manufacturing, construction, healthcare, IT, and “other”.¹⁷

1.2.2 Site Visits

The evaluation team conducted site visits to 10 grantees between March and June 2019, four years into their five-year grants, when grantees likely implemented most planned activities and grantee activities operated at a steady state.

The site visit grantees include the two participating in the employer recruitment demonstration sub-study and eight selected for diversity in the type of grantee institution (e.g., nonprofit, community college), grantee performance relative to targets (e.g., percentage of target attained for apprenticeship programs registered), and grantee history with apprenticeships (i.e., new or experienced). These eight grantees also have one or more of the following features: (1) implemented an innovative or promising approach to engaging sponsors or employers or to enrolling apprentices, (2) successfully met an implementation challenge, or (3) accomplished a notable achievement (e.g., enrolling high proportions of underrepresented groups, introducing apprenticeship to a new industry).¹⁸ The site visits provide examples of specific experiences in the data identified in the grantee survey.

1.2.3 Quarterly Performance Report System Data

A final data source is the Quarterly Performance Report (QPR) system. Grantees use the QPR to submit data to DOL quarterly. The report uses the QPR summary data to characterize the progress of grantees in achieving their apprentice registration targets through December 31, 2019, to align with the year that the evaluation team fielded the Grantee Survey.¹⁹ The team also uses individual-level QPR data to describe characteristics of the apprentices and their occupational fields.²⁰

¹⁷ Examples of “other” occupations are apprenticeships in insurance, financial planner, commercial driver’s license (CDL) driver, dock worker, and facilities maintenance.

¹⁸ The National Governors Association (NGA) Center for Best Practices, which was the technical assistance provider for the AAI grantees, developed a set of six elements hypothesized to contribute to grantees’ success in meeting the objectives of the AAI grants. NGA (2017) developed site summaries of select AAI grantees focused on these elements, and the evaluation team reviewed the summaries to identify innovative or promising approaches, notable achievements, and examples of grantees overcoming implementation challenges.

¹⁹ In their AAI grant application, each grantee established the target numbers of apprentices and pre-apprentices (if applicable) it intended to serve with the funds, as well as the target number of apprentices to be registered. Because the goal of the AAI grant program is to scale registered apprenticeship, the target number of apprentices is a more relevant metric than the target number of individuals served.

²⁰ The QPR summary data are available through December 31, 2019. The individual-level data are from an extract through December 10, 2019. The summary data file includes an additional 570 apprentices registered after the December 10 individual-level data extract.

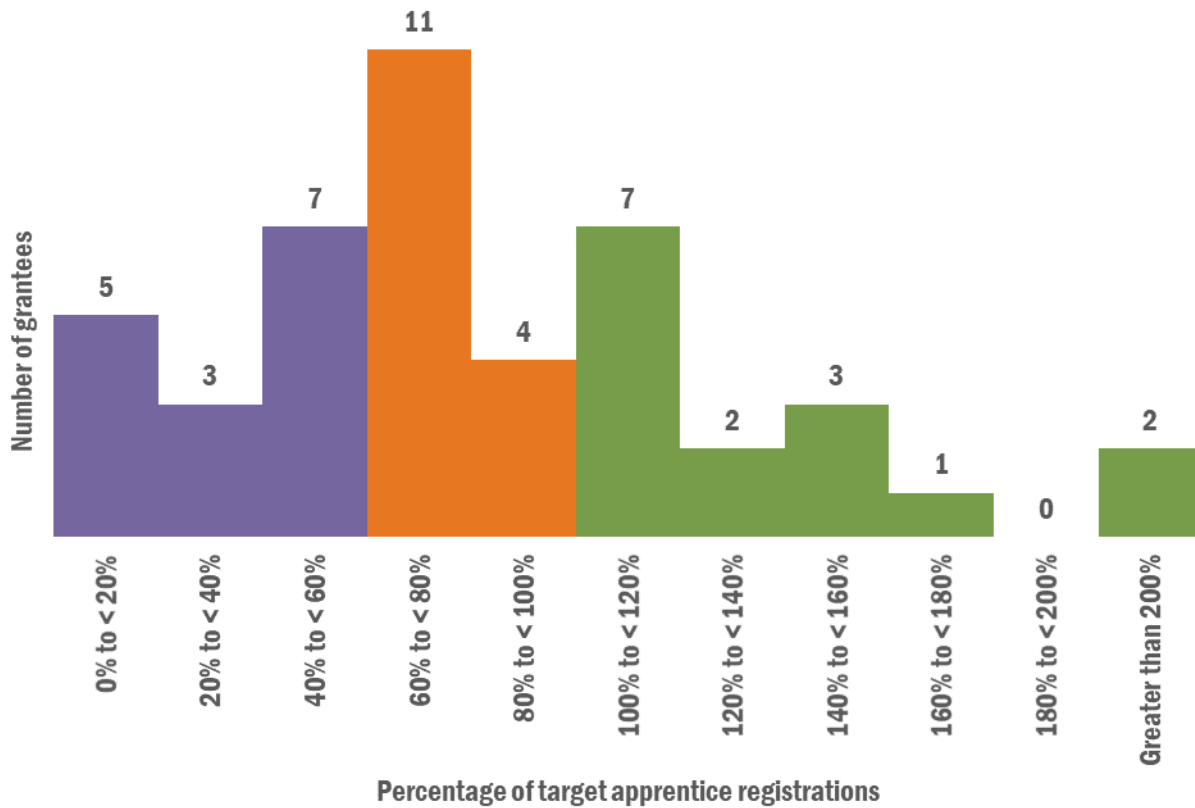
Using the December 31, 2019, summary data, the team divides the 45 grantees into three equal categories based on their progress toward registering their target number of apprentices. Each category includes 15 grantees:

1. Grantees that registered less than 60 percent of their target number of apprentices;
2. Grantees that registered at least 60 percent but less than 100 percent of their target number of apprentices; and
3. Grantees that registered 100 percent or more of their target number of apprentices.

Throughout this report, the evaluation team analyzes responses to some Grantee Survey questions separately for these three progress categories. The objective of the analyses is to explore whether there are common features or activities among those grantees that have been more or less successful in achieving the apprentice registration targets set forth in their applications.

Exhibit 1-1 charts the distribution of the percentage of apprentices registered by each grantee, relative to its recruitment target. As of December 31, 2019, grantees registered on average 82 percent of their target number of apprentices.

Exhibit 1-1. Distribution of Grantees' Progress toward Their Apprentice Registration Target



Source: AAI Quarterly Performance Report, as of December 31, 2019. Reported at the grantee level. N=45.

1.3. Overview of the Report

The remainder of this report describes the characteristics of AAI grantees (Chapter 2); employer engagement (Chapter 3); apprenticeship program registration (Chapter 4); identifying apprentices (Chapter 5); components of apprenticeship programs (Chapter 6); pre-apprenticeship programs (Chapter 7); and support services for apprentices and pre-apprentices (Chapter 8). Chapter 9 summarizes findings. Appendix A provides an overview of the AAI grantees. Appendix B depicts the AAI logic model. Appendix C lists the occupations grantees reported on in the survey. Appendix D provides supplemental Grantee Survey data tables.

2. Characteristics of Grantees

This chapter describes the AAI grantees by organization type, partners and their roles, apprenticeship program occupations pursued, and the populations targeted.

2.1. Types of Grantees and Their Roles

This section discusses the types of entities that received AAI grants (Box 4), the grantees’ prior experience with apprenticeship, and the roles they play in designing and operating the AAI apprenticeship programs.

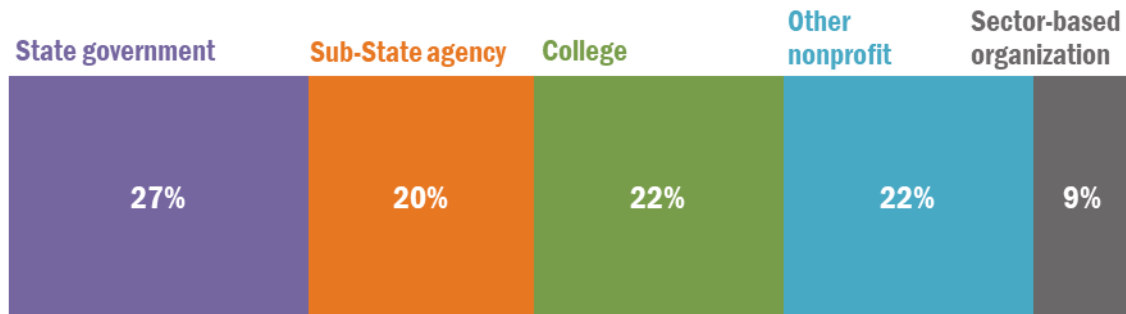
- **State and sub-State government agencies are the most common grantee types.**

Of the 45 grantees surveyed, government agencies are the most common type of entity leading AAI grant efforts. Twelve grantees (27 percent) are State government agencies, and nine (20 percent) are sub-State government agencies. Ten grantees (22 percent) are colleges, and four grantees (9 percent) are sector-based organizations (e.g., industry associations and labor organizations, or joint labor-management committees).²¹ Ten grantees (22 percent) are “other nonprofit” organizations (Exhibit 2-1).

Box 4: Types of AAI Grantees

- **State government agencies** include agencies such as a State department of labor and industry, as well as State Apprenticeship Agencies
- **Sub-State government agencies** include local workforce development boards, American Job Centers, and local government agencies
- **Colleges** include community and technical colleges
- **Other nonprofits** include community or faith-based service providers and nonprofit training providers other than colleges
- **Sector-based organizations** include labor associations or federations; joint labor-management committees; and industry, professional, or trade associations

Exhibit 2-1. Number of Grantees, by Grantee Type



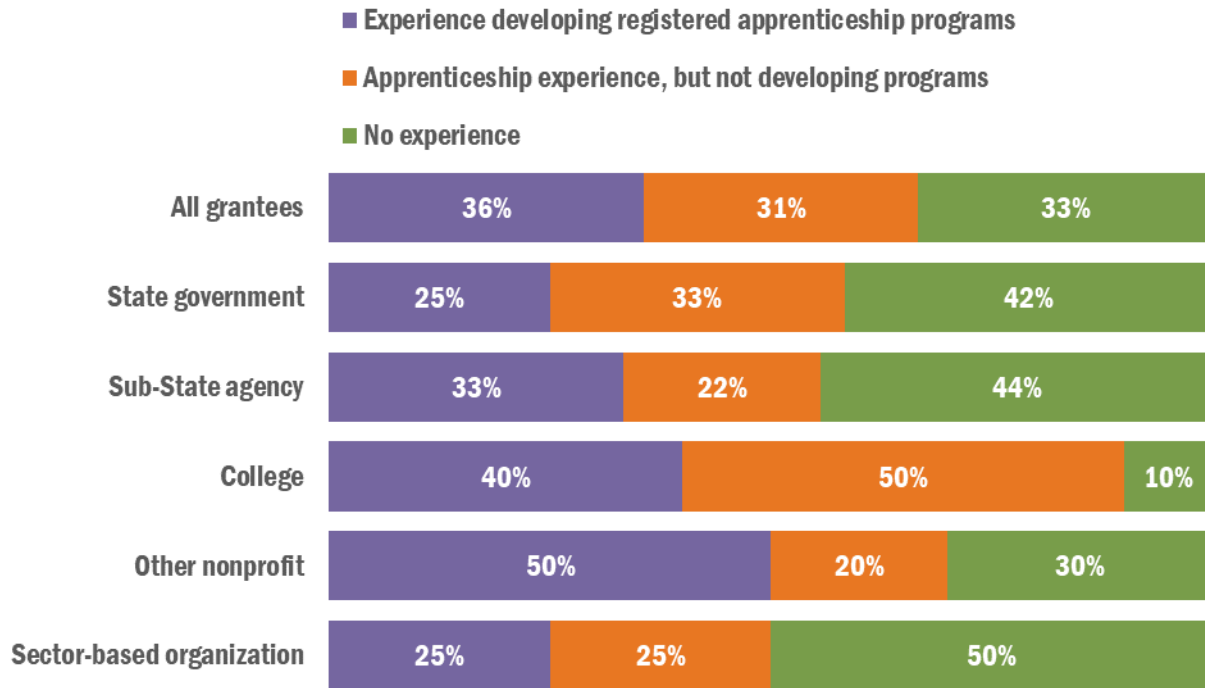
Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=45.

²¹ Some grantees that are closely affiliated with a joint labor-management committee self-identified as “nonprofits” instead of labor organizations because they are the nonprofit arm of that organization. As a result, labor-management committees are represented in both “sector-based organizations” and “other nonprofit organizations” depending on how the grantee self-identified.

- **About one-third of grantees have no prior experience developing registered apprenticeship programs.**

Grantees’ prior experience with registered apprenticeship varies. About equal proportions of grantees have no prior experience with registered apprenticeship (33 percent), have some experience with apprenticeship but not with developing programs (31 percent), and have developed registered apprenticeship programs before being awarded the AAI grant (36 percent) (Exhibit 2-2). Looking at prior experience with registered apprenticeship by grantee type, colleges are the most experienced overall: 90 percent report some experience with apprenticeship. (See Appendix D, Table 1 for more detailed categories of grantee experience with registered apprenticeship.)

Exhibit 2-2. Prior Experience with Apprenticeship, by Grantee Type



Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=45.

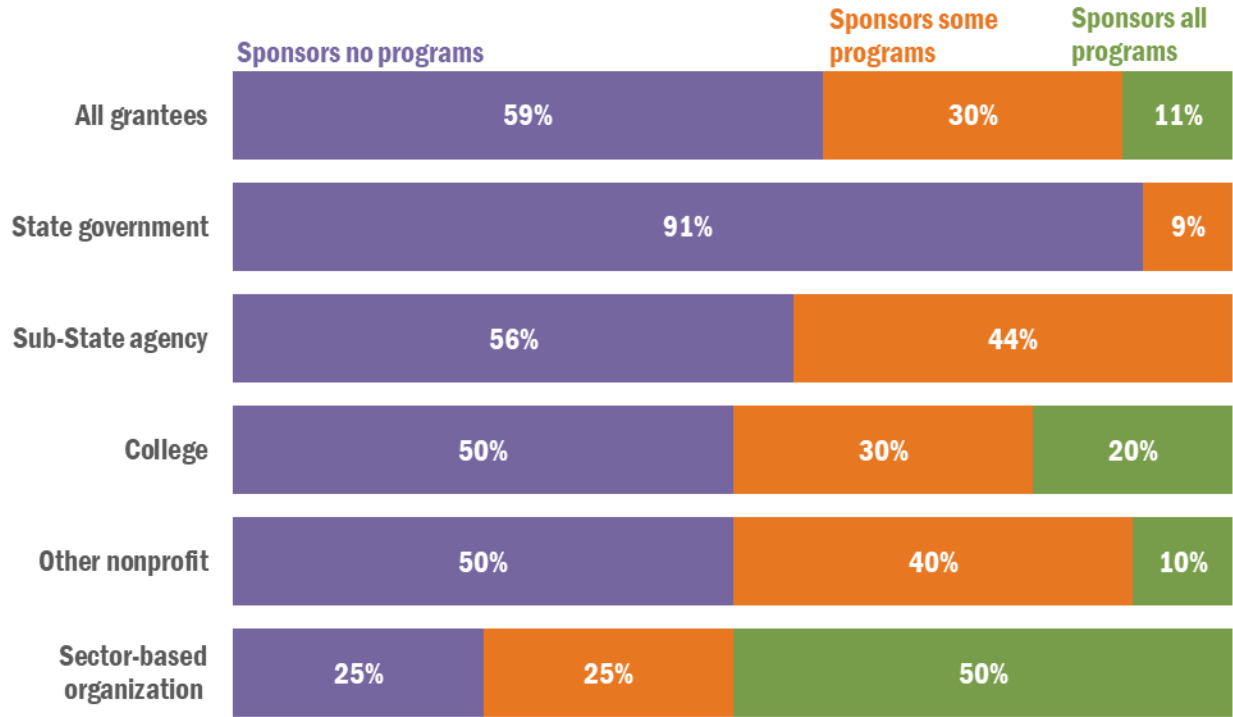
- **Over 40 percent of grantees sponsor at least some registered apprenticeship programs.**

Some grantees (41 percent) make it easier for interested employers to participate in an apprenticeship program by becoming apprenticeship sponsors themselves, thereby allowing the employer to limit their administrative burdens simply by signing onto an approved Standards of Apprenticeship. At the same time, fifty-nine (59) percent of grantees do not sponsor any registered programs under their grant. As shown in Exhibit 2-3, most State government agencies (91 percent) and more than half of sub-State agencies do not sponsor any apprenticeship programs. Half of the colleges and half of the other nonprofit grantees do not sponsor any programs. One of the four sector-based grantees does not sponsor any programs.

Frequently, State government agencies are SAAs or State departments of labor responsible for serving apprenticeship programs across the State, rather than investing resources in their own sponsored

programs. In contrast, sector-based grantees are often affiliated with unions, which have a long history of sponsoring apprenticeship programs.

Exhibit 2-3. Grantees’ Role in Sponsoring Registered Apprenticeship Programs, by Grantee Type

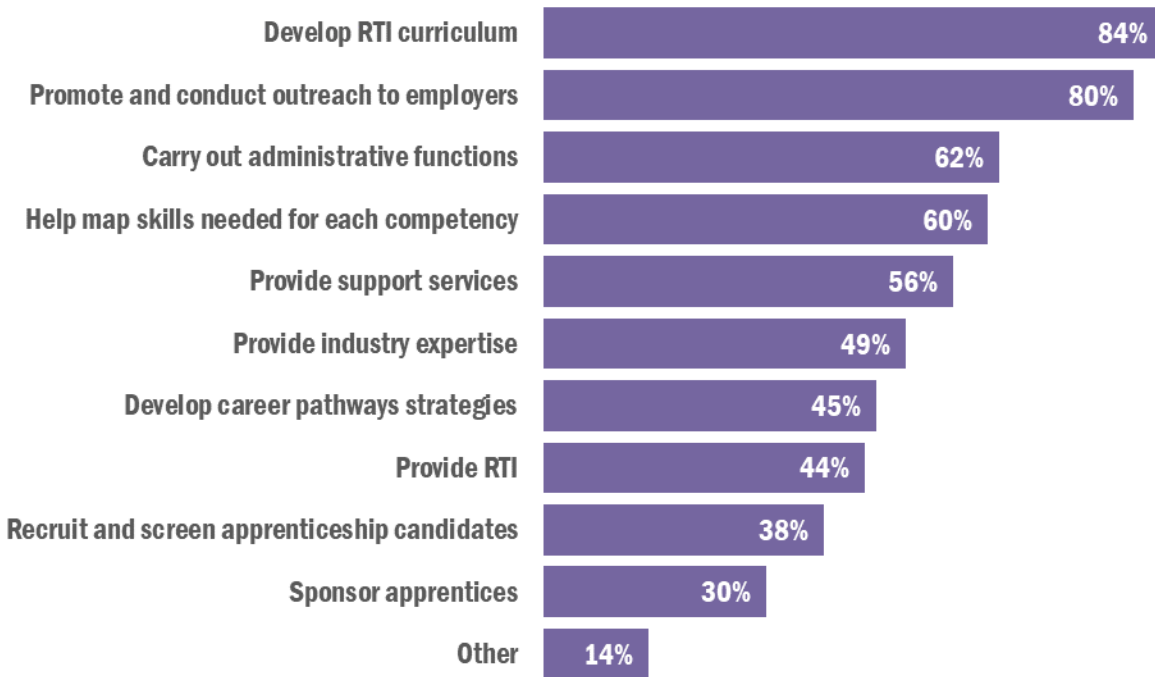


Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=45.

- ***The most common grantee apprenticeship roles are developing RTI curriculum and conducting employer outreach.***

While apprenticeships require employers to offer apprenticeship slots, it is not always easy to persuade employers to participate in registered apprenticeship. Eighty percent (80) or more of grantees report involvement in RTI curriculum development (84 percent) and reaching out to employers to register apprenticeship programs (80 percent) (Exhibit 2-4). It is much less common for grantees to directly recruit and screen apprentices for employers (38 percent) or to sponsor apprentices directly (30 percent).

Exhibit 2-4. Grantees’ Role in Developing Registered Apprenticeship Programs



Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=45.

Promotion and outreach to employers is the most common role other nonprofit grantees play (for 93 percent of their apprenticeship programs), and all other types of grantees report this as a common role for about three-quarters of their programs (between 73 and 82 percent). The types of grantees that most commonly report developing an apprenticeship program’s RTI curriculum are sector-based grantees (for 100 percent of their occupations), State government entities (91 percent), and other nonprofit grantees (89 percent). (See Appendix D, Table 2.)

Other kinds of grantee involvement in apprenticeship programs vary by the grantee type. College grantees provide RTI for 70 percent of their apprenticeship programs, whereas other nonprofits do so for 61 percent. Sector-based organizations, sub-State agencies, and other nonprofit grantees recruit and screen apprenticeship candidates for about half of their occupations. Sub-State agencies and colleges provide support services to apprentices in large shares of their occupations (88 and 77 percent, respectively). Other nonprofits (for 79 percent of their programs) and sector-based organizations (67 percent of their programs) tend to map skills needed for competencies. (See Appendix D, Table 2.)

2.2. Partnerships

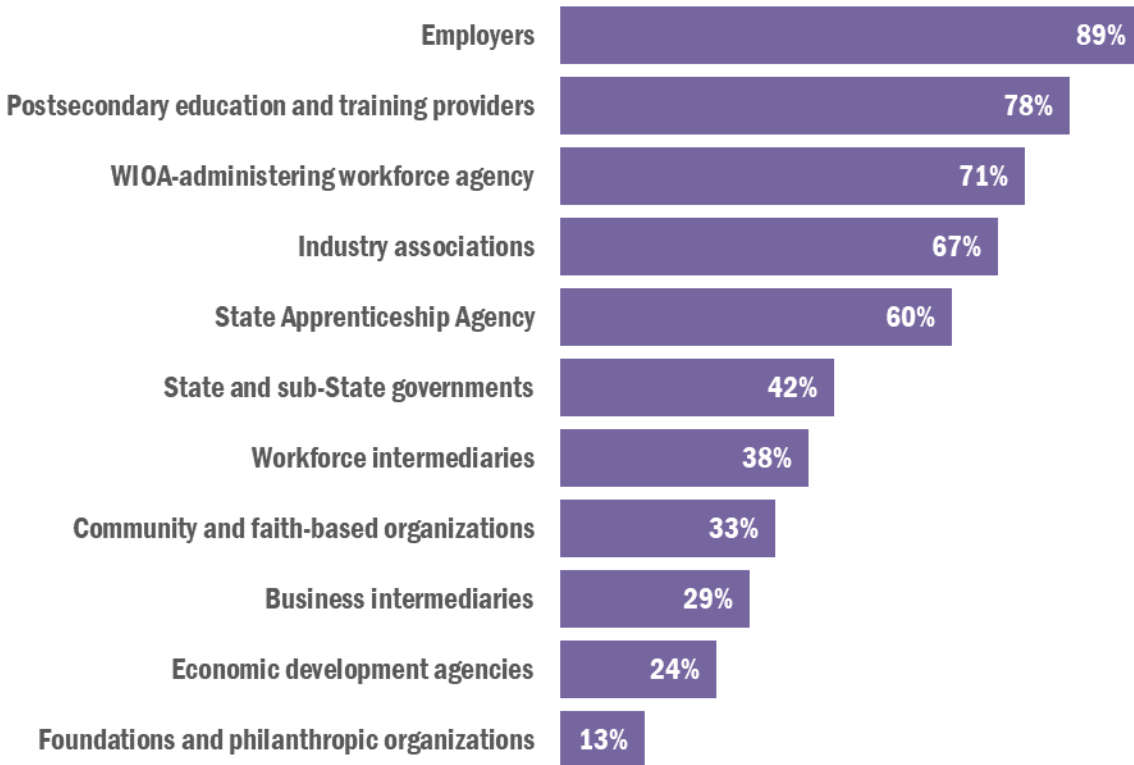
As noted in Chapter 1, DOL requires grantees to establish public-private partnerships to design and implement grant activities. This section presents the types of entities with which grantees partner overall, as well as the types of partnerships each type of grantee maintains. Later chapters in this report describe partners’ involvement in apprenticeship program registration (Chapter 4) and marketing to and recruitment of apprentices (Chapter 5).

- **Grantees most commonly partner with employers, postsecondary education and training providers, and WIOA-administering workforce agencies.**

Almost 90 percent of grantees (40 out of 45 grantees) report partnering with employers (Exhibit 2-5). Every grantee supports employers participating in registered apprenticeship programs. However, five grantees did not identify employers as “partners,” possibly because they may have considered participating employers as customers rather than direct contributors to grant activities.

More than three-quarters of grantees report partnering with education and training providers, reflecting RTI’s important role in apprenticeship programs. Workforce agencies administering the Workforce Innovation and Opportunity Act (WIOA) and industry associations are about equal in their prevalence as grant partners (71 and 67 percent, respectively), and 60 percent of grantees report partnering with SAAs. Other types of partners are less common.

Exhibit 2-5. Grantees’ Partners



Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=45.

Partnerships vary across grantee types. For four of the five grantee types, the common partners are employers, WIOA-administering workforce agencies (see Box 5 for examples), and postsecondary education and training providers. Sector-based organization grantees are the exception, having lower levels of participation from those types of partners. SAAs are common partners for State governments and

other nonprofits. Three of the four sector-based organization grantees report industry associations as common partners. (See Appendix D, Table 3.)

