



RESEARCH REPORT

Bridging German and US Apprenticeship Models

The Role of Intermediaries

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Bridging German and US Apprenticeship Models

Intermediaries play a crucial, yet often misunderstood, role in the successful implementation of apprenticeship programs in the United States. Intermediaries serve various functions—as connectors, engagers, and administrators—and use their specialized expertise of the US apprenticeship system to aid employers in navigating its intricacies. Intermediaries can be nonprofit or for-profit organizations, and while not always used by employers in the registered apprenticeship system, they can ease employers' experiences and expedite the process. Such services may make registered apprenticeship programs more feasible for small and midsize organizations that may lack the capacity for these activities.

While intermediaries play an increasingly important role in expanding apprenticeship in the US, they are not common in Germany. Germany has a more expansive and long-standing apprenticeship system; the functions that intermediaries play in the US were long ago institutionalized in Germany among chambers of commerce and industry, employer associations, and the government. Because of differences in the US and German systems, it can sometimes be puzzling for German employers in the US to navigate a system without the robust supports that are commonplace in Germany.

This report is a collaboration between the Urban Institute and DIAG USA and explores the differences between the German and US apprenticeship systems and describes the importance of intermediaries for bridging the two countries' models. We first describe the German apprenticeship model, the ecosystem of partners, and the role chambers of commerce and industry play there. We then describe the role intermediaries play in the US and profile German-style intermediaries that apply German apprenticeship tenets to the American system. Finally, we identify lessons from intermediaries in the US and the German apprenticeship model that can help advance apprenticeship in the US.

What Is the German Apprenticeship Model?

While many countries have apprenticeship systems, Germany's model is known internationally for its rigor, collaboration, and benefits that extend to both employers and apprentices. In this section, we document the unique qualities of the German apprenticeship model—including the important roles of the government, chambers of commerce and industry, and employer-led training collaboratives and the intermediary functions they serve—and describe the benefits and limitations of the system.

An Established Apprenticeship System

In Germany, a high percentage of young people—including 54.5 percent of graduates from general education, comparable to graduating from high school in the US—enter the work world via an apprenticeship training program.¹ Apprenticeships in Germany are referred to as the dual vocational education system—or Dual VET—which enjoy a very good reputation in the country and worldwide.² In general, students are eligible to enter an apprenticeship program and vocational school after graduating from general education, and the average age is 16 at the start of apprenticeships in Germany. German apprenticeships are more formalized than in the US; this section describes the process and how different actors engage.

German apprenticeships start with a contract. In 2019, Germany had 1.09 million apprentices who were trained in 327 recognized occupations (Bundesinstitut für Berufsbildung 2020, 9). Depending on the profession chosen, the duration of an apprenticeship program is between two and three-and-a-half years. To be accepted into an apprenticeship program, a student applies to the employer for whom they want to work, the employer screens applicants, and then it selects students to participate. Therefore, the starting point of an apprenticeship program is the training contract between the apprentice and the employer. It is similar to a work contract and serves as the legal basis for the in-company training in the Dual VET system.

The employer-apprentice relationship is also supported by the German Chambers of Commerce and Industry.³ The training contract between the apprentice and the company is provided and registered by the chamber organizations. The contract regulates the duration of the training, beginning and end of the training, probation time, vacations, the training content, the training salary, and termination. Signing a training contract establishes a formal training relationship between the employer and the apprentice.

Training is coordinated between vocational schools and employers. Once the training contract has been signed and finalized, the apprentice will be assigned to a vocational school that collaborates with the company as well as with the local chamber organization (Bundesinstitut für Berufsbildung 2020, 9). The role of vocational schools is to provide the related technical instruction, or theory about the occupation, as well as general education that includes subjects such as math, essay writing, and public speaking. The goal is to ensure vocational school education is aligned with in-company training. The addition of general education content establishes a comprehensive education and training approach for all apprentices.

In Germany, apprenticeships occur at two coordinated learning venues: with the employer and in vocational schools. An apprentice spends approximately 70 percent of their Dual VET training at the employer's premises (Bundesinstitut für Berufsbildung 2020, 9). Step by step, apprentices take over duties and tasks at the workplace and in the process increasingly contribute to on-the-job production. The training contract specifies who pays the apprentice's salary and provides systematic training under real-life working conditions on up-to-date equipment. Every employer has an in-company trainer who serves as a mentor and ensures that the apprentices receive guidance and support throughout the program.

Thirty percent of a Dual VET program is classroom-based learning at vocational schools. In vocational schools, apprentices take two-thirds of their instruction in subjects specific to their occupation that follow vocational education standards regulated by the government and the German Chambers of Commerce and Industry. Another one-third of apprentices' instruction at vocational schools is in general education subjects. Apprentices attend public vocational schools free of charge because local government finances this education.

During the program, apprentices alternate between classroom learning at the vocational school and on-the-job training at the employer's worksite. There are two common alternatives. One alternative is that on-the-job and classroom training occur on different set days, such as employer-based training from Monday through Wednesday and theory-based instruction in the vocational school on Thursday and Friday. Another alternative is to have these training periods separated in longer periods, or "block lessons," such as eight weeks of employer-based training followed by four weeks in vocational school.

