

INSPIRING THE NEXT GENERATION OF AMERICAN CAREER TECH EDUCATION

AFT STUDY MISSION TO GERMANY





A Union of Professionals

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Our Mission

The **American Federation of Teachers** is a union of professionals that champions fairness; democracy; economic opportunity; and high-quality public education, healthcare and public services for our students, their families and our communities. We are committed to advancing these principles through community engagement, organizing, collective bargaining and political activism, and especially through the work our members do.

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EXECUTIVE SUMMARY

In May 2022, a delegation of AFT leaders, staff and guests traveled to Berlin and Hamburg to study the German vocational education and training (VET) system, analogous to career and technical education (CTE) in the United States. One of the most well-regarded systems in the world, Germany’s VET is defined by what is known as the “dual system,” whereby vocational students receive both workplace and classroom instruction in parallel, allowing them to earn a generous stipend, get hands-on experience, and learn the theory behind their trade all at the same time. Because Germany’s VET system has long-standing historical and cultural roots and is now enshrined in federal German law, a key challenge of the AFT mission was to determine how Germany’s most successful vocational education practices can be replicated in the U.S. context. During their visit, AFT leaders and staff identified the following key actions that can help bolster U.S. career and technical education:

- **Improve educational and career orientation** to interest more students in vocational programs, including by creating pre-apprenticeship programs that allow students to experience a career path before entering a vocational program;
- **Advocate for the development of an incentive structure** at the national and local levels to encourage private sector participation in vocational training and increase apprenticeship availability;
- **Fund externships for CTE teachers** to maintain their knowledge of new technologies and processes in industries so they are able to keep curricula up to date and teach students the latest skills that companies are looking for; and
- **Create VET coordinator positions** in schools to manage local partnerships to develop relevant career advising, internships, and apprenticeships for students and externships for teachers.



DELEGATION

The AFT's study mission to Germany originated with the Career and Technical Education Committee, a group of AFT leaders committed to studying successful cases of vocational education policy and advocating for the implementation of vocational programs in their states and cities. In addition to the committee members, AFT President Randi Weingarten invited representatives of the AFL-CIO Technology institute and Bloomberg Philanthropies to join the mission.

- Randi Weingarten, AFT president
- Michael Mulgrew, president, United Federation of Teachers; AFT vice president
- Jan Hochadel, president, AFT Connecticut; AFT vice president
- Melissa Cropper, president, Ohio Federation of Teachers; AFT vice president
- Zeph Capo, president, Texas Federation of Teachers; AFT vice president
- David Gray, president, Oklahoma City Federation of Classified Employees, AFT vice president
- Amanda Ballantyne, executive director, AFL-CIO Technology Institute
- Jenny Sharfstein Kane, education officer, Bloomberg Philanthropies

INTRODUCTION

The AFT has long considered career and technical education to be crucial to the success of American students, schools and working people. From the student perspective, CTE—or vocational education and training (VET) as it is known around the world—provides access to well-paid, dignified jobs upon graduating from high school without taking on debt for higher education. Programs that include an apprenticeship can even allow students to earn a wage during their secondary education, giving them a head start on achieving financial security and independence. And when properly designed and executed, CTE programs boost social mobility by creating opportunities for continued education and professional advancement—whether by pursuing an academic degree, further vocational certification, or through employer-sponsored training.

On a district level, schools can leverage CTE to engage students interested in vocational careers, who are often motivated by the satisfaction that comes with creating a physical product or maintaining a system that is essential to the functioning of our society. By creating pathways directly into the workforce or into higher-level vocational training, CTE can also boost graduation levels. Students who might otherwise lack options upon graduation can be motivated by the prospect of a well-paying job. In

fact, data from the Department of Education reveals that graduation rates among students in a vocational program exceed those of other students by 8 percentage points.

