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TABLE OF CONTENTS

Introduction	5
About Apprenticeships	7
Recent Developments	9
Case Study 1: CVS Health	11
Case Study 2: Mercy Health	13
Case Study 3: Aon	15
Case Study 4: Automation Tool and Die	17
Conclusion	19
Resources	20

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4

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INTRODUCTION

To many people, the word "apprentice" conjures up a mental image of a teenager in colonial days forging horseshoes in a blacksmith shop.

If pressed for a more modern picture, they may think of a construction worker in a hard hat laying brick at a building site.

They'd probably be surprised to learn that apprenticeships are on the rise in the U.S., and that they're spreading to health care jobs and white collar office jobs.

"Historically, apprenticeship was more for construction trade jobs," but "it's a great idea for IT coding and health care," Pam Howze, director of apprenticeships for the National Fund for Workforce Solutions, told Bloomberg BNA. "Our skills gap in the U.S. is massive, and employers are seeing this as a very viable option to build our workforce."

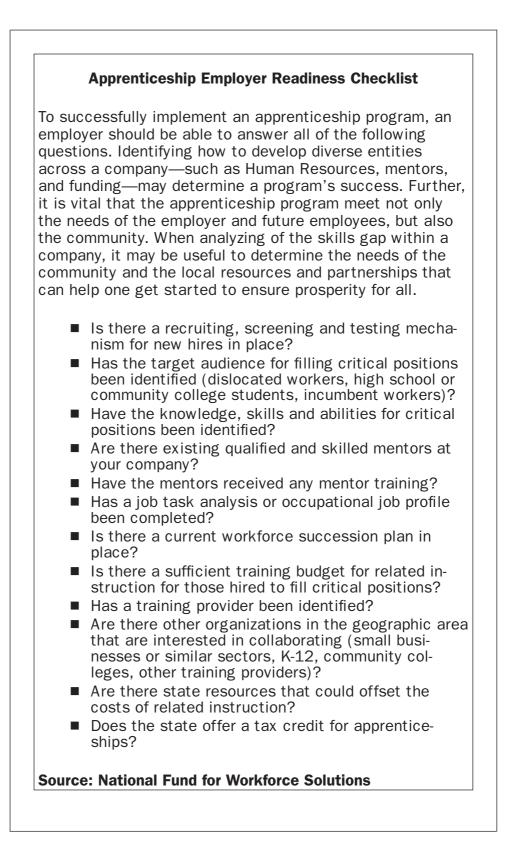
NFWS provides an apprenticeship employer readiness checklist to assist employers that have established apprenticeship programs. (See attached box)

The skills gap refers to the difference between the skills employers are seeking in job applicants and the skills they actually find. Almost half (45 percent) of small businesses reported they couldn't find qualified applicants to fill job openings, the National Federation of Independent Business reported in early 2017.

Meanwhile, the amount of debt associated with educational loans, which more and more students are using as a way of financing college, is ballooning.

Forty percent of people aged 18 to 30 had an outstanding student loan in 2015, and student loan debt totaled more than \$1.3 trillion in June 2017, according to the Federal Reserve Bank.

Increasingly, apprenticeships are being promoted by workforce development professionals, politicians, academics, and businesses as a solution to the skills gap, low entry-level wage rates, and college debt.



ABOUT APPRENTICESHIPS

"Apprenticeship is an earn-and-learn strategy where an individual is receiving training on the job" with "some element of related classroom instruction to understand the theoretical aspects of the job," Kermit Kaleba, federal policy director for the National Skills Coalition, told Bloomberg BNA. "Apprenticeship ought to be seen as a viable model to help people start in an occupation."

Some apprenticeship programs are formed by a labor union or a single employer, and some are started by several employers that have formed a consortium. Employer groups often "aggregate their training needs" so a community college will offer the training their employees need, Kaleba said.