Dual VET standards guide training throughout Germany. One important part of the Dual VET program is the national apprenticeship standards. The training standards for each occupation define how the content is divided between the workplace and the vocational school (Bundesinstitut für Berufsbildung 2020, 9). Employer-based training standards, or "training regulations," determine the

share of apprenticeship training that occurs on the job, and the vocational education standards defined in the “framework curriculum” determine the share of training provided by the vocational school.

At vocational schools, the framework curriculum includes learning objectives and content, or “learning fields,” which form the basis for the instruction at school. Vocational subjects provide the theory that apprentices will apply in practice at the employer’s premises. For example, they might learn scientific concepts at the vocational school that guide practical tasks in their manufacturing job. Employer-based training standards are developed in accordance with vocational education standards. These standards include competencies that are taught for each occupation, determine which methods an employer applies when teaching on the job, and regulate the minimum requirements for training. They also state what an apprentice needs to know to pass midpoint and final exams.

Ultimately, Dual VET standards are based on the requirements of the work world. Therefore, training standards are continually updated, and new standards are added to reflect economic needs. When employers identify new developments and tasks at the workplace, occupational qualifications are added and defined in the training regulations. Once identified, it could take up to one year until employers, partners, and the government negotiate and adopt new standards for employer-based training standards. This process is guided by the Federal Institute for Vocational Education and Training (BIBB).⁴ In coordination with changes to training regulations, the education standards for vocational school—the framework curriculum—will be updated accordingly. Through this process, the Dual VET standards guide the delivery, monitoring, supervision, and support of the Dual VET system nationwide.

Successful completion of the apprenticeship is assessed independently. To ensure apprentices meet the standards of excellence at the end of an apprenticeship program, every apprenticeship program has independent examinations at the mid- and endpoints of the training. Examinations are organized by the chamber organizations for each occupational training program. The examination board is composed of representatives of employers, employees, and vocational schoolteachers. In general, those who train an apprentice are not part of the examination board itself. Apprentices are assessed and trained by an independent examination board. At the end of the training, an apprentice graduates with a Dual VET certificate issued by the chamber organization and is nationally recognized by the government. This means that an employer in the north of Germany knows exactly which skills and qualifications an apprentice has regardless of where they graduated in the country. The final certificate is acknowledged in all 16 states of Germany.

After successfully completing an apprenticeship program, many young people unlock a professional career path with many options. Approximately two-thirds of apprenticeship graduates stay with the

employer that trained them and sign an employment contract after graduation, thus replacing the training contract. Others change their employer and sign a contract with a new employer in the same occupational field, and others directly pursue additional education at a university.

Different Stakeholders and Their Roles

In Germany, Dual VET—the overall apprenticeship system—is organized and regulated through various stakeholders who monitor, supervise, and support the apprenticeship system. The business community, government, and social partners such as unions are involved in the Dual VET system.

The **chambers of commerce and industry organizations** play an instrumental facilitative role. They have been delegated by the state to monitor the training for all professions and ensure the training complies with the Vocational Training Act. They advise employers on apprenticeship programs; train in-company trainers who mentor apprentices, as well as assess and certify companies and trainers for in-company training; and monitor in-company trainings including the facilities and instructors. In addition, the chamber organizations support companies in finding apprentices, registering the training contracts, organizing midpoint and final exams, and mediating disputes between apprentices and companies in any cases where issues arise. In this regard, they act as intermediaries, and some have argued they are among the best form because they are organized by and for employer bodies and evolved organically to meet the demands of the system (ILO 2019).

Other partners in the Dual VET system also have influence on the regulations. Labor unions and employer associations negotiate apprentice salaries, vacation days, break times, and health benefits, and they have input into the occupational standards. Work councils monitor in-company training and are also involved in developing in-company training standards. Additionally, such partners are part of the examination board to determine if the apprentices have successfully satisfied their occupational standards.

The **German government** finances, supervises, and monitors the public vocational school system by providing the framework curriculum, facilities, and teachers. The government also organizes the continuous development of Dual VET standards, provides support to the unemployed and disadvantaged to enter Dual VET programs, and provides guidance and advice on all matters related to apprenticeship. Such activities include raising awareness and offering vocational orientation courses.

Germany's expansive apprenticeship model is a proven and successful pathway into the work world. The Dual VET system has a long-standing history and gains its strength through the collaboration

of different stakeholders in their respective roles. Big corporations as well as small and mid-sized enterprises have a strong interest, commitment, and capability to train. The broad-based acceptance of the apprenticeship standards through the strong involvement of social partners and their cooperative engagement with employers ensures that a comprehensive training model benefits apprentices as well as business and industry.

The Benefits and Limitations of the German System

The German system has many benefits, but it also faces challenges. For **apprentices**, there are tremendous benefits. They benefit by gaining occupational proficiency and the qualifications necessary for future employment opportunities. They also earn a salary while gaining a degree and industry credentials. With an apprenticeship program, students unlock a professional career path with the potential for future advancement. By training with an employer, apprentices learn in real-world settings and in state-of-the-art work environments. Additionally, apprentices learn how to identify with a company and the occupation they are trained in.