Finally, high-quality CTE benefits all American workers by boosting the national economy and giving workers the skills needed to succeed in emerging fields. When CTE programs are closely linked to real positions with employer demand, workers can easily find employment related to their training, often in a company where they have apprenticed. In fact, when the eurozone economic crisis caused youth unemployment to skyrocket into the double digits in most European Union countries, Germany's rate hovered around 8 percent—a success widely attributed to the country's robust CTE and its role in ensuring a smooth school-to-workforce transition. This liaison between education and the workforce is particularly important for students entering emerging sectors such as green energy or digital technology, which require specialized skills (for example, resource management or coding) that are not typically taught in traditional high schools. Without CTE programs, access to these skills is often limited to college graduates. Quality VET not only ensures that growing sectors of the economy can attract skilled workers, it also allows high school students to develop skills that are relevant to economic demand.

American educators and trade unionists recognize the potential of high-quality CTE to transform our schools into more equitable and successful institutions and to renew the foundations for a prosperous working class. As an organization that has a pulse on both the state of American schools and the labor movement, the AFT is uniquely poised to make the case for high-quality CTE to policymakers across the country and to ensure that CTE is created with working people in mind. This is why the AFT is committed to helping design and usher in a new era of universal access to CTE programs that give students of all backgrounds access to well-paid union jobs upon graduation and provide the American economy with highly skilled workers.

From cybersecurity to culinary arts, from aviation and auto and transit tech to healthcare and green jobs—high-quality CTE programs can equip young people with the knowledge and skills they need for all these careers.

Randi Weingarten, July 2022 State of the Union
Address at AFT Convention

WHY GERMANY?

So what does Germany have to do with promoting high-quality CTE in the U.S.? If we are proposing a new educational policy for the U.S., Germany offers an important source of inspiration for program design and best practices. Studying foreign systems also lets us learn from the experience of others and anticipate what challenges may arise when instituting CTE in our own communities.

Germany's CTE system is perennially ranked among the best in the world by international organizations such as the Organization for Economic Cooperation and Development, along with the Austrian and Swiss systems, which have been studied by previous AFT delegations. Among the German system's advantages are its accessibility to all students, its adaptability to the ever evolving demands of the world of work, and its integration of workplace and classroom instruction, which Germans call the "dual system."

Moreover, several similarities between German and U.S. society and politics make it a particularly productive

case study. For example, both countries boast robust public education systems that are governed primarily at the state and local levels. Both countries rely heavily on human capital for economic success and are home to diverse societies shaped profoundly by immigration. These similarities mean that German education policies often respond to the same political and societal demands that CTE policies will have to face in the U.S.

The AFT's close relationship with the German Education Union (GEW by its German acronym) and the tireless work of colleagues in that union allowed AFT delegates to experience a comprehensive program of briefings and site visits, shedding light on all aspects of the German CTE system. And as the AFT learned over the course of the trip, German educators, unions, companies and policymakers continue to innovate new approaches to vocational education in response to contemporary challenges like academization, making the visit all the more advantageous.

CHALLENGE AND MISSION

While CTE faces some of the same challenges in Germany as in America, it is important to recognize that CTE in Germany enjoys a cultural acceptance and a multi-century history that contribute to the overall strength of the German system. It was the AFT's challenge to determine what elements of the German CTE system are applicable in the U.S. in the absence of these cultural and historic foundations and given the neglected state of American CTE. At the same time, delegates reflected on how educators and schools can foster a cultural appreciation for CTE and the occupations and professions for which career and technical education programs prepare students.

Among the most important points the AFT considered:

- **How are the different components of German CTE programs funded (i.e., classroom instruction, on-the-job instruction and work experience, career orientation, etc.)?**

- **How does CTE prepare students for graduation, and what options do students have upon finishing a vocational program?**
- **How do employers participate in the system, and what is their motivation?**
- **How do CTE programs recruit students and maintain a positive image?**
- **What role do unions and educators play in the German CTE model, and how do they keep it equitable for students?**

With these guiding questions in mind, the AFT sought to produce the following results, as stated in the delegation's mission statement:

- **"To inform and strengthen federal advocacy:** We have long argued for more funding for teacher externships in federal Perkins and other labor and education funding. Germany is ahead of us in thinking about how to accelerate preparing youth for jobs in big growth areas like climate change mitigation and clean energy and artificial intelligence

and the technology sector. Teacher externships are a big missing link in the U.S. CTE system. Lessons learned from this mission will also help us advocate for vocational curriculum development funding, which is lacking and results in too much off-the-shelf purchased CTE curricula.