Some employers have informal apprenticeship programs, but an employer or sponsor can register a program with the Labor Department's Office of Apprenticeship. A registered apprenticeship program must meet the requirements of the National Apprenticeship Act. When an apprentice finishes a registered apprenticeship, he or she earns a completion of registered apprenticeship certificate that is recognized by employers throughout the nation.

The Office of Apprenticeship administers the program. In some states, it works with independent state apprenticeship agencies.

"At the federal level, there's no direct tax incentive for apprenticeship programs," but "registered apprenticeship programs are eligible" for some federal grants, and some states offer tax incentives or subsidies for apprenticeships, Kaleba said.

Other Countries Use Apprenticeships

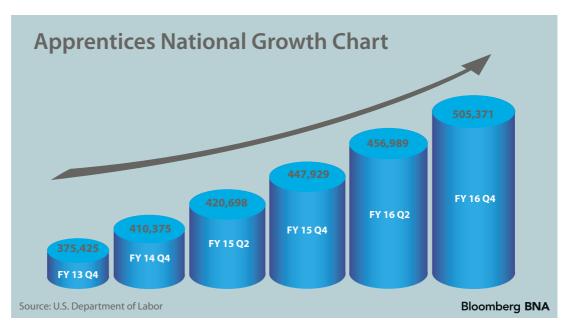
"The majority of people are trained through apprenticeships" in Switzerland, Germany, and Austria, but in the U.S., "we've basically chosen the academiconly path in preparing people for careers," Robert Lerman told Bloomberg BNA. Lerman is an Urban Institute fellow and professor emeritus of economics at American University.

"The public never really understood how high-quality apprenticeships could be," Lerman said. "There has been an effort in recent years to extend the model" to occupations outside the building trades.

Labor Department statistics show a steady increase in the number of apprentices since fiscal year 2013. There were 505,371 apprentices at the end of 2016, compared with only 375,425 in 2013, the DOL said (See table).

More than 206,000 people started apprenticeship programs, and more than 49,000 graduated from them during fiscal 2016, according to the Labor Depart-

Some employers have informal apprenticeship programs, but an employer or sponsor can register a program with the Labor Department's Office of Apprenticeship.



ment. There are more than 21,000 apprenticeship programs in the U.S., including 1,700 established in FY 2016.

The average starting pay for apprentice graduates is \$60,000, which is higher than starting pay for most college graduates, according to the Labor Department.

RECENT DEVELOPMENTS

President Donald J. Trump has signaled his support for apprenticeships, but he wants to give industry more authority over them. He ordered the Labor Department to propose a rule that allows third parties—such as trade associations, companies, nonprofit organizations, and unions—to develop their own apprenticeship guidelines, subject to approval by the Labor Department.

Labor Secretary Alexander Acosta has started forming a Task Force on Apprenticeship Expansion to identify strategies for promoting apprenticeships, especially in sectors where they are insufficient. "Apprenticeships are a cornerstone of President Trump's plan to close the skills gap and ensure the American workforce is prepared to succeed in the jobs of today and tomorrow," Acosta said in a July 24 statement.

The Trump administration's plan to increase industry influence over apprenticeships is arousing some concern. It is "viewed by some as part of a deregulation initiative," Lerman said. The current regulations have "a pretty robust set of worker protections built in," Kaleba said, so "one open question is the degree to which a new process would maintain those protections."

Neverthless, Kaleba sees some potential benefit in revamping the rules. "There have been concerns both from industry and other stakeholders that the current registered apprenticeship program can be cumbersome," he said, noting it "has been slow to adapt to new entrants in health care and IT." Therefore, "people are cautiously optimistic" about the possibility of new regulations, Kaleba said. "If this is done correctly," he said, "it could be a good opportunity."

Pending Legislation

Congress also is getting involved, showing bipartisan support for apprenticeships. Numerous bills are pending in both houses that would take various strategies to promote apprenticeships.