However, apprenticeships may not work equally well for all students. Students who want to be accepted in and start an apprenticeship program must be motivated, learn well with hands-on activities, and have good grades. They must apply directly to an employer and may or may not be selected in the interview process. Further, it is not always easy to gain access to a training program in an apprentice's desired occupation. Recent data show a decrease of 3.5 percent of new apprenticeship contracts from 2018 to 2019 (Bundesinstitut für Berufsbildung 2020, 9). Increasing demand for certain skills and competencies, such as foreign language skills, at the workplace also makes it more difficult to get into a program or to succeed in an ongoing program.

Advantages for **employers** are multifold. By offering an apprenticeship program, employers gain highly competent employees who meet the company's needs. Apprentices start working on day one and contribute to the productivity soon after as well as to the quality of services and products. Further, the productivity of the apprentices increases throughout the training program. In addition, companies reduce turnover costs and increase employee retention through the loyalty built throughout the apprenticeship program. Thus, employers produce a high return on investment in the long run.⁵ Many employers regard their participation in defining and developing company-based training content as a huge benefit. Last, an aspect of corporate social responsibility guides employers' roles in apprenticeship, and by hiring and training young people, their organization is contributing to society.

However, employers also face challenges. While students may have difficulties getting accepted by their desired employer, employers also often do not find the talent needed for their vacant training positions. There are two reasons for this problem. First, some students do not have the skills, knowledge, and attitudes needed to enter the apprenticeship program for the vacant training positions. Second, there may not be applicants for the vacant positions since more and more school graduates from general education are seeking a university path instead. Over time, the number of vacant training places in Germany has risen. There were 43,561 vacancies in 2016, and this number rose to 53,137 in 2019.⁶

The Dual VET system has a positive impact on the government, society, and economy. Through the apprenticeship system, the government has early indications of labor market demand and supply and can therefore meet national labor market demand for qualified workers through the contributions of employers that provide the training. The established system with its different stakeholders allows the Dual VET system to update and modernize itself through the regular evaluation of training standards, so it stays in line with technological advances. Since all stakeholders contribute to the Dual VET system in their respective roles, the training programs can be effectively steered and their quality can be assured. All these aforementioned factors contribute to Germany's economic performance and competitiveness, especially in manufacturing. The programs benefit labor market matching between employers and employees and ensures that young people are socially and economically integrated in society.

However, recent developments show that Germany is dealing with a shortage of skilled workers. The supply of young people for the labor market is declining because of demographic change (Bergseng, Degler, and Lüthi 2019). Additionally, the trend of more and more young people choosing a university education over an apprenticeship program means not all employer demands for skilled workers can be met.⁷ Another challenging factor is the regional disparity regarding training location and supply and demand. Also, certain regions in Germany cannot offer many different apprenticeship programs, and vacancies vary countrywide (Voss and Schöneberg 2018). Young people may have to move to a different region or state to enter a program for their desired occupation, which can be challenging at the average age of 16.

Intermediaries in the US System

In contrast to the German apprenticeship system, which is more standardized in its organizational approach, the US system is flexible in its design and implementation. This flexibility has advantages and

disadvantages. A strong advantage of the flexible US system is that employers can create programs that fit their specific needs. In 2019, the US had 24,778 registered apprenticeship programs,⁸ with opportunities for common and niche occupations alike. Across these registered apprenticeships are a range of customized approaches for sequencing classroom training, on-the-job learning, pay, and credentials. Furthermore, employers can determine how registered apprentices will be assessed on achievement milestones through either competency-based, time-based, or hybrid program designs. Adding to the flexibility of the US system is that many employers choose to not register their apprenticeship programs. They may offer similar training but perceive registration as too difficult, time intensive, or burdensome for compliance. The notion of an industry-recognized apprenticeship system in the US was created, in part, to mollify employers' hesitancy about registration.⁹

But the nearly limitless flexibility of the US system is a disadvantage because it often requires specialized expertise to navigate the process for registering programs and maintaining compliance. Employers may be interested in starting programs but can have difficulty understanding the steps involved or even knowing how to begin the process. Nor do they realize how long the registration process can take. Consequently, the flexibility that offers employers tremendous control over their program's design may in fact discourage their participation because of these perceived challenges.

Intermediaries—organizations that typically have specific workforce development and apprenticeship program expertise—have become important for the success of the US-registered apprenticeship system. This section describes what intermediaries are and the important functions these organizations serve in facilitating high-quality apprenticeships in the US. Also included are profiles of three organizations that straddle both the German and American apprenticeship systems and their approaches to using intermediaries to advance their work in the US.

What Are Intermediaries?