- **“To inform and strengthen state and local CTE committee work:** The mission will provide ideas on how to approach the structuring of CTE programs, and it will showcase Germany’s work in tying CTE into relevant socioeconomic changes, including

digitization, climate change mitigation, and the demand for clean energy jobs.”

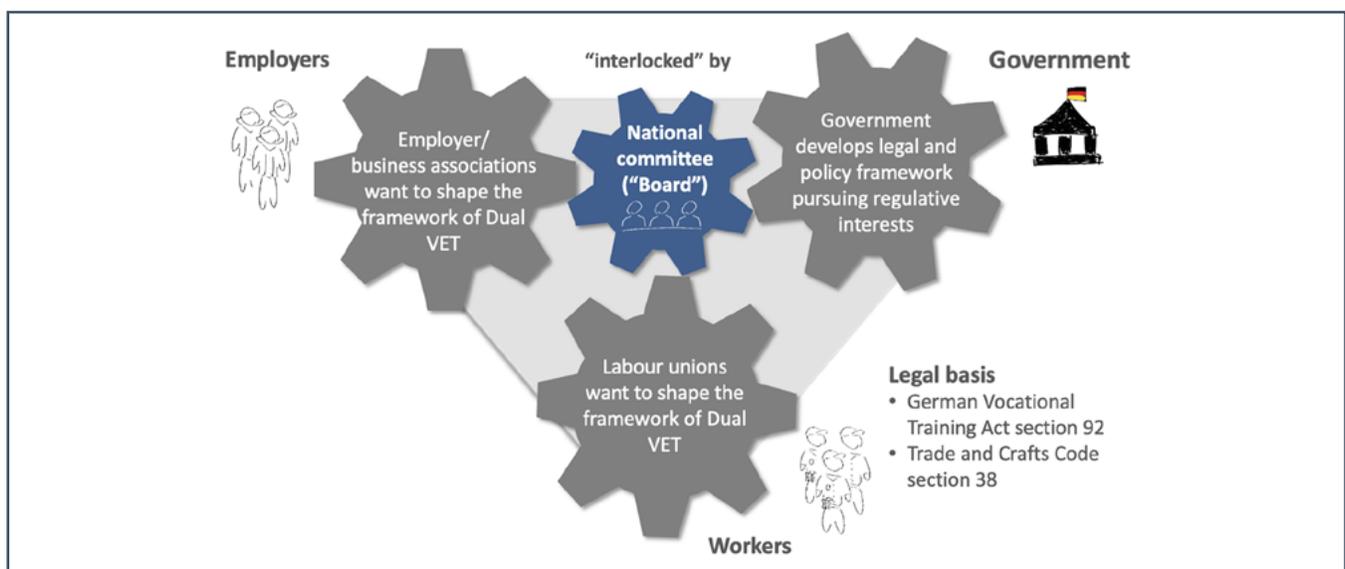
- **“To provide inspiration for Innovation Fund priorities, including Promising Pathways II:** Seeing German CTE partnerships with various industrial and civil society organizations and learning about the German system of co-determination will help provide inspiration for fundraising and partnership proposals.”

THE GERMAN VOCATIONAL EDUCATION SYSTEM

As in the U.S., education in Germany is primarily the prerogative of state and local governments, and systems can vary widely between states and localities. Nevertheless, vocational education is universally present in German schools thanks to the Vocational Training Act of 1969, a product of lobbying by the German Confederation of Trade Unions (DGB), which stipulates that vocational education is a fundamental responsibility of the public education system.

According to this law, schools may choose to offer programs from a list of federally recognized and regulated occupations, of which there are now over 300. New occupations can be proposed by unions and employers’ associations. To gain recognition,

occupations must have detailed curricular standards to which all programs must adhere and a national certification test that candidates must pass to successfully complete a program. Unions, employers’ associations, and the federal government are responsible for creating and updating through a tripartite board to which each party sends representatives. Decisions are taken by consensus with the moderation of an independent agency known as the Federal Institute for Vocational Education and Training (BIBB). While there is no set period to review a given occupation’s standards, any of the three parties involved in the rule-making process can request an update of the standards at any time, in which case a new tripartite board is convened.



