



JOBS NOW

SWISS-STYLE VOCATIONAL EDUCATION AND TRAINING

Voices from companies, governors and CEOs

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Foreword



Whether I am attending a ministerial meeting, participating in an economic mission or a reception for international delegations, I am usually asked to explain what makes Switzerland such a powerhouse of innovation.

Considering that they expect me to mention high-tech companies or promising startups, the people who ask are surprised to hear me first talk about our vocational education and training system and how it is built on the willingness of local companies to train apprentices.

In Switzerland, small and large companies across all industries host 15- to 19-year-old apprentices who learn everything that will enable them to start their professional careers. Young people can choose from more than 230 different occupations covering the entire economy, including machine manufacturers, pharmaceutical companies, and the building trades, but also service providers such as insurance agencies, banks, hospitals, retail stores, and child care centers. Apprenticeships are popular: almost 70% of an age cohort start an apprenticeship program. Thanks to its close ties to the job market, vocational education and training focuses on those fields where there is a demand for skilled employees. Young people are integrated into a professional environment early on in their careers, and they can choose from a variety of appealing professions and career opportunities. After earning their apprenticeship degree, they can enter the labor market—or move on to higher education. The Swiss educational system is permeable: a person can start out with an apprenticeship and earn a university degree later on. I'm convinced that our educational system not only provides us with skilled employees and managers, it also

contributes to low (youth) unemployment rates and social stability.

The driving force behind key initiatives is not the federal government, but the private sector, companies and professional organizations with a need for highly skilled workers and specialists. They express their views when they see a need for reform or are called upon to define new occupations. Moreover, the businesses recognize opportunities, push innovation and build new distribution channels. That is why we are constantly modernizing our vocational education and training system together with the cantons (the Swiss equivalent of US states) and professional organizations. We ensure that courses are consistently skill-oriented and closely related to the workplace.

I am therefore delighted that Switzerland and the US have been fostering an active exchange on dual-track vocational and professional education and training for a number of years. In 2015, a joint declaration of intent between our countries marked an important milestone in cooperating more intensively on specific aspects. Since then, the involvement of all concerned, particularly the private sector, has been strengthened. Currently a work program with specific measures is being carried out where there is already experience in training workers, whether at Swiss companies active in the US or at US companies with subsidiaries in Switzerland. Our joint commitment is very significant in providing young people in Switzerland and in the US with prospects

I believe it is extremely important to invest in an educational system that not only supports our economy, but is beneficial to society in general.

for the future. I'm very proud to see that more and more Swiss companies are starting to create Swiss-inspired apprenticeship programs all across the country.

On the occasion of my working visit to the US in the summer of 2017 and my meetings with Secretary of Commerce Wilbur Ross, Secretary of Education Betsy DeVos, Secretary of Labor Alexander Acosta as well as Presidential Advisor Ivanka Trump, I was able to discover that the interest in the dual educational system has continued to grow in government circles. To give the Swiss VPET system greater international clout and persuasive power, we are constantly working on further developing it: we are evaluating new ways of accessing higher education that are similarly practice- and work-oriented. Particular focus is placed on digitalization, where we have to adapt educational offerings to new developments more quickly so that employees are up to the digital requirements of the working world. Finally, the internationalization of the economy has created new challenges for vocational and professional education and training, and that is why we believe it will benefit all of us if we share and exchange knowledge and best practices with our partner countries in the area of apprenticeships.

Many countries are faced with high youth unemployment and skill mismatches. But one thing a 21st century economy needs is a skilled workforce. Therefore I believe that it is extremely important to invest in an educational system that not only supports our economy, but is also beneficial to society in general. I'm convinced that Switzerland has a lot to offer to advanced economies such as the United States when it comes to vocational education and training. We can contribute solutions by presenting our educational system and by promoting awareness of the inherent strengths of our dual system. Also, we can learn from our exchanges with our American partners. I look forward to seeing the United States and Switzerland continuing to intensify their cooperation in this area—we already have very close economic ties.

In Switzerland, vocational and professional education and training and higher education together form an innovative system capable of keeping up with developments in society and the economy.

I have no doubt that this publication will provide valuable information to boost vocational and professional education and training – also in the United States of America.

**Federal Councillor
Johann N. Schneider-Ammann**
Bern, Summer 2017

Letter from the publishers

Large youth unemployment, heavy college debt and lack of a qualified workforce plague many of the leading economies, especially the United States.

In the last years, bipartisan interest in solving these problems has massively increased in many states and in the federal government. And this priority has been reinforced by the former and the current administration and lately by President Donald Trump himself.

Switzerland, for its part, is a very important business partner for the US. As the sixth-largest foreign direct investor, Swiss companies have invested more than \$301 billion in US operations—a growth of 110% over the last 10 years. These companies offer the highest average salaries, they are the highest investor in research and development, they are the sixth-highest tax payer group and they provide more than 460,000 direct jobs. These companies are in need of a qualified workforce to continue to expand and create value in the US.

These Swiss companies are very familiar with the Swiss educational system, and they have started to adapt the Swiss educational system with its vocational education and training (VET) programs in their US operations, some for more than 10 years. And many more Swiss companies have committed to starting or expanding their programs in the US.

For these reasons, the publishers of this document feel that it is the right time to document these VET programs and give voice to the many stakeholders: Companies who are running such programs in the US, governors willing to promote and support such training programs and CEOs of large Swiss companies who started their careers as apprentices in VET programs.

Obviously, no training program can be copied 1:1 from one country to the next. But with this document, we aspire to give the many involved parties inspiration and aspiration into the further development of VET programs in the United States:

- It will give companies operating in the US a playbook for installing such programs and show that it is worthwhile.
- It will give national, state, and local governments a blueprint and important advice on promoting such programs.
- It will motivate young people to choose such a “college without debt.” If the Chairman of the industrial behemoth ABB (and former CEO of Shell), and the CEO of the global bank UBS started as apprentices, then this must be an interesting and intriguing education alternative that offers great career perspectives.

As the sixth-largest foreign direct investor, Swiss companies have invested more than \$301 billion in US operations.

We would like to thank our main partners Global Apprenticeship Network (GAN) and the KOF at the Federal Technical University Zurich (ETH), a top 10 university globally. We would also like to thank all contributors—governors from seven eminent states, 11 companies with VET programs in the US and 12 CEOs who started their career as apprentices—for their deep insights and their enthusiasm. And we would like to thank former Ambassador to Switzerland Suzi LeVine and her husband Eric for their guidance and support.