In the US-registered apprenticeship ecosystem, intermediaries are organizations that play a critical connecting role between other organizations and systems to advance the design, registration, and implementation of programs. They are organizations with expertise about the apprenticeship system and use this specialized knowledge to help employers, apprentices, educators, and government actors navigate the US system (Katz and Elliott 2020). Activities intermediaries perform can include employing apprentices (sometimes as the employer of record), training apprentices, helping register programs, and providing supportive services to facilitate apprentices' success (ILO 2019). Intermediaries are nonprofit or for-profit organizations, including government agencies, community colleges or high schools, and

small and large businesses. In the US especially, no single model exists for intermediaries to follow (Education Strategy Group 2019). In short, they are as varied in structure as the roles they play in the apprenticeship ecosystem. Depending on the needs of the other organizations involved, intermediaries' roles can range between low- and high-intervention activities. Low-intervention activities in which intermediaries engage within the apprenticeship ecosystem could include building awareness, convening and connecting relevant actors, and providing high-level advice. High-intervention activities could include active roles in designing and registering programs; recruiting, coaching, and monitoring apprentices' progress; providing training and instruction; and serving as the employer of record. Intermediaries' fulfillment of these varied activities on behalf of employers and others maintains a need for them to have a prominent role in the flexible and fragmented US system. They also ensure that even small employers can engage in apprenticeship as a workforce development strategy; intermediaries can act as group sponsors, providing a faster entry point to starting a program, and can provide an economy of scale in grouping collective programmatic needs for those who lack the resources to execute a program independently (Messing-Mathie 2015).¹⁰ Furthermore, they help drive consistency of practices across participating programs and over time, advancing the quality of the registered apprenticeship system (Messing-Mathie 2015).

Intermediaries may also specialize in the expertise they provide to others. Some intermediaries are **employer facing** and provide a range of business services to employer clients to help them with program implementation. Some have designated such intermediaries as "demand driven" because they are responsive to the needs of employers in the system (ILO 2019). Services such intermediaries may provide include helping organizations: designing, registering, and establishing their programs; recruiting candidates; complying with the US Department of Labor (DOL) or state apprenticeship agency guidance and regulations; and accessing funding and other programmatic support. Some employer-facing intermediaries may serve as the sponsor of record in the registered apprenticeship system to alleviate the paperwork and compliance burden on employers. They may have some contact with organizations that have candidates for apprenticeship positions, but their direct engagement with apprentices is limited. For these intermediaries, their primary goal is to facilitate the process for employer clients and promote apprenticeship as a viable talent development option.¹¹

Other intermediaries are **apprentice facing** and focus on upskilling and training candidates and coaching them through the process. They may have some engagement with businesses, but their primary mission is to connect workers with apprenticeship opportunities. They may provide preapprenticeship services to help candidates improve their baseline reading, math, or social skills. Some intermediaries provide coursework and technical instruction through training or academic

programs, while others engage with specialized populations to facilitate transitions to employment opportunities including those who were formerly justice-involved, veterans and transitioning service members, and those who are un- and underemployed. Such intermediaries may also be directly involved in providing wraparound services such as transportation or child care to ensure that candidates persist and succeed in apprenticeship programs (Helmer and Conway 2014).

Finally, some intermediaries **serve employers and apprentices equally** to facilitate success across all aspects of the program. Such organizations work to recruit, train, place, and support apprentices throughout their tenure. They also interface directly with employers to design programs to address their talent needs and ensure the apprentices they place under their employment are progressing and receiving a high-quality experience. This holistic approach provides these intermediaries with multiple vantage points to secure success for both employers and apprentices, enabling them to address gaps and opportunities across all stakeholders served. A strong case exists for intermediaries in the US apprenticeship system to not only provide technical assistance but also, importantly, “help to create synergy across stakeholders” (Messing-Mathie 2015, 16). Such intermediaries can include for-profit and nonprofit organizations, public high schools, employer associations, staffing firms, and government organizations and can work to ensure all stakeholders involved—from employers to apprentices—achieve success through apprenticeship (Katz and Elliott 2020; Marotta, Boren, and San Miguel 2020; Arabandi, Boren, and Campbell 2021).

A shared theme of work across all intermediaries is the specific expertise they bring regarding the apprenticeship system and the efforts they invest to raise awareness about apprenticeship generally. Because apprenticeship is not yet a common workforce development strategy in the US, and especially not for occupations in sectors outside of the trades, intermediaries are often engaged in raising the profile of apprenticeship in the US through selling, organizing, and marketing opportunities and the strategy itself (Lerman, Loprest, and Kuehn 2019). This is not the case in countries like Germany where apprenticeship is well established as a model and it is commonly accepted by employers that this strategy works.¹² Rather, in the US, awareness building comes to define a substantial amount of the work that intermediaries conduct to advance apprenticeship programs.

How Do Intermediaries in the US Play Roles Similar to Those in the German System?

In the German model, intermediaries in Germany are more uniformly established in the ecosystem and have clear roles and purposes. This is because the apprenticeship system itself in Germany is more codified than in the US, with roles for intermediaries that are more clearly defined in legislation and budgets. Meanwhile, in the US, intermediaries are flexible and meet the needs of whomever their clients

may be, whether they are apprentices, employers, the local workforce system, educational institutions, or all these groups. In this section, we describe how the roles of German and US intermediaries compare and how they serve different functions in the apprenticeship ecosystem.