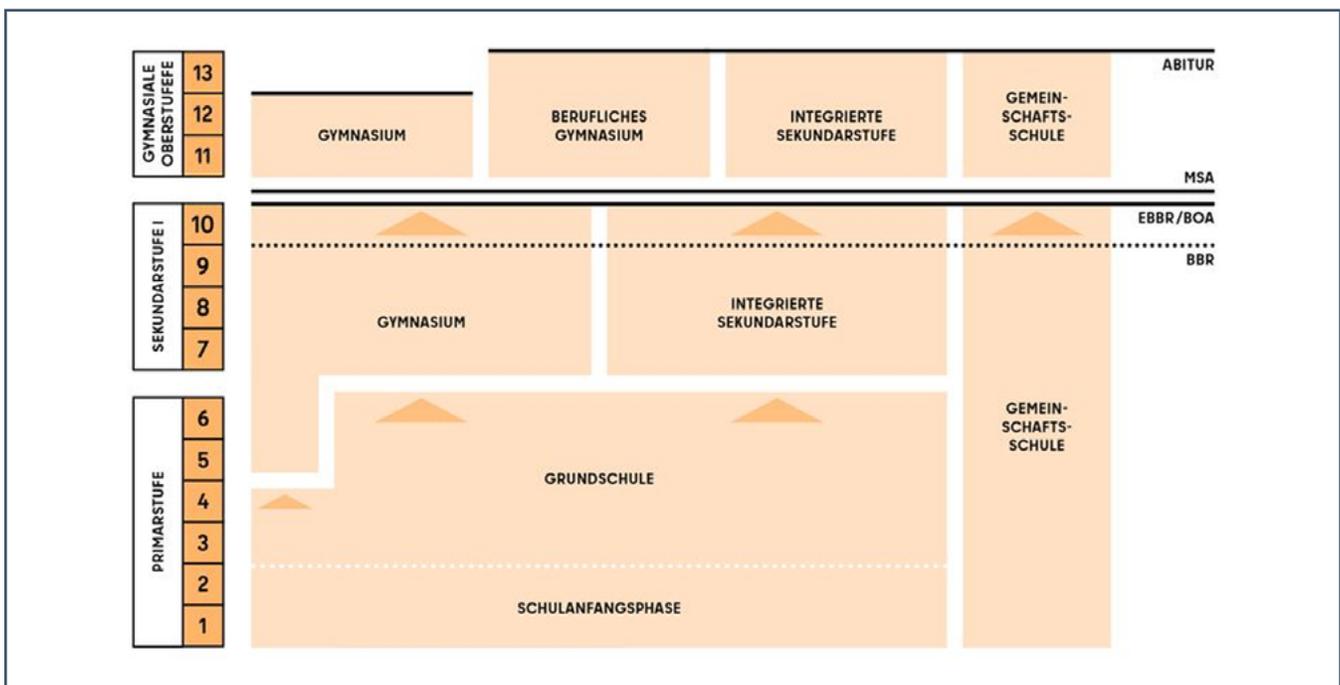
Parallel boards also exist in every state to facilitate the implementation of CTE policy at the state and local levels.

Since German university students are traditionally separated into separate preparatory schools at some point between fourth and seventh grade, CTE programs are typically available to students completing their basic education (*Grundschule*, *Realschule* or *Hauptschule*), which runs from third to ninth or 10th grade and is analogous to U.S. elementary schools, middle schools and junior high schools.* During this phase of education, students are often required to complete a two-week to monthlong internship in a relevant occupation. This helps students understand the dynamics of the workplace and serves as orientation for future CTE.

Upon completing basic education, students are responsible for applying directly to an apprenticeship in their preferred field of study or to preparatory for more advanced CTE tracks. At the heart of all CTE programs created in this framework is the dual system, which combines workplace experience with classroom instruction. Most apprenticeship programs consist of about 70 percent workplace training and experience and 30 percent classroom instruction.

All apprenticeships are compensated with a monthly stipend that is negotiated between unions and employers, and apprentice work is regulated by the Vocational Training Act. Public schools and employers that wish to participate in CTE programs are responsible for coordinating instruction between each other while fulfilling the federally mandated standards for a given occupation. At work sites that offer apprenticeships, local workers' councils known as "works councils" often play a role in the design and implementation of work-site training. Works councils are part of a broader system of labor relations known as co-determination, and they play a similar role to local unions in the U.S.

