



American Institute  
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JOHNS HOPKINS UNIVERSITY

## Elements of Apprenticeship in Europe

### *AICGS Site Visit Summary*

Parke Nicholson, Kimberly Frank, Cass Conrad, Sarah Ayres Steinberg, Johann Fortwengel

AICGS conducted a European study tour from October 5-15, 2014 that examined the role of apprenticeship in workforce development in Germany, France, Hungary, and the United Kingdom. Our goal was to identify best practices among employers, educators, government, and other stakeholders in preparing their current and future workforce for careers in manufacturing and information technology.

Each of the four countries AICGS visited have had long histories with vocational education, both school-based and work-based (i.e., apprenticeship). The United States, United Kingdom, Hungary, and France can generally be defined as school-based vocational systems, where technical training mostly takes place at secondary schools and technical colleges. Germany (like Switzerland and Austria) is an outlier in that nearly two-thirds of second-school leavers choose to enter the “dual system,” where they spend approximately 70 percent of their time training at a company and 30 percent at a vocational school.

In 2015, AICGS will produce country profiles of these four countries and their apprenticeship systems. Below are highlights from our trip and general recommendations concerning the expansion of apprenticeship programs in the United States. We have also included the list of the sites visited, our research questions, and short biographies of the team that contributed to the effort.

- A. The Business Case
- B. Intermediaries
- C. Expanding Apprenticeship
- D. Recommendations for the United States
- E. Appendix (Online): List of Sites, Research Questions, Biographies

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## A. The Business Case: Investing in Skilled Workers

Several employers we spoke with described how they tried to explain apprenticeship to their peers who were not as familiar with the concept. Some were European subsidiaries of American companies and had apprenticeship programs for many years, but struggled to convince their skeptical American colleagues of the need for such programs. Some even felt compelled to keep the number of apprentices out of the firm's head count to avoid confusion. Below are the principal arguments we heard in favor of apprenticeship that touch upon both short-term (return on investment) and long-term considerations:

**Increased Productivity:** Starting as early as the second year of a three-year apprenticeship program, most apprentices can function as productive employees alongside more experienced peers. By the third year, the contributions of an apprentice are often indistinguishable from those of other full-time employees - adding value and contributing to the firm's bottom line.

- *Advantages of youth:* At a manufacturer of gas and turbine components, a group of young apprentices worked together for 6 months to operate a \$1.9 million machine which had been idle for 9 months because none of the regular employees had the ability or interest to learn how to work it. Another apprentice developed a spreadsheet on his/her own that saved four hours in the production process of a part.
- *Specialized skills:* Because companies often use highly specialized, proprietary technology, it can take months or years for even the most talented new recruit to become fully productive. One company's "best poach" from a competitor "still required five years to get up to speed."
- *Expanding your business:* A global IT firm developed an apprenticeship program combining a 12-week training course in both hard skills (software, IT support) and soft skills (teamwork). Apprentices immediately transition to client teams throughout the country, while taking online courses provided by a major IT training provider. After starting with 34 apprentices in 2011, they now enroll 110 annually.

**Screening:** A long, expensive search for talent is a burden for many companies. Apprenticeship is an "in-house" means of finding those who are a good match for the business.

- *Outsourcing applications:* A technical college in Exeter, England has an office devoted to vetting entrants into its apprenticeship program and matching them with companies. College faculty also served as "assessors" that visited companies every 6-10 weeks and checked in on the progress of apprentices. Sometimes large employers choose to manage the screening process themselves to select the very best candidates. A multinational manufacturer in Germany hired four administrators in addition to their eight instructors to manage its apprenticeship program: filtering through over 1,000 applications for the 50 apprenticeships available, selecting those with demonstrated social skills and high motivation to work in the industry.

**Retention:** “Loyalty” was a keyword for all of the employers we visited. Apprenticeship retention rates ranged from a low of 70 percent over a 10-year period to 96 percent over a 4-year period. The apprentices that could not be immediately hired often find jobs with suppliers or in a related industry. Most companies stated that they were “reducing their business risk” by investing in an apprenticeship program instead of relying on the open market or an external hiring agency. Apprentices possess valuable firm-specific competencies that can be reaped over a long period of time.

- *Future potential:* As one employer told us, “the average engineer in England only stays at a company for three years.” In the UK, 86 percent of manufacturing apprentices stay for at least 5 years at the firm that trained them.<sup>1</sup> Most employers we visited were able to meet their hiring needs and a few boasted of their former apprentices in senior management positions.
- *Limiting risk:* In Hungary, a major car manufacturer had a poor retention rate in its first class of trainees: out of a total of 26 apprentices, 8 did not take an offer from the company. The reasons for this varied, but the hiring manager was clear that he preferred the quality and commitment of those he trained in the program over the workers recruited from an external hiring agency, who had “uniformly poor skills” and would leave for just €30 more per week at other companies.