As previously discussed, two elements of the German apprenticeship ecosystem that function like intermediaries include the various chambers of commerce and industry and employer-led training collaboratives. Like employer-facing US intermediaries, **German Chambers of Commerce and Industry** represent the interests of employers and facilitate the collective nationwide standards of training for apprenticeships in the different sectors and occupations within them. These “competent bodies” establish the high bar of quality by which German employers train their apprentices and award credentials (Le Mouillour and Schneider 2015, 13). They are also well established and responsive to the needs of employers, which ensures their credibility and success in the system (ILO 2019).

While the US does not uniformly have occupation-based governing bodies to assess the quality of training programs, some trade unions and select associations seek to serve in similar capacities as the German competent bodies for a limited set of occupations.¹³ In the US, some industry associations also serve as DOL-recognized industry intermediaries in the apprenticeship system. These are typically employer associations that seek to expand registered apprenticeships among their members.¹⁴ Industry intermediaries in the US do not typically create industry standards for training, however—in sharp contrast to their counterparts in Germany.

Employer-led training collaboratives—intercompany vocational training centers and centers of excellence—play important roles in Germany by offering training according to the high-quality occupational standards determined through the work of chambers of commerce and industry. Such collaboratives are important in Germany, particularly for smaller and midsized employers that may not be able to offer their apprentices exposure to all the competencies deemed important to learn in the occupation (Federal Institute for Vocational Education and Training 2018). In the US, intermediaries and consortia-based training models are less common than in Germany but offer tremendous benefits to small and midsized employers that participate (Messing-Mathie 2015).¹⁵ Through such intermediaries and consortia, smaller employers get more exposure to potential candidates, benefit from the efficiencies of joining others to train apprentices in a cohort, and keep costs more contained. Considering that 99.9 percent of US businesses in 2018 were considered small (under 500 employees), ensuring that apprenticeship is easier for such employers should be a primary goal of the US system.¹⁶ Intermediaries and consortia models make apprenticeship more achievable for the small to midsized firms as examples in the US and Germany demonstrate.

In the US, there are successful examples of consortium-based apprenticeship efforts, in some cases based on the German model, that serve as helpful models for how to initiate other similar models. For example, the Apprenticeship 2000 model in North Carolina was based on the German training model and initiated by a group that included German companies and former US and German apprentices in manufacturing (Arabandi, Boren, and Campbell 2021). It has existed as a consortium for more than 20 years and has proven successful for both apprentices and firms in North Carolina. Similar adaptations of the German consortium model have been adopted elsewhere in North Carolina and have been successfully providing high-quality training to apprentices and meeting the hiring needs of local firms.¹⁷

Profiles of German-Style Intermediaries in the US

To better understand how US-based employers have adapted elements of the German apprenticeship model to their work, we conducted interviews with three different organizations that offer apprenticeships. The common thread across these organizations is that they borrow from the German apprenticeship model, but each has adapted this approach to their own needs. For these organizations, the German apprenticeship model was either the basis of their firm's model (auticon and Festo Didactic) or inspired their work as an intermediary (Managed Career Solutions). The model was also the right approach for providing high-quality training, building partnerships and consortia, and ensuring high-quality mentoring in their programs.

AUTICON

The German-based software development company, auticon,¹⁸ was founded in 2011 with the mission of connecting autistic people to long-term career opportunities in technology roles such as software developers, quality assurance testers, and data analysts. The company employs about 300 people—most of whom are autistic—in 19 offices across Germany, the US, and six other countries. Its program in the US was started in 2013 in California, and subsequent offices have opened in Ohio and Utah.

The company started in Germany and was founded on the apprenticeship model. It incorporates training, mentoring, and wraparound supports for its autistic apprentices and in a sense functions like an apprentice-facing intermediary in the US. Through its client-facing work, auticon provides software development and data analytics services and apprentices work as consultants on the job at different firms. Only 58 percent of those with autism have ever worked by the time they reach their early 20s (Roux et al. 2015). Thus auticon is serving an important role by developing apprentices' skills and connecting them with valuable work experience.

Chief operating officer of auticon US, Ivette Marina, is motivated by her work because she has seen how transformative their program has been for some of the company's autistic employees.¹⁹ The apprenticeship program recruits employees and provides them with a four-week training session on quality assurance and software testing, followed by an assessment. Upon finishing the training, they are again assessed with a final exam and on their soft skills. From there, they are placed into apprentice roles where they are each paired with a mentor and a technical lead. While some may be ready for client-based work right away, for others, training may continue for months afterwards. Overall, auticon reports an 80 percent conversion rate from those who start the program to those who remain employed in the program four months later. In the US, auticon is an unregistered program but has made its apprenticeship program more formalized than is the case in Germany. Because German training programs are commonly structured in this way, auticon's program is no different than the norm there. In contrast, auticon's training program is not a common approach in the US, and it has had to raise awareness about apprenticeship with firms that hire their apprentices.