The separation of students at an early age is a focal point for criticism of the German education system. In recent decades, however, the system has been reformed so that most students in basic education schools now have numerous opportunities to pursue a college entrance degree—in some cases even after pursuing advanced vocational education. Increasing students' flexibility to pursue different programs, or to pursue CTE in conjunction with an academic degree, was a focal point of several programs the AFT visited.



*A common question regarding this process is how students are placed in college preparatory or basic education. In most cases, students are assessed academically in the years leading up to the separation. Schools then create a recommendation based on this assessment, but the final decision usually lies with the child's parents.



SITE VISITS

The study mission’s program featured many on-site visits to schools and employer-run training centers. These visits featured presentations on programs taught at the location, information on the program’s relationship with relevant social actors (e.g., industrial organizations, corporate employers, small and medium enterprises, local government, works councils etc.). In many cases, members of the AFT study mission also had the opportunity to speak with students of the program and their teachers.

BERLIN AUTOMOTIVE VOCATIONAL HIGH SCHOOL (OBERSTUFENZENTRUM KRAFTFAHRZEUGTECHNIK BERLIN)

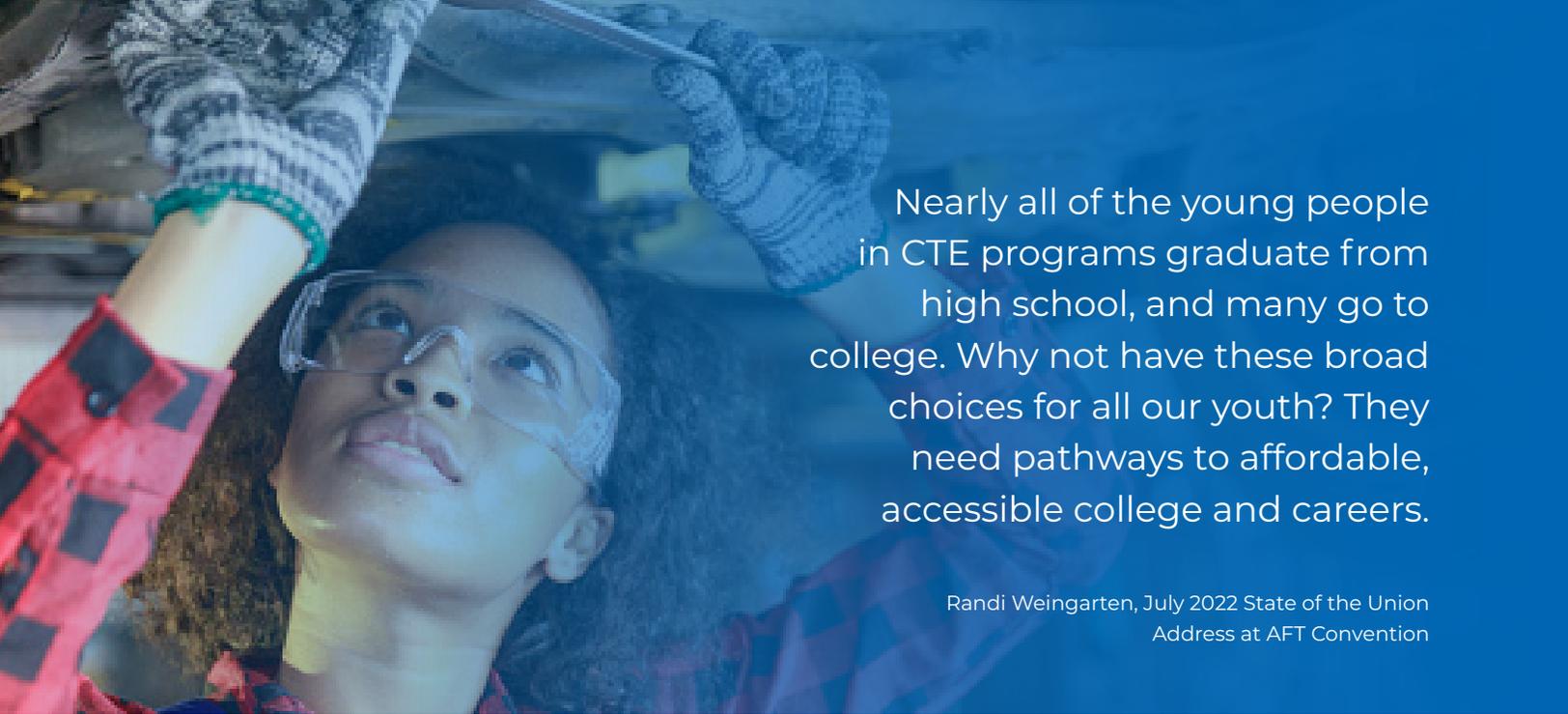
The OSZ Kfz-Technik, as it is known locally, is a public automotive vocational center serving students from across the metropolitan region of Berlin. After enjoying lunch in the school’s cafeteria, the AFT was received by headmaster Ronald Rahmig, who presented the school’s programs and led a tour of its facilities.