**Long-Term Planning:** Employers are investing long term in a pipeline of talent. This is a key tool for attrition management.

- *Adapting to demographic change:* One British employer we visited was concerned that 45 percent of their maintenance workforce is over the age of 55 and that the lack of a mandatory retirement age had made it difficult to plan for their replacement.
- *Building talent from within the community:* The same employer pointed out how the economic environment, such as a housing market crash, can also limit the mobility of the workforce and reduce the selection of candidates. When potential recruits were unable to sell their houses to move from other parts of the country, their apprenticeship program enabled them to develop talent within their own community.
- *University Recruits vs. Apprentices:* A major defense contractor had an apprenticeship program in place for nearly 60 years and trained 26 apprentices annually between the ages of 16-24. The company provides all of its own training managed by three full-time staff. The long-term return of its apprenticeship program is “significantly higher” than those recruited from colleges. They attribute this to university graduates not being familiar with their business, lacking experience in a professional working environment, and leaving the company sooner than apprentices.

**Brand Promotion:** Companies believed they had a competitive advantage compared to their counterparts who do not train. Such programs not only demonstrated corporate social responsibility, but also improved their image with clients, potential employees, and suppliers. This, in turns, positively affects the bottom line.

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<sup>1</sup> <http://www.unionlearn.org.uk/sites/default/files/apprenticeship-research.pdf>

- *Community engagement:* One firm in Germany had apprentices teach math and science courses in elementary schools—young students are more likely to listen to their peers than a company spokesman. The company also developed videos on STEM education for other schools and held live demonstrations at community events and schools where students used robots to pick up candy or worked with metal to make key chains for their families.
- *Social responsibility:* A French firm purposefully based their headquarters in an area that has a high population of immigrants and promote their apprenticeship program to them. They consider this part of their corporate responsibility efforts and receive tax benefits for being in an area of economic difficulty.

## **B. Intermediaries: Establishing Trust and Ensuring Quality**

AICGS visited schools, training providers, and other key institutions that each play a critical role in shaping a successful apprenticeship system. Most systems relied on one or more designated “intermediary” organizations to play a leadership role, bringing together employers, schools, training providers, unions and other support groups. The level of collaboration and engagement in the German system is unique, but elements of the “dual system” approach were evident in all the countries we visited. These elements were stronger in the United Kingdom, but weaker in both France and Hungary. In strong apprenticeship systems, “intermediary” organizations play the important role of ensuring that apprentice training programs are focused on the skills and job functions that employers value most.

**A Strong Voice for Business:** In Germany, the sector-based chambers of commerce, health, “skilled crafts” and industry play the intermediary role. As membership organizations, these groups understand business needs and can advocate on their behalf with other social partners (e.g. schools, trade unions, or government). Similarly, the National Apprenticeship Service in the United Kingdom sees one of its roles as making it as easy as possible for businesses to hire and train apprentices. They must first understand business needs and identify training providers who will work well with them. There are also a number of successful independent consulting agencies in the UK whose business it is to assist companies with developing their apprenticeship programs.

**Standards and Testing:** Apprenticeship differs from other forms of work-based learning (e.g., internships, co-ops, shadowing) in that the result is not just experience or a job, but a widely recognized qualification. Intermediary groups and schools and training providers work together to ensure quality and determine the best way to assess the skills outlined in the standards. In Germany and the UK, intermediary organizations bring employers and trade unions together to define those qualifications (i.e. the specific skills employees need for each apprentice role or job title) and administer qualification exams. One intermediary organization in the UK called City & Guilds currently works with a group of “Trailblazers,” leading employers from high growth industries, to develop new streamlined Apprentice Standards that will ensure that employer needs are the driving force behind the system.

**Expanding the Apprenticeship Ecosystem:** Intermediary organizations help spread the word about the benefit of apprenticeship programs. They encourage employers to develop apprenticeship programs

and support those who need assistance putting the appropriate structures in place. The German chambers and trade unions take on this role together as both benefit from the apprenticeship system. In the UK, the National Apprenticeship Service posts job openings on their website and helps employers sort through applications. These efforts promote apprenticeships as an alternative to university or other traditional career training options. The UK advertising campaign, “Get In, Go Far” is a good example of the way in which intermediaries help broaden the appeal of the pathway.

**Building Relationships:** Intermediaries maintain relationships with all key actors in a system. The local business chambers in Germany organize annual meetings with teachers at secondary schools and universities with company trainers. They share notes about apprentices’ progress and jointly solve problems related to the curriculum. And they host “matching” days where they connect companies with potential apprentices. In France, apprenticeship training centers (CFAs) are specialized technical schools that work with local employers, the public authorities, chambers of commerce, and unions. The state pays for the schools through an “apprenticeship tax” collected and distributed by officially designated intermediaries (OPCA) and unions also provide oversight. In contrast, many Hungarian technical schools traditionally work only with a few local employers and the lack of regular business engagement leads to a divergence in views between employers and schools.

