

Bolstering Apprenticeships in the US: Lessons Learned from Germany's Vocational Education System

November 2023

Introduction

From October 15-21, 2023, nine representatives of the State Economic Development Executive (SEDE) network visited Bonn, Cologne, and Stuttgart to learn more about the strengths and shortcomings of Germany's dual education system and to identify positive elements and potential applications to expanding apprenticeship in the US. The delegation included state workforce and training executives, representing Arizona, Arkansas, Kansas, Louisiana, Virginia, and West Virginia. The delegation's program consisted of:

- Meetings with German economic development professionals, government officials (federal, state, and local), employer associations, and unions to understand German policies as they relate to apprenticeship training.
- Tours of German vocational schools and inter-company training centers to meet with teachers, trainers, and apprentices and to understand how education aligns with business.
- Tours of manufacturers to see on-the-job training, learn about best practices and challenges, and understand the employers' perspectives on apprenticeship.

The delegation had a few primary research questions going into the trip including, but not limited to: Who are the relevant social partners involved in the dual vocational education training (Dual VET) system? How is the Dual VET system funded? And what are some practices that can inform apprenticeship program expansion in the US?

Overview

The German model of apprenticeships is considered "dual" because it combines theoretical training at a vocational school with practical training in a certified company. Germany's Dual VET system is formalized

Delegation Members

West Virginia Department of Economic Development

- Dave Rogers, Senior Manager, Training Programs

Virginia Office of Education Economics

- Heather McKay, Executive Director
- Todd Oldham, Research Director

Louisiana Economic Development

- Paul Helton, FastStart Executive Director
- Mark Bond, FastStart Director, Workforce Initiatives

Kansas Office of Apprenticeship

- Shonda Anderson, Director of Internships and Apprenticeships

Arkansas Governor's Office & Division of Higher Education

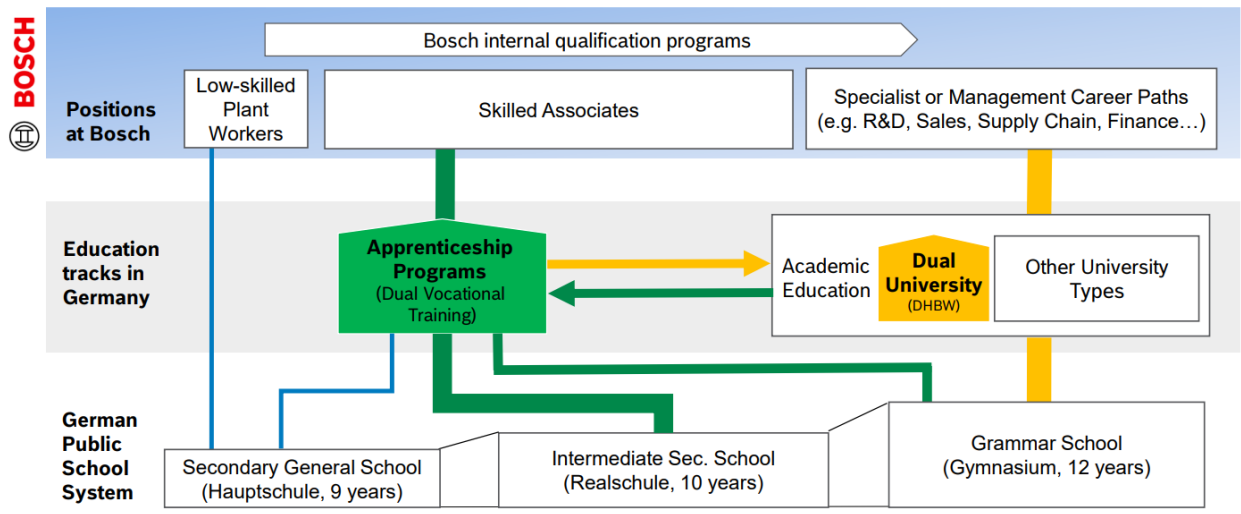
- Mike Rogers, Chief Workforce Officer
- Tina Moore, Director of Workforce Development

Arizona Commerce Authority

- Kolu Wilson, Senior VP for Workforce Solutions & Partnerships

through the Vocational Education Act which outlines the legal guidelines for apprenticeships and officially recognizes more than 325 certified occupations. In Germany, there are ~ 1.6 million apprentices in total with 566,000 new contracts every year. There are about 500,000 companies that provide apprenticeship programs, ranging from small firms with five employees to large multinational corporations.

Students may go into the Dual VET system after completing nine years of general education. There are three types of schools for general education, which tend to feed into either an academic track or a Dual VET program (see diagram below for more detail).¹ The Dual VET process begins with the employer, who advertises the types of apprentices they are looking for at the company. The student applies through the employer, and once selected, their three-year program begins, including instruction at a publicly funded vocational training school. Students spend 25% of their time at a vocational school and 75% of their time at the company. This time can be split weekly or monthly, with programs often operating on a block schedule.