As an advanced vocational school, the OSZ Kfz-Technik caters to students who have completed their

basic education and wish to pursue an apprenticeship or further technical training. Depending on the level of program to which students wish to advance, they can apply immediately to an apprenticeship with a classroom component at the school, or they can study a two-year, classroom-based technical course in preparation for a more complex apprenticeship or university degree.

Rahmig emphasized the importance of flexibility in the design of the curriculum, highlighting that students having finished only ninth-grade work their way through progressively advanced vocational certifications until receiving a college-qualifying degree. In all programs and at all levels, the school’s curriculum highlights decision-making and critical thinking, with the aim of promoting continued learning in the workplace. The curriculum is also designed to promote collaborative learning and situation-based problem-solving.

Even though the OSZ Kfz-Technik is well established in Berlin’s education system, Rahmig acknowledged that the school has experienced increasing difficulty attracting students, many of whom are not aware of



Nearly all of the young people in CTE programs graduate from high school, and many go to college. Why not have these broad choices for all our youth? They need pathways to affordable, accessible college and careers.

Randi Weingarten, July 2022 State of the Union
Address at AFT Convention

the opportunities for advancement and high earnings in vocational fields. In addition, many first-generation parents value traditionally prestigious professions for their children, such as doctor or lawyer, rather than automotive engineer or mechatronics specialist. Rahmig suggested that a more proactive orientation process is needed to make basic education students aware of the benefits of the vocational option, and he is continually looking for opportunities to promote the school's programs to basic education students. Despite these challenges, the OSZ Kfz-Technik does not struggle to attract business partners for apprenticeship, as there is high demand for workers with the specialized training the school provides.

SIEMENS ENERGY TRAINING CENTER

A subsidiary of the multinational conglomerate Siemens AG, Siemens Energy provides machinery and services for the generation and transmission of electricity in more than 90 countries. While in Berlin, AFT delegates visited one of the company's state-of-the-art training facilities, which serves local apprentices as well as Siemens employees and clients receiving system-specific training. The center focuses on gas turbine production and operation and is complete with several full-size gas turbines that students assemble and disassemble throughout the course of their training.

The Siemens Energy Training Center offers multiyear training programs in several specializations, including mechatronics, industrial clerk, and

industrial mechanics. Programs are divided into the categories of training (*Ausbildung*) and dual study (*Duales Studium*), with the former granting an industry- and state-recognized trade certification, and the latter granting an academic degree from a technical college (*Hochschule*), such as a bachelor's in engineering, which allows graduates to pursue advanced academic degrees.

To enter the training program, students are required to have completed basic education, which usually lasts until the equivalent of 10th grade. In contrast, dual-study applicants must have obtained a leaving certificate in technology from an advanced vocational high school (*Fachoberschule*)—a two-year preparatory program for students who wish to pursue further vocational education.* While both types of programs offer classroom instruction, training instruction typically takes place at a specialized high school, while dual-study instruction takes place at a technical college.