Some of the legislation proposes monetary assistance. The American Apprenticeship Act (S. 862), from Sen. Amy Klobuchar (D-Minn.), would make competitive Labor Department grants available to help states defray the cost of instruction in pre-apprenticeship and apprenticeship programs. The Apprenticeship Improvement Act (H.R. 2377), introduced by Rep. Daniel Lipinski (D-III.), would make pre-apprenticeship program providers eligible for funding under the Workforce Innovation and Opportunity Act.

A few bills propose tax credits for apprentice wages. The Apprenticeship and Jobs Training Act (S. 1352), introduced by Sens. Maria Cantwell (D-Wash.) and Susan Collins (R-Maine), would create a \$5,000 tax credit for wages paid to people enrolled in a registered apprentice program. Another bill, the Leveraging

Numerous bills are pending in both houses of Congress that would take various strategies to promote apprenticeships. and Energizing America's Apprenticeship Programs Act (H.R. 2399), sponsored by Rep. Rodney Davis (R-III.), would allow employers a tax credit for hiring an apprentice.

Other bills propose tax credits for training expenses. The Advancement of Manufacturers Act (H.R. 419), sponsored by Rep. Brenda Lawrence (D-Mich.), would allow manufacturers to take a 20 percent credit for their worker training expenses that exceed 50 percent of their average over the past three years. The On-the-Job Training Tax Credit Act (H.R. 3204), from Rep. Pete Aguilar (D-Calif.), would allow employers with no more than 500 full-time employees an on-the-job training tax credit through 2019.

Tax Credits for Training Workers

Researchers from the Aspen Institute's Future of Work Initiative provided an academic rationale for a worker training tax credit. Alistair Fitzpayne, executive director of the initiative, and Ethan Pollack, the initiative's associate research and policy director, recommend giving an employer a 20 percent tax credit on any additional amount it invested in training over its previous investment.

"We think there is a role for the federal government to encourage employer investment, especially for low- and middle-income workers," Fitzpayne told Bloomberg BNA. "Unfortunately, based on the data available, businesses have been investing less in their workers, not more," during the past few decades.

"Between 2003 and 2013, the number of formal programs that combine on-thejob learning with mentorships and classroom education–generally considered to be the most effective programs–fell 40 percent," Fitzpayne said. "Companies have been reluctant to invest in worker training given the possibility that a worker would leave the company shortly after receiving the training, and the beneficiary would be a competitor."

Fitzpayne thinks the tide may be starting to turn. "It does appear that employers are starting to invest more in their workers, given the tight labor market and the difficulties employers are experiencing in finding new workers," he said.

"Companies succeed or fail based on the quality of the workforce they have," Fitzpayne said. "With advances in technology, there's an imperative for a company to invest in their workers to ensure they have the most relevant skills so the company is able to compete."

Bloomberg BNA interviewed four companies that are investing in training workers through apprenticeship programs.

"We think there is a role for the federal government to encourage employer investment, especially for lowand middle-income workers," Aspen Institute's Alistair Fitzpayne says.

CASE STUDY 1: CVS HEALTH

CVS Health was "the first private company to start an apprenticeship program" outside of the traditional skilled trades sector, David Casey, the vice president for workforce strategies at CVS Health, told Bloomberg BNA. The company, a pharmacy chain with 243,000 employees throughout the U.S., started its pharmacy technician apprenticeship in 2005.

Pharmacy technicians help pharmacists fill customers' drug prescriptions and manage inventory. Most CVS pharmacies employ six to eight pharmacy technicians. They earn an average salary of \$30,000, CVS Corporate Public Relations Director Joe Goode told Bloomberg BNA.

"There was going to be a skills shortage," Casey said. CVS's market studies projected it would need to hire more than 70,000 pharmacy technicians between 2014 and 2024. "We weren't going to find the talent. We had to create it." To find potential workers, "we started to go after untapped pools of talent" like single parents, laid-off workers, and unemployed youth, Casey said.