**Quality Control and Mentoring:** Having a strong intermediary ensures that there are at least two sets of eyes on the progress of apprentices. Businesses and educators have different incentives, but both have a vested interest in having apprentices learn specific skills and meeting literacy and numeracy standards. We saw teachers and company trainers alike focused on these outcomes. For foreign students, those with disabilities, and others who cannot meet the requirements of apprenticeship, intermediaries can also employ mentors who can provide remedial assistance, provide additional language training, or even hire apprentices until they are able to secure a job. In France, the government gives companies back part of the apprenticeship tax to provide specifically for this additional assistance, and has an exception on the rule on the maximum age of an apprenticeship for handicapped workers. In Germany, the chambers are responsible for mediating conflicts between the apprentice and the employer.

### **C. Expanding Apprenticeship: Promotion and Incentives**

**Promotion:** The role of culture and perceptions of vocational education were central themes in our discussions in Europe.

In Germany, there has been a steady decline in those seeking apprenticeships and rise of university entrants over the past decade, as in most industrialized countries. This drop in demand has led to a surplus of training placements in recent years. Business chambers have sought to counter this gap through marketing, such as “Das Handwerk” campaign by the Chamber of Skilled Crafts, whose businesses employ nearly 5 million workers in Germany. Young students are shown how quickly they can build [musical instruments, high-sea yachts, or satellites](#). Indeed, 7.2 percent of all skilled craft employees are apprentices, which is more than double the national average in other sectors.

The United Kingdom has adopted a national marketing campaign across all sectors, which has contributed to the rapid expansion of apprenticeship in recent years. It is difficult to turn on the television or ride a bus without some reference to the UK's nation-wide "Apprenticeships" campaign. Funded out of an overall budget of \$2.46 billion in 2013, the use of sleek commercials and the smart use of name-brand companies as "ambassadors" (e.g. the "[Get in Go far](#)" campaign aims for 1 million additional apprenticeship starts from 2010-2020). This has led to considerable change in perceptions in a short period of time. An administrator at a technical college in southwest England told us that they now receive an equal number of applications for apprenticeship as they do for their academic programs.

Despite the sweeping education reforms of 2010 that centralized and expanded the apprenticeship system in Hungary, less than 2 percent of Hungarian businesses are involved in training their workers and there is no obvious campaign promoting apprenticeship. As one technical school principal told us bluntly, most people still "look down on" apprentices because they are perceived to "work hard, earn little, and are not very well educated." While Hungary integrated elements of the German dual model in the 1960s, the dislocation caused by the transition from a state-run economy in 1989 led to a dramatic decrease in vocational studies. The steep rise in apprenticeship starts (from 6,600 in 1998 to 48,000 in 2014—a 70 percent expansion) may mostly be a product of the country's overall economic recovery.

In France, there was limited promotion of apprenticeship, and ads were seen mainly within the companies and schools themselves. The most positive example we saw was one company's "[Ambassadors of Industry](#)" program where current apprentices are sent to schools and public forums to talk about their jobs to peers.

**Incentives:** There are a range of incentives in each country for students, schools, and businesses to participate in and expand apprenticeship opportunities. Students are incentivized in several ways: they get paid to learn in an amount that increases after each year of apprenticeship; see potential for employment; avoid rising college tuition (especially if an employer can pay for it); and are recognized for mastering a skill. Schools are publicly financed, but the cost of training equipment for certain professions can be prohibitively high without government tax credits and direct contributions made by employers. The schools that were most successful were ones that were willing to implement new courses and methods that responded to the needs of their apprenticeship students and their business partners.

In France and Germany, companies are obligated to invest in apprenticeship by social consensus and a legal framework. French firms must meet a quota (4 percent of the labor force must be apprenticeship at companies with more than 250 employees) and are obligated to pay for training via a national levy (0.68 percent of the payroll). Membership and contributions to an intermediary (their local business chamber) is mandatory in Germany, although having an apprenticeship program is not. In the United Kingdom and Hungary, neither state nor regional regulations compel businesses to train their workers, but they do provide significant financial incentives for those that do in the form of tax credits (e.g., \$2,000-\$3,000 per apprentice). In all countries, there is a lower minimum wage for apprentices and

frameworks in place to reduce the financial and administrative burden on businesses that provide apprenticeship.