The on-site components of both program types are consistent with the U.S. concept of apprenticeships because students get hands-on work experience, recognition of their studies, and a monthly stipend, usually ranging from 1,000 euros to 1,200 euros depending on the year in the program, paid directly by the employer.† Since the employers can reasonably expect a majority of trainees to transition to permanent positions upon completing a program, this investment pays off by granting a highly skilled workforce that is already familiar with company operations. Siemens Energy's training division projects employment demand several years into the future to

inform its apprenticeship offerings, accounting for the time it takes for current apprentices to finish the program and be integrated into the company workforce.

VOCATIONAL SCHOOLS IN HAMBURG

While in Hamburg, AFT delegates visited several conventional VET schools with various specializations. Many of these programs were concentrated at the Wilhelmsburg Vocational Education Campus, which hosts several different vocational schools, including programs in the construction trades, sanitary heating and cooling, information technology, chemistry and electronics.

HAMBURG OCCUPATIONAL COLLEGE (BERUFLICHES HOCHSCHULE HAMBURG)

Founded in January 2020, the BHH is creating a novel approach to VET that responds to the increased demand for academic education. Much like the engineering track at the Siemens Energy Training Center, the BHH offers programs that grant graduates both an occupational certification and an academic degree. However, the BHH program takes this concept further by merging traditional components of the dual system (vocational classroom training and work-site training) with the academic content taught in technical colleges into a single program. Rather than take an apprenticeship with dual instruction at a vocational school and then apply to a technical college, students at BHH apply to a single dual-degree program that includes apprenticeships, vocational classroom instruction and academic instruction. Because the BHH coordinates its curricula among the three parties involved—companies, vocational educators and university professors—BHH programs avoid repeated curricular content and give students a more holistic experience.

BHH founding Chancellor Christian Scherf welcomed the AFT delegation at the school's recently inaugurated campus and explained the benefits and workings of this system. According to Scherf, the BHH program is unique in that it offers students the best of both the vocational and academic educational worlds. Students obtain the rigorous practical knowledge of an apprenticeship and holistic knowledge of occupational classroom training offered by the dual system, as well as an understanding of scientific methods and academic practices offered at a technical college.



Eligible students must have a college-preparatory certificate (*Abitur*) or have completed a preparatory course for higher vocational education. Students may then apply to an employer-sponsored apprenticeship in the degree program of their choosing. The BHH's growing list of programs includes options such as vocational training as an industrial clerk with a B.A. in industrial management or vocational training in marketing with a B.A. in business administration. The program offers added flexibility by allowing students to opt out of the academic course part way through the four-year program.

The BHH is government-funded, and its students earn apprentice stipends from their employers, as in traditional VET programs. The school has been successful in attracting students to this educational model based on the potential for job placement, flexibility, and the prospect of earning a stipend from the first year of their education.

*The OSZ Kfz-Technik described in the previous subsection is one example of a school that provides a Fachoberschule technical certificate.

†According to the German Academic Exchange Service, the average German student “has expenses of EUR 867 per month. That includes rent, travel expenses, expenditures for food, clothing, learning materials, health insurance, telephone, Internet, radio and TV license fees, and recreational activities.”

BRIEFINGS

When not visiting schools and training sites, AFT delegates spent much of their time attending briefings on various aspects of the German VET system, focusing on the role of three important players: government, business organizations and unions.

INTRODUCTORY BRIEFING ON VET AND CO-DETERMINATION

The German Confederation of Trade Unions' (DGB) Hermann Nehls kicked off the week's briefings with an introduction to the German VET system and its relationship with the labor movement. In addition to the topics covered in this report's section on German VET, Nehls invited Jan Otto, a regional leader in the German industrial union to IG Metall, to speak about "Industry 4.0," a term used to describe the revolution in connectivity and artificial intelligence that is changing the way people work. In his presentation, Otto highlighted the importance of bargaining around tech-related issues, including data protection, workplace monitoring and privacy, and automation.

He concluded with the uplifting assertion that workers can use new technologies to their benefit when they bargain proactively for worker-centered application of technology.