"You have to have surround-sound support" for some people, who may need help with child care or transportation so they can attend their training, Casey said. CVS partners with community agencies like Easter Seals or the Urban League, which provide supportive services to the trainees. The pharmacy chain also has a team of 27 employees in its workforce initiatives unit to manage the apprenticeship program.

Pre-Apprenticeship Programs

Some of CVS's apprentices start with pre-apprenticeship programs where they learn soft skills like customer service, communication, and regular attendance. Pre-apprenticeship programs last from four to 16 weeks.

The apprenticeship program usually lasts 18 months to two years. Apprentices learn to take prescription orders, enter information into the computer, count medications, and handle prescription pickups. In most locations, the training occurs primarily on-the-job, with the apprentice working 40 hours per week under a pharmacist's supervision. In locations near a community college that has a pharmacy technician program, apprentices may take classes at the college and do an externship at CVS.

Ninety-eight percent of the apprentices are training to be pharmacy technicians, and the other 2 percent are learning to be store managers, Casey said. He estimated that 8 percent of the pharmacy technicians working for CVS came through the apprenticeship program. Apprentices in the pharmacy technician track must pass a certification test devised by the National Pharmacy Technician Certification Board.

Some of CVS's apprentices start with pre-apprenticeship programs where they learn soft skills like customer service, communication, and regular attendance. The apprentices are not considered CVS employees because "a majority of their salary is covered by the federal Department of Labor," Casey said. "We don't hire 100 percent of them," but "if we had the capacity to hire all our apprentices, we would." CVS has hired all the apprentices who completed pre-apprentice training, Goode said.

Since 2015, CVS has had more than 4,600 apprentices. More than 2,600 of them are either still in training or already employed by the company. The remaining 2,000 either didn't complete their apprenticeship or left CVS for other employment, Goode said. "We are seeing retention rates that are significantly higher than the general market" for the employees CVS hired from its apprentice ranks, Casey said.

A Pipeline of Applicants

CVS finds most of its apprentices and pre-apprentices "through our community partners," Casey said. In many locations, community colleges provide the pipeline because "community colleges already have the knowhow to go after" underserved populations, he said.

One of the drawbacks to the registered apprenticeship program is the level of paperwork. "It's a federal government program, so there's a fair amount of reporting," Casey said. "You can spend eight to 12 months making sure that the curriculum meets all the criteria at the federal Department of Labor level, but if the state has a modified program, you have to get it re-approved at the state level."

"We've been having discussions with the Labor Department about streamlining the process to get the program approved," Casey said. "Digitizing the process" would be helpful. "They've been receptive to the feedback," he said.

Of course, apprenticeship programs benefit the trainees, but Casey said they also benefit the employer. "We see the return on investment once they actually are certified," he said. The "time to productivity" is much faster for graduates of the apprentice program than for other new hires, and apprentice graduates "typically are much more loyal to the organization," he said. Their high retention rate–76 percent after one year on the job–is also a significant cost reduction for CVS.

CVS Health is exploring the possibility of offering additional apprenticeship tracks in its informational technology, digital, and operations units, Goode said.

One of the drawbacks to the registered apprenticeship program is the level of paperwork.

CASE STUDY 2: MERCY HEALTH

Mercy Health, a network of hospitals and health care providers with 8,600 employees in western Michigan, spearheaded a medical assistant apprenticeship program, according to Shana Welch, Mercy Health's regional director of talent acquisition.

Mercy Health started the apprenticeship program for medical assistants because "the traditional programs were not producing enough of them," Welch told Bloomberg BNA. Community colleges and for-profit schools already had medical assistant training programs, but their graduates were coming out "without the level of practical experience we needed," she said.

It took about a year to design the program and establish partnerships, Welch said. "We were the lead employer," but "we knew that we needed to bring other employers in with us" to make the program sustainable for the three community colleges that provide the academic component, Welch said. The colleges are Grand Rapids Community College, Muskegon Community College, and Mont-calm Community College.