#### **D. Recommendations for the United States**

**Engage Employers:** A common refrain from our trip was that employers are more willing to learn from their peers than from government or the expert community. Employers implicitly trust others who “know their business” and are also used to benchmarking their progress against competitors. Employers must take the lead in making the case for work-based programs like apprenticeship that contribute to a sustained pipeline of highly-trained workers that are certified and highly motivated. The use of industry “Ambassadors” and “Trailblazers” in England is instructive as several of that country’s major brands are working together to promote awareness of apprenticeship among both businesses and the public. Broadening the scope and scale of apprenticeship programs is in the interest of those businesses that already do apprenticeship, as investments in marketing and administering these programs are shared between organizations, reducing the costs for every individual collective player.

The convening power of the U.S. government can bring together industry representatives at the state and national level to promote apprenticeship. This would follow in the footsteps of the Advanced Manufacturing Partnership (AMP 2.0) and the President’s \$100 million grant program to identify the most promising programs across the country. As the experience of European countries shows, however, apprenticeship must be available across a variety of sectors to attract diverse and high-quality talent; apprenticeship is not just for traditional industries such as manufacturing and construction, but also other high-growth sectors like health, energy, and information technology. The federal government must continue its outreach to businesses and pilot a national apprenticeship website that explains how businesses benefit from apprenticeship and provides technical assistance in establishing a new program.

**Identify Intermediaries:** Where there are strong apprenticeship programs in the United States, there is usually also a strong intermediary such as joint labor-management partnership, a nonprofit, or a dedicated state agency. A good intermediary provides technical assistance to employers in developing apprenticeship programs, coordinates between stakeholders (e.g., businesses, educational institutions, government), and helps reduce the administrative burden and risks. In Europe, there are a variety of institutions that undertake this role, such as business chambers, local technical colleges, unions, private companies, or regional training centers funded by groups of employers; many are represented nationally. U.S. intermediaries vary from state to state. Regardless of who takes the initiative, however, curriculum development must be a joint effort leading to both industry-recognized accreditation and compliance with national literacy and numeracy standards. Apprenticeship is not just a means to train skills in the best systems, but also a pathway toward higher education.

- *Assess the Current System:* There is still a need for evidence-based research on apprenticeship in the United States, including a nation-wide survey of employer attitudes toward work-based learning. What jobs are employers most worried about filling? Do apprenticeships make sense for these occupations? If so, what are the barriers preventing employers from using apprenticeships—

misconceptions, lack of awareness, a confusing administrative framework, cost, time, etc.? For employers that do sponsor apprentices, what is their return on investment?

- *Identify Best Practices:* Identify successful U.S. models of apprenticeship and incentivize them to engage with employers as part of the national effort to highlight the profiles of companies and apprentices. Training providers in Europe benefit in various ways, including grants for purchasing training equipment, tax credits to increase the number of training slots available, and support from employers in promoting apprenticeship in secondary and primary schools. AICGS identified [several promising U.S. programs](#) at an expert dialogue in May 2014, and the Center for American Progress has [profiled](#) innovative programs from around the country.

**Promote Apprenticeship:** The federal government, along with various state and local governments, are taking the lead in developing a range of incentives to jumpstart new apprenticeship programs. For example, the Obama administration is making \$100 million in American Apprenticeship grants available to launch new apprenticeships in high-growth fields—such as information technology, health care, and advanced manufacturing—and scale models that work. In Congress, Senators Booker and Scott have introduced the bipartisan LEAP Act, which boosts apprenticeships by providing businesses with a \$1,000 tax credit for each apprentice they hire (\$1,500 for apprentices under the age of 25). As policymakers look to develop financial incentives to promote apprenticeship, they should focus on sustaining high-quality initiatives as well as expanding opportunities in areas where the demand is highest.

- *Address Misperceptions:* The United Kingdom has had considerable success in improving the image of apprenticeship within a short period of time while maintaining the reputation of its world-class universities. A similar branding campaign may currently be beyond the scope of the U.S. government, but there is also much that can be done by states, local communities, and employers. Any effort must counter several misperceptions about apprenticeship: it is just training for “dirty jobs” (the work is challenging, rewarding, and generally “clean”), that you make little money (absolutely false), or that it leads to dead-end careers in dying industries (apprenticeship can be flexible, career-oriented, and adapted for high-tech sectors as well; similarly, they often come with a two-year college degree and transferable credits).
- *Seek Bipartisan Support:* Long-term investment in apprenticeship is an initiative that is ripe for bipartisan support. In European countries with robust apprenticeship systems, there is broad-based agreement between conservatives and liberals that people learn differently and that there need to be pathways to educate citizens to support all aspects of the economy. In the United States, states with Republican governors like in Iowa and South Carolina have expanded apprenticeship programs as a way of supporting businesses and job growth. For the Obama administration, apprenticeship is recognized as a way to address youth unemployment and stagnating middle-class wages. There is thus ample opportunity for a bipartisan approach that advances the promise of educating our youth for the jobs of today and tomorrow.