Finally, Nehls concluded with an overview of the industrial relations system used in Germany known as co-determination (*Mitbestimmung*). Under this system, workers have the right to form representative bodies at their workplaces called "works councils." Councils are formed by election, and their membership is chosen from among the members of a physical work site. When a works council is organized, employers are required to consult and inform the council on many workplace issues, including scheduling, compensation, benefits, etc. At large companies with many locations, workers can also elect a companywide council and send representatives to the company's supervisory board. Although works council members are often union members, they do not represent or participate in the council through their union. Thus, German unions do not tend to bargain collectively at individual work sites, but instead seek companywide or industrywide wage and condition contracts.



In practice, local works councils often play a similar role as local unions in the U.S. in the employer-worker relationship. When it comes to VET, employers often consult and seek the approval of works councils with regard to changes in on-site training, conditions for employed trainers, and other relevant topics.

FEDERAL MINISTRY OF EDUCATION AND SCIENCE (BMBF) AND FEDERAL INSTITUTE FOR VOCATIONAL EDUCATION AND TRAINING (BIBB)

The BMBF and the BIBB play important roles in the governance of VET in Germany. In addition to participating in the creation of standards for federally recognized occupations, these agencies research VET policy and propose ways to update and improve programs so that they can meet economic and societal demands. For the BIBB, this entails researching how programs can become more gender-inclusive, how programs can meet modern IT needs, and how VET can drive the change to renewable energy.

BUSINESS CHAMBERS

In addition to employer associations, which help negotiate the standards for VET programs, business chambers play a key role in overseeing and maintaining the VET system. Under federal law, membership in a relevant business chamber is compulsory for most businesses. Chambers are local organizations but are organized into national federations. To get a broader sense of this component of the VET system, the AFT delegation split into two groups that attended parallel sessions. One group attended a presentation by the Chambers of Commerce and Industry (CCI)—by far the largest of the chambers—and the other attended a meeting with the Confederation of Skilled Crafts (ZDH).

Although the chambers represent different economic sectors, their role in German VET is similar. The chambers are responsible for certifying all workplaces that want to host an apprenticeship. To do so, chambers organize boards of examiners to examine trainers and inspect workplace programs. Chambers also conduct periodic reviews of apprenticeship programs to ensure educational standards are being met. In many cases, chambers run regional training

centers to facilitate training for apprentices at small businesses, who may not have access to all the facilities required to meet the standards of their program. Finally, the chambers are responsible for administering certification exams to candidates who have completed their vocational program.



RECOMMENDATIONS

American educators and trade unionists have a historic window of opportunity in the current administration, and in gubernatorial administrations in several states, to push for comprehensive VET reform. Based on the lessons learned during this study mission, delegates to the 87th AFT convention in July 2022 passed a resolution, “Building a Better Bridge Between Learning and Work Through CTE, Internships and Apprenticeships,” which recommended the following actions be taken to bolster CTE in the United States:

- “RESOLVED, that the American Federation of Teachers, including its locals and affiliated organizations, will support and will advocate for the development of student internships and apprenticeships, including pre-apprenticeship programs in career and technical education programs in school districts across the United States, in partnership with local employers, union apprenticeship programs, and community colleges; and
- RESOLVED, that the AFT, including its locals and affiliated organizations, will support and will advocate for the development of an incentive structure at the national and local levels to encourage the private sector to play a role similar to that of German companies in the preparation of young people for skilled, high-paying jobs; and
- RESOLVED, that the AFT, including its locals and affiliated organizations will advocate for externships for CTE teachers to maintain their knowledge of new technologies and processes in industries so that they are able to keep curricula up to date and teach students the latest skills that companies are looking for; and
- RESOLVED, that the AFT will advocate for and seek resources to fund a position of coordinator in schools to manage local partnerships to develop relevant career advising, internships and apprenticeships for students and externships for teachers, similar to the AFT’s Innovation Fund-granted position in Peoria, Ill., that proved so valuable to the community that the local Chamber of Commerce and partners have continued to fund the position.”

ACKNOWLEDGMENTS

Thanks to The German Education and Science Workers' Union (GEW) and the German Confederation of Trade Unions (DGB) for making this study mission possible. And thanks to all the organizations that hosted the AFT to share their knowledge of vocational education and training.



Bundesministerium
für Bildung
und Forschung



ZDH
ZENTRALVERBAND DES
DEUTSCHEN HANDWERKS



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