2.3. Occupations of Registered Apprentices and Apprenticeship Programs

As noted above, AAI grantees must support the registration of new apprenticeship programs in H-1B-related and high-growth industries and occupations. In its grant solicitation, DOL highlighted IT, healthcare, business services, and advanced manufacturing as priorities for registering apprentices. AAI also promotes the expansion of registered apprenticeship programs in other industries, including those with no history of using registered apprenticeship. In many cases, grantees sponsor a large number of apprenticeship programs in many occupations, although the Grantee Survey asked grantees to report in detail on only up to three occupations.²² This section analyzes data reported by grantees to DOL through the QPR on all the occupations for which apprentices register. It then analyzes occupational data reported in the Grantee Survey.

■ ***A large share of AAI apprentices register in manufacturing and construction programs.***

As reported by grantees to DOL, as of December 31, 2019, AAI grantees registered about 24,000 apprentices. The most common apprentice occupations are manufacturing (35 percent), followed by construction (22 percent); healthcare accounts for 14 percent of AAI apprentices and IT accounts for 8 percent. The remaining AAI apprentices are associated with some other occupation, including installation, maintenance and repair; insurance and banking; and transportation (Exhibit 2-6, orange bars). By way of comparison, 68 percent of all civilian apprentices registered in the United States are in construction occupations (not shown).²³

Box 5: Workforce Agency Partnerships
(Grantee Case Study)

The **Wisconsin Department of Workforce Development's** Bureau of Apprenticeship Standards partners with all 11 workforce development boards in the State, allowing them to implement activities they deem work best in their local areas.

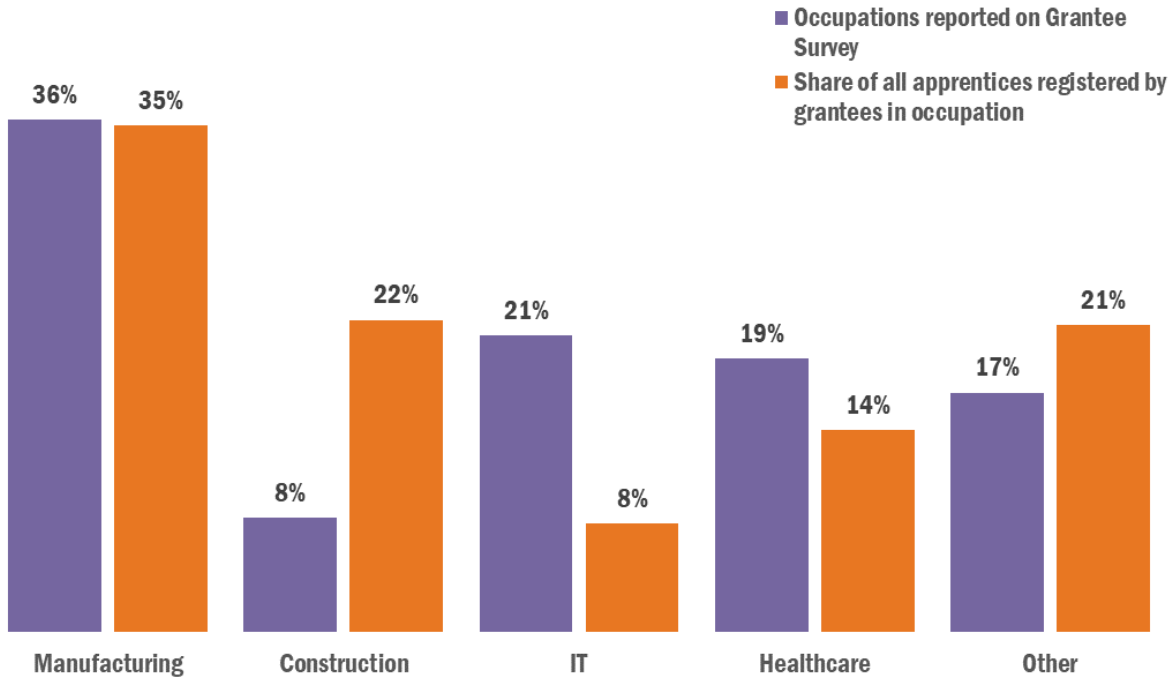
Managed Career Solutions operates American Job Centers and leverages its relationships with employers as part of its broader employment services portfolio to identify employers for the AAI grants. It also sponsored a workforce development apprenticeship from which Managed Career Solutions hired AAI apprentices internally through the grant.

Several workforce agencies, including **Shenandoah Valley Workforce Development Board**, Wisconsin Department of Workforce Development, and the **Workforce Development Board of Herkimer, Madison, and Oneida Counties**, worked routinely with SAA staff to identify, assist, and support employers in developing registered apprenticeship programs.

²² Typically, a grantee supported multiple registered apprenticeship programs in each occupation.

²³ See industry breakdown in “Federal Data: Active Apprentices by Industry for Fiscal Year 2018” at https://www.doleta.gov/oa/data_statistics2018.cfm. These data cover apprenticeship programs that report data to the federal Office of Apprenticeship rather than to the SAA, and therefore may not be exactly representative of apprentices nationally. Kuehn (2019) estimates that these federal apprenticeship data cover about 73 percent of the apprentice population.

Exhibit 2-6. Distribution of Grantees' Registered Apprenticeship Programs and Registered Apprentices, by Occupational Field



Source: AAI Grantee Survey Occupations data: AAI Evaluation Grantee Survey. Reported at the occupation level. N=126. Apprentice data: AAI Quarterly Performance Report, as of December 31, 2019. Reported at the apprentice level. N=22,121 apprentices. Sample size is less than 23,392 because some apprentices did not have occupations reported.

Note: The Grantee Survey asked grantees to report on their apprenticeship programs in up to three occupational fields. These programs are not necessarily statistically representative of all AAI apprenticeship programs.

The most common occupations documented by the Grantee Survey are in manufacturing (36 percent). The grantee survey data differ somewhat with the QPR data on apprentice occupations. Twenty-one (21) percent of the occupations reported on the Grantee Survey are IT occupations and 19 percent are in healthcare; these percentages are higher than QPR-reported shares of grantee apprentices working in occupations in those fields (Exhibit 2-6, purple bars). Conversely, fewer grantees reported on programs in construction occupations (8 percent) compared with the share of grantee apprentices registered in those occupations and reported on in the QPR data (22 percent).

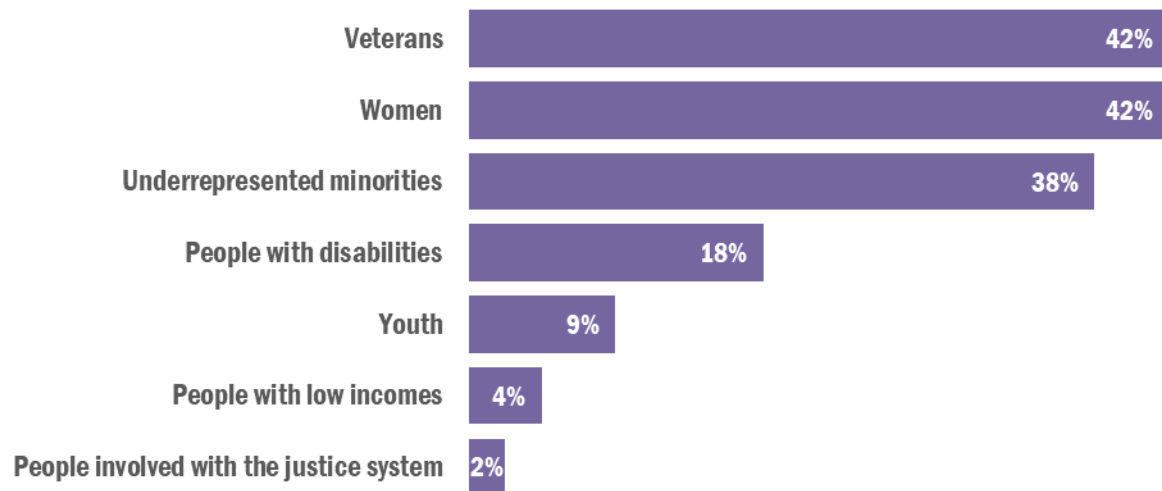
2.4. Grantee Target Populations

To be eligible to participate in an AAI-funded apprenticeship or pre-apprenticeship, applicants must be age 18 or older, or at least age 16 and not currently enrolled in high school. DOL also encourages grantees to target populations that are underrepresented in apprenticeships or that would benefit from apprenticeship, including women, racial and ethnic minorities, people with disabilities, and veterans.

- **Grantees most commonly target veterans and women for apprenticeships.**

Eighty-four (84) percent of grantees target specific populations. Grantees commonly target women and veterans (42 percent of grantees for each) as well as racial and ethnic minorities (38 percent). Eighteen (18) percent of grantees focus on people with disabilities. Targeting other populations is much less common (Exhibit 2-7).

Exhibit 2-7. Populations Targeted by Grantees



Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=45.

3. Engaging Employers

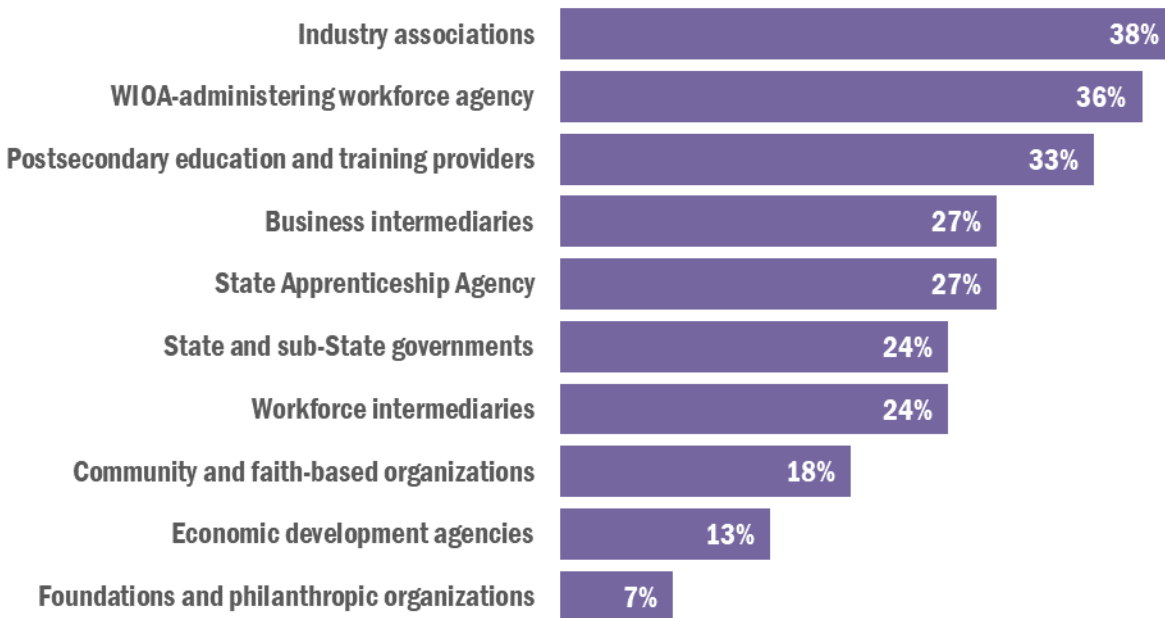
Employers willing to hire apprentices are necessary to grantees' success in expanding registered apprenticeship. This chapter describes how grantees attempt to encourage employers to create apprenticeship programs and to offer apprenticeship slots, and reasons employers cite for not adopting apprenticeship.

3.1. Sources for Recruitment of Employers

- ***Industry associations, public workforce agencies, and postsecondary education and training providers are the grantees' most common partners for employer recruitment.***

Grantees rely on a variety of partners to help identify and recruit employers and other sponsors. Exhibit 3-1 shows how often particular partner types provide assistance. More than a third of grantees report industry associations, WIOA-administering agencies, and postsecondary education and training providers as contributors to employer and sponsor recruitment efforts. Few grantees report involvement of foundations (7 percent) or economic development agencies (13 percent).

Exhibit 3-1. Partner Types Contributing to Grantee Employer and Sponsor Recruitment



Source: AAI Evaluation Grantee Survey. Reported at the grantee level. *N*=45.

- ***Apprenticeship Training Representatives (ATRs) commonly assist nonprofit grantees and grantees with prior experience with employer recruitment.***

Grantees report ATRs as a common source of help in recruiting employers and other sponsors. ATRs are employees of OA that are available to help recruit employers and to develop and register programs.²⁴ All States that register apprenticeship programs through OA (known as “OA States”) have federal ATRs.

²⁴ Some SAAs also call State-level staff in similar roles Apprenticeship Training Representatives.

Even in States that register programs through the SAA (“SAA States”), a federal ATR assists their State or region in promoting apprenticeship as well as registering programs using national standards.²⁵

For 42 percent of apprenticeship programs, grantees report ATR help in recruiting employers and other sponsors. Nonprofit grantees are the most likely to report receiving help from ATRs (57 percent), while sub-State government agencies and sector-based grantees are the least likely to do so (19 and 33 percent, respectively). (See Appendix D, Table 4.) In place of an ATR, some grantees report staff other than ATRs and partners help with recruitment activities. For example, 89 percent of sub-State government agencies have staff dedicated to recruitment (Exhibit 3-3).

Sector-based organizations are often connected with employers in their relevant industries and might not require the assistance of an ATR. Surprisingly, grantees with prior experience developing a registered apprenticeship program are more likely to receive help from ATRs (53 percent) than are grantees with no experience (32 percent) or with apprenticeship experience but no experience developing a program (40 percent). (See Appendix D, Table 5.)

Having received ATR assistance in recruiting employers is associated with greater grantee progress toward apprentice registration targets. Two-thirds of occupations reported by grantees that have made the most progress (reaching or exceeding their target) receive help from an ATR. By contrast, only 20 percent of occupations at grantees that have made the least progress receive help from an ATR. (See Appendix D, Table 6.)

3.2. Grantee Use and Perceived Helpfulness of Approaches to Find Employers

- ***Helpful outreach strategies involve direct contact or a personal relationship.***

Grantees use a variety of outreach methods, but they report some strategies are more valuable than others. Exhibit 3-2 lists common employer outreach strategies grantees use and the percentage of grantees that considered the strategy “very helpful.”²⁶ Strategies rated most helpful generally involve a personal relationship.

No single strategy was reported as a “silver bullet” for engaging employers. The only strategy rated as “very helpful” by more than half of relevant survey respondents is word of mouth (64 percent). Most strategies are not reported as “very helpful.”

Among remaining strategies, the next most commonly reported as “very helpful” are networking activities to make new connections with employers and in-person

Box 6: AAI Grantee Employer Outreach (Grantee Case Study)

The **South Carolina Technical College System** reported that word-of-mouth outreach works well because its apprenticeship initiative is well recognized among employers within the State and many refer other employers to the grantee.

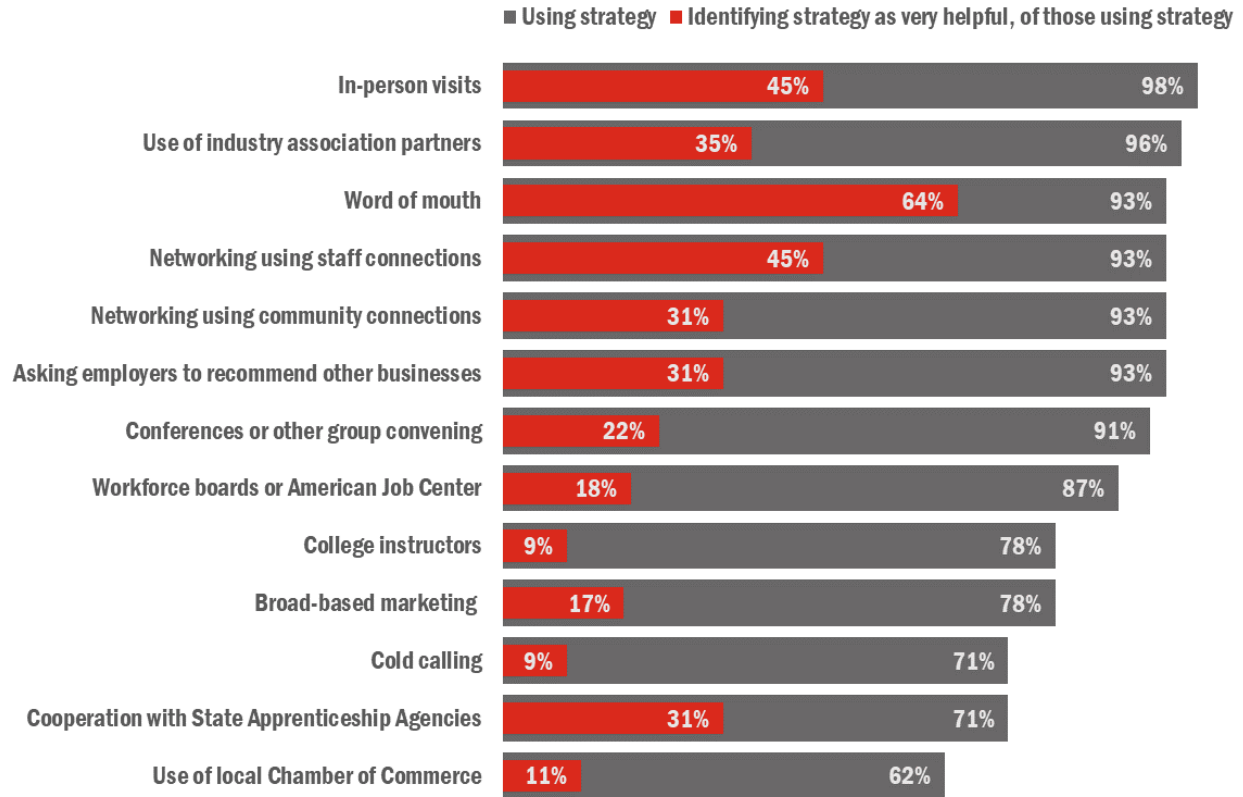
Managed Career Solutions partners with a nonprofit organization sponsored by the German government that is focused on expanding the German model of apprenticeship in the United States. Staff from this organization provide support to Managed Career Solutions’ employer outreach staff on strategies for marketing apprenticeships to employers that traditionally do not use them.

²⁵ National standards are apprenticeship program standards registered with OA that can be used by a sponsor in any State. They are typically used by sponsors that operate in many States.

²⁶ The Grantee Survey asked only grantees that use a particular strategy whether they found the strategy helpful.

visits to employers (each 45 percent). These strategies involve developing and drawing on personal relationships. In-person visits are also an outreach method frequently employed after a grantee has made an initial contact through referrals, networking, conferences, or cooperation with other partners. Box 6 provides examples of outreach strategies.

Exhibit 3-2. Strategies for Recruiting Employers and Other Sponsors Used by Grantees



Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=45.

Grantees report using a number of different talking points when marketing apprenticeship to employers. All grantees report mentioning the benefit of apprentices developing customized skill sets. The next most commonly used talking points are improving worker productivity and reducing turnover, each reported by 91 percent of grantees. Grantees are less likely to report broader social benefits as a selling point (73 percent). (See Appendix D, Table 7.)

Among grantees that made the most progress toward their apprentice recruitment targets as of December 31, 2019, 87 percent emphasize that the employee does not need to leave the workforce in order to develop the customized skill set.²⁷ By contrast, among grantees that have made the least progress, only 67 percent use this as a talking point. Overall, grantees report employers are more responsive to strategies

²⁷ Because all grantees reported using as a selling point “the apprentice develops a customized skill set that is specific to the employer’s needs”, it is not possible to examine variation in the use of that selling point among different grantee types.

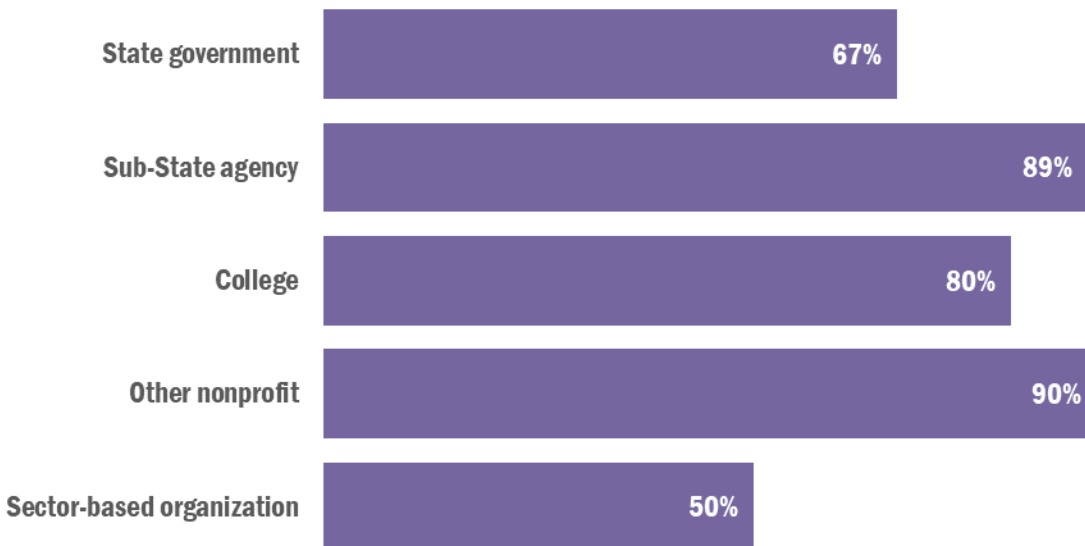
that emphasize worker productivity rather than availability of training providers.²⁸ This may explain why grantees are least likely to cite the availability of local RTI training opportunities as a selling point (47 percent of all grantees). (See Appendix D, Table 8.)

3.3. Additional Grantee Strategies for Employer Recruitment

- ***Grantees with the most success meeting their apprentice registration targets are more likely to have dedicated recruitment staff.***

A majority of grantees (78 percent) report having staff dedicated to employer recruitment (see Appendix D, Table 9), as opposed to having recruitment as one of a staff member's other responsibilities. Some types of grantees are more likely than others to have a dedicated employer recruiter (Exhibit 3-3). For instance, whereas 90 percent of other nonprofits have full-time staff dedicated to employer recruitment, only two-thirds of State government grantees and half of sector-based grantees do.

Exhibit 3-3. Prevalence of Dedicated Employer Recruitment Staff, by Grantee Type



Source: AAI Evaluation Grantee Survey. Reported at the grantee level. *N*=45.

²⁸ Reinforcing this observation, a survey of apprenticeship sponsors documents employers placing a high value on productivity gains (Lerman, Eyster, and Chambers 2009).

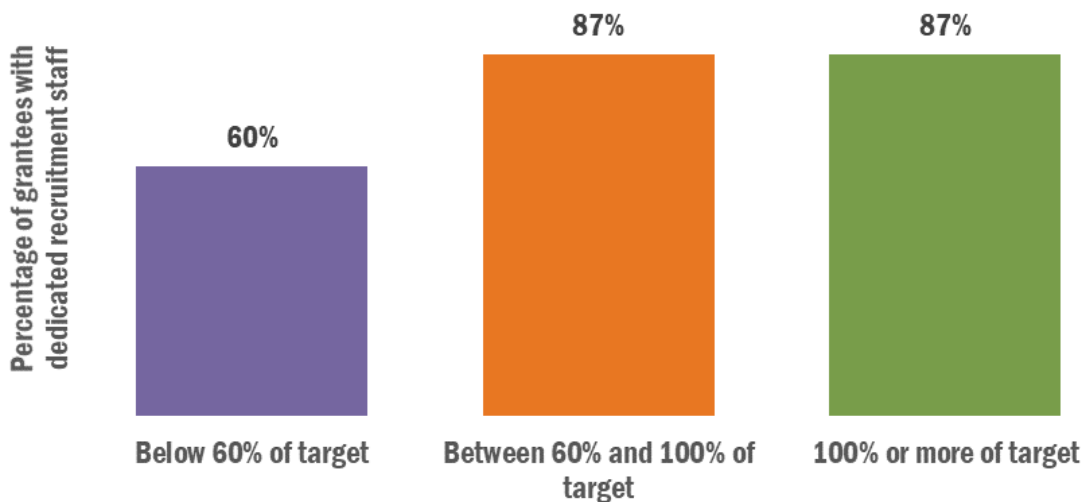
Box 7: Dedicated Employer Outreach Staff
(Grantee Case Study)

The **South Carolina Technical College System** employs multiple staff in an apprenticeship consultant role to focus on outreach to employers and assisting them to develop apprenticeship programs. The consultants are assigned to particular regions across the State and have developed strong working relationships with federal ATRs such that the ATRs can approve Apprenticeship Standards quickly—typically within 48 hours. The ATRs reportedly trust that apprenticeship consultants have developed quality programs that meet OA’s requirements.

The **Shenandoah Valley Workforce Development Board**, **William Rainey Harper College**, and the Massachusetts **Executive Office of Labor and Workforce Development** each uses grant funds to dedicate a full-time staff member to employer outreach. The role typically involves meeting in person with employers to learn about their labor needs and discuss how apprenticeship could help address them, assisting employers with identifying RTI providers, helping employers with the apprenticeship registration paperwork, and identifying apprentices on employers’ behalf.

Having staff dedicated to employer recruitment is associated with greater grantee progress toward apprentice registration targets. Eighty-seven (87) percent of grantees in the top progress category have staff dedicated full-time to employer recruitment (Exhibit 3-4). Among grantees in the lowest progress category, 60 percent have staff dedicated to employer recruitment. This association may also reflect the fact that grantees with dedicated recruitment staff have other program features that also contribute to progress toward apprentice registration targets (e.g., more staff). Box 7 describes the roles of several grantees’ employer engagement staff.