Auticon sees value in working with the intermediary DIAG USA,²⁰ which promotes the German model of apprenticeship in southern California and beyond. DIAG USA helps employers advance their apprenticeship programs by securing funding, connecting partners for implementation, and providing train-the-trainer programs to ensure high-quality mentoring. As Marina described, "a company can't be everything. They can't run a business [and] be a community organization. So the importance of these partnerships is that everyone is working in their strengths and field, so you strengthen your company by having these supports. You can't do it alone." For smaller firms like auticon, having the expertise of an intermediary to help them has been instrumental to the success of their apprenticeship program.

MANAGED CAREER SOLUTIONS

Managed Career Solutions (MCS)²¹ employs 130 people and has provided career support services for 30 years. It has historically worked to connect the un- and underemployed to jobs, including running three main and other one-stop career centers across Los Angeles and Orange County, California. MCS's experience placing underserved communities led them to funding in 2015 to start apprenticeship programs for this population. Although the company started their apprenticeship work knowing very little about apprenticeship programs, it reached out to DIAG USA to learn more. With DIAG USA's assistance, MCS built expertise over time to become an intermediary that focuses on placing individuals in underserved communities and the un- and underemployed into registered apprenticeships.

As Executive Director Philip Starr articulated, the goal of MCS as an intermediary is to connect the employer that wants to develop apprenticeship opportunities with its job-seeking participants.²² MCS

has as a core mission helping people who have the most difficulty accessing jobs in the labor force. This means that as an intermediary, it works hard to develop relationships with employers by joining professional associations, interacting with local chambers of commerce, and directly engaging employers. It also simultaneously conducts outreach with employment networks and community-based organizations working with underserved communities. Thus, MCS connects those from underserved communities to meaningful opportunities and wages with employers seeking to address their talent needs. The company has found receptivity among employers because it offers offset money for training and wages for the apprentices it hires by typically tapping into funding through the Workforce Innovation and Opportunity Act. The goal is for apprentices to have long-term engagement with these employers beyond subsidizing certain costs, so facilitating high-quality mentoring has been key to its success.

Starr observes that the apprenticeship system in Germany is orchestrated on a much larger and more organized level than it is in the US with broad buy-in and participation from young people, high schools, employers, and chambers of commerce and industry throughout the country. In contrast, apprenticeship in the US has been more loosely organized and not as tied to the educational system or youth employment. Starr sees strong value in the German model's priority to engage heavily with young people in apprenticeship. As an intermediary, MCS is striving to make apprenticeship more systematic with established employer relationships, strong mentoring, and high levels of engagement from educational partners such as community colleges and high schools. With the underserved young people with which they work, engaging them with employment and education in tandem and compensating them for these experiences has helped these young people stay connected to long-term work opportunities. While MCS strives to be systematic in their approach, it has found benefit in retooling and rethinking as needed as well as having patience, particularly with employers. As an intermediary, it invests heavily in engaging employers and expanding their views of the possibility of apprenticeship.

FESTO DIDACTIC

Festo is a German-based company that has two functions: mainly, to sell manufacturing equipment (Festo Automation) and, secondly, to promote the training of individuals on using its equipment and best practices in advanced manufacturing settings (Festo Didactic). Festo Didactic²³ sells equipment to colleges and universities and serves as a training-based intermediary that facilitates mechatronics apprenticeship programs. Their role ensures that apprentices are mentored on using their equipment and in cutting-edge mechatronics skills. The program follows German standards, meaning Festo Didactic American apprentices take the same exam as German apprentices, signifying the program's rigor and high-quality training. Unlike in Germany, where employers offer much of the mechatronics

training in-house, Festo Didactic has adopted a different approach in the US to offer more of the training themselves in partnership with participating employers and community colleges. The program has found that community colleges are receptive to its help because it approaches these relationships collaboratively and works to raise the knowledge base of its educational partners to the most current standards.

As an apprenticeship intermediary, Festo Didactic manages the mechatronics apprenticeship program, advises employers and colleges on training, facilitates train-the-trainer work to ensure high-quality mentoring, and provides the standards that ensure uniformity with German credentials and exams. It also helps to recruit apprentices for the program, mostly from its main target population of high school students, who can often receive an associate's degree in a little over two years with the program (or five semesters of schooling) and National Institute of Metalworking Skills (NIMS) credentials²⁴ along the pathway to completion. Many apprentices take the Industrie- und Handelskammer (IHK) test²⁵ at the end and successfully complete it, adding an internationally recognized credential to their portfolios. Through experience, Festo Didactic has learned a lot about how to recruit apprentices, finding that straight A's are not necessary, but a strong work ethic, an inclination to work with one's hands, and an openness to observe the occupation and its tech orientation is important.

As Andreas Brockmann, head of technical training and education in the US, describes, his role and that of his staff is to bring this model to companies to show them a workforce alternative and to coach them throughout the process. Because many companies in the US do not know how to take training into their own hands, this is a completely new model for them.²⁶ This means that a lot of Festo Didactic's staff time is devoted to outreach and selling the program to employers. They also work hard to interface between employers and apprentices to ensure the learning happening on the job is aligned with classroom learning. As he adds, there are standards for doctors and lawyers in the US but no accepted standards of practice for technical trades. He believes the US would benefit from moving to a system of commonly accepted technical standards and the portability of quality across employers nationwide.