Source: Bosch Vocational Education Presentation

Over the course of the week-long program exploring this system, the SEDE delegation pulled out three important themes for further consideration:

1. The employer’s role in the Dual VET system is key to its success – recognizing this can prompt new ideas for employer engagement back in the US;
2. There are new models of higher education in the German system that might bolster additional vocational education in the US, such as the dual track degrees; and
3. Auxiliary organizations, such as chambers and unions, are integral for ensuring stakeholders in this system feel properly supported and may inspire new state and regional strategies in the US to recruit and retain businesses and workers.

¹ There are various depictions of this system; however, the delegation found the visual aid from Bosch to be most useful for our purposes. For additional resources and other depictions, see the [Federal Institute for Vocational Education and Training](#).

Employer Engagement

The SEDE delegation met with various employers during the trip, including Porsche, Bosch, and Cooperion. Each of these companies has their own training center for apprentices within the factory or located off site. Employers pay each apprentice a monthly salary (typically between 600-1300 euros per month depending on the occupation) while they are in the program as well as any costs associated with training, while the German government funds the vocational schools where students receive the theoretical part of their education. During each of these visits the group was able to talk with current apprentices at each location and ask key questions about their skills and preparation. The apprentices we spoke to overwhelmingly touted the benefits of the Dual VET system, and often spoke about how this system allowed them to make mistakes in a safe environment, gain tangible capabilities in their field of interest, and set them up for long-term career success.

From the company's perspective, a common theme discussed was the need to invest now in the future workforce. Many of these employers want to equip the next generation of employees with the right skills and mindset for their future careers so they can adapt to a changing workforce, particularly in the fields of digitization and electrification. This competency-based training replaces the traditional training in isolated professions and enables more flexible, composite training. The retention rate for apprenticeships at leading companies is extremely high – Porsche noted that they have a fluctuation rate of about 1%; consequently, it is important to hire the right apprentices from the beginning because they will likely be at the company for the next 40 years.

At Bosch, the Vice President for Vocational Training and Qualification in Stuttgart, Dr. Wolf, emphasized that apprentices are not just cheap labor – they are valued members of the team who make important contributions as they grow into their roles and learn from peers around them. The return on investment for these companies is evident. For Bosch, one apprentice costs about 27,000 euros per year, making the long-term investment worthwhile for the company. The challenge facing Bosch now is figuring out how to market their opportunities to a new generation of Gen Z applicants and align demographics with future employment and competency needs. Dr. Wolf and several other business leaders noted that the supply of apprentices in Germany is also declining as more opportunities are available for students to choose. Considering these larger trends, he emphasized it is more important than ever to invest in their workforce. To illustrate the importance of these employer-led initiatives, Bosch offers the following scenario:

CFO asks CEO: What happens if we invest in developing our people and they leave us?

CEO: What happens if we don't, and they stay?

Reimagining Higher Education

Traditional higher education is increasingly playing an important role in sustaining and evolving the German apprenticeship system and preparing talent for technical work at engineering levels. During the

Closer Look

Major companies often have significant in-house training centers which allow them to tailor programming specifically to emergent workforce needs. There are also multi-company private sector solutions to provide this training for companies who do not have the capacity or need to provide this sort of on-site support.

final meeting of the trip, the delegation visited the Duale Hochschule Baden-Württemberg (DHBW) / Baden-Württemberg Cooperative State University for a presentation and discussion about the higher education format. DHBW offers university studies in cooperation with corporate partners. This model, founded in the 1970's, was originally initiated by companies in Stuttgart who collectively decided there was a need for an academic track that combined both vocational and university education. This university model has now spread throughout Germany and continues to gain popularity since it allows students to obtain both a bachelor's degree and on-the-job experience beyond what a traditional internship could provide.

The Dual University model is split between intensive academic studies and practical work-integrated learning at a company. While public education is funded by the state, students also receive a stipend from the companies to support them throughout the program. Students we met with explained that this sort of financial independence is attractive and a benefit of choosing this program over traditional academic routes. In this public-private partnership, the universities select the companies based on the companies' ability to support apprenticeships and design the curriculum in cooperation with trade associations. The content is the same across all these campuses and the idea is that students who study at one campus have the same program and results as those at another campus. This originally came from the government push to bring more high-quality training and academic opportunities to rural areas where there are small, family-owned businesses.

Closer Look

Companies who wish to participate in this Dual University program must first apply to the school for accreditation. While there is continuous evaluation of the companies to ensure quality standards are being met, the only official legal relationship in this scenario is the contract a student signs with the employer.

For this reason, the DHBW directors stressed that above all, their job is to attend to student needs. They engage frequently with the employers to ensure proper standards and expectations are met and bring in external lecturers and other important voices from the field during their theoretical education to give students a broad perspective. The professors themselves must have at least five years of work experience in the field, which ensures the students' theoretical education is grounded in practical expertise. The delegation was particularly interested in the curriculum at the university and the process for determining what is included. DHBW emphasized that while the broad curriculum is accredited by the federal government, the specific program design for each department is up to specific university

committees. As a result, the university can adapt to changing processes and provide flexibility depending on the participating companies.