Exhibit 3-4. Prevalence of Dedicated Employer Recruitment Staff, by Grantees’ Progress toward Their Apprentice Registration Target



Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=45.

■ **More than half of grantees offer financial support to potential employers.**

The survey asked grantees what “financial incentives” they offer to support potential employers and encourage those employers to register apprenticeship programs.²⁹ These financial supports took a variety of forms, including subsidies or reimbursements for RTI or OJL or the costs associated with developing and registering a new apprenticeship program. Reimbursements for RTI typically paid for apprentices’ tuition or other associated costs. While grant funds cannot be used to pay apprentices’ wages for their OJL hours, they can support OJL by defraying the costs of mentors’ wages or other OJL-related costs. Thirty-eight (38) percent of grantees offer financial support for RTI, and 31 percent reimburse employers’ OJL costs (not shown). Box 8 shows examples of financial supports grantees used.

Box 8: Use of Financial Supports
(Grantee Case Study)

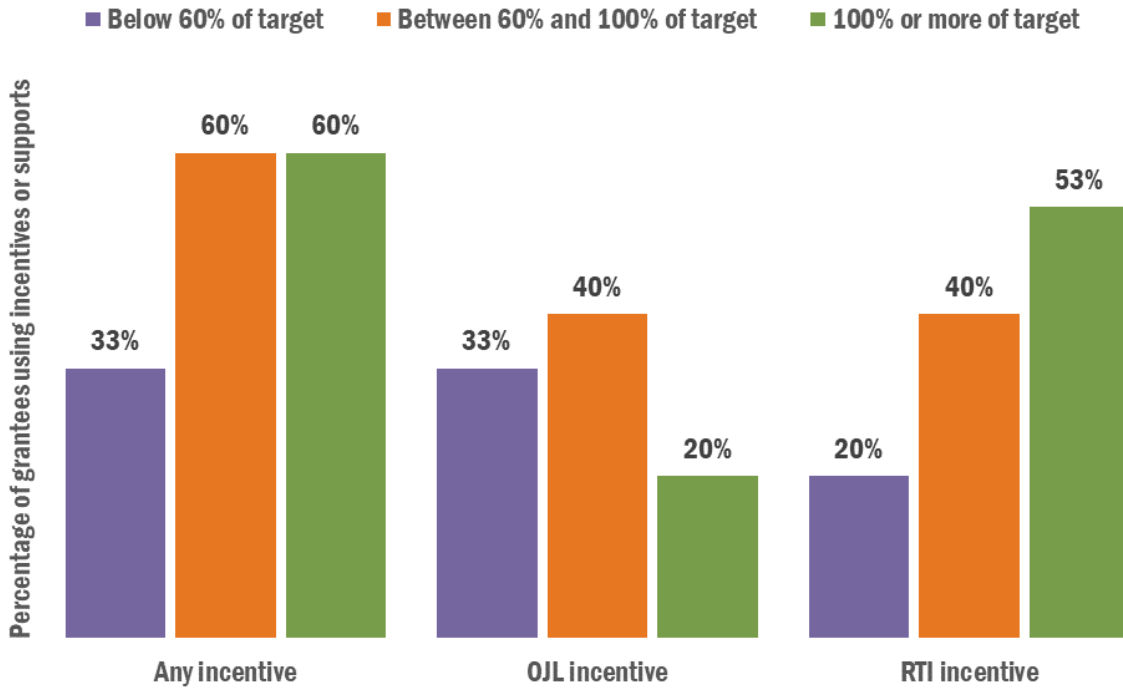
The Massachusetts **Executive Office of Labor and Workforce Development** offers reimbursement to employers for RTI costs, averaging \$4,000 and ranging from \$2,100 to \$7,500 per apprentice. The grantee also helps employers access a State tax credit of \$4,800 per apprentice to offset costs associated with apprenticeship programs. During site visits, several employers noted the instrumental nature of those funds in motivating them to register apprenticeship programs.

The **Shenandoah Valley Workforce Development Board** pays half of each apprentice’s RTI costs, averaging about \$2,600 each. The other half is paid for either by the sponsor (typically the employer) or through other sources, such as WIOA funds, federal financial aid, or State incentives to businesses. Either the grantee pays the training provider directly or the employer pays the training provider and is reimbursed by the grantee.

The use of financial supports to encourage employers to develop apprenticeship programs is positively associated with more grantee progress toward apprentice registration targets. Grantees making progress toward their target use these incentives more than grantees making less progress (Exhibit 3-5). In particular, financial support for RTI consistently increases with grantee progress; support for OJL does not.

²⁹ The term “monetary incentives” is used in the Grantee Survey and is not a term used in DOL’s Funding Opportunity Announcement. The term “incentive” is sometimes used to describe financial support offered to employers to encourage or defray the costs of apprenticeship. Unlike many other employment and training grant programs, the AAI grantees needed to persuade employers to develop and operate their own training programs.

Exhibit 3-5. Prevalence of Use of Financial Supports or Incentives, by Grantees' Progress toward Their Apprenticeship Registration Target



Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=45.

3.4. Employer Reservations about Apprenticeship

- **Employers cite time for mentorship and cost of training as barriers to apprenticeship.**

The Grantee Survey inquired about key obstacles or reservations that employers cite to grantee staff when they do not participate in an apprenticeship program for a particular occupation. As Exhibit 3-6 shows, the most common reason cited was no time for mentorship or OJL (64 percent), followed by training is too expensive (61 percent). Over half of grantees report that employers express concerns that apprentices will be hired or “poached” by other employers after completion. The least common concerns were possible liabilities and regulatory compliance burdens.

Exhibit 3-6. Prevalence of Challenges Cited by Employers in Creating and Registering Programs



Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=117.

4. Apprenticeship Program Registration

Once a grantee connects with employers to identify their workforce needs and the potential benefits of apprenticeship, it guides them (or another sponsoring organization) through the process of apprenticeship program registration. This chapter describes how grantees determine target occupations for apprenticeships, the length of time to register apprenticeships and grantee roles in registration, and challenges to creating and registering apprenticeships.

4.1. Determining Occupations to Target for Registered Apprenticeship

- ***Employer need and skills shortages determine the occupational focus of most grantees' registration efforts.***

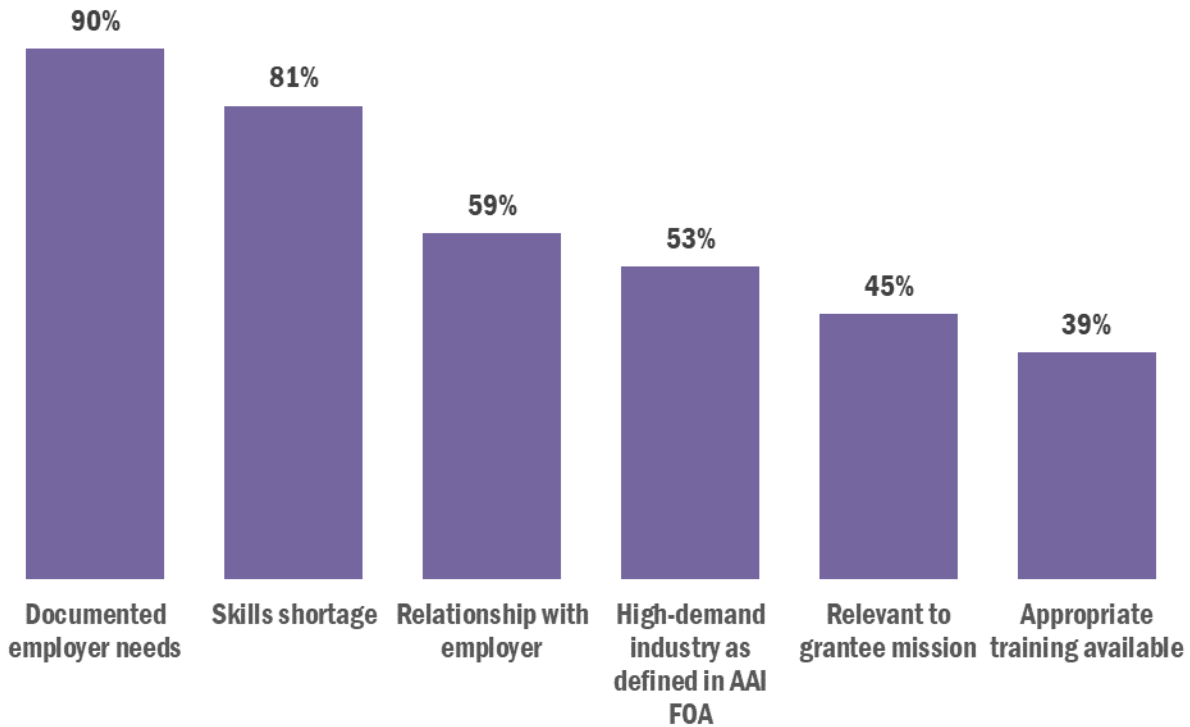
Grantees cite several reasons for targeting particular occupations for apprenticeship program registration (Exhibit 4-1, Box 9). Documented employer need is the most common reason for targeting particular occupations, cited for 90 percent of occupations. Employer needs can be identified informally, through a grantees' employer contacts, or formally by analyzing labor market information. A skills shortage is the second most cited reason (81 percent). Third, grantees target almost 60 percent of occupations for apprenticeship program development because of an existing relationship with an employer hiring in that occupation. These reasons indicate demand for apprentices in an occupational field is a key precondition for grant activity and program registration.

Box 9: Justifying Selection of Occupations (Grantee Case Study)

William Rainey Harper College reported that before creating an apprenticeship program, an employer or industry association must demonstrate that there is a demand for workers in a particular occupation. In addition, the college must also already have a course of study in place that can be modified to fit the apprenticeship's RTI needs.

Philadelphia Works reported that it used local labor market information and job opening data to determine that there were major talent needs in behavioral health and IT occupations. This data-driven determination of employer need was then confirmed through Philadelphia Works' contacts in healthcare and IT.

Exhibit 4-1. Grantees' Reasons for Developing an Apprenticeship Program in an Occupation



Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=126.

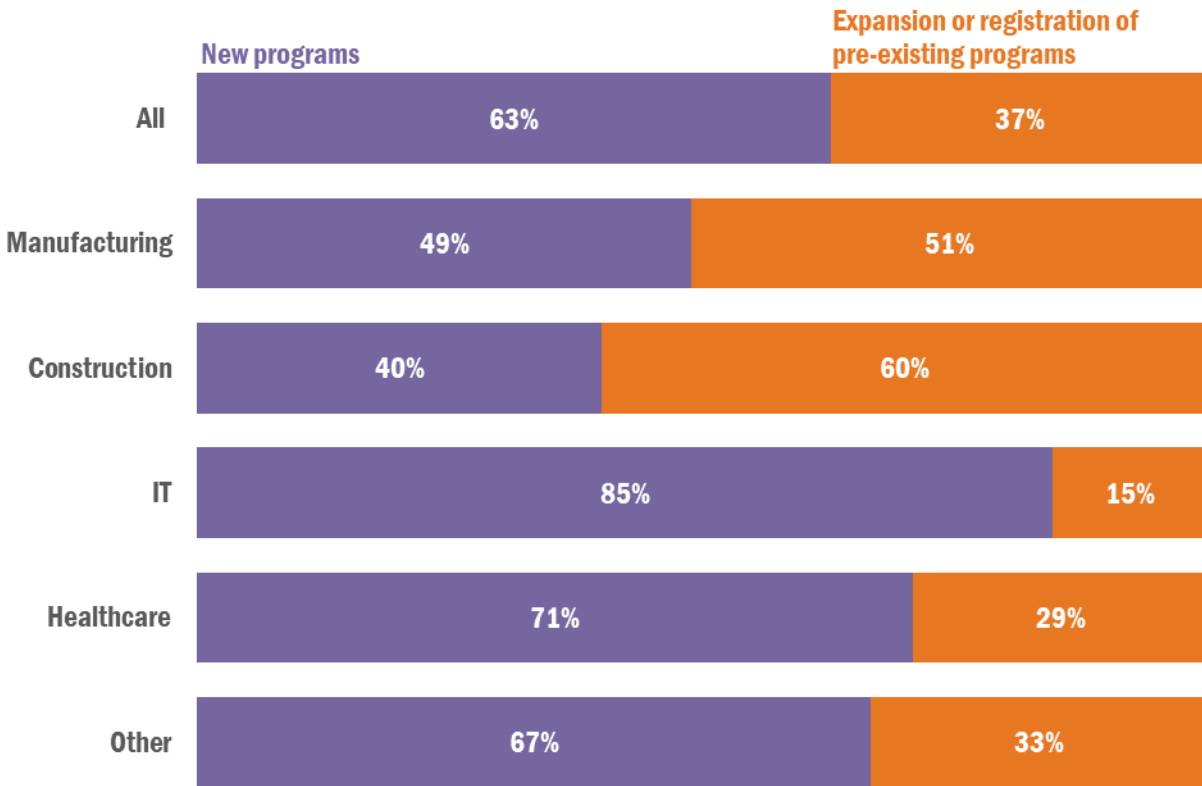
- ***Apprenticeship programs in over 60 percent of reported occupations are newly registered. Programs in IT occupations are more likely to be new.***

Apprenticeship programs in most occupations supported by the grantees and reported in the Grantee Survey are newly registered (63 percent).³⁰ Of the apprenticeship programs in the remaining occupations, 37 percent are expansions of registered apprenticeships (32 percent) or preexisting but unregistered apprenticeships (5 percent). (See Appendix D, Table 10.)

The extent to which apprenticeship programs are new or expansions varies by occupation (Exhibit 4-2). Programs in occupations where apprenticeship has a more established history, such as construction, are more likely to be expansions. By contrast, 85 percent of IT occupations reported by grantees consist of newly registered programs, as are 71 percent of programs in healthcare.

³⁰ As noted above, grantees reported on occupations where they are active, and they typically support multiple programs in the same occupation.

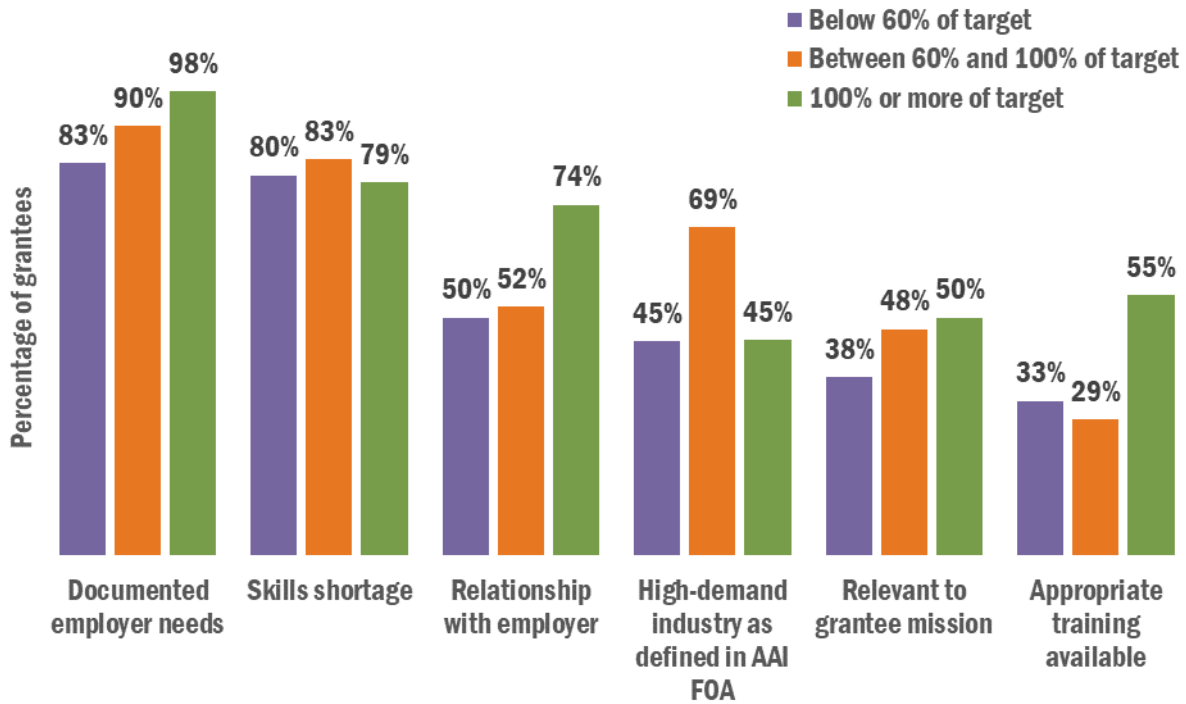
Exhibit 4-2. New Programs versus Expansions, by Occupational Field



Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=126.

Grantees that achieve or exceed their apprentice registration target are most likely to cite documented employer needs, a skills shortage, a relationship with an employer, and availability of appropriate training as reasons for selecting particular occupations for apprenticeship programs (Exhibit 4-3).

Exhibit 4-3. Reasons for Selecting Occupations for Apprenticeship Programs, by Grantees' Progress toward Their Apprentice Registration Target



Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=126.

4.2. Time to Register Apprenticeship Programs

- *On average, apprenticeship programs take almost six months to register, with a median time to registration of three months.*

The length of time required to register programs can affect the number of programs that a grantee can successfully register during its period of performance and therefore its progress toward its apprentice registration target. The registration process includes all steps, from assessing employer needs to developing a Standards of Apprenticeship to being notified by the OA or SAA that the program is approved. (See Box 10.)

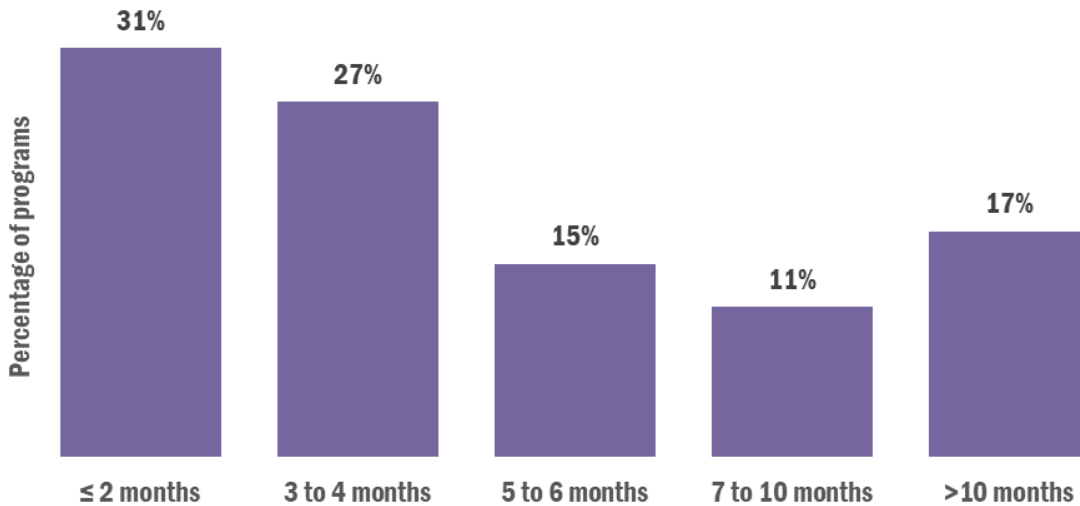
Box 10: Steps to Develop and Register an Apprenticeship Program

- Assess the workforce needs of the employer or occupation to understand how apprenticeship might be useful.
- Identify potential partners for providing RTI and other program components.
- Design and write up a Standards of Apprenticeship for the program, including any work process schedule or competency framework, wage schedule, RTI plan, and other expectations and obligations of the apprentice and the employer. Alternatively, adapt or adopt already approved standards.
- Submit standards to OA (in OA States) or the governing SAA (in SAA States) for approval; the approving body may request revisions to the standards before it grants approval.

Data from the survey capture how the time to register varies. Across all newly registered apprenticeship programs in the occupations reported by grantees, registration takes an average of 5.8 months. The median registration time is 3.0 months. A mean registration time that is higher than the median registration time implies that a small number of programs take much longer to register their programs, pulling the average several months higher than the median registration time. (See Appendix D, Table 11.) The typical apprenticeship programs in 31 percent of occupations take two months or less to register (Exhibit 4-4), whereas 17 percent of occupations take more than 10 months. The registration process takes longer when employers or other sponsors develop a new program. Registration is quicker when employers or other sponsors adopt a previously approved Standards of Apprenticeship.

Unexpectedly, a grantee’s history with the apprenticeship program registration process is not associated with the time it takes it to register a typical program. Program registration by grantees with no prior experience takes an average of 5.3 months, whereas program registration by grantees with prior experience averages 6.1 months. (See Appendix D, Table 11.)

Exhibit 4-4. Time to Register Apprenticeship Programs



Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=126.

■ **Grantees registering with OA register apprenticeship programs more quickly.**

Among grantees registering programs only with OA, 61 percent take two months or less to register (Exhibit 4-5). Among those registering programs only with the SAA, 22 percent received approval in a two-month window. Overall, program registration took on average about four months when registering only with OA and about seven months when registering only with the SAA.³¹ That programs registering with OA are registered more quickly could indicate greater efficiency by OA; it may also reflect that re-using existing Standards of Apprenticeship (i.e., already approved by OA) requires less development by the sponsor and makes approval easier once submitted (Ayres 2014; Elliott 2019).

³¹ The median registration time for programs registering only with OA was two months. For those registering only with the SAA, the median registration time was four months.

Exhibit 4-5. Time to Register Apprenticeship Programs, by Approving Entity



Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=126.

Note: Programs in an occupation could be registered with both OA and SAA if the grantee was registering programs in multiple States or if some of its programs used national standards registered with OA.

4.3. Challenges to Registering Apprenticeship Programs

- **Reluctance of employers to complete paperwork is the most commonly cited challenge to registration.**

Among all grantees, the most common challenge in registering apprenticeship programs is the reluctance of employers to complete necessary paperwork (Exhibit 4-6). This is the only challenge reported by a majority of grantees (61 percent). The next two most common challenges relate to putting together specific components of registered apprenticeship training: delays in RTI development (43 percent) and difficulty completing work process schedules (41 percent). Difficulties with the registration process itself, including delays in response or problems completing registration forms, are less commonly mentioned (27 percent for each). Thirty-nine (39) percent of grantees report no challenges in registering programs.

Exhibit 4-6. Prevalence of Challenges Cited in Registering Programs

Challenge	Grantees (%)
Employer reluctance to complete necessary paperwork	61
Delays in developing RTI	43
Difficulty completing work process schedule	41
Delay in response	27
Difficulty completing registration form	27
Union reluctance	21
Other	16
Sponsor reluctance	11
Determination that occupation is not apprenticeable	11
No challenges	39

Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=44.

Earlier analyses of reasons for establishing an apprenticeship program in this report indicate that program registration rates and progress toward apprentice registration targets are both strongly associated with whether the grantee has employer relationships and available RTI sources (Exhibit 4-3). Those patterns align with the major challenges identified in Exhibit 4-6. (See Appendix D, Table 12.)

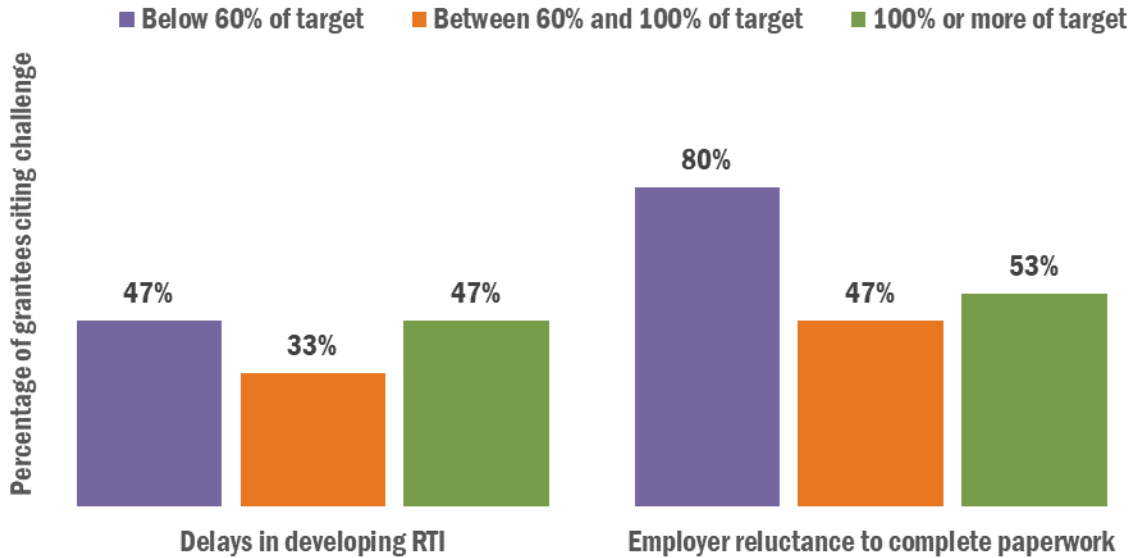
- ***Reluctance of employers to adopt apprenticeship is closely associated with grantees’ progress toward their apprentice registration target.***

Employers must choose to adopt the apprenticeship model before beginning the process of building and registering a program. However, persuading employers to commit to apprenticeship is often difficult (Lerman 2017). Thus, grantees least successful at achieving their apprenticeship targets are likely to view employer reluctance to adopt apprenticeship as a major barrier.