When devising the program, Mercy Health clinical leaders and college officials started with the curriculum used in the colleges' existing medical assistant training courses. Then, with input from the other health care providers in the partnership, they tailored the curriculum to their needs. The partnership of health care providers includes Mary Free Bed Rehabilitation Hospital, Metro Health Hospital, and Spectrum Health.

Workforce Development Board Handles Outreach

West Michigan Works, the local workforce development board, handles most of the community outreach and advertising, Welch said. Many applicants come from the Women's Resource Center, the Urban League of Grand Rapids, and Goodwill. People who already work for Mercy Health, such as food service and janitorial staff, are eligible to apply for apprenticeships, too.

Mercy Health gives apprentice applicants assessments that measure their cognitive abilities and structured interviews that assess their personalities and cultural fit. "We're looking at the total candidate," Welch said.

Each week, Mercy Health's apprentice medical assistants spend 15 to 20 hours attending and preparing for classes and 20 hours working in Mercy Health's doctors' offices. They go through "a rotation" so they experience both family care and specialty care practices, Welch said.

Their duties include situating patients in examining rooms, questioning patients about their condition, and taking patients' vital signs. "They're a vital part of that core team," Welch said. "They spend the most time with the patient."

When devising its program, Mercy Health clinical leaders and college officials started with the curriculum used in the colleges' existing medical assistant training courses. Mercy Health apprentices receive wages and health benefits and accumulate paid time off, Welch said. Employers pay the apprentices' wages, and West Michigan Works helps apprentices find tuition funding through Pell grants and the Labor Department's Apprenticeship USA initiative. "Students graduate with no student loan debt," Welch said. Employers aren't required to pay the apprentices' tuition, but Mercy Health pays any uncovered tuition for its apprentices, she said.

West Michigan Works ensures that the programs meet the necessary standards. At the end of the one-year program, the apprentices must pass a state test to become a registered medical assistant.

A Shorter Learning Curve

The apprentices "integrate much quicker" into permanent jobs because the "learning curve is reduced significantly because they've been learning the actual position while they've been in the program," Welch said. "We take into consideration their year of experience when we look at compensation."

Mercy Health's first group of medical assistants graduated in December 2016. Counting those who are now in training, the apprenticeship program has helped train 90 medical assistants. Of those, 53 have been Mercy Health apprentices.

The current medical assistant training group will graduate in December, and the next will start in January, Welch said. More than half the 400 applicants for next year's group were diverse, she said.

Many apprentices "come from very challenging places" and need help, such as child care or transportation, to complete their training. "We partner with organizations that provide those support services for them," Welch said.

At Mercy Health, "We are very committed to expanding this apprenticeship model," Welch said. In fact, Mercy Health is developing a second apprenticeship program for sterile processing technicians, who sterilize the instruments used in operating rooms. The first group in Mercy's 18-week SPT apprenticeship will start in January 2018.

"Apprenticeship programs are an excellent opportunity to bring people into the health care sector and put them on a career pathway," Welch said. "Apprenticeship is a great example of effective collaboration between government, public institutions, and employers."

In addition, apprenticeship programs have been "a great way for us to support our diverse workforce initiative," Welch said.

Many apprentices "come from very challenging places" and need help, such as child care or transportation, to complete their training.

CASE STUDY 3: AON

Aon is a professional services firm that provides insurance, retirement, and health consulting. It has 50,000 employees globally, including 20,000 in the U.S.

Apprenticeship "is in the DNA of the company," because Aon has apprentices at its offices in the United Kingdom, where apprenticeships are more common, Bridget Gainer, Aon's vice president for global public affairs, told Bloomberg BNA. "This is a beginning of a new pipeline for talent."

Without apprenticeships, "you're leaving a lot of people outside," Gainer said. "There are a lot of talented people in Chicago, and we're not getting access to them because of the high wall of tuition costs for four-year colleges," she said. "You've got to make the pipeline fit the people, not the people fit the pipeline."