Lessons for Advancing Intermediaries in the US

Overall, intermediaries serve an important role in the US apprenticeship system. In the absence of a systematic and large-scale apprenticeship system like that in Germany, the US system can be hard to navigate and understand for those looking to initiate or expand programs. Intermediaries provide specialized expertise that may mean the difference between creating a successful and sustainable

program or none at all. The DOL sees the value of intermediaries²⁷ and has funded various programs to boost their impact, including a recent award of more than \$22 million across 12 different industry intermediaries. Despite intermediaries' importance for program quality and success, they remain an underappreciated and often invisible linkage in the overall apprenticeship system (ILO 2019).

For German companies looking to advance their work in the US, intermediaries are an important bridge between the two countries' systems. They serve various functions, including providing technical expertise and capacity building; connecting apprentices, employers, and educators; offering training; supporting through mentorship components (train the trainer); and locating sources of funding and support. In the flexible and often fragmented US system, intermediaries can offer constancy amid confusion. The following themes highlight how intermediaries facilitate advancements in the US apprenticeship system.

- **They are important connectors.** We heard from our interviewees that when they started down the path of creating an apprenticeship program, they had no idea where to begin. The US system is fragmented, with a separate national system and various states that have opted to have their own apprenticeship system.²⁸ This means that the landscape of actors and procedures in each state and area can vary dramatically and it requires expertise to know who to contact to launch a program. At auticon, working with DIAG USA, an intermediary, ensured that the company understood the web of actors in each state with whom it needed to engage and solicit expertise. Intermediaries locate funding, find appropriate related technical instruction providers, connect to pools of potential candidates, and expand networks to create the supportive system needed to launch a successful program. Intermediaries may also facilitate connections to key government apprenticeship representatives in different locations, which can help to advance and expedite programs for registration.
- **They promote the value of apprenticeships to employers.** Despite a long history of apprenticeship in the United States, myths continue to persist about the system. In the US, apprenticeships are often confused with internships, or it is assumed they are only for the trades rather than in high-growth industries like IT and health care.²⁹ These myths abound because awareness continues to be low. Intermediaries may spend considerable time meeting with employers and organizations to raise awareness and counter unhelpful notions about what apprenticeship is in the US. Without groups like intermediaries sharing such information, the US will have trouble scaling the number and scope of apprenticeships. Further, intermediaries create apprenticeship champions with their outreach and programmatic work;

the more employers and associations that sign onto apprenticeship, the more the model is replicated and touted by others.

- **They help raise the capabilities of other organizations.** An important function of intermediaries is capacity building, whether of employer partners and associations, educational institutions, or other intermediaries. Information sharing within networks is critical for sharing best practices. Further, some organizations like DIAG USA and the German American Chambers of Commerce provide train-the-trainer programs that help other intermediaries and employers learn best practices to ensure high-quality mentoring, which then ensures successful apprentice engagement and completion. With shared expertise, knowledge, and training, apprenticeship intermediaries and associated organizations help to expand their own capacity and that of others in their networks.
- **They imbue quality in the programs.** Festo Didactic, steeped in the German model, has worked to create high-quality programs in the United States that provide the same level of training that German apprentices receive. Festo Didactic's American apprentices are trained to German standards and expected to take and pass the same qualifying occupational credentialing exam. They have ensured that despite different apprenticeship and educational systems, their apprentices are universally working toward the same standards, regardless of the country they are in. MCS, in its role as an intermediary, is also focused on its own quality metric, which is placing un- and underemployed individuals into career opportunities. It is noteworthy, though, that not all intermediaries infuse quality or measurable metrics of success into their US programs. But for intermediaries like Festo Didactic and MCS that are mission driven in their apprenticeship approaches, apprentices and employers alike benefit from their efforts to advance quality apprenticeships.

Overall, intermediaries are critical for advancing apprenticeship efforts in the US. In the absence of a structured and well-established system, intermediaries are instrumental for the expansion and credibility of US apprenticeship efforts.