The data offer evidence for the link between employer reluctance and grantee progress. Exhibit 4-7 shows how often grantees cited the two most common challenges by progress category. Grantees in each progress category report similar rates of RTI development delays. In contrast, employer reluctance to complete necessary paperwork is cited as a challenge by 80 percent of grantees making the least progress, compared with 53 percent of grantees making the most progress and 47 percent of grantees in the middle category.

This difference highlights that although both employer reluctance and RTI development delays are important challenges for all grantees, gaining employer buy-in is critical to registering programs and successfully scaling apprenticeship.

Exhibit 4-7. Prevalence of Cited Challenges to Adoption of Apprenticeship, by Grantees' Progress toward Their Apprentice Registration Target



Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=45.

4.4. Grantee Roles in Registration

- **Grantees often work with the apprenticeship agency and fill out paperwork, although a minority of grantees report each of these roles.**

Grantees take on a variety of roles in registering programs (Exhibit 4-8). Some roles reflect a lighter-touch engagement helping other sponsors, such as working with the Registration Agency, collecting documents, or helping to fill out paperwork. Other grantees played a greater role, such as reviewing a sponsor’s paperwork and often serving as the sponsor of an apprenticeship program and filling out all the paperwork itself. (See Box 11.) Grantees sponsor programs in about a third of the occupations reported on in the Grantee Survey. For apprenticeship programs in almost half of the occupations, the grantee assists in filling out registration paperwork.

Exhibit 4-8. Frequency of Grantees' Roles in Registering Apprenticeship Programs

Grantee Role	Occupations (%)
Liaise with registration agency	47
Assist in filling out registration paperwork	47
Collect supporting documents	42
Review sponsor's paperwork	42
Sponsor program and do all registration tasks	34

Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=126.

State governments are the least likely to sponsor programs and do all of the registration tasks themselves (9 percent of occupations); sector-based grantees are the most likely to do so (67 percent of occupations). (See Appendix D, Table 13.)

Box 11: Grantee Assistance with Registration Paperwork
(Grantee Case Study)

William Rainey Harper College is the sponsor for most apprenticeships supported by its grant. Harper College staff describe their role as the intermediary between employers and DOL. Harper College files all necessary paperwork with OA to register the programs. Once employers agree to hire apprentices, the college registers the apprentices, too.

The **South Carolina Technical College System's** apprenticeship consultants and registered program specialists assist employers with every stage of program development and registration. Consultants rely on relationships and outreach events to identify employers that could benefit from apprenticeship, and then consult with the employers to draft Standards of Apprenticeship. The apprenticeship consultants and registered program specialists have a strong relationship with the State ATR and submit the registration paperwork for the employers.

■ **Most grantees use partners to help register apprenticeship programs.**

Over three-quarters of grantees have partners assist in the registration process. The grantees that use partners to register programs commonly report employers, State or sub-State government entities (such as State or sub-State labor departments or other agencies), and business intermediaries³² as partners (Exhibit 4-9). Still, these partners assist in registering apprenticeship programs for no more than one in five grantees.

Exhibit 4-9. Prevalence of Grantees' Most Common Partners in Registering Programs

Partner	Grantees (%)
Employers	20
State or sub-State government entities	18
Business intermediaries	16
Public workforce agency administering WIOA	13
Industry associations	11
Workforce intermediaries	11
Postsecondary education and training providers	9
Economic development agencies	7
Foundations and philanthropies	2
Community-based organizations	2
No partners identified	27

Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=45.

³² Business intermediaries could be industry associations or other organizations that mediate or build relationships with businesses.

- ***OA and SAA are key partners for all grantees.***

Grantees that have registered at least some programs with OA report that OA provides guidance on registration 88 percent of the time. The corresponding rate for grantees registering at least some programs with the SAA is similar; the SAA provides guidance on registration 87 percent of the time. (See Appendix D, Tables 14 and 15.)

Grantees' satisfaction with that assistance is higher if they registered programs with OA than if they registered with the SAA. Grantees registering apprenticeship programs with OA are "completely satisfied" with answers to their registration application questions 83 percent of the time. The corresponding rate for grantees registering an apprenticeship with the SAA is 64 percent. (See Appendix D, Table 16.)

5. Identifying Apprentices

After an AAI grantee conducts outreach to employers and other sponsors and successfully registers an apprenticeship program, the next step is to identify, enroll, and register apprentices into these programs. While the primary aim of the AAI grants is to increase the number of registered apprentices, the grants also aim to make apprenticeship more broadly available to a wide variety of populations, including women and other underrepresented populations in apprenticeship.

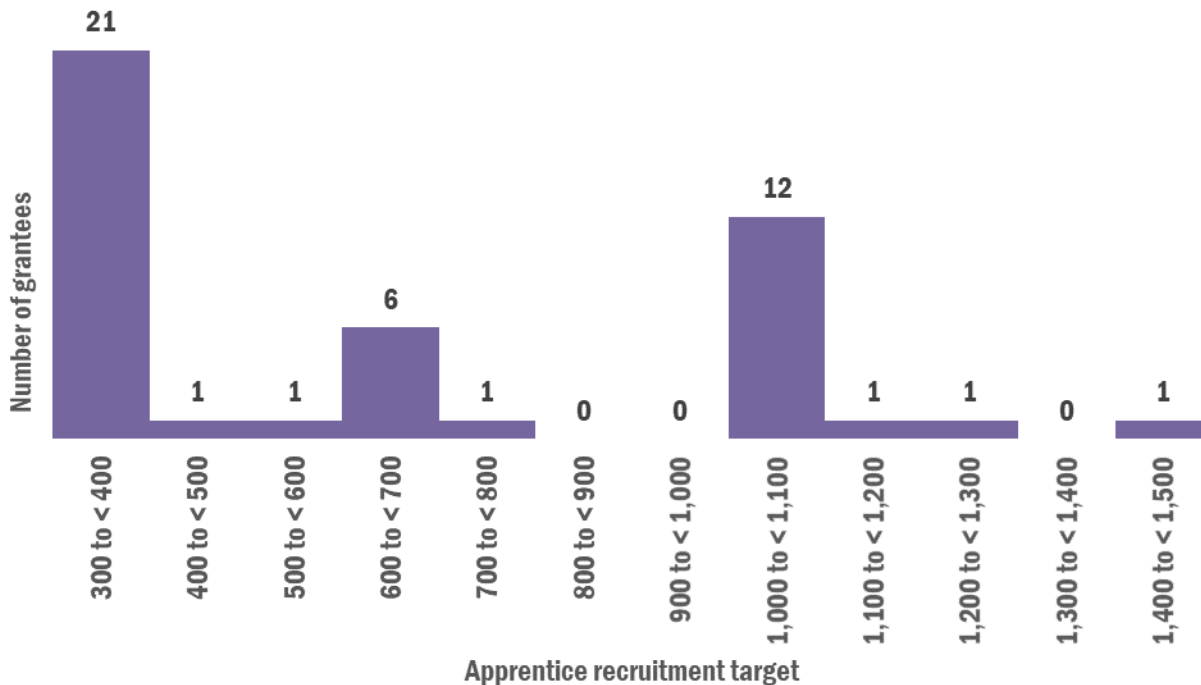
This chapter focuses on recruitment after an apprenticeship program is registered and employers create a slot for an apprentice. Even after an apprenticeship slot is created, apprentice application and selection processes can affect the diversity and inclusivity of an apprenticeship program. This chapter describes grantee success—as of December 31, 2019—recruiting apprentices relative to their grant targets, characteristics of apprentices registered, and how grantees identify apprentices.

5.1. Grantees’ Progress in Registering Apprentices

- **By the end of 2019, grantees collectively registered about 24,000 apprentices; progress in registration varies by grantee type.**

As of the end of 2019, grantees collectively registered 23,962 apprentices. In their grant applications, grantees proposed targets for the number of registered apprentices, which ranged from 300 to 1,450 apprentices over the grant period (Exhibit 5-1). The average target is 626 apprentices.

Exhibit 5-1. Distribution of Grantees’ Targets for Registered Apprentices

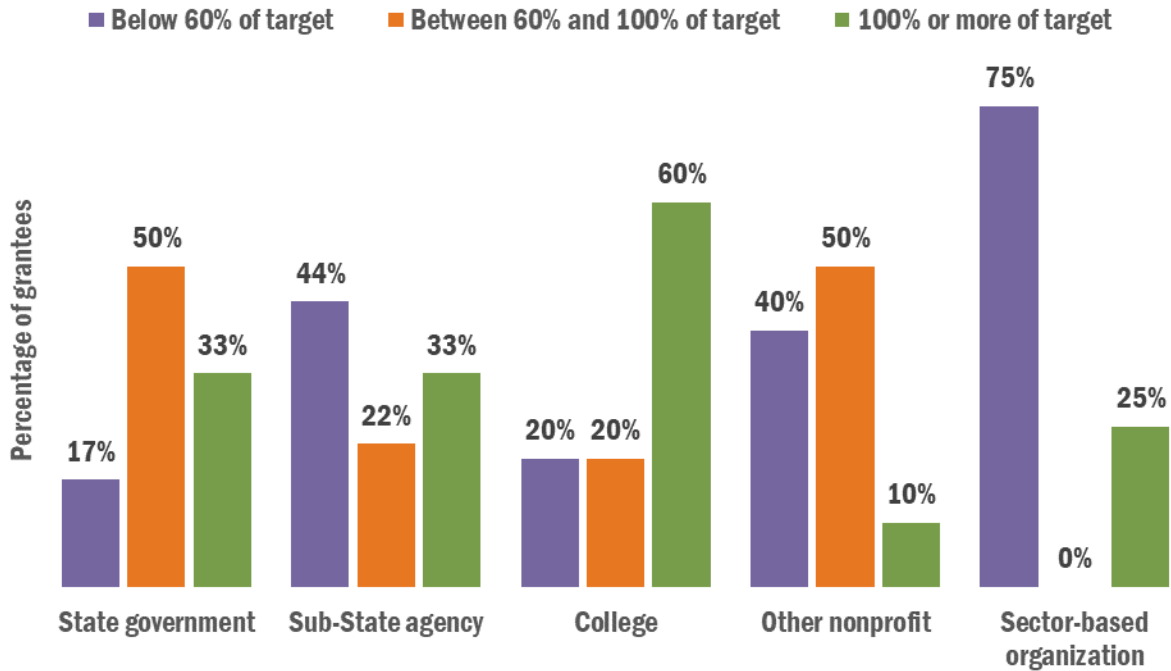


Source: AAI Quarterly Performance Report, as of December 31, 2019. Reported at the grantee level. N=45.

As of December 31, 2019, grantees achieved varying progress toward their apprentice registration targets. Progress toward a grantee’s target depends on the target number and the grantee’s success in working

with employers to design and register apprenticeship programs and create apprentice slots (Chapter 4). As Exhibit 5-2 shows, colleges (60 percent) are the most likely grantee type to have achieved or exceeded their target. Sector-based organizations such as industry associations and labor organizations (75 percent) are most likely to have registered less than 60 percent of their target.

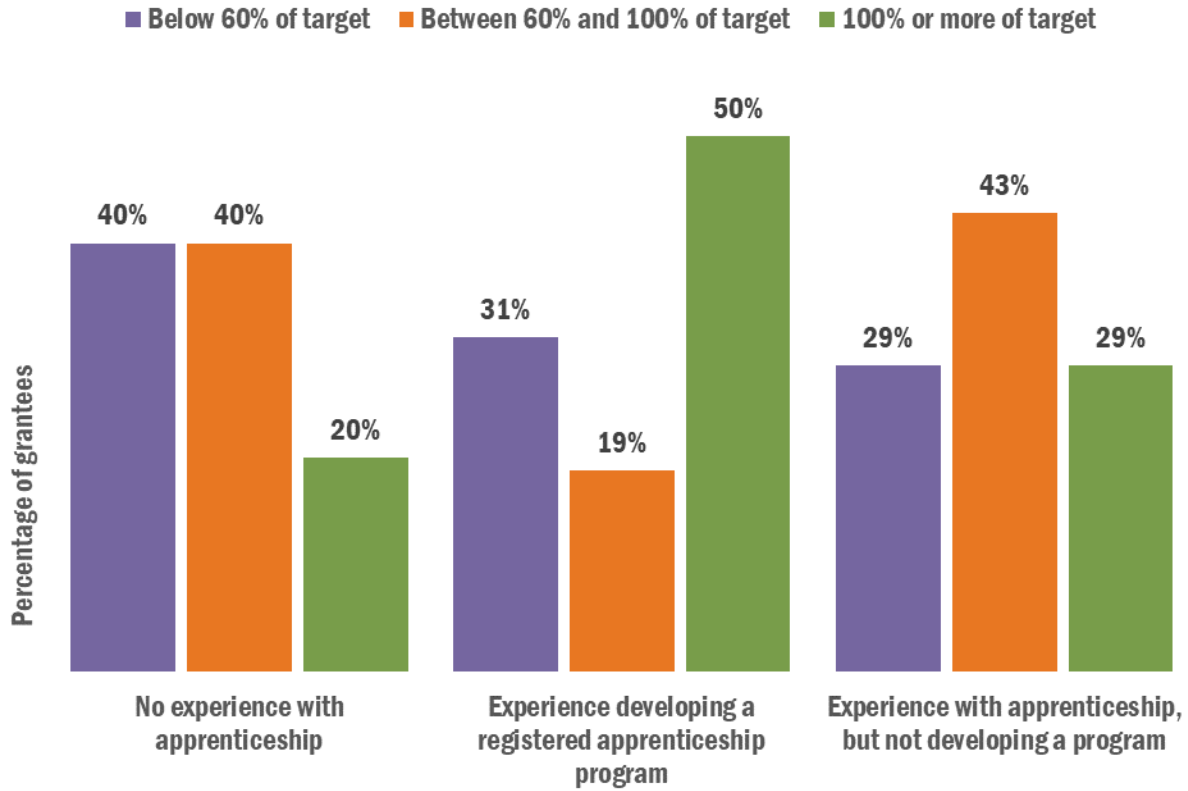
Exhibit 5-2. Grantees’ Progress toward Their Apprentice Registration Target, by Grantee Type



Source: AAI Quarterly Performance Report, as of December 31, 2019. Reported at the grantee level. N=45.

Apprentice registration also varies by grantee prior experience with apprenticeship programs. As Exhibit 5-3 shows, grantees that have more experience with apprenticeship are closer to achieving their apprentice registration targets as of December 31, 2019. Half of grantees that have experience developing registered apprenticeship programs before receiving their AAI grant have achieved or exceeded their target, compared to 20 percent of grantees with no registered apprenticeship experience. Fewer grantees that have some experience with apprenticeship but no experience developing a program achieved their registration target relative to more experienced grantees (29 percent versus 43 percent).

Exhibit 5-3. Grantees’ Progress toward Their Apprentice Registration Target, by Grantee Experience



Source: AAI Quarterly Performance Report, as of December 31, 2019. Reported at the grantee level. N=45.

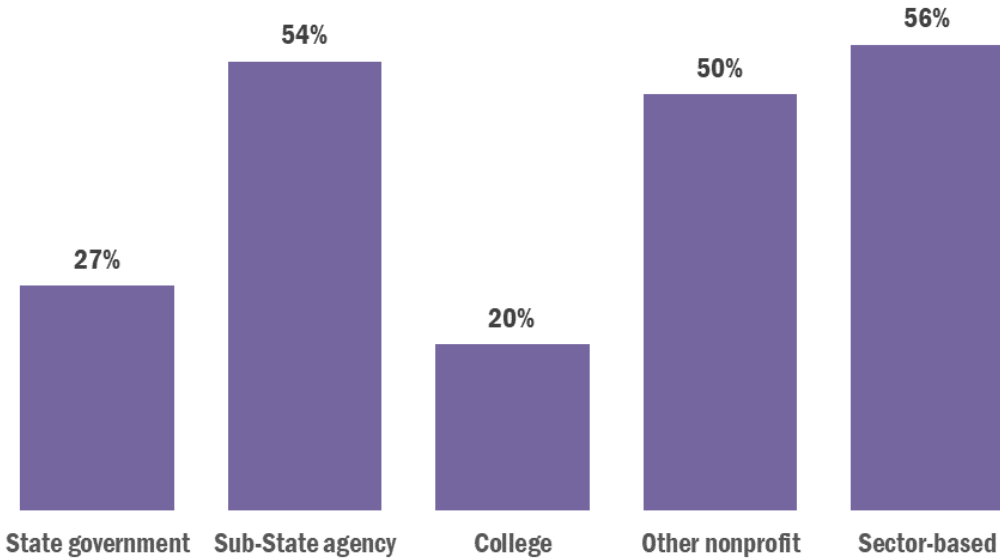
5.2. Grantee Recruitment and Screening of Apprentices

- ***A minority of grantees recruit and screen apprentice applicants.***

Grantees are involved in recruiting and screening apprentices for 38 percent of their target occupations. Sub-State agencies, sector-based organizations, and other nonprofits are involved in recruitment efforts for at least half of their occupations (Exhibit 5-4). By contrast, colleges participated in recruitment and screening for only 20 percent of their occupations.

It is worth noting that a larger share of grantees with less apprenticeship experience participate in apprentice recruitment and screening activities (for 56 percent of their occupations) than do grantees with prior experience (25–33 percent of their occupations). (See Appendix D, Table 17.)

Exhibit 5-4. Grantees’ Participation in Apprentice Recruitment and Screening for an Occupation, by Grantee Type



Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=126.

Employers, on the other hand, are common partners, participating in recruitment, screening, and intake activities for 83 percent of occupations (Exhibit 5-5). Box 12 shows examples of how four grantees recruit apprentices.

Exhibit 5-5. Prevalence of Partners Assisting in the Intake, Screening, and Recruitment of Apprentices, by Occupation

Partner	Occupations (%)
Employers	83
Colleges	40
Labor organization	38
Local workforce development agency	31
Nonprofit	29
American Job Center	19
State government	12
Industry association	10
Local government	2

Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=126.

Box 12: Apprentice Recruitment
(Grantee Case Study)

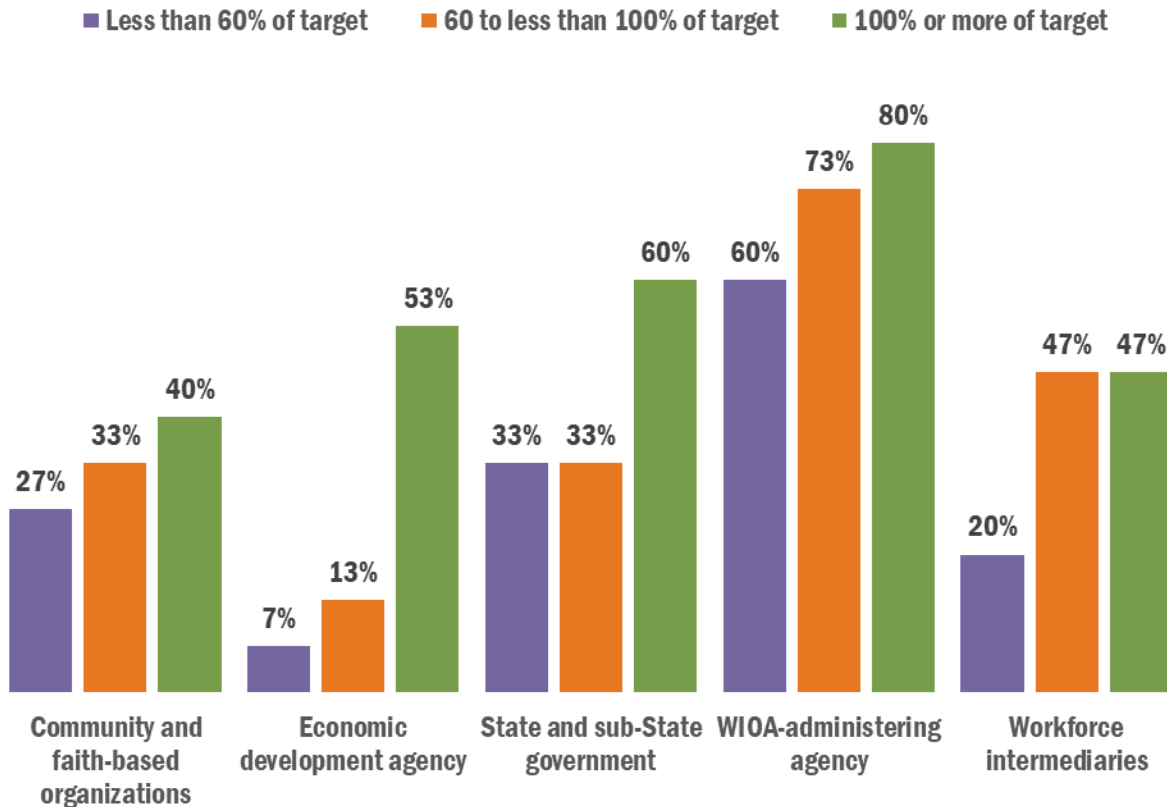
The **Workforce Development Board of Herkimer, Madison, and Oneida Counties** advertised through social media (particularly Facebook), radio and television ads, brochures, and fliers. Staff also made presentations at high schools, technical schools, and other community organizations. After identifying apprenticeship candidates, staff convened them in a group interview session, where several Advanced Manufacturing employers attended and held one-on-one interviews.

One employer partner of Massachusetts **Executive Office of Labor and Workforce Development** recruited apprentices entirely through its existing employee pool. The employer identified employees who were already in unofficial leadership positions and were seeking positions of greater responsibility, and enrolled them in the Line Supervisor apprenticeship program. These apprentices did not need to have experience specific to the position they would move into after completion of the program; rather, management tried to identify employees with leadership qualities who exhibited ambitions to move up the career ladder.

Some grantees tailored recruitment strategies to particular populations targeted by their AAI grant. **Philadelphia Works** partnered with youth-serving organizations to reach opportunity youth. **Shenandoah Valley Workforce Development Board** managed a text messaging campaign to reach recent high school graduates.

Exhibit 5-6 shows the relationship between a grantee’s progress toward its apprentice registration target and its recruitment partner. More than half of grantees that have registered 100 percent or more of their target, partner with WIOA-administering agencies, State and sub-State government, and economic development agencies.

Exhibit 5-6. Prevalence of Grantees’ Partnerships for Apprentice Recruitment, by Grantees’ Progress toward Their Apprentice Registration Target



Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=45.

5.3. Characteristics of Registered Apprentices

- ***More than two-thirds of apprentices are from underrepresented populations.***

AAI encourages grantees to focus on registering apprentices from populations that have historically been underrepresented in apprenticeship. As noted in Chapter 2, populations most often targeted by grantees are women and veterans, followed closely by underrepresented minorities. According to the QPR data, 69 percent of all apprentices registered by grantees through the end of 2019 are from underrepresented groups. Specifically, more than a quarter of apprentices are women (26 percent), 17 percent are non-Hispanic Black, 14 percent are Hispanic any race, and 10 percent are veterans (Exhibit 5-7). For some groups, these increases represent a large improvement relative to registered apprenticeships nationally; for example, only about 10 percent of registered apprentices since 2015 are women.³³

Other notable characteristics of apprentices include age and incumbent worker status. The average apprentice is 33 years old, which is five years older than the average age of a new apprentice nationally.³⁴ One factor potentially driving up the average age of apprentices is the proportion that are incumbent workers. Fifty-three (53) percent of apprentices worked for their employer prior to starting the apprenticeship.

Exhibit 5-7 also shows key characteristics by gender. As shown, on average, women apprentices are older than men (35 years of age versus 32). Additionally, a larger share of women are non-Hispanic Black (22 percent versus 15 percent), and fewer are non-Hispanic White (54 percent versus 64 percent). Three percent of women apprentices are veterans, a much smaller share than men (12 percent).

³³ The calculation of share of women among apprentices nationally uses Registered Apprenticeship Partners Information Data System (RAPIDS) data on all U.S. apprentices registered in States reporting to RAPIDS.

³⁴ The average age of a new apprentice nationally was calculated from RAPIDS data on all U.S. apprentices registered in States reporting to RAPIDS.

Exhibit 5-7. Characteristics of Registered Apprentices

Characteristic	Total	Women	Men
Gender (%)			
Women	26	–	–
Men	74	–	–
Race and ethnicity (%)			
Hispanic, any race	14	13	14
White, Non-Hispanic	61	54	64
Black, Non-Hispanic	17	22	15
Asian only	4	6	4
Native Indian only	2	3	1
Native Hawaiian only	1	1	1
Non-Hispanic, other race or multiple races	1	2	1
Age (%)			
24 years or younger	27	21	29
25 to 34 years	35	33	36
35 to 44 years	20	22	19
45 to 54 years	13	16	12
55 years or older	4	8	4
Average age (years)	33	35	32
Veterans (%)	10	3	12
People with disabilities (%)	2	1	2
Incumbent workers (%)	53	Not available	Not available
From underrepresented populations (%)	69	Not available	Not available

Source: AAI Quarterly Performance Report, as of December 31, 2019. Reported at the apprentice level. For the total, gender $N=23,341$; race and ethnicity $N=21,586$; age $N=23,387$; veteran and people with disabilities $N=23,392$; incumbent worker and underrepresented population $N=23,962$. For women, race and ethnicity $N=5,580$; age $N=6,071$; veteran and people with disabilities $N=6,072$. For men, race and ethnicity $N=15,971$; age $N=17,265$; veteran and people with disabilities $N=17,269$. Incumbent worker status and underrepresented population are not available by gender because these subgroups are reported in the aggregate to the authors by DOL.