When developing the apprenticeship program in the U.S., "we looked at all our entry-level jobs," Gainer said. Some jobs "didn't really require a four-year degree," but "it had become a habit" to consider only applicants who had one, she said. Filling jobs that don't require a four-year degree with people with bachelor's degrees increases the likelihood they will "get bored and want to look for another job."

Candidates for Aon's apprenticeships consisted largely of people who were applying to Harold Washington College, which is part of the City Colleges of Chicago. One was a janitor. One was a night security guard. "It's a mix of people," Gainer said. Applicants went through many interviews with Aon, during which "they indicated a preference" as to which job category they preferred, Gainer said. "We determined where the right fit was."

Aon has 26 apprentices, ages 18 to 24, with an even number of men and women. Twenty are African American or Latino. They started in January, filling actual jobs at Aon in information technology, human resources, and insurance.

A Job and a Degree

Apprentices work at Aon's offices four days a week from 9:00 to 5:00. On Fridays, they attend class. Most of the apprentices study at Harold Washington College, and a few study at Harper College in the Chicago suburbs. At the end of two years, the apprentices will have a job and an associate's degree. They will be "on a trajectory where there's a structured plan of advancement," Gainer said.

She predicts the apprentice graduates will be productive employees who stay at Aon. Graduates of Aon's U.K. apprentice program had a higher retention and engagement rate than employees hired from other sources, and the program's structure contributes to apprentices' attachment to the company. "The cohort

Without apprenticeships, "you're leaving a lot of people outside," Aon's Bridget Gainer says.

WORKFORCE STRATEGIES

nature" of the apprenticeship programs creates a "sticky factor," Gainer said. "When you have a close-knit group, it adds to your engagement at work."

Aon is tweaking the program based on a "constant feedback loop," Gainer said. "There won't be a curriculum developed and put on a shelf," she said. "We're building the plane as we're flying it."

The apprenticeship program has "been received really positively," Gainer said, and next year Aon will add apprenticeships in its cybersecurity and retirement units. Aon also wants "to grow and expand the number of apprentices in financial services" by spreading the concept to other companies, she said.

CASE STUDY 4: AUTOMATION TOOL AND DIE

Automation Tool and Die is an advanced manufacturer with 76 employees in Valley City, Ohio. "We make parts for several of the major automakers," ATD vice president and co-owner Randy Bennett said. "Many of our parts have safety requirements," so precision is essential, requiring "highly skilled tool and die makers."

Bennett and ATD's human resources manager, Jennifer Compton, told Bloomberg BNA the company takes a long-term view when hiring workers. "We don't bring people in for a short-term commitment just to lay them off," Compton said. "We'll bring them in. We'll upskill them," Bennett said.

Even so, there is "a real, intense need to address the situation as our workforce is aging," Compton said. The company is using apprenticeships to bulk up its staffing pipeline.

Bennett was familiar with the concept of apprenticeship because he was an apprentice at ATD, which his father then owned. When he finished his own apprenticeship as a tool and die maker, "I had a car, and I had cash," he said.

A Partnership of Employers

ATD used information from Business Leaders United for Workforce Partnerships and the National Fund for Workforce Solutions and started a partnership of employers, which currently numbers 12 companies, that were interested in establishing apprenticeship programs.

The company figured the participation of multiple employers would increase the community colleges' interest in offering courses for their apprenticeship program. "If we have 10 companies that can each send a few, that showed the schools it was a sustainable program here in our county," Compton said. Colleges used to devise the programs and then market them to employers, but "an industry-led partnership flips it around," she said.

The partnership worked with Cuyahoga County Community College and Lorain County Community College to develop a curriculum that met the employers' needs, and ATD made sure the program met the criteria of a registered apprenticeship. Compton said the academic coursework typically includes mathematics, blueprint-reading, computer programming, and AutoCAD (a computer-aided drafting software program used to create blueprints). Bennett even persuaded the schools to give some courses at satellite centers near the factory to make it more convenient for the apprentices.