Notes

- ¹ See this statistic in Tabellen zum Datenreport zum Berufsbildungsbericht at “Data Report 2020,” Federal Institute for Vocational Education and Training (BIBB), 2020, https://www.bibb.de/datenreport/de/datenreport_2020.php. Of note, those who enter apprenticeship programs in Germany usually do so after completing 10 to 13 years of schooling in the general education system.
- ² When referring to apprenticeships in Germany in this report, we use “Dual VET,” which is how Germans describe this system.
- ³ German Chambers of Commerce and Industry, accessed May 1, 2021, <https://www.dihk.de/de>.
- ⁴ Federal Institute for Vocational Education and Training (BIBB), accessed May 1, 2021, <http://www.bibb.de/>.
- ⁵ Robert Lerman, “Do Firms Benefit from Apprenticeship Investments?,” IZA World of Labor, 2019, <https://wol.iza.org/articles/do-firms-benefit-from-apprenticeship-investments/long>.
- ⁶ See this statistic in Tabellen zum Datenreport zum Berufsbildungsbericht at “Data Report 2020,” BIBB.
- ⁷ Eric Morath, “Germany’s Apprenticeship Challenge: Finding Young Applicants,” *Wall Street Journal*, October 8, 2019, <https://www.wsj.com/articles/germanys-apprentice-challenge-finding-young-applicants-11570527003>.
- ⁸ See various statistics on the US registered apprenticeship system at “Registered Apprenticeship National Results Fiscal Year 2020 10/01/2019 to 9/30/2020,” DOL, Employment and Training Administration (ETA), accessed May 1, 2021, <https://www.dol.gov/agencies/eta/apprenticeship/about/statistics>.
- ⁹ For information about the industry-recognized apprenticeship efforts in the US, see “US Department of Labor Issues Industry-Recognized Apprenticeship Program Final Rule,” DOL, ETA, March 10, 2020, <https://www.dol.gov/newsroom/releases/eta/eta20200310>.
- ¹⁰ Myriam Milfort Sullivan, “Seven Ways Intermediaries Help Develop Apprenticeship Programs,” Jobs for the Future (JFF), June 7, 2016, <https://www.jff.org/points-of-view/seven-ways-intermediaries-help-develop-apprenticeship-programs/>.
- ¹¹ The DOL has recently invested in advancing the roles of industry intermediaries in the US to advance sector-based and regional expansion of apprenticeship (see the press release here: “US Department of Labor Awards over \$22 Million to Industry Intermediaries to Support Continued Apprenticeship Expansion and Opportunity,” DOL, ETA, September 25, 2020, <https://www.dol.gov/newsroom/releases/eta/eta20200925-3>).
- ¹² Paul Solman, “Can Americans Compete with Quality-Driven Germans?” *PBS NewsHour*, June 4, 2014, <https://www.pbs.org/newshour/economy/making-sense/can-americans-compete-quality-driven-germans>.
- ¹³ For example, the National Institute of Metalworking Skills (NIMS) has created its own set of assessment metrics for industry-recognized apprenticeships for manufacturers: “Apprenticeship,” NIMS, accessed May 1, 2021, <https://www.nims-skills.org/apprenticeship>.
- ¹⁴ See the latest announcement of industry intermediaries: “US Department of Labor Awards over \$22 Million to Industry Intermediaries to Support Continued Apprenticeship Expansion and Opportunity,” DOL, ETA.
- ¹⁵ In the US, unions have created numerous training centers as part of their apprenticeship programs. For example, the IBEW-NECA electrical training alliance has training centers located throughout the US. See “Electrical Training Alliance: Locate a Training Center,” IBEW-NECA, accessed May 1, 2020, <http://www.electricaltrainingalliance.org/locateaTrainingCenter>.
- ¹⁶ See the US Small Business Administration’s “2018 Small Business Profile” for more information: <https://www.sba.gov/sites/default/files/advocacy/2018-Small-Business-Profiles-US.pdf>.

- ¹⁷ Ken Elkins, "Central Piedmont Community College to Certify Students for German Companies in Charlotte Region," *Charlotte Business Journal*, April 17, 2012, <https://www.bizjournals.com/charlotte/news/2012/04/17/central-piedmont-community-college-to.html>.
- ¹⁸ auticon, accessed May 1, 2021, <https://auticon.us/>.
- ¹⁹ Ivette Marina was interviewed on December 18, 2020.
- ²⁰ DIAG USA, accessed May 1, 2021, <https://www.diagusa.org/index.html>.
- ²¹ Managed Career Solutions, accessed May 1, 2021, <https://www.mcscalifornia.com/>.
- ²² Dr. Philip Starr was interviewed on December 21, 2020.
- ²³ "Training and Certification," Festo Didactic, accessed May 1, 2021, <https://www.festo-didactic.com/us-en/training-and-certification/?fbid=dXMuZW4uNTc5LjE3LjI3LjM2NzE>.
- ²⁴ "Credentialing," NIMS, accessed May 1, 2021, <https://www.nims-skills.org/credentialing>.
- ²⁵ "Recognition of Foreign Qualifications in Germany," IHK Berlin, accessed May 1, 2021, <https://www.ihk-berlin.de/english/en/working-in-berlin/recognition-of-fooreign-qualifications>.
- ²⁶ Andreas Brockmann was interviewed on December 22, 2020.
- ²⁷ See the DOL bulletin clarifying that workforce intermediaries may be sponsors: "Bulletin 2016-26," DOL, ETA, Office of Apprenticeship, March 21, 2016, https://www.doleta.gov/oa/bul16/Bulletin_2016-26.pdf. The listing of the 12 industry intermediaries recently funded spans various sectors: "US Department of Labor Awards over \$22 Million to Industry Intermediaries to Support Continued Apprenticeship Expansion and Opportunity, DOL, ETA.
- ²⁸ "State Apprenticeship Agencies," DOL, ETA, accessed May 1, 2021, <https://www.dol.gov/agencies/eta/apprenticeship/contact/state-agencies>.
- ²⁹ Jessica Shakesprere, "Five Common Misconceptions about Apprenticeships," *Urban Wire* (blog), April 22, 2019, <https://www.urban.org/urban-wire/five-common-misconceptions-about-apprenticeships>.

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