6. Apprenticeship Components

The two primary components of a registered apprenticeship program are related technical instruction (RTI) and on-the-job learning (OJL). Per federal regulations, each component has minimum hour requirements (144 hours and 2,000 hours, respectively).³⁵ This chapter describes how AAI grantees and employers structure RTI and OJL for traditional occupations (e.g., construction) and non-traditional ones (e.g., IT and healthcare). It also describes the partners and staff involved in delivering these components and the types of credentials that apprentices earn.

6.1. Structure of and Advancement through Apprenticeship Programs

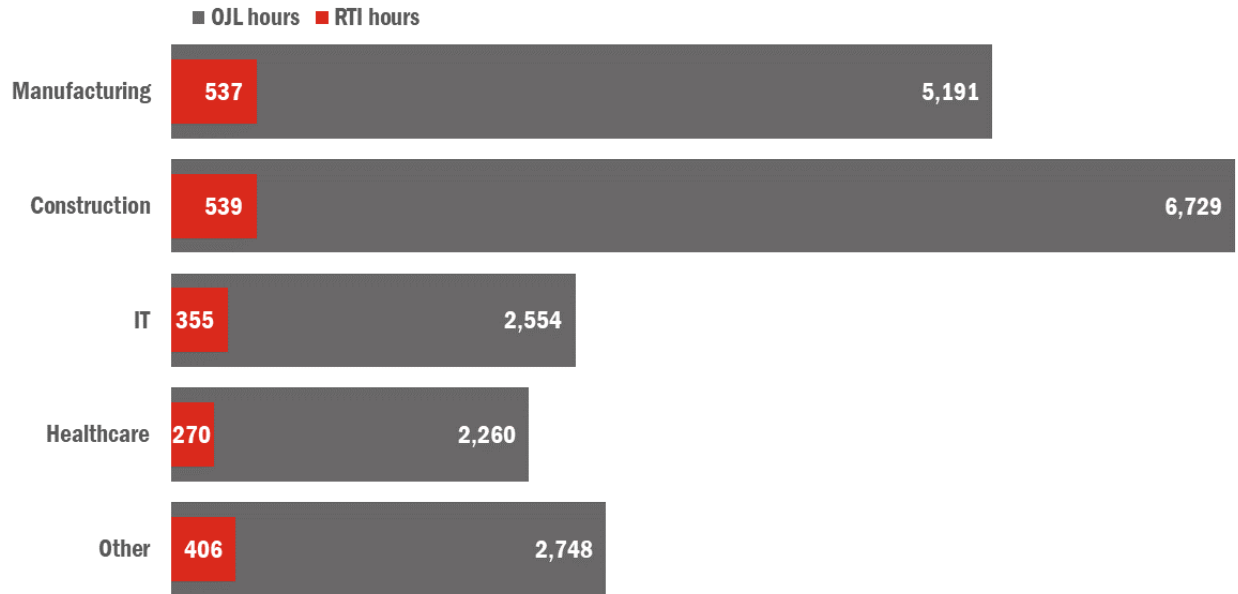
- *Apprenticeship program length varies by occupation and employer.*

In the building trades, apprenticeships last for several years. However, employers of apprentices in non-traditional occupations often structure shorter-duration trainings that are designed to produce skilled workers more quickly. This pattern emerges in AAI apprenticeships. Programs in IT and healthcare have much shorter apprenticeships than do manufacturing or construction programs (Exhibit 6-1). Healthcare apprenticeships are the shortest of all apprenticeship programs (270 hours of RTI and 2,260 of OJL on average). IT programs have only slightly longer training than that (355 hours of RTI and 2,554 of OJL on average). By way of comparison, manufacturing programs (e.g., industrial maintenance technician or Computer Numerical Control (CNC) machinist) require an average of 537 hours of RTI and 5,191 hours of OJL, and construction programs (e.g., electrician) average about the same number of RTI hours (539 hours) but more hours of OJL (6,729).

Shorter apprenticeships provide apprentices with less time in training, and some studies find they are associated with higher completion rates.³⁶

³⁵ Registered competency-based programs do not require apprentices to complete a certain number of hours, but these programs must have typical or expected lengths conforming to the minimum requirements for time-based programs.

³⁶ Kuehn (2019) finds that in service sector apprenticeship programs, shorter duration is consistently associated with higher completion rates.

Exhibit 6-1. Average Related Technical Instruction and On-the-Job Learning Hours, by Occupational Field

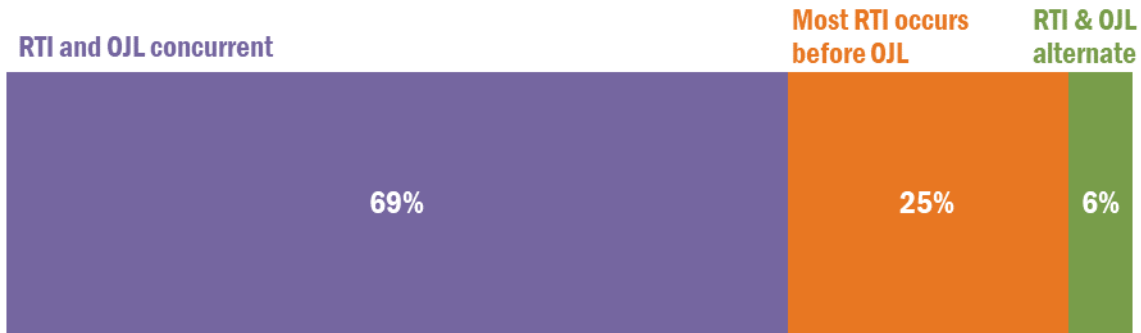
Source: AAI Evaluation Grantee Survey. Reported at the occupation level. $N=122$. Sample size is less than 126 because of non-response on the survey.

■ **Programs in most occupations developed under AAI deliver RTI and OJL concurrently.**

Apprenticeship programs developed under AAI deliver RTI and OJL in a variety of ways (Exhibit 6-2). More than two-thirds (69 percent) of apprentice occupations reported on in the Grantee Survey deliver RTI and OJL concurrently. One concurrent method is that certain days of the week are designated for RTI at colleges or other RTI providers, and other days are designated for OJL at the employer's site. Another concurrent method involves RTI delivered online and completed at a time convenient to the apprentice.

For one quarter of the occupations, RTI occurs before OJL. This model might be preferable if the RTI is delivered as an accelerated college program, or if certain academic material must be mastered in order to complete certain tasks on the job. Only 6 percent of occupations alternate between RTI and OJL, like an internship for a college degree program. RTI hours delivered during a pre-apprenticeship can be credited to the apprenticeship, resulting in a substantial accumulation of RTI hours before an apprentice begins an apprenticeship program (see Chapter 7 for more about pre-apprenticeship programs and Box 15 for an example of a pathway from pre-apprenticeship to apprenticeship).

Exhibit 6-2. Apprenticeship Training Models for Delivering Related Technical Instruction and On-the-Job Learning



Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=124. Sample size is less than 126 because of non-response on the survey.

Approaches used by apprenticeship programs to deliver RTI and OJL vary by occupation (Exhibit 6-3). Manufacturing programs are the most likely to deliver RTI and OJL concurrently (86 percent) whereas healthcare and IT are more likely than other programs to provide RTI before OJL (38 and 35 percent, respectively).

Exhibit 6-3. Apprenticeship Training Models for Delivering Related Technical Instruction and On-the-Job Learning, by Occupational Field

Field	Programs with RTI and OJL Concurrent (%)	Programs with Most of RTI Front-loaded before OJL (%)	Programs with RTI and OJL Alternating (%)
Manufacturing	86	9	5
Construction	70	30	0
IT	65	35	0
Healthcare	58	38	4
Other	52	29	19
All occupations	69	25	6

Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=124. Sample size is less than 126 because of non-response on the survey.

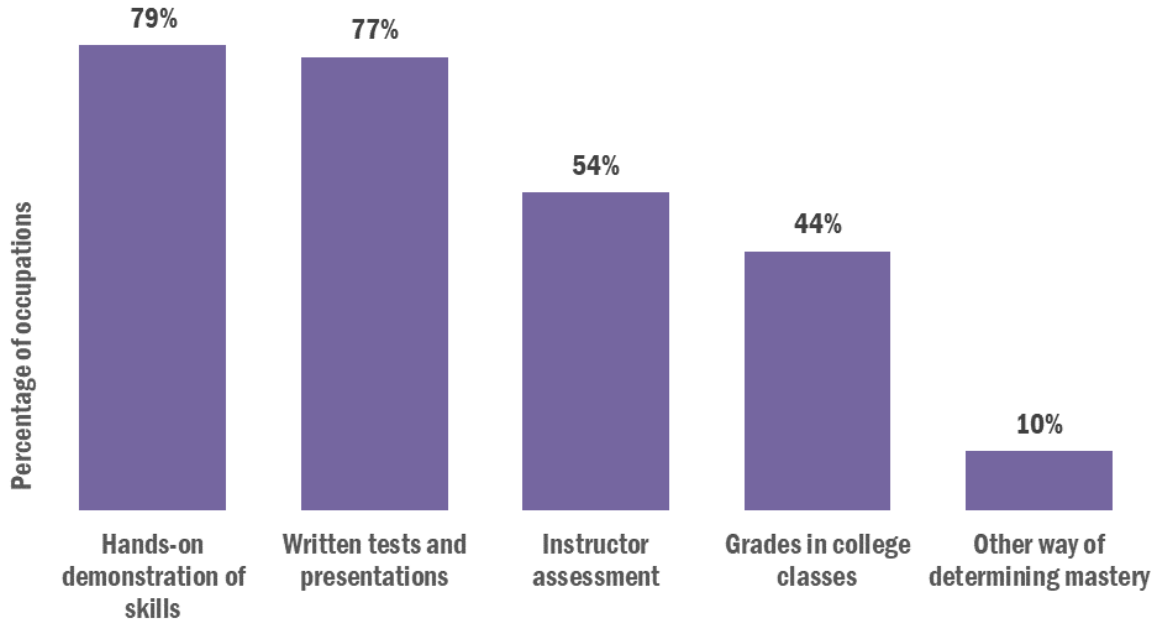
- ***Apprenticeship programs in most occupations require hands-on demonstrations to show apprentices’ mastery of RTI material.***

Apprenticeship programs often use multiple methods for determining an apprentice’s mastery of the RTI material. For example, if a college is delivering RTI through a normal for-credit college program of study, advancement likely depends on the same factors being used to assess any other college student (e.g., grades, written tests). However, if RTI is delivered onsite, the employer or private trainer might have more flexibility to use alternative assessments.

The Grantee Survey included questions regarding how apprenticeship programs assess the ability of apprentices to master their RTI. Apprenticeship programs in most occupational programs reported on in the Grantee Survey (79 percent) use hands-on demonstrations of skills to determine whether apprentices master RTI material (Exhibit 6-4). A similar share of programs (77 percent) assess mastery using written

tests and presentations. More than half (54 percent) of apprenticeship programs use instructor assessment, and fewer (44 percent) use grades in college classes. Programs commonly use multiple methods for assessing mastery of its RTI material; thus, apprentices who provide a hands-on demonstration of their skills are likely also completing written tests or receiving grades or instructor assessments.

Exhibit 6-4. Methods Used to Determine Apprentices' Mastery of Related Technical Instruction Material



Source: AAI Evaluation Grantee Survey. Reported at the occupation level. $N=124$. Sample size is less than 126 because of non-response on the survey.

- ***Apprenticeship programs in reported occupations most often use achievement of specified competencies to advance apprentices through wage levels.***

In a registered apprenticeship, apprentices advance through a predetermined wage progression set out in the program's Standards of Apprenticeship. The most common method for determining advancement through the wage progression is the apprentice's achievement of a certain set of competencies (69 percent of occupations; Exhibit 6-5). Demonstrating competencies not only determines advancement in competency-based apprenticeship programs, but also in hybrid programs, which incorporate both competency-based and time-based elements. In time-based apprenticeship programs, apprentices advance by completing a specified number of RTI and OJL hours. The next most common method to advance apprentices is regular annual wage increases (56 percent of occupations), followed by completion of RTI (46 percent). Apprenticeship programs in many occupations use multiple methods.

Exhibit 6-5. Prevalence of Methods to Determine Apprentices’ Advancement through the Wage Progression

Method	Occupations (%)
Achievement of a certain set of competencies	69
Automatic annual increases	56
Completion of RTI	46
Other	2

Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=123. Sample size is less than 126 because of non-response on the survey.

The magnitude of a wage step varies based on the apprentice’s occupation and base wage level, as well as on the frequency of steps in the apprenticeship program. Across all apprenticeship programs reported by occupation in the Grantee Survey, the average wage step is \$2.39 per hour, and the median wage step is \$1.48 per hour (not shown). The median wage step is similar across programs using different advancement determination methods.

6.2. Related Technical Instruction

Apprentices learn the technical concepts and workforce and academic skills needed to succeed on the job in the classroom-based RTI, which might be provided by one or multiple apprenticeship program partners, including the employer. Almost three-quarters (72 percent) of AAI apprentices do not pay for any of their RTI. (See Appendix D, Table 18.)

AAI apprenticeship programs use many different models for delivering RTI (Box 13).

- ***RTI is most commonly delivered by community and technical colleges.***

Most occupations reported on in the Grantee Survey deliver RTI through a local community or technical college (57 percent; Exhibit 6-6).

Delivering RTI in-house through the employer (39 percent of occupations) or through a private training provider (30 percent) are common, but less prevalent sources of RTI than community or technical colleges.³⁷ Because few traditional joint-apprentice training committees are AAI grantees, few

Box 13: RTI from Community and Technical Colleges
(Grantee Case Study)

Before creating an apprenticeship program, **William Rainey Harper College** makes sure that one of its existing programs of study can be used or adapted to the needs of the apprenticeship for use as the RTI. Harper College staff reported that developing new programs is a lengthy process within the community college system, so the requirement that apprenticeships use the college’s courses is in part to help get the programs launched more quickly.

Houston Community College developed a customized Pharmacy Technician curriculum for this apprenticeship program. With State-of-the-art lab space, it tailored the training approach to the certifications and skills sought by the pharmacy chain.

To ensure high-quality RTI, the **South Carolina Technical College System** requires that employers sponsoring apprenticeships that want to receive its AAI-funded subsidy for RTI costs use its schools as the RTI providers.

³⁷ Exhibit 6-6 indicates that, for some of the occupational programs reported on in the Grantee Survey, RTI is delivered by multiple types of training providers. However, though some apprenticeship programs might be using multiple RTI providers, sometimes a grantee misreports the use of multiple types of RTI providers when several of its apprenticeship programs in the same occupation each use a different provider.

occupations (4 percent) deliver RTI through a union, although this method is common for registered apprenticeship in construction.³⁸

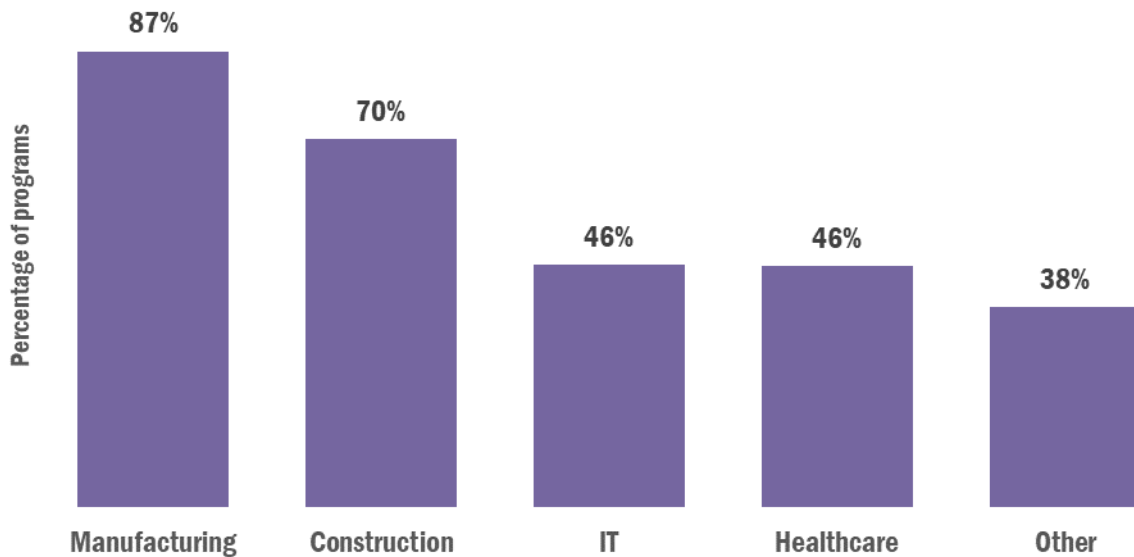
Exhibit 6-6. Prevalence of Types of Related Technical Instruction Providers

Type	Occupations (%)
Local community or technical college	57
Delivered in-house by employer	39
Private training provider	30
Other	16
Local chapter of labor union	4
Industry association	4

Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=126.

Apprenticeships in some occupations are more likely to use local colleges to provide RTI than others are (Exhibit 6-7). Manufacturing (87 percent of occupations reported) and construction (70 percent) are the most likely to use colleges for RTI. Less than half (46 percent) of healthcare and IT occupations use colleges to deliver RTI. The choice of whether to use colleges could depend on the strength of the local college in a particular technical area, the cost of college training compared to other types of classroom training, and the availability of non-college options for classroom training.

Exhibit 6-7. Prevalence of Local Colleges Being Used as RTI Providers, by Occupational Field



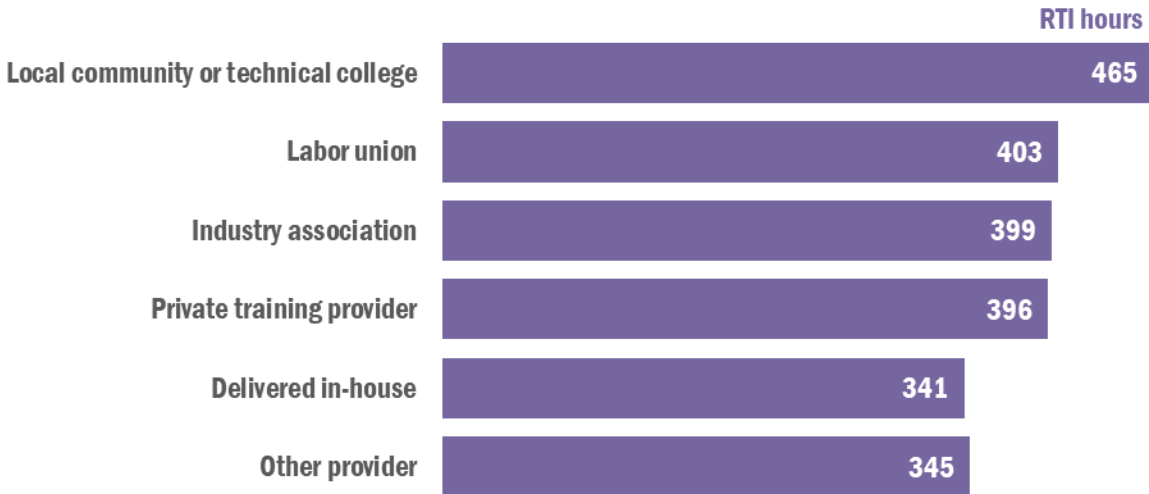
Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=126.

³⁸ As noted in Chapter 1, construction trades unions generally have a role in registered apprenticeship through joint apprenticeship committees that administer the apprenticeship programs and comprise both labor and management representatives.

■ **The duration of a program’s RTI varies by the type of organization providing it.**

Exhibit 6-8 shows average duration of RTI by provider type. Duration is longest for programs in occupations that use local community or technical colleges to deliver RTI (465 hours) and shortest for programs in occupations that deliver RTI in-house (341 hours). The difference is equivalent to about three weeks of full-time classroom instruction. Programs that use other types of RTI providers (e.g., self-paced online learning modules, labor unions, industry associations, and private training providers) fall in the middle of the average duration range, with an average RTI duration of about 400 hours.

Exhibit 6-8. Average Duration of Related Technical Instruction, by Provider Type



Source: AAI Evaluation Grantee Survey. Reported at the occupation level. $N=122$. Sample size is less than 126 because of non-response on the survey.

6.3. On-the-Job Learning

Apprentices spend most of their training time in OJL. Unlike RTI, which can be delivered in many modes by many different types of providers, OJL is by definition delivered onsite and by the employer. Apprentices are mentored by skilled employees and learn technical skills on the job. Mentors are not dedicated teachers or instructors but skilled workers responsible for production.

■ **For most apprenticeships, on-the-job learning is delivered through learning by doing, one-on-one training, and training in small groups.**

Almost 90 percent of OJL is delivered through “learning by doing”, closely followed by one-on-one interactions with mentors (87 percent of grantees; Exhibit 6-9). Mentors might integrate their one-on-one instruction with supervised learning by doing. Less commonly, OJL is delivered in larger groups. Large group delivery is more common in construction programs (30 percent) and in manufacturing and healthcare programs (20 and 21 percent, respectively) than in IT (8 percent) or “other” programs such as banking or insurance (10 percent; see Appendix D, Table 19).

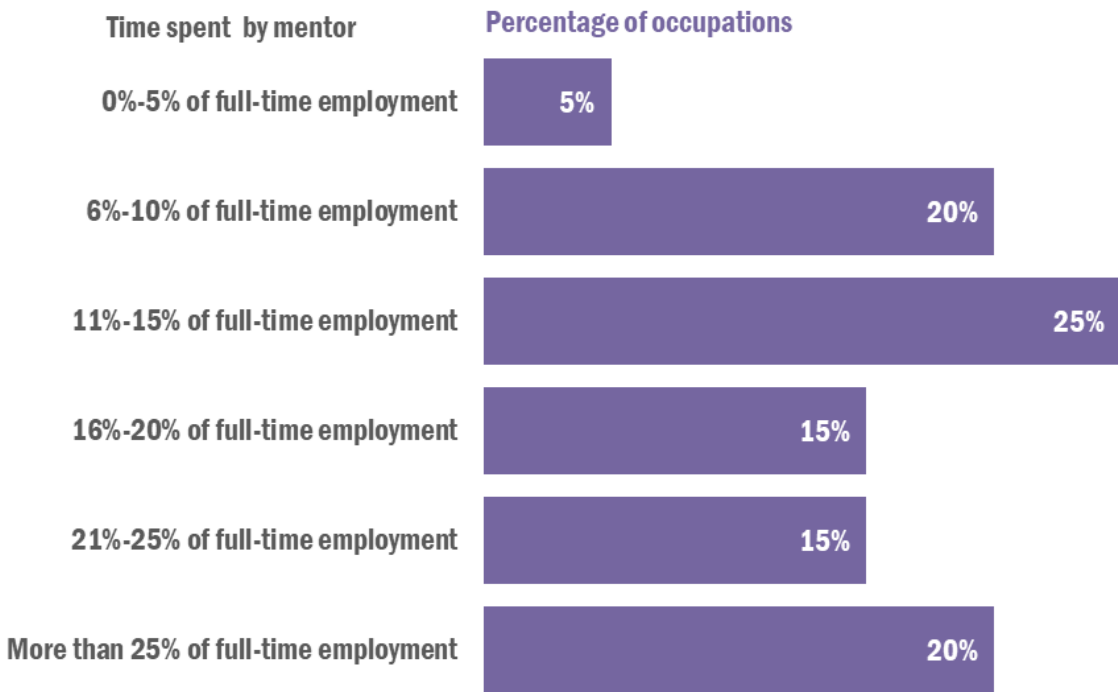
Exhibit 6-9. Prevalence of Methods of Delivering On-the-Job Learning

Method	Grantees (%)
Learning by doing under the supervision of a mentor	89
Training one-on-one by mentor	87
Training in small groups by mentor	62
Training in large groups by mentor	17
Other	2

Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=45.

Mentors in most occupations (80 percent) spend less than a quarter of their time instructing or mentoring apprentices (Exhibit 6-10), likely reflecting time spent on their other job responsibilities.

Exhibit 6-10. Percentage of Time Mentors Typically Spend Instructing or Mentoring Apprentices



Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=122. Sample size is less than 126 because of non-response on the survey.

■ **More than half of grantees report that mentors receive training to supervise apprentices.**

Because mentors are not dedicated teachers or instructors, it is common for mentors to receive some training themselves before supervising an apprentice. Fifty-eight (58) percent of grantees report that the mentors supervising OJL are themselves trained to do that mentoring work. Those mentors receive an average of 21 hours of training. (See Appendix D, Table 20.)

Among grantees that reported providing mentor training, the most common type is related to building capacity to teach concepts important for the apprenticeship (62 percent of grantees). Training in the work-based learning skills that apprentices will be learning is more common than are courses to refresh technical skills taught in RTI (50 and 46 percent, respectively). Mentors also receive diversity training (46 percent), sexual harassment training (39 percent), and/or conflict resolution training (35 percent). (See Appendix D, Table 21.) Box 14 provides examples of grantee mentor training practices.