Apprentices work full-time, Monday through Friday, and attend classes Tuesday and Thursday evenings, Compton said. "They go back to their individual emAutomation Tool and Die is using apprenticeships to bulk up its staffing pipeline. ployers to utilize the training from class," Compton said. At ATD, "A lot their time is working with our seasoned employees to get that on-the-job training."

ATD has three apprentices. One is in the third of his four years as an apprentice tool and die maker, and two started in August, Compton said. Of the new apprentices, one is in an industry maintenance track, and the other is in a tool and die track.

Apprentice Compensation

"We do pay for their books and school and fees but not for the hours that they're in class," Compton said. The apprentices receive pay and benefits for the hours they work and get wage increases when they reach specified milestones. "The training part is two to four years depending on the track," with two years being the norm, Compton said.

ATD registered its apprenticeship program with Ohio. "The state reviews the qualifications of the person who will judge the competency" of the apprentice at the end of the training, Compton said. ATD's apprenticeship programs use National Institute for Metalworking Skills standards. NIMS certifications require both performance and theory exams.

The credential earned by the apprentices is recognized by Ohio and other employers. "We believe strongly in giving people that credential," Compton said, noting that some companies' apprenticeship programs don't lead to a credential.

Eventually, apprentices may be able to earn an academic credential as well. "We're working with the community colleges so we can add optional classes so they can get a degree," Bennett said. Most apprentices would need to take four additional classes beyond the ones they take for their apprenticeship to obtain an associates degree, Compton estimated.

Of course, an employee could quit as soon as he finishes his training and use his new skills to seek employment elsewhere. "It's always a gamble" to invest money in workers' training, but ATD considers the training "more of a retention tool," Compton said.

To discourage trainees from leaving, ATD requires apprentices to sign an agreement promising to work one year for each year of training they receive. If they don't, they must repay a prorated amount of the cost ATD spent on their tuition, academic fees, and books. They don't have to repay any of the wages they earned. "At the outset of each semester, we outline" the amount so "they're aware of the costs that are being accrued," Compton said. "We think the way we do it is equitable for both parties," Bennett said.

ATD intends to start at least two apprentices each year for the foreseeable future, Compton said. "The appetite is very strong right now" for developing apprenticeships, Bennett said.

To discourage trainees from leaving, ATD requires apprentices to sign an agreement promising to work one year for each year of training they receive.

CONCLUSION

The experiences of these four companies, and their intention to maintain or even increase their apprenticeship programs, indicate that apprenticeships are growing in popularity.

"Building your own workforce, training them the way you want them to be trained, is pretty phenomenal," Howze said. "We know that it works." One of the best ways to promote apprenticeships is to have employers that have apprenticeship programs tell other employers about their experience, she said.

Casey of CVS illustrates her point. An employer that is considering starting an apprenticeship program should "jump in," he said.

RESOURCES

"Economic Trends: The Impact of Rising Student Loan Debt on Mortgage Borrowing" (Nov. 30, 2015), Federal Reserve Bank of Cleveland.

Executive Order Expanding Apprenticeships in America (June 15, 2017).

H.R. 419 – Advancement of Manufacturers Act.

H.R. 2377 – The Apprenticeship Improvement Act.

H.R. 2399 - Leveraging and Energizing America's Apprenticeship Programs Act.

H.R. 3204 - On-the-Job Training Tax Credit Act.

S. 862 – The American Apprenticeship Act.

S. 1352 – The Apprenticeship and Jobs Training Act.

Quarterly Report on Household Debt and Credit (August 2017), Federal Reserve Bank of New York.

U.S. Labor Department apprenticeship web site: https://www.dol.gov/apprenticeship/.

"Worker Training Tax Credit: Promoting Employer Investments In The Workforce," Alastair Fitzpayne and Ethan Pollack, Aspen Institute Future of Work Initiative, Issue Brief (May 2017).