The Value of Support Systems

Tying all these pieces together are the organizations who support both employers and students in the German apprenticeship model. During the delegation's visit to Cologne, the group visited the Cologne Chamber of Commerce and Industry for an overview and discussion of the chamber's role in the apprenticeship system. The chamber's responsibility is to monitor vocational training in the companies, appraise companies' aptitude to provide training (also providing training to trainers), and register training contracts. Similarly, the Chamber of Handicrafts has comparable responsibilities but focuses on smaller companies. It is important to note here that the German Dual VET system is successful because every

social partner is involved and is, in theory, an equal partner in the consensus-building process. For instance, an employer or a union is not allowed to develop the curriculum independently; the partners do it together in a process facilitated by the government.

The group also met with IG Metall (IGM), one of the largest German unions representing several industries such as the textile and clothing industry and plastics processing. Unions, alongside employers and the government, are the third pillar in the dual system of apprenticeship and are involved in the creation and revision of apprenticeship fields, as well as apprenticeship examinations. Recently, they have been advocating for apprentices to get proper compensation during their training programs as well as affordable housing options like those provided to students at universities. Much like in the US, German unions also struggle with communicating their value. While they haven't solved the issue yet, advocating for students in the Dual VET system is an important way they provide value. IGM contributes through media campaigns and working closely with the chambers in outreach to students. IGM noted that the Dual University approach is helping to change people's minds about the value of apprenticeships, but increased buy-in is needed to ensure longevity. When asked about how to address disagreements between social partners, IGM emphasized the first step is to convince both sides to sit down and have a conversation about training needs and how they can work together to strengthen the pipeline of skilled workers.

Closer Look

It is mandatory for businesses to be a part of a chamber in Germany. While chambers receive money from the federal government for their education and training role, company membership dues fund the other pieces of the chamber such as business support services. On the employee side, works councils – which are supported by a union's resources and expertise – represent the official legal interests of employees in an establishment.

Emerging Questions

With questions about social partners and funding answered, there are several new inquiries that have crystallized from the trip. One of these primary questions revolves around how to engage employers in the US and create buy-in for key occupations where technical talent is in demand. The current landscape of employer engagement is less structured and workforce training is often deferred to education institutions who may not be communicating directly with employers about the needs in the region. Transforming this relationship will be key to advancing high quality apprenticeship systems in the US. Questions also remain about how exactly students are "tracked" into different paths and the criteria for determining their future route. While there are structured ways in the German system for apprentices to pursue higher education, the issue of student selection and choice will remain relevant when translating some of these programs to a US audience.

Additionally, for many of our participants the question of how to conduct this work in rural areas came to the forefront. While part of the strategy for Germany's co-op university system was to reach more rural areas, the geographic scope is much larger in the US and questions of infrastructure, transportation, and housing will be key. The delegation is also interested in gaining a better understanding of how students get chosen for apprenticeships, especially at large companies with many applicants. A concern that arose during discussions with employers was around what follow-up or guidance students receive if they aren't selected for an apprenticeship, if any. Given the tight labor market and increase in demand, this potential

labor pool could grow the pipeline for talent if supported. Other key questions that arose in this area include understanding the administrative burden on companies who run these training programs, as well as the factors companies consider when determining overall apprenticeship numbers.

What's Next?

This delegation will advise the SEDE network on how to integrate new ideas and advance innovations in the US to bolster and sustain state economic and workforce development. The myriad of training opportunities available in the German Dual VET system demonstrated how employers prepare for future needs coming down the pipeline. In Arizona, the Senior VP for Workforce Solutions and Partnerships led the development of the state's first-ever Multi-Employer Registered Apprenticeship Program for the semiconductor industry. Governor Hobbs [announced](#) the \$4 million investment from the Arizona Commerce Authority, along with other collaborative programs, to support apprentices as they advance in their training. Other members of the delegation will also be exploring how to expand an apprenticeship model in collaboration with the higher education institutions in their state, building on the experiences of their German counterparts who created dual track degree programs in partnership with leading area employers. Community colleges will be important partners here as they are often the sites of innovative pilot programs.

Alongside these programmatic innovations, changing the perception and value of apprenticeships will be key to success in the US. Clarifying misconceptions and biases will be important to change overall attitudes in the US and advance this work as a viable alternative, or complement, to traditional academic education. Both public and private entities in this space must also do a better job of not only educating students and families but also, and maybe even more so, positioning employers to recognize the win-win benefits of apprenticeships. The delegation overwhelmingly supports future learning exchanges as they can provide new perspectives on these issues and opportunities to dive deeper into innovative solutions. This space will be one to watch closely moving forward as more employers, education institutions, and governmental bodies come together to invest more strategically in work-based learning and address increasingly urgent skill gaps for the expansion and adoption of new technologies.