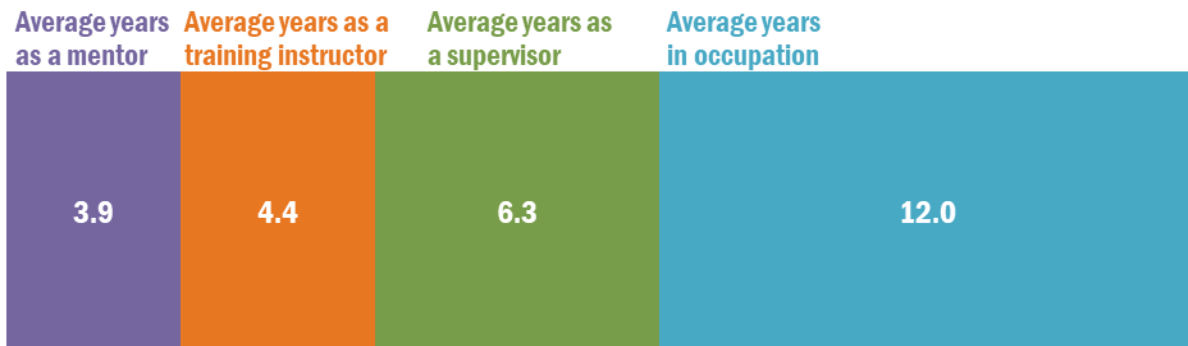
Mentors draw on years of experience in their occupation. On average, mentors have 12 years of experience in their occupation, although the range reported is wide: one year to 30 years (Exhibit 6-11). On average, mentors have been supervising other employees for half as long.

Box 14: Training for Mentors
(Grantee Case Study)

Mentors with a large food manufacturer affiliated with the **Shenandoah Valley Workforce Development Board** apply for the role and go through an extensive interview process before being selected. The mentors are then trained using the Training Within Industry (TWI) model, which was developed during World War II as a way to efficiently and quickly train workers needed to make wartime materials. TWI prepares mentors to help trainees master a task by breaking it into repeatable steps. It also teaches mentors to provide feedback and resolve conflict.

Mentors associated with **William Rainey Harper College's** grant are required to attend a four-session program called "Train the Trainer" to guide mentors on how to best train an apprentice. Train the Trainer is an interactive workshop with hands-on experience, group work, information on best practices, and techniques on providing constructive feedback and setting goals. Mentors receive a training manual.

Exhibit 6-11. Years of Mentor Experience in an Occupation, as a Supervisor, as an Instructor, and as a Mentor



Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=30 for average years in occupation, N=20 for average years as supervisor, training instructor, or mentor.

6.4. Credentials and College Credit

All registered apprenticeship completers earn an industry-recognized credential. Sometimes these credentials are certificates of completion issued by OA, although other credentials typically are awarded upon completion, as well.

- **Most apprenticeship completers earn a short-term credential in addition to a DOL or State certificate.**

AAI-funded programs award many types of credentials. For example, a nursing assistant apprentice might receive a certificate of completion from a college but still be required to pass a State exam to be licensed to work in that occupation.

Apprenticeship programs in 44 percent of occupational fields reported on in the Grantee Survey award completers a State certification or license, followed by 38 percent awarding a non-degree college certificate (Exhibit 6-12). Some grantees report that apprenticeship completers earn other shorter-term certificates, including OSHA-10 (33 percent) in manufacturing and A+ in IT (14 percent).³⁹ Fewer grantees report completers earning college degrees (12 percent) or various construction- and manufacturing-affiliated credentials.

Exhibit 6-12. Prevalence of Types of Credentials Awarded by Occupations

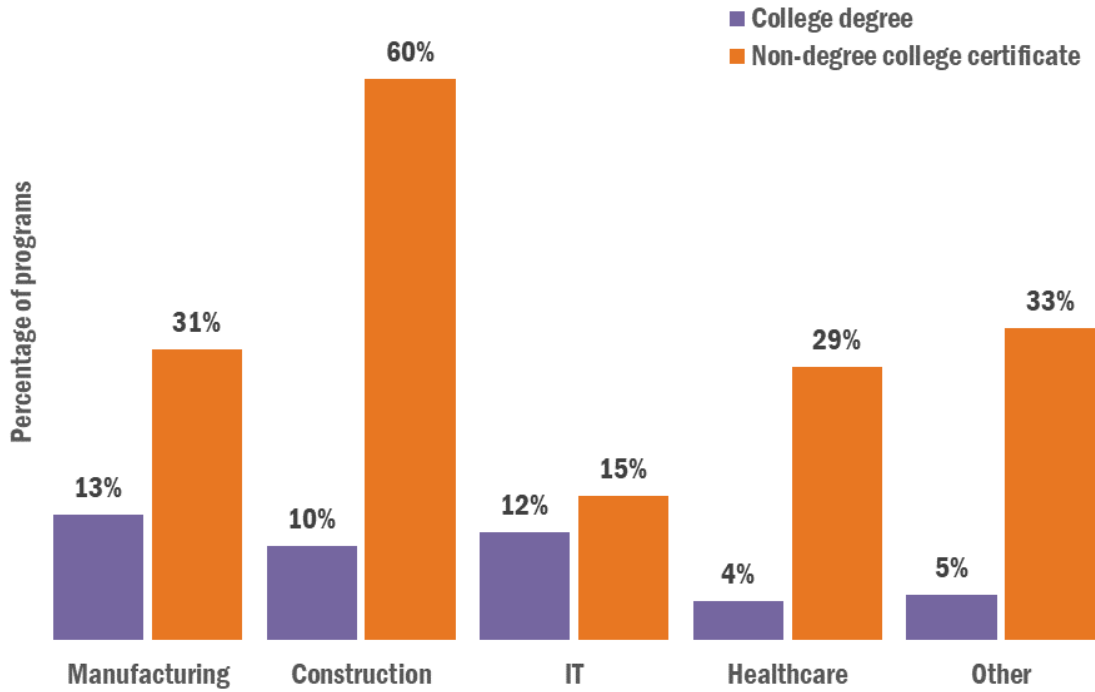
Credential	Occupations (%)
State certification or license	44
Non-degree college certificate	38
OSHA-10 certificate	33
A+ certification	14
College degree	12
National Institute for Metalworking Skills (NIMS) certification	10
Manufacturing Skills Standards Council (MSSC) certification	6
National Center for Construction Education and Research (NCCER) credential	4
American Welding Society (AWS) certification	1

Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=126.

³⁹ The Occupational Safety and Health Administration (OSHA) Outreach Training Program provides training on the recognition, avoidance, abatement, and prevention of workplace hazards. The 10-hour training program is primarily intended for entry-level workers (<https://www.osha.gov/training/outreach/overview>). A+ is an entry-level IT technician certification developed by CompTIA.

Whether an apprentice is awarded a college certificate or a college degree at the completion of the program varies by occupational field (Exhibit 6-13). Across all occupational fields and among apprenticeship completers, receiving a non-degree certificate is more common than receiving a college degree. However, the proportion of IT occupational programs that award college degrees upon completion (12 percent) is similar to the proportion awarding non-degree college certificates (15 percent). Among apprentices in construction-related programs, award of a certificate (60 percent) is more common than a degree (10 percent of construction occupations).

Exhibit 6-13. Prevalence of College Degrees vs. Non-Degree College Certificates, by Occupational Field



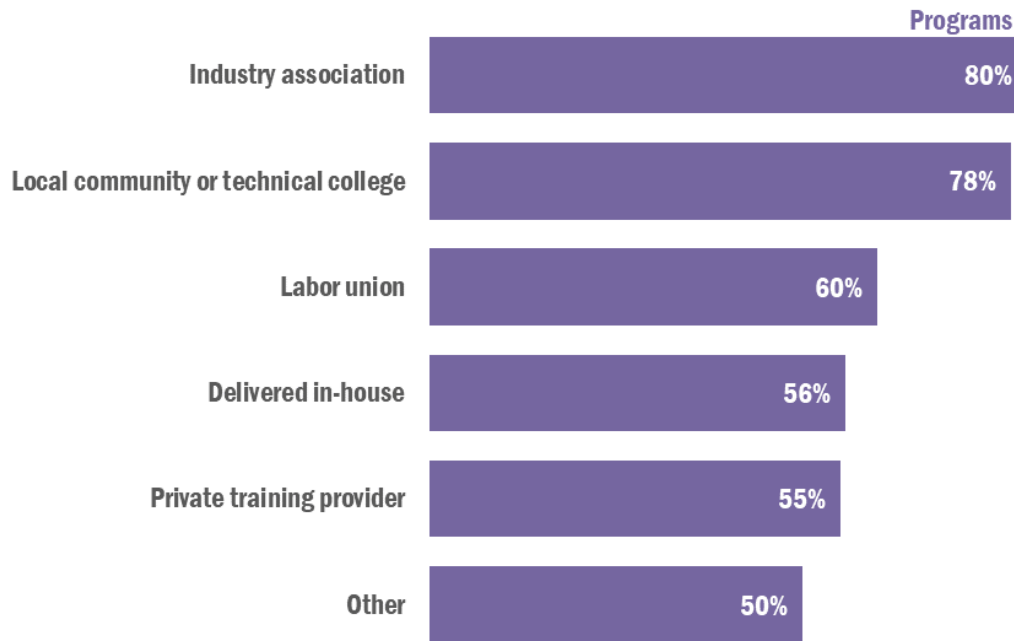
Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=126.

■ **Award of college credit for RTI varies by provider.**

Apprentices can earn college credits from their RTI or OJL, which can serve as a stepping-stone to further education, including the next step on a career pathway. Because colleges often deliver technical training through their non-credit departments, not all apprenticeships that award non-degree college certificates also result in transferable credits.

College credit is most frequently earned by those apprentices when RTI is provided either by a local community or technical college (78 percent) or by an industry association (80 percent; Exhibit 6-14). College credit is less common for RTI delivered in-house (56 percent).

Exhibit 6-14. Prevalence of College Credit Awarded for Related Technical Instruction, by Provider Type



Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=126.

7. Pre-Apprenticeship Programs

By ensuring that apprentices have the basic level of skills required to successfully complete an apprenticeship program, pre-apprenticeship programs are one approach for improving access to apprenticeship for low-skilled populations. Pre-apprenticeships are not regulated and limited guidelines are available. As a result, they vary more from program to program compared to registered apprenticeship programs.⁴⁰ They are typically short (sometimes only a few weeks) and involve less OJL than apprenticeships. Pre-apprenticeship programs also may be directly linked to registered apprenticeship programs; for example, apprentices may get credit for RTI and OJL completed during their pre-apprenticeship. This chapter describes the pre-apprenticeship programs reported on by AAI grantees, the partners and staff involved in delivering them, and the types of credentials that pre-apprenticeship completers earn.

7.1. Use of Pre-Apprenticeship Programs by AAI Grantees

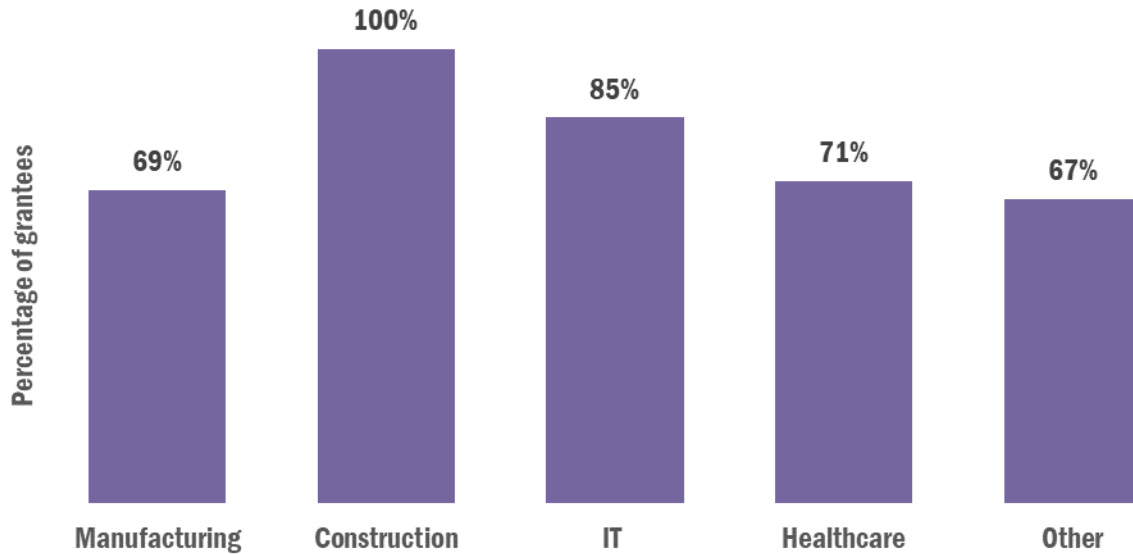
- ***Most grantees implement a pre-apprenticeship program.***

Almost three-quarters (73 percent) of grantees support a pre-apprenticeship program as a part of their AAI grant. As of December 31, 2019, grantees have implemented 243 pre-apprenticeship programs, serving almost 9,000 pre-apprentices, 89 percent of whom come from underrepresented populations.⁴¹

Pre-apprenticeship is most common in construction; all AAI grantees offering a construction program also support a pre-apprenticeship (Exhibit 7-1). Grantees reported during site visits that the reason might have to do with the focus of the construction field on expanding their apprenticeships as well as providing greater access and basic occupational training to youth. Grantees operating apprenticeships in IT are also likely to use pre-apprenticeship (85 percent), in part because shorter trainings and modules amenable to the pre-apprenticeship model are readily available. Grantees with programs in manufacturing and “other” occupations (e.g., banking and insurance) are the least likely to use pre-apprenticeship, although more than two-thirds of those grantees still operate a pre-apprenticeship program.

⁴⁰ Although pre-apprenticeships are not regulated in the same way that registered apprenticeships are, DOL provided guidance and definitions for quality pre-apprenticeship programs in Training and Employment Notice 13-12, https://wdr.doleta.gov/directives/attach/TEN/TEN_13-12.pdf.

⁴¹ Count of total pre-apprenticeship experiences comes from the December 31, 2019, QPR data set.

Exhibit 7-1. Grantee Support of Pre-Apprenticeship, by Occupational Field

Source: AAI Evaluation Grantee Survey. Reported at the grantee level, with grantees' answers ascribed to their occupational programs. $N=126$.

Note: The Grantee Survey asked whether the grantee supported a pre-apprenticeship program, not whether there was a pre-apprenticeship associated with each of its grant-supported apprenticeship programs.

■ **Most pre-apprenticeships have a direct pathway to a registered apprenticeship.**

Almost three-quarters of grantees report that all of their pre-apprenticeship programs have a direct pathway into their registered apprenticeship programs; the remainder do not.⁴² (See Appendix D, Table 22.) According to QPR data as of December 31, 2019, about 45 percent of pre-apprenticeship completers enter a registered apprenticeship program, on average. Grantee staff that implement pre-apprenticeship programs reported in interviews that pre-apprentices typically are not guaranteed a slot in the associated apprenticeship program, but they are usually guaranteed an interview if they successfully complete the pre-apprenticeship. Often the apprenticeship program has slots designated for pre-apprentices (Box 15).

Although most grantees that operate pre-apprenticeship programs report on the Grantee Survey that their programs have a direct pathway to apprenticeships, two-thirds of grantees report they do not expect all of their pre-apprentices to transition to an apprenticeship (see Appendix D, Table

Box 15: Pre-Apprenticeship with Pathway to Apprenticeship
(Grantee Case Study)

A national pharmacy chain operates pre-apprenticeships across **multiple AAI grantees**. Although these pre-apprenticeships are sometimes operated by an entity other than the pharmacy chain (e.g., its Philadelphia pre-apprenticeship program is managed by Philadelphia Youth Network), all of the pre-apprentices learn in the pharmacies and complete instructional modules linked directly to the RTI for the apprenticeship program. However, the pre-apprenticeship programs do not guarantee that pre-apprentices will be hired into an apprenticeship.

⁴² The Grantee Survey does not provide details on how these grantees designed the pre-apprenticeships. Pre-apprentices might be provided with information on registered apprenticeship programs in their occupations without an interview guarantee or a direct pathway in place. The instructional material in use in these pre-apprenticeships might also be different from the RTI in use in the grantees' apprenticeships.

23). These grantees cite the following reasons: pursuit of a different occupation (71 percent), finding other work (71 percent), disengagement from the program (67 percent), and pursuing other postsecondary education (62 percent). More than half (57 percent) report that there are not enough apprenticeship positions available for all pre-apprentices. (See Appendix D, Table 24.) The average AAI pre-apprenticeship lasts almost 12 weeks; durations range from one to 35 weeks of training (see Appendix D, Table 25).

- **Grantees report that recruiting apprenticeship applicants and ensuring that those applicants have basic occupational skills are the two primary goals for their pre-apprenticeship programs.**

Grantees have a number of goals for their pre-apprenticeship programs (Exhibit 7-2). Almost all grantees (97 percent) report that a goal of pre-apprenticeship is to serve as a recruitment source for the apprenticeship program. This is true regardless of whether the grantee has a direct pathway from its pre-apprenticeship program to its apprenticeship program.

Almost as many grantees (94 percent) report a goal to ensure that apprenticeship applicants have the technical skills to enroll in an apprenticeship program. Fewer grantees (55 percent) report assessing skill levels of future apprenticeship applicants as a goal. (See Box 16.)

Box 16: Pre-Apprentice Recruitment
(Grantee Case Study)

The **electrical training ALLIANCE** relies on local joint apprenticeship training committees (JATCs) to recruit, train, and place apprentices and pre-apprentices with electrical contractors that are part of the National Electrical Contractors Association. Local JATCs' recruitment sources vary and include offering pre-apprenticeship opportunities to applicants for the Inside Wireman program who did not qualify; working with nonprofits that serve targeted populations (particularly veterans); and taking referrals from local workforce boards.

The Philadelphia Youth Network, a partner of **Philadelphia Works**, operates a pre-apprenticeship program on behalf of a pharmacy chain that helps completers transition to the Pharmacy Technician apprenticeship.

Exhibit 7-2. Prevalence among Grantees of Goals for Their Pre-Apprenticeship Program

Goal	Grantees with Pre-apprenticeship Programs (%)
Serve as a recruitment source for the apprenticeship	97
Ensure apprenticeship applicants have basic occupational skills	94
Strengthen existing work-based learning programs by linking to registered apprenticeship	61
Assess skill levels of future apprenticeship applicants	55
Make registered apprenticeship more accessible to youth	42
Strengthen occupational training in high schools	15
Other	6

Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=33. Sample size is less than 45 because only 33 grantees supported pre-apprenticeship programs.

7.2. Screening for Pre-Apprenticeship Programs

In addition to ensuring that the pre-apprentice is prepared for and dedicated to completing the pre-apprenticeship program, screening applicants helps trainers tailor services and instruction to the pre-apprentice's needs.

- **Almost all pre-apprenticeship programs require a written application and assessments of basic academic skills.**

Among AAI grantees that operate pre-apprenticeships, 94 percent report in the Grantee Survey that their pre-apprenticeship program requires candidates to submit a written application, and most grantees (64 percent) also require an interview. Slightly more than half of the pre-apprenticeship programs (52 percent) require applicants to produce documents confirming that they have a legal right to work in the United States. Many (39 percent) require a teacher’s or counselor’s recommendation to the program. The most common screening during the application is a drug test (50 percent).⁴³ Other screenings, such as criminal background checks, are less common and associated with certain occupations. (See Appendix D, Tables 26 and 27.)

Pre-apprenticeship programs also assess an applicant’s knowledge and skills to determine their training needs and to understand whether a pre-apprenticeship is appropriate for them (Exhibit 7-3). The most common assessment of pre-apprentice applicants is for basic academic skills (79 percent of pre-apprenticeship programs). Grantees use basic skills tests to determine whether an applicant will meet basic college requirements in cases where an apprenticeship program’s RTI is provided by a college.

Many grantees report that their pre-apprenticeship programs also assess career interests (57 percent) and support service needs (57 percent). Other assessments are less common; non-academic, non-technical assessments are the least common (e.g., social skills, coping skills, motivation, and life skills).

Exhibit 7-3. Prevalence of Types of Pre-Apprenticeship Assessments

Assessment	Grantees with Pre-apprenticeship Programs (%)
Basic academic skills	79
Career interests	57
Support service needs	57
"Soft skills"	54
Career aptitudes	36
Learning styles	32
Life skills	32
English language proficiency	29
Motivation	25
Social skills	18
Other	18
Coping skills	11

Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=28. Sample size is less than 45 because not all grantees supported pre-apprenticeship programs, and five grantees that did support pre-apprenticeship did not report an assessment. Some pre-apprenticeship programs may not use an assessment for their pre-apprentices.

⁴³ Although all pre-apprenticeship programs do not have the same requirements by law or regulation, screening for drug use at the pre-apprenticeship level helps ensure apprenticeship programs get a flow of eligible applicants.

7.3. Characteristics of Pre-Apprentices

The AAI FOA describes pre-apprenticeship as a strategy for preparing underrepresented populations for apprenticeship programs. As with apprenticeship programs, grantees targeted diverse populations for their pre-apprenticeship programs. Relative to apprentices, a larger proportion of pre-apprentices are from underrepresented populations and represent greater diversity in gender and race.

- **Almost 90 percent of pre-apprentices are from underrepresented populations.**

According to QPR data, 89 percent of pre-apprentices are from underrepresented populations (Exhibit 7-4). Relative to apprentices, more pre-apprentices are women (36 percent versus 26 percent for apprentices). Pre-apprentices are also more racially diverse. About one-third of pre-apprentices are White and a similar proportion are Black; the corresponding figures for apprentices are 61 percent and 17 percent, respectively. Greater proportions of pre-apprentices are veterans (15 percent versus 10 percent of apprentices) and people with disabilities (7 percent versus 2 percent of apprentices). The average ages are similar between pre-apprentices and apprentices (about 33 years).

Exhibit 7-4. Characteristics of Pre-Apprentices

Characteristic	Total	Women	Men
Gender (%)			
Women	36	–	–
Men	64	–	–
Race and ethnicity (%)			
Hispanic, any race	18	16	19
White, Non-Hispanic	34	31	36
Black, Non-Hispanic	35	35	35
Asian only	6	8	6
Native Indian only	3	6	1
Native Hawaiian only	1	1	1
Non-Hispanic, other race or multiple races	2	3	2
Age (%)			
24 years or younger	34	28	38
25 to 34 years	31	32	31
35 to 44 years	17	19	16
45 to 54 years	11	13	9
55 years or older	6	8	5
Average age (years)	32	34	31
Veterans (%)	15	7	20
People with disabilities (%)	7	5	9
From underrepresented populations (%)	89	Not available	Not available

Source: AAI Quarterly Performance Report, as of December 31, 2019. Reported at the pre-apprentice level. For the total, gender N=8,836; race and ethnicity N=8,478; age N=8,586; veteran and people with disabilities N=9,022; underrepresented population N=8,957. For women, race and ethnicity N=3,006; age N=3,014; veteran and people with disabilities N=3,201. For men, race and ethnicity N=5,384; age N=5,407; veteran and people with disabilities N=5,635. Underrepresented population is not available by gender because this subgroup is reported in the aggregate to the authors by DOL.

7.4. Content of Pre-Apprenticeship Programs

- **Almost all pre-apprenticeship programs include an introduction to the industry or occupation, as well as occupational skills training.**

Almost all grantees report that their pre-apprenticeship programs provide introductory training in an industry or occupation (94 percent) or occupational skills training (91 percent) to prepare pre-apprentices for a registered apprenticeship. This content is often supplemented with other training in basic skills such as reading or math and “soft” skills like time management and communication (Exhibit 7-5). Soft skills training is the most common pre-apprenticeship content (67 percent) after occupation-related skills training. Slightly more than half of AAI grantees report their pre-apprenticeship programs teach basic math skills (52 percent), although many fewer teach basic reading skills (33 percent).

Slightly less than half use industry-approved training curriculum for their pre-apprenticeship (45 percent), which could improve linkages to apprenticeship programs that use either the same curriculum or curriculum produced by the same source. Box 17 show examples of pre-apprenticeship content.

Exhibit 7-5. Prevalence of Types of Instructional Content in Pre-Apprenticeship Training Curricula

Content	Grantees with Pre-apprenticeship Programs (%)
Introduction to industry or occupations	94
Occupational skills	91
“Soft skills”	67
Basic math skills	52
Industry-approved training curriculum	45
Basic reading skills	33
Financial literacy skills	21
Advanced math skills	18

Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=32. Sample size is less than 45 because not all grantees supported pre-apprenticeship programs, and one grantee that did support pre-apprenticeship did not report instructional content. All pre-apprenticeship programs should have some instructional content.

Box 17: Pre-Apprenticeship Content
(Grantee Case Study)

The **electrical training ALLIANCE**'s local joint apprenticeship training committees (JATCs) use the same RTI curriculum, but implement OJL in different ways. OJL for Detroit's program starts in Week 3. Pre-apprentices alternate daily between RTI and OJL for Weeks 3 and 4, and weekly thereafter. In San Mateo and Charlotte, pre-apprenticeship programs offer RTI as night classes so that pre-apprentices can do OJL during the day. Tampa's program does not include OJL, but finishes in six weeks and offers, but does not guarantee, direct entry into the Inside Wireman apprenticeship upon completion.

With assistance from the **Shenandoah Valley Workforce Development Board**, Wilson Workforce Rehabilitation Center developed a 16-week Manufacturing Technology Training pre-apprenticeship program specifically for people with disabilities. The training is based on the Manufacturing Skills Institute's MT1 certification program. The 16 weeks include a two-week social and behavioral skills training designed to prepare the pre-apprentices for the workplace, covering topics such as communication and interpersonal skills, attendance and punctuality, initiative and dependability, and responding to supervision. Also built into the program is a nine-day Forklift Operator training and an OSHA-10 training. Pre-apprentice completers can sit for the Manufacturing Specialist (MS) certification and the MT1 certification.

Often, pre-apprenticeships award credentials. Because pre-apprenticeships are shorter and provide more introductory training and do not provide higher level technical skills training, pre-apprenticeship credentials are typically short-term certificates. The most common credentials reported are certificates of program completion, OSHA-10 certification, and CPR or First Aid certification. Other credentials are more occupationally specific and some overlap with credentials awarded with apprenticeship programs (e.g., CompTIA, Commercial Driver's License, and Certified Nursing Assistant certification). Grantees did not report awarding any college certificates—even short-term certificates—during the pre-apprenticeship.

8. Support Services for Apprentices and Pre-Apprentices

AAI grantees can use grant funds for support services to enable apprentices and pre-apprentices to enter and persist in training.⁴⁴ For instance, grantees can pay the costs of training-related materials such as uniforms, tools, and textbooks and provide transportation assistance and dependent care assistance for apprentices or pre-apprentices who are primary caretakers. Grant funds also can support staff time to provide individualized counseling or mentoring. The Grantee Survey inquired about academic supports (e.g., academic counseling, tutoring, and tuition assistance) and one-on-one case management (e.g., career, personal, or financial counseling; referrals to services in the community). This chapter describes support services grantees offered to apprentices and pre-apprentices.

- **Most grantees provide support services to apprentices and pre-apprentices.**

Sixty-nine (69) percent of grantees report in the Grantee Survey that support services are available to apprentices. Grantees themselves are the primary providers of these services (74 percent of grantees). Other sources of support for apprentices include employers (35 percent) and nonprofit partners (32 percent). (See Appendix D, Tables 28 and 29.)

Among grantees that operate pre-apprenticeship programs, 79 percent report they offer support services (see Appendix D, Table 30). It is most common for the grantee itself to provide the supports (76 percent), compared with a nonprofit partner or local American Job Center (36 percent each; see Appendix D, Table 31). Box 18 provides examples of services.

Most grantees have staff dedicated exclusively to providing support services (Exhibit 8-1, Box 19). About three-quarters of grantees that offer support services assign a staff member to work one-on-one with each apprentice (73 percent) or pre-apprentice (71 percent) throughout the program (not shown). The most common responsibilities of staff supporting apprentices are monitoring and making referrals based on needs (95 percent of grantees providing support) and monitoring the apprentice's satisfaction with the employer (86 percent). The most common responsibilities of staff supporting pre-apprentices are

Box 18: Support Services (Grantee Case Study)

Grantees included in the site visits commonly reported providing financial assistance for pre-apprentices and apprentices to purchase uniforms, work boots, tools, and books needed for their programs. Grantees also use grant funds to provide transportation assistance in the form of public transit passes, gas reimbursement, or parking for pre-apprentices and apprentices to travel to and from training and work.

The **Workforce Development Board of Herkimer, Madison, and Oneida Counties** co-enrolls apprentices under WIOA so that they are eligible for WIOA services including gas reimbursement; purchase of uniforms, tools, and books; and assistance with childcare expenses.

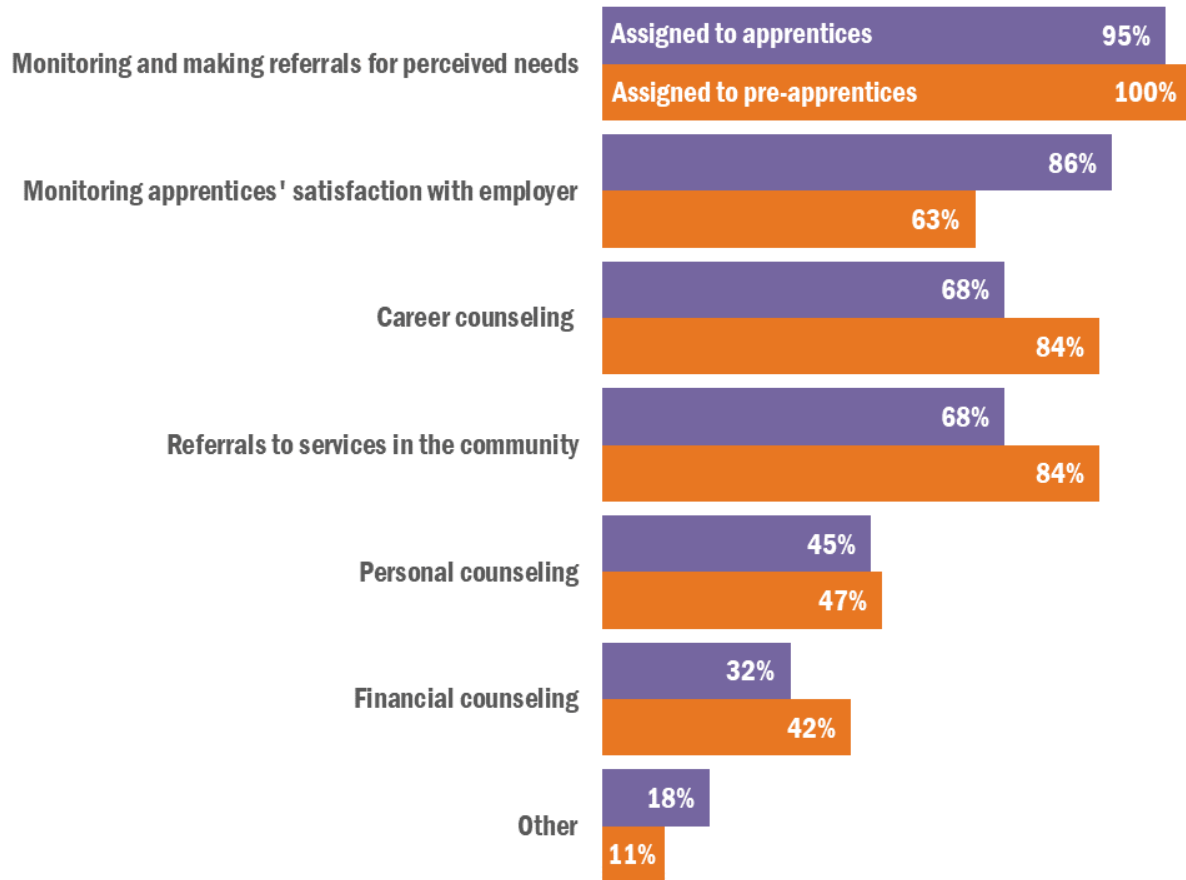
electrical training ALLIANCE provides stipends of increasing value for every 30 hours of training completed by the pre-apprentice, up to \$500.

⁴⁴ DOL's AAI Funding Opportunity Announcement (FOA) used the term "supportive services" to refer to "WIOA supportive services, specialized participant services, case management services, dependent care assistance, transportation assistance, mentoring, and other types of services that might be needed for a participant to succeed in training and employment." The Grantee Survey primarily inquired about academic supports and case management.

8. SUPPORT SERVICES FOR APPRENTICES AND PRE-APPRENTICES

monitoring and making referrals (100 percent), career counseling (84 percent), and referrals to services in the community (84 percent). (See Exhibit 8-1.)

Exhibit 8-1. Responsibilities of Grantee Program Staff Assigned to Support Apprentices and Pre-Apprentices



Source: AAI Evaluation Grantee Survey. Reported at the grantee level for grantees that reported providing support services. *N*=22 for staff assigned to apprentice supports and *N*=19 for staff assigned to pre-apprentice supports.

Box 19: Support Staff (Grantee Case Study)

William Rainey Harper College's intrusive academic coach sees the pre-apprentices every semester. For all pre-apprentices, the coach makes sure the class schedule is correct and registers students each semester. Depending on the apprentice's needs, coaching is provided on time management, study skills, or test taking. The coach emails instructors weekly for updates on apprentices, such as absences or issues with grades, and talks with the apprentice as needed.

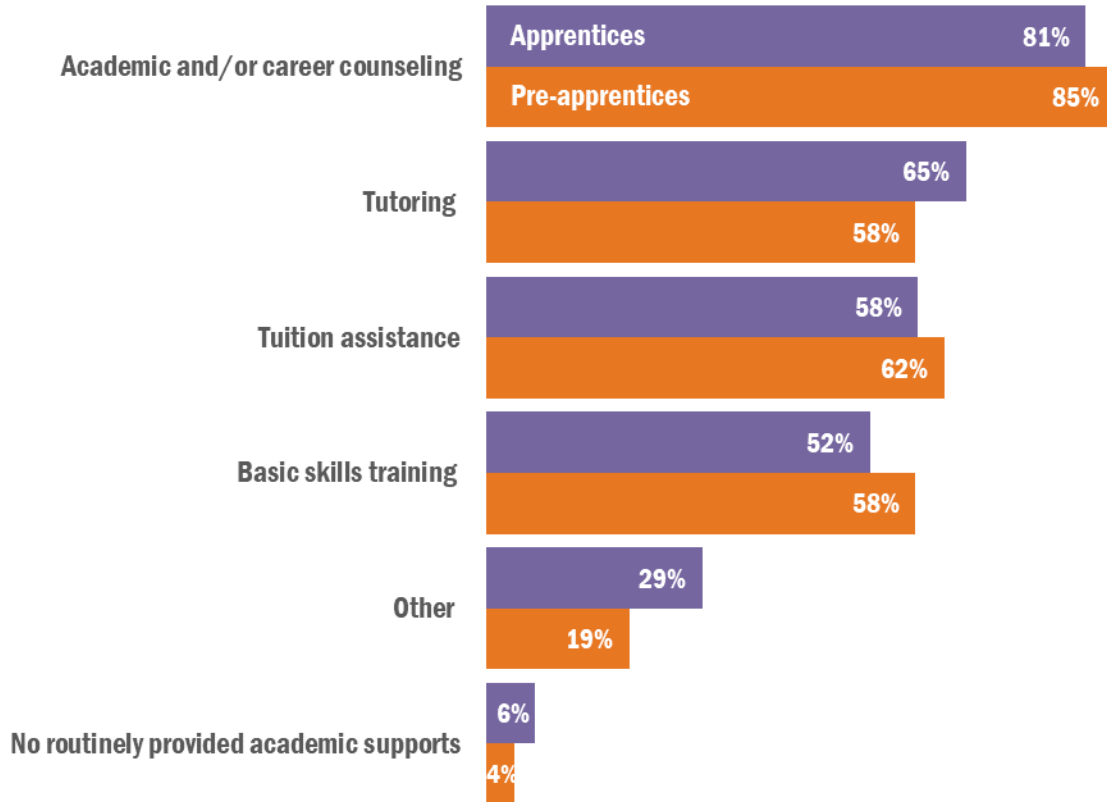
A grant-funded staff member at **Shenandoah Valley Workforce Development Board** screens and enrolls pre-apprentices and assists them in identifying courses and training providers, developing resumes, and identifying potential employers to pursue for apprenticeships.

8. SUPPORT SERVICES FOR APPRENTICES AND PRE-APPRENTICES

- **More than 80 percent of grantees provide academic and career counseling to apprentices and pre-apprentices.**

Academic and career counseling are the most common supports grantees offer to apprentices (81 percent of grantees), followed by tutoring (65 percent) and tuition assistance (58 percent) (Exhibit 8-2). For pre-apprentices, the most common academic supports are academic counseling (85 percent of grantees), tuition assistance (62 percent), and tutoring and basic skills training (58 percent each).

Exhibit 8-2. Prevalence of Academic Supports Offered to Apprentices and Pre-Apprentices



Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=45.

9. Summary of Findings

The U.S. Department of Labor (DOL) funded the American Apprenticeship Initiative (AAI) grants to expand registered apprenticeship in high-growth industries and extend the range of occupations using registered apprenticeship, including such occupational fields in advanced manufacturing, healthcare, and IT.⁴⁵ DOL also sought to increase the number of apprentices drawn from underrepresented populations, including by racial and ethnic minorities, women, veterans, and people with disabilities. Using data from a Grantee Survey administered four years into the five-year grant program, when grantee activities operated at a steady state, and Quarterly Performance Report (QPR) data through December 31, 2019, this report describes how grantees designed and implemented apprenticeship programs and served the goals of the initiative.

As of the end of 2019, most grantees are well on their way to meeting both AAI objectives. First, one-third already met their target number of registered apprentices and another third reached between 60 percent and 99 percent of their targets. Second, grantees implemented apprenticeship programs in non-traditional fields, including IT and healthcare. Third, two-thirds of apprentices are from underrepresented populations.

This section summarizes key implementation research findings. It then describes future study reports.

9.1. Key Findings

DOL awarded AAI grants to a diverse array of public and private organizations, the majority with no prior experience developing registered apprenticeship programs. AAI grantees include community colleges, other nonprofits, State agencies, sub-State agencies, and sector-based organizations. Thirty-six (36) percent had prior experience with registered apprenticeship. The proportion with experience ranged from 25 percent of State governments and sector-based organizations to half of other nonprofits.

Grantees successfully registered apprenticeship programs and diversified occupations. AAI is the first large-scale federal initiative to expand apprenticeship in the U.S. Although the Department of Labor had not implemented apprenticeship activities on this scale before, and two-thirds of AAI grantees were new to apprenticeship, grantees made progress towards their apprenticeship goals. As of December 31, 2019, grantees collectively registered 1,943 programs. The most common occupations registered are manufacturing (36 percent of programs), IT (21 percent), and healthcare (19 percent). Traditional building trades account for only 8 percent of newly registered occupations.

AAI-funded programs award many types of credentials. Apprenticeship programs in 44 percent of occupational fields reported on in the Grantee Survey award apprenticeship completers a State certification or license, followed by 38 percent awarding a non-degree college certificate.

Many grantees sponsor registered apprenticeship programs. Overall, 41 percent of grantees sponsor some (30 percent) or all (11 percent) programs. Half of college grantees and other nonprofits, and 75 percent of sector-based organizations sponsor some or all programs, with half of sector-based programs

⁴⁵ Appendix C provides the detailed occupations reported on in the Grantee Survey.

sponsoring all programs. By comparison, less than 10 percent of State grantees sponsored some or all programs.

Grantees successfully recruited apprentices from underrepresented populations. Grantees collectively registered almost 24,000 apprentices (55 percent of their apprentice target). Almost 70 percent of apprentices registered as of December 31, 2019, are from underrepresented groups, including women, racial and ethnic minorities, and veterans. Grantees made particular progress recruiting women, more than doubling the proportion of new registered women apprentices in fiscal year 2019.

The majority of apprentices are incumbent workers. Fifty-three percent of registered apprentices are incumbent workers. Thus, employers use apprenticeship not only to train new workers but also to train existing workers to become fully competent in an advanced skilled occupation.

The Office of Apprenticeship registered apprenticeship programs more quickly than did State Apprenticeship Agencies. Sixty-one percent of programs registered with the Office of Apprenticeship (OA) are registered in two months or less, compared to 22 percent of programs registered with SAAs. Almost 80 percent of programs registered with OA are registered in four months or less, compared to 51 percent for SAAs. On average, across all newly registered apprenticeship programs in the occupations reported by grantees, programs take about six months to develop and register.

Dedicated recruitment staff and financial supports to employers are associated with progress towards apprenticeship targets. Most grantees (78 percent) have staff dedicated exclusively to employer recruitment. Additionally, more than half of grantees use financial incentives to recruit employers, including support for RTI (38 percent of grantees), such as funds for apprentice tuition, and support for OJL (31 percent), such as defraying costs of mentors' wages. Having staff dedicated to employer recruitment is associated with greater progress toward apprentice registration targets. Eighty-seven (87) percent of grantees making the most progress toward their targets dedicate staff full-time to employer recruitment; only 60 percent of grantees making the least progress do so. Support for RTI, but not OJL, was also positively associated with grantee success in meeting their apprenticeship targets.

A greater share of grantees most successful in meeting their apprentice registration targets use ATRs to recruit employers and other sponsors. Forty-two (42) percent of grantees report that OA's ATRs help with employer recruitment. Among the grantees making the most progress toward their target, 67 percent receive help from an ATR. By contrast, among grantees making the least progress toward their target, only 20 percent do so.

Despite progress registering programs and apprentices, employer recruitment challenges remain. Overcoming employer reluctance to adopt apprenticeship is the key challenge reported by a majority of grantees (61 percent) to creating and registering apprenticeships. Eighty percent of grantees making the least progress toward their apprentice registration targets report employer reluctance as the primary challenge, as do half of grantees making the most progress. Less common challenges grantees report are putting together the specific components of registered apprenticeship training, including RTI development (43 percent) and difficulty completing work process schedules (41 percent).

9.2. Future Evaluation Reports

This report summarizing grantee apprenticeship and pre-apprenticeship activities is one of three implementation study reports describing grantee characteristics and program implementation. A second report summarizes the activities of the 10 grantees selected for in-depth site visits, including grantees' target occupational areas, approaches to employer engagement, identification and recruitment of apprentices, apprenticeship program components, grant activity modifications due to the pandemic, and plans to sustain activities post grant (Copson et al. forthcoming). A third report will assess the implementation of the AAI grants by examining grantee final outcomes, as well as their progress over time.

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Appendix A: Overview of AAI Grantees

AAI grants were awarded to 46 grantees. One grant ended prior to the start of data collection for the evaluation, so the report covers 45 grantees. Information for this appendix comes from AAI grant applications and AAI Quarterly Performance Report data.

<p>Able-Disabled Advocacy, Inc. (A-DA)</p>	<p>Alaska Department of Labor and Workforce Development (DOLWD)</p>
<p>Grantee State: California OA or SAA State: OA and SAA Total funding: \$3,262,173 Target number of pre-apprentices: None specified Target number of apprentices: 300 Registered apprenticeship occupations: <ul style="list-style-type: none"> ▪ IT </p>	<p>Grantee State: Alaska OA or SAA State: OA Total funding: \$2,999,999 Target number of pre-apprentices: 1,200 Target number of apprentices: 450 Registered apprenticeship occupations: <ul style="list-style-type: none"> ▪ Healthcare </p>
<p>American Health Information Management Association (AHIMA) Foundation</p>	<p>Arkansas Department of Labor and Workforce Development</p>
<p>Grantee State: Illinois OA or SAA State: OA Total funding: \$4,919,839 Target number of pre-apprentices: None specified Target number of apprentices: 1,000 Registered apprenticeship occupations: <ul style="list-style-type: none"> ▪ Healthcare </p>	<p>Grantee State: Arkansas OA or SAA State: OA Total funding: \$4,000,000 Target number of pre-apprentices: 120 Target number of apprentices: 600 Registered apprenticeship occupations: <ul style="list-style-type: none"> ▪ Manufacturing ▪ Construction ▪ Installation, Maintenance, and Repair ▪ IT ▪ Healthcare </p>
<p>Board of Regents, Nevada System of Higher Education, Truckee Meadows Community College (TMCC)</p>	<p>Building Futures</p>
<p>Grantee State: Nevada OA or SAA State: SAA Total funding: \$2,998,522 Target number of pre-apprentices: None specified Target number of apprentices: 342 Registered apprenticeship occupations: <ul style="list-style-type: none"> ▪ Manufacturing ▪ Healthcare </p>	<p>Grantee State: Rhode Island OA or SAA State: SAA Total funding: \$5,000,000 Target number of pre-apprentices: 575 Target number of apprentices: 1,017 Registered apprenticeship occupations: <ul style="list-style-type: none"> ▪ Manufacturing ▪ Construction ▪ Installation, Maintenance, and Repair ▪ IT ▪ Healthcare </p>

APPENDIX A: OVERVIEW OF AAI GRANTEES

<p>Central New Mexico Community College</p> <p>Grantee State: New Mexico OA or SAA State: SAA Total funding: \$2,999,553 Target number of pre-apprentices: None specified Target number of apprentices: 300 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ IT ▪ Healthcare 	<p>Connecticut Department of Labor</p> <p>Grantee State: Connecticut OA or SAA State: SAA Total funding: \$5,000,000 Target number of pre-apprentices: 500 Target number of apprentices: 1,000 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Manufacturing ▪ Construction ▪ Installation, Maintenance, and Repair ▪ Transportation and Material Moving ▪ IT ▪ Healthcare
<p>Economic Development and Industrial Corporation’s Office of Workforce Development (EDIC/OWD)</p> <p>Grantee State: Massachusetts OA or SAA State: SAA Total funding: \$2,999,999 Target number of pre-apprentices: 417 Target number of apprentices: 374 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Construction ▪ Installation, Maintenance, and Repair ▪ Healthcare 	<p>electrical training ALLIANCE</p> <p>Grantee State: Maryland OA or SAA State: SAA Total funding: \$4,779,700 Target number of pre-apprentices: 1,600 Target number of apprentices: 1,019 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Construction
<p>Employ Milwaukee</p> <p>Grantee State: Wisconsin OA or SAA State: SAA Total funding: \$2,999,591 Target number of pre-apprentices: None specified Target number of apprentices: 300 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Manufacturing ▪ Construction ▪ Transportation and Material Moving ▪ IT ▪ Healthcare 	<p>Executive Office of Labor and Workforce Development, Department of Career Services (DCS)</p> <p>Grantee State: Massachusetts OA or SAA State: SAA Total funding: \$2,999,999 Target number of pre-apprentices: None specified Target number of apprentices: 300 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Manufacturing ▪ Installation, Maintenance, and Repair ▪ IT ▪ Healthcare

APPENDIX A: OVERVIEW OF AAI GRANTEES

<p>Florida State College at Jacksonville</p> <p>Grantee State: Florida OA or SAA State: OA and SAA Total funding: \$5,000,000 Target number of pre-apprentices: None specified Target number of apprentices: 1,000 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Manufacturing ▪ Construction ▪ Installation, Maintenance, and Repair ▪ IT 	<p>Focus: HOPE</p> <p>Grantee State: Michigan OA or SAA State: OA Total funding: \$3,000,000 Target number of pre-apprentices: 444 Target number of apprentices: 300 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Manufacturing ▪ Construction ▪ IT
<p>Hawaii State Department of Labor and Industrial Relations (DLIR)</p> <p>Grantee State: Hawaii OA or SAA State: SAA Total funding: \$2,999,553 Target number of pre-apprentices: None specified Target number of apprentices: 300 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Installation, Maintenance, and Repair ▪ IT 	<p>Homework Hangout Club Inc. (HHC)</p> <p>Grantee State: Illinois OA or SAA State: OA Total funding: \$2,989,850 Target number of pre-apprentices: 75 Target number of apprentices: 300 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Manufacturing ▪ Construction ▪ Installation, Maintenance, and Repair
<p>Houston Community College</p> <p>Grantee State: Texas OA or SAA State: OA Total funding: \$4,292,955 Target number of pre-apprentices: None specified Target number of apprentices: 620 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Construction ▪ Healthcare 	<p>Illinois Manufacturers' Association Education Foundation (IMA-EF)</p> <p>Grantee State: Illinois OA or SAA State: OA Total funding: \$3,995,000 Target number of pre-apprentices: None specified Target number of apprentices: 630 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Manufacturing ▪ IT
<p>International Brotherhood of Teamsters</p> <p>Grantee State: District of Columbia OA or SAA State: SAA Total funding: \$4,668,382 Target number of pre-apprentices: None specified Target number of apprentices: 1,060 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Transportation and Material Moving 	<p>J. Sargeant Reynolds Community College</p> <p>Grantee State: Virginia OA or SAA State: OA Total funding: \$2,999,094 Target number of pre-apprentices: 231 Target number of apprentices: 330 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Manufacturing ▪ Construction ▪ Installation, Maintenance, and Repair ▪ IT

APPENDIX A: OVERVIEW OF AAI GRANTEEES

<p>Jobs for the Future (JFF)</p> <p>Grantee State: Massachusetts OA or SAA State: OA Total funding: \$5,000,000 Target number of pre-apprentices: None specified Target number of apprentices: 1,450 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Manufacturing ▪ Construction ▪ Installation, Maintenance, and Repair 	<p>Los Rios Community College District</p> <p>Grantee State: California OA or SAA State: OA and SAA Total funding: \$5,000,000 Target number of pre-apprentices: None specified Target number of apprentices: 1,000 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Manufacturing ▪ Installation, Maintenance, and Repair ▪ IT
<p>Macomb Community College</p> <p>Grantee State: Michigan OA or SAA State: OA Total funding: \$3,979,723 Target number of pre-apprentices: None specified Target number of apprentices: 510 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Manufacturing ▪ Construction ▪ Installation, Maintenance, and Repair ▪ IT ▪ Healthcare 	<p>Managed Career Solutions, Inc. (MCS)</p> <p>Grantee State: California OA or SAA State: OA and SAA Total funding: \$2,974,070 Target number of pre-apprentices: 200 Target number of apprentices: 300 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Manufacturing ▪ IT
<p>Marshall University Research Corporation</p> <p>Grantee State: West Virginia OA or SAA State: OA Total funding: \$4,991,763 Target number of pre-apprentices: 588 Target number of apprentices: 1,000 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Manufacturing ▪ Construction ▪ Installation, Maintenance, and Repair 	<p>Minnesota Department of Employment and Economic Development</p> <p>Grantee State: Minnesota OA or SAA State: SAA Total funding: \$5,000,000 Target number of pre-apprentices: None specified Target number of apprentices: 1,000 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Manufacturing ▪ Construction ▪ Installation, Maintenance, and Repair ▪ Transportation and Material Moving ▪ IT ▪ Healthcare
<p>Mission College</p> <p>Grantee State: California OA or SAA State: OA and SAA Total funding: \$2,999,340 Target number of pre-apprentices: 400 Target number of apprentices: 310 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Transportation and Material Moving ▪ IT 	<p>NPower, Inc.</p> <p>Grantee State: New York OA or SAA State: OA Total funding: \$3,300,000 Target number of pre-apprentices: None specified Target number of apprentices: 1,070 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ IT

APPENDIX A: OVERVIEW OF AAI GRANTEES

<p>Philadelphia Works, Inc.</p>	<p>San Francisco City and County, Office of Economic and Workforce Development (OEWD)</p>
<p>Grantee State: Pennsylvania OA or SAA State: SAA Total funding: \$2,999,722 Target number of pre-apprentices: 190 Target number of apprentices: 310 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ IT ▪ Healthcare 	<p>Grantee State: California OA or SAA State: OA and SAA Total funding: \$2,999,999 Target number of pre-apprentices: None specified Target number of apprentices: 300 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ IT
<p>Shenandoah Valley Workforce Development Board (SVWDB)</p>	<p>South Carolina Technical College System</p>
<p>Grantee State: Virginia OA or SAA State: SAA Total funding: \$4,000,000 Target number of pre-apprentices: 35 Target number of apprentices: 600 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Manufacturing ▪ Construction ▪ Installation, Maintenance, and Repair 	<p>Grantee State: South Carolina OA or SAA State: OA Total funding: \$5,000,000 Target number of pre-apprentices: None specified Target number of apprentices: 1,000 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Manufacturing ▪ Construction ▪ Installation, Maintenance, and Repair ▪ Transportation and Material Moving ▪ IT ▪ Healthcare
<p>South Seattle College</p>	<p>Southeast Michigan Community Alliance</p>
<p>Grantee State: Washington OA or SAA State: OA and SAA Total funding: \$4,810,008 Target number of pre-apprentices: None specified Target number of apprentices: 1,000 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Manufacturing ▪ Construction ▪ Transportation and Material Moving ▪ Healthcare 	<p>Grantee State: Michigan OA or SAA State: SAA Total funding: \$4,000,000 Target number of pre-apprentices: None specified Target number of apprentices: 731 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Manufacturing ▪ Construction ▪ Installation, Maintenance, and Repair ▪ IT ▪ Healthcare

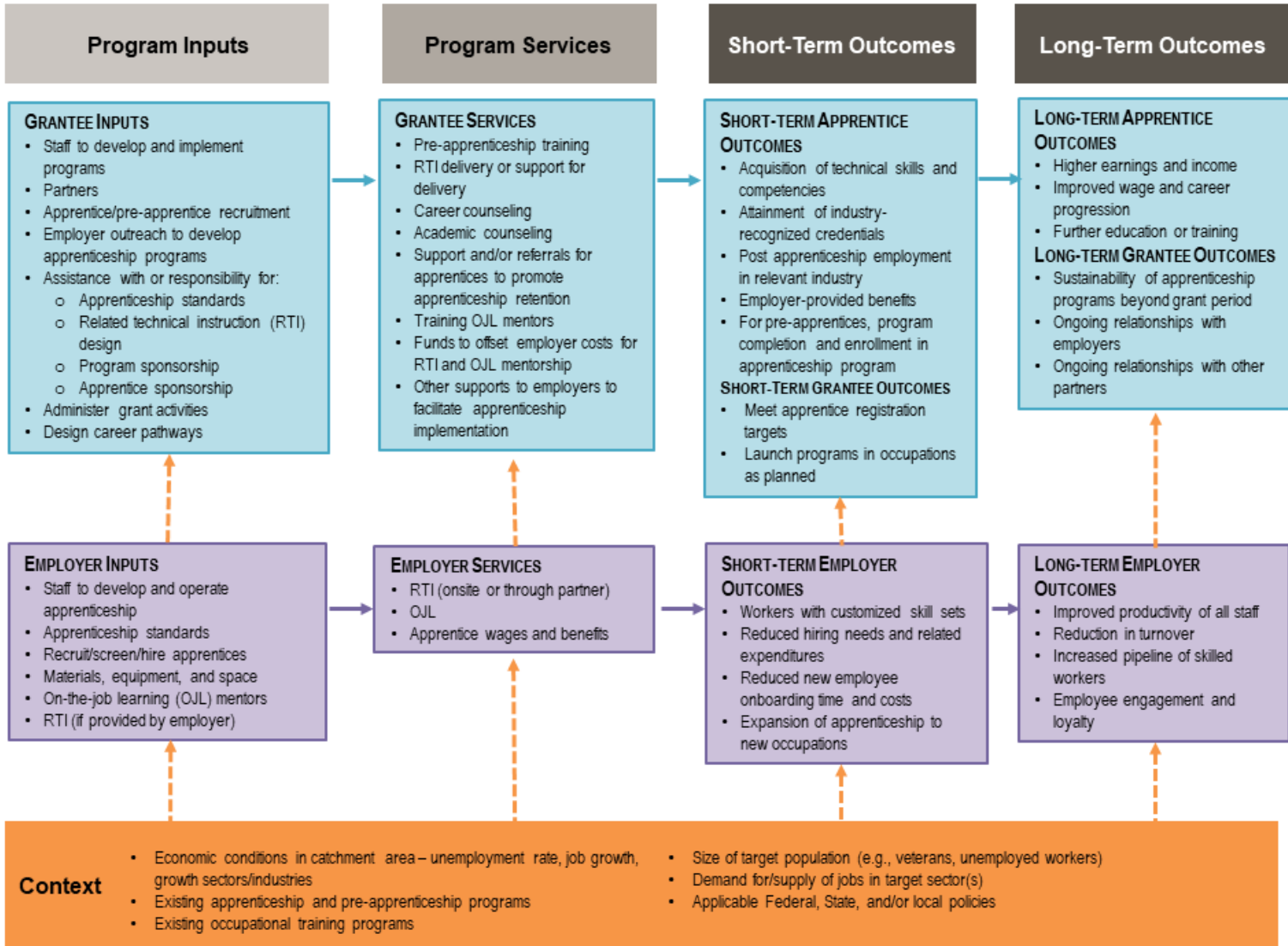
State of Oregon Employment Department	Technical College System of Georgia
<p>Grantee State: Oregon OA or SAA State: SAA Total funding: \$3,000,000 Target number of pre-apprentices: 100 Target number of apprentices: 300 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Manufacturing ▪ Construction ▪ Installation, Maintenance, and Repair ▪ IT 	<p>Grantee State: Georgia OA or SAA State: OA Total funding: \$2,999,995 Target number of pre-apprentices: None specified Target number of apprentices: 396 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Manufacturing ▪ Construction ▪ Installation, Maintenance, and Repair
Transportation Learning Center	United Auto Workers–Labor Employment and Training Corporation (UAW-LETC)
<p>Grantee State: Maryland OA or SAA State: SAA Total funding: \$5,000,000 Target number of pre-apprentices: None specified Target number of apprentices: 1,297 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Construction ▪ Installation, Maintenance, and Repair ▪ Transportation and Material Moving 	<p>Grantee State: California OA or SAA State: OA and SAA Total funding: \$5,000,000 Target number of pre-apprentices: 400 Target number of apprentices: 1,075 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Manufacturing ▪ Construction ▪ Installation, Maintenance, and Repair
United Way of Buffalo and Erie County (UWBEC)	Vermont Department of Labor
<p>Grantee State: New York OA or SAA State: OA and SAA Total funding: \$2,975,884 Target number of pre-apprentices: None specified Target number of apprentices: 300 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Manufacturing ▪ Construction ▪ Installation, Maintenance, and Repair 	<p>Grantee State: Vermont OA or SAA State: SAA Total funding: \$2,999,931 Target number of pre-apprentices: 165 Target number of apprentices: 300 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Manufacturing ▪ IT ▪ Healthcare
Washington State Department of Labor & Industries (L&I)	West Central Job Partnership Inc.
<p>Grantee State: Washington OA or SAA State: SAA Total funding: \$5,000,000 Target number of pre-apprentices: None specified Target number of apprentices: 1,000 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Construction ▪ Installation, Maintenance, and Repair ▪ IT 	<p>Grantee State: Pennsylvania OA or SAA State: SAA Total funding: \$2,998,625 Target number of pre-apprentices: 200 Target number of apprentices: 300 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Manufacturing ▪ Construction ▪ Installation, Maintenance, and Repair

APPENDIX A: OVERVIEW OF AAI GRANTEES

<p>William Rainey Harper College</p> <p>Grantee State: Illinois OA or SAA State: OA Total funding: \$2,500,000 Target number of pre-apprentices: None specified Target number of apprentices: 313 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Manufacturing ▪ IT 	<p>Wisconsin Department of Workforce Development</p> <p>Grantee State: Wisconsin OA or SAA State: SAA Total funding: \$5,000,000 Target number of pre-apprentices: None specified Target number of apprentices: 1,000 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Manufacturing ▪ Installation, Maintenance, and Repair ▪ IT ▪ Healthcare
<p>Workforce Development Board of Herkimer, Madison, and Oneida Counties</p> <p>Grantee State: New York OA or SAA State: SAA Total funding: \$2,998,116 Target number of pre-apprentices: 600 Target number of apprentices: 350 Registered apprenticeship occupations:</p> <ul style="list-style-type: none"> ▪ Manufacturing ▪ Construction ▪ Installation, Maintenance, and Repair ▪ IT 	

Source: Grantee State and total funding: AAI grant applications (<https://www.apprenticeship.gov/investments-tax-credits-and-tuition-support/active-grants-and-contracts>). Target numbers of pre-apprentices and apprentices, and registered apprenticeship occupations: AAI Quarterly Performance Report, as of December 31, 2019.

Appendix B: AAI Logic Model



Appendix C: Grantee Survey Detailed Occupations

Occupation	Number of Occupations
Applications developer	1
BSN	1
Building maintenance repairer	1
Bus mechanic	1
Case manager specialist	1
CDL driver	1
Certified nursing assistant	2
Cloud operations specialist	1
CNC machinist	1
CNC operator	4
Coach operator	3
Computer network support	1
Computer programmer or web developer	1
Computer support specialist	2
Computer systems analyst	1
Computer user support specialist	2
Cyber security	2
Dental assistant	1
Digital marketing associate	1
Direct support professional	1
Electrical production line maintenance mechanic	1
Electrician	4
Elevator escalator mechanic	1
Emergency medical technician	1
Facilities maintenance	1
Financial planner	1
Freight dock worker	1
General insurance	1
Health information management professional	1
Help desk specialist	1
Help desk technician	1
Home health nurse	1
Hospitality	1
HVAC technician	1
Industrial machinery mechanic	3
Industrial maintenance technician	5
Industrial manufacturing technician	2
Inside wireman	1
Insurance associate	1
Insurance sales	1
Ironworker	1

APPENDIX C: GRANTEE SURVEY DETAILED OCCUPATIONS

Occupation	Number of Occupations
IT analyst	1
IT business analyst	1
IT generalist	1
IT project manager	1
IT support professional	1
Limited maintenance electrician	1
Logistics forwarding agent	1
Machine operator	5
Machinist	4
Maritime	1
Mechanical design technician	1
Mechatronics engineer	1
Mechatronics technician	7
Medical assistant	5
Medical coder	1
Millwright	1
Mold maker	1
Network and computer system administrator	2
Nurse assistant	1
Painter	1
Paraeducator	1
Personal and home care aide	1
Pharmacy benefits manager	1
Pharmacy technician	4
Plumber	1
Precision optics manufacturing technician	1
Production operator	1
Production technician	1
Registered nurse	1
Salesforce business analyst	1
Social and human service assistant	1
Software developer	4
Tool and die maker	3
Toolmaker	1
Transit coach operator	1
Wastewater operator	1
Web developer	1
Welder fitter	1
Workforce development specialist	2

Source: Open-text entries by grantees in the AAI Evaluation Grantee Survey. Reported at the occupation level. N=126. Some typographical errors corrected from text-entry.

Appendix D: Grantee Survey Supplemental Data Tables

Chapter 2

Table 1. Grantees’ Prior Experience with Apprenticeships

Type of Experience	Number of Grantees	Percentage of Grantees
Partnered with a registered apprenticeship program sponsor	17	39
Helped develop a registered apprenticeship program	16	36
Other experience	10	23
Sponsored a registered apprenticeship program	5	11
Served on State apprenticeship council	5	11
No prior experience	15	33

Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=45.

Table 2. Grantees’ Role in Developing Registered Apprenticeship Programs, by Grantee Type

Role	State Government (%)	Sub-State Agency (%)	College (%)	Other Nonprofit (%)	Sector-Based Organization (%)
Help map skills and knowledge needed for each competency	58	50	53	79	67
Promotion and outreach to employers	82	73	73	93	78
Provide RTI	18	27	70	61	44
Provide support services	36	88	77	39	11
Carry out administrative functions	73	62	43	68	67
Develop RTI curriculum	91	69	80	89	100
Provide industry- and/or workforce-specific expertise	58	31	40	71	33
Develop sector and/or career pathways strategies using apprenticeship	33	42	57	54	33
Recruit, determine eligibility, and screen apprenticeship candidates	27	54	20	50	56
Sponsor apprentices	15	23	30	61	11
Other	18	8	20	7	22

Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=126.

Table 3. Grantees’ Partners, by Grantee Type

Partner Type	State Government (%)	Sub-State Agency (%)	College (%)	Other Nonprofit (%)	Sector-Based Organization (%)
WIOA-administering workforce agency	83	100	60	60	25
State Apprenticeship Agency	75	67	50	60	25
Postsecondary education and training provider	83	100	80	60	50
Business intermediary	25	56	10	40	0
Employer	67	100	100	90	100
Industry association	67	78	60	60	75
Workforce intermediary	33	44	40	50	0
Community/faith-based organization	17	67	20	40	25
State or local government	58	67	40	20	0
Economic development agency	33	22	40	10	0
Foundation or philanthropic organization	17	33	0	10	0

Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=45.

Chapter 3

Table 4. Grantees’ Experience with ATRs, by Grantee Type

Grantee Type	Number of Occupations	Percentage of Occupations
State government	14	42
Sub-State agency	5	19
College	15	50
Other nonprofit	16	57
Sector-based organization	3	33

Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=126.

Table 5. Grantees’ Experience with ATRs, by Grantee Prior Experience with Apprenticeship

Prior Experience	Number of Occupations	Percentage of Occupations
No prior experience	13	32
Yes, prior experience, including developing an apprenticeship program	24	53
Yes, prior experience, but not developing a program	16	40

Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=126.

Table 6. Grantees’ Experience with ATRs, by Grantees’ Progress toward Their Apprenticeship Registration Target

Grantee Progress	Number of Occupations Receiving ATR Help	Percentage of Occupations Receiving ATR Help
Less than 60 percent of target	8	20
60 to less than 100 percent of target	16	38
100 percent or more of target	29	67

Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=126.

Table 7. Grantees’ Selling Points to Engage Employers

Selling Point	Number of Grantees	Percentage of Grantees
Customized skill set that is specific to an employer’s needs	45	100
Improvements in worker productivity	41	91
Reduces turnover	41	91
Steady source of skilled workers that are difficult to hire directly	38	84
Broader social benefit such as reducing inequality or closing the skills gap	33	73
Develops workers’ skill set without them leaving the workforce	31	69
Local RTI providers have valuable training opportunities that can be accessed through apprenticeship	21	47
Helps make workers self-sufficient	21	47
Other	12	27

Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=45.

Table 8. Grantees’ Selling Points to Engage Employers, by Grantees’ Progress toward Their Apprenticeship Registration Target

Selling Point	Less than 60% of Target (%)	60% to Less than 100% of Target (%)	100% or More of Target (%)
Improvements in worker productivity	93	80	100
Customized skill set that is specific to an employer’s needs	100	100	100
Steady source of skilled workers that are difficult to hire directly	87	67	100
Reduces turnover	87	93	93
Develops workers’ skill set without them leaving the workforce	67	53	87
Broader social benefit such as reducing inequality or closing the skills gap	60	80	80
Local RTI providers have valuable training opportunities that can be accessed through apprenticeship	47	40	53
Helps make workers self-sufficient	53	40	47
Other	26	27	27

Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=45.

Table 9. Grantees with Dedicated Employer Recruitment Staff

	Number of Grantees	Percentage of Grantees
Grantee's organization has specific staff dedicated to recruiting employers for your AAI-sponsored apprenticeship program	35	78

Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=45.

Chapter 4

Table 10. New Programs versus Expansions

Program Type	Number of Occupations	Percentage of Occupations
New program developed in response to the AAI grant initiative	79	63
Expansion of a pre-existing registered apprenticeship program	41	32
Expansion of a pre-existing unregistered program that shares characteristics with registered apprenticeship programs	6	5

Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=126.

Table 11. Time for Registration, by Grantee Prior Experience with Apprenticeship

Prior Experience	Number of Occupations	Median Months to Registration	Mean Months to Registration
No prior experience	41	3	5.3
Yes, prior experience, including developing an apprenticeship program	44	4	6.1
Yes, prior experience, but not developing a program	39	4	5.9
All programs	124	3	5.8

Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=124.

Table 12. Prevalence of Cited Challenges in Promoting, Creating, and Registering Programs, by Planned Occupations Registered

Challenge	Number of Grantees That Registered All Planned Occupations	Percentage of Grantees That Registered All Planned Occupations	Number of Grantees That Did Not Register All Planned Occupations	Percentage of Grantees That Did Not Register All Planned Occupations
Employer reluctance to complete necessary paperwork	12	67	15	58
No challenges	6	33	11	42
Delays in developing RTI	9	50	10	38
Difficulty developing work process schedule	10	56	8	31
Delays in response from registering agency	7	39	5	19
Difficulty completing registration forms	7	39	5	19
Union reluctance to complete necessary paperwork	5	28	4	15
Other challenge	3	17	4	15
Sponsor reluctance or delays in completing necessary paperwork	3	17	2	7
Determination that occupation is not apprenticeable	3	17	2	7
Total grantees responding	18		26	
Average number of challenges per grantee	3.3		2.0	

Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=44.

Table 13. Grantees' Role in Registering Apprenticeship Programs, by Grantee Type

Role	State Government (%)	Sub-State Agency (%)	College (%)	Other Nonprofit (%)	Sector-Based Organization (%)
Liaise with apprenticeship agency	58	54	33	52	22
Assist in filling out registration paperwork	67	42	40	48	11
Collect supporting documents	55	38	40	41	11
Review sponsor's paperwork	73	31	33	33	11
Sponsor program and do all registration tasks	9	38	37	44	67
Other	30	0	3	7	22

Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=125.

Table 14. Assistance Provided to the Grantee by the Office of Apprenticeship When Registering Programs

Assistance	Number of Occupations	Percentage of Occupations
Provided guidance on how to register a program	56	88
Assisted developing Standards of Apprenticeship	51	80
Outlined competencies and/or assisted with development of work process schedules	30	47
Connected grantee to employers	10	16
Assisted in finding RTI providers	7	11
Assisted in finding other partners	7	11
Other	7	11
Identified tax incentives and other funding for employers	6	9

Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=64.

Table 15. Assistance Provided to the Grantee by the State Apprenticeship Agency When Registering Programs

Assistance	Number of Occupations	Percentage of Occupations
Provided guidance on how to register a program	60	87
Assisted developing Standards of Apprenticeship	46	67
Outlined competencies and/or assisted with development of work process schedules	33	48
Assisted in finding RTI providers	17	25
Connected grantee to employers	16	23
Identified tax incentives and other funding for employers	7	10
Assisted in finding other partners	6	9
Other	6	9

Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=69.

Table 16. Satisfaction with Role of Federal or State Agency in Assisting Grantee to Register Apprenticeship Programs

Registering Entity	Unsatisfied (%)	Somewhat Unsatisfied (%)	Neutral (%)	Somewhat Satisfied (%)	Completely Satisfied (%)
Office of Apprenticeship only	0	6	9	3	83
State Apprenticeship Agency only	0	3	6	28	64
Office of Apprenticeship and State Apprenticeship Agency	0	3	14	23	60

Source: AAI Evaluation Grantee Survey. Reported at the occupation level. N=106.

Chapter 5

Table 17. Grantees' Role in Developing Apprenticeship Programs, by Grantee Prior Experience

Role	No Prior Experience (%)	Yes, Prior Experience, Including Registering an Apprenticeship Program (%)	Yes, Prior Experience, but Not Developing a Program (%)
Promotion and outreach to employers	83	78	80
Develop RTI curriculum	76	87	90
Carry out administrative functions	68	51	68
Help map skills needed for each competency	63	71	45
Provide support services	59	47	63
Recruit and screen apprenticeship candidates	56	33	25
Provide RTI	44	47	40
Develop career pathways strategies using apprenticeship	44	38	55
Provide industry expertise	37	69	40
Sponsor apprentices	29	27	35
Other	7	11	25

Source: AAI Evaluation Grantee Survey. Reported at the occupation level. *N*=126.

Chapter 6

Table 18. Related Technical Instruction Costs Paid by Apprentices

Cost	Number of Occupations	Percentage of Occupations
No costs paid by apprentices	88	72
Equipment and tools including books and supplies	24	20
Tuition	18	15
Fees, including lab fees	17	14
Other	11	9

Source: AAI Evaluation Grantee Survey. Reported at the occupation level. *N*=123

Table 19. On-the-Job Learning Delivery Mode, by Occupational Field

Mode	Manufacturing (%)	Construction (%)	IT (%)	Healthcare (%)	Other (%)
Training in large groups	20	30	8	21	10
Training in small groups	60	60	50	83	57
One-on-one training	91	90	92	71	90
Learning by doing under the supervision of a mentor	89	100	96	75	90
Other	0	20	0	0	5

Source: AAI Evaluation Grantee Survey. Reported at the occupation level. *N*=126.

Table 20. Duration of Training Grantee Provided to On-the-Job Training Providers and/or Mentors Among Those Who Receive Training

	Minimum	Maximum	Mean	Median
Duration (hrs.)	1	80	21	15

Source: AAI Evaluation Grantee Survey. Reported at the grantee level. *N*=19.

Table 21. Types of Training Grantee Provided to On-the-Job Training Providers and/or Mentors Among Those Who Receive Training

Type	Number of Grantees	Percentage of Grantees
Instructor training designed to improve instructor's capacity to teach designated concepts.	16	62
Technical training in the work-based learning skills that the apprentices will be learning	13	50
Refresher courses in the related technical instruction skills that apprentices will be learning	12	46
Diversity training	12	46
Other	11	42
Sexual harassment training	10	38
Conflict resolution	9	35

Source: AAI Evaluation Grantee Survey. Reported at the grantee level. *N*=26.

Chapter 7

Table 22. Prevalence of Direct Pathways from Pre-Apprenticeship Programs into Apprenticeship Programs

	Number of Grantees	Percentage of Grantees
No, not all pre-apprenticeship programs have a direct pathway into an apprenticeship program	9	27
Yes, all pre-apprenticeship programs have a direct pathway into an apprenticeship program	24	73

Source: AAI Evaluation Grantee Survey. Reported at the grantee level. *N*=33.

Table 23. Expectations That All Pre-Apprentices Will Be Placed into Apprenticeship Slots

	Number of Grantees	Percentage of Grantees
Yes, all pre-apprentices will be placed into apprenticeship slots	11	33
No, not all pre-apprentices will be placed into apprenticeship slots	22	67

Source: AAI Evaluation Grantee Survey. Reported at the grantee level. *N*=33.

Table 24. Reasons Pre-Apprentice Graduates Do Not Transition to Apprenticeships

Reason	Number of Grantees	Percentage of Grantees
Pre-apprentices pursued a different occupation	15	71
Pre-apprentices found work	15	71
Some pre-apprentices disengaged from the program	14	67
Pre-apprentices pursued postsecondary education	13	62
Not enough apprenticeship slots	12	57
Pre-apprentices pursued a different type of work-based training	11	52
Some pre-apprentices did not meet industry requirements	10	48
Other	5	24

Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=21.

Table 25. Duration of Pre-Apprenticeship Programs

	Minimum	Maximum	Mean	Median
Duration (wks.)	1	35	12	10

Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=32.

Table 26. Components of Application for Pre-Apprenticeship Programs

Component	Number of Grantees	Percentage of Grantees
Fill out a written form	31	94
Interview	21	64
Provide documentation of ability to legally work in United States	17	52
Other	15	46
Recommendation by a teacher or counselor	13	39

Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=33.

Table 27. Required Screenings for Pre-Apprenticeship Programs

Screening	Number of Grantees	Percentage of Grantees
Drug screening	12	50
Other	12	50
Background check for felonies	9	38
Background check for misdemeanors	5	21
Physical or medical exam	4	17

Source: AAI Evaluation Grantee Survey. Reported at the grantee level. N=24.

Chapter 8

Table 28. Availability of Any Support Services for Apprentices

	Number of Grantees	Percentage of Grantees
Yes, the apprenticeship program offers support services	31	69
No, the apprenticeship program does not offer any support services	14	31

Source: AAI Evaluation Grantee survey. Reported at the grantee level. N=45.

Table 29. Provider of Support Services for Apprentices

Provider	Number of Grantees	Percentage of Grantees
Grantee	23	74
Employer partner	11	35
Nonprofit partner	10	32
Local American Job Center	7	23
Union partner	7	23
Other	5	16
Local Temporary Assistance for Needy Families (welfare) agency	1	3

Source: AAI Evaluation Grantee Survey. Reported at the grantee level. *N*=31.

Table 30. Availability of Any Support Services for Pre-Apprentices

	Number of Grantees	Percentage of Grantees
Yes, the pre-apprenticeship program offers support services	26	79
No, the pre-apprenticeship program does not offer any support services	7	21

Source: AAI Evaluation Grantee survey. Reported at the grantee level. *N*=33.

Table 31. Provider of Support Services for Pre-Apprentices

Provider	Number of Grantees	Percentage of Grantees
Grantee	19	76
Nonprofit partner	9	36
Local American Job Center	9	36
Employer partner	6	24
Other	5	20
Union partner	4	16
Local Temporary Assistance for Needy Families (welfare) agency	0	0

Source: AAI Evaluation Grantee Survey. Reported at the grantee level. *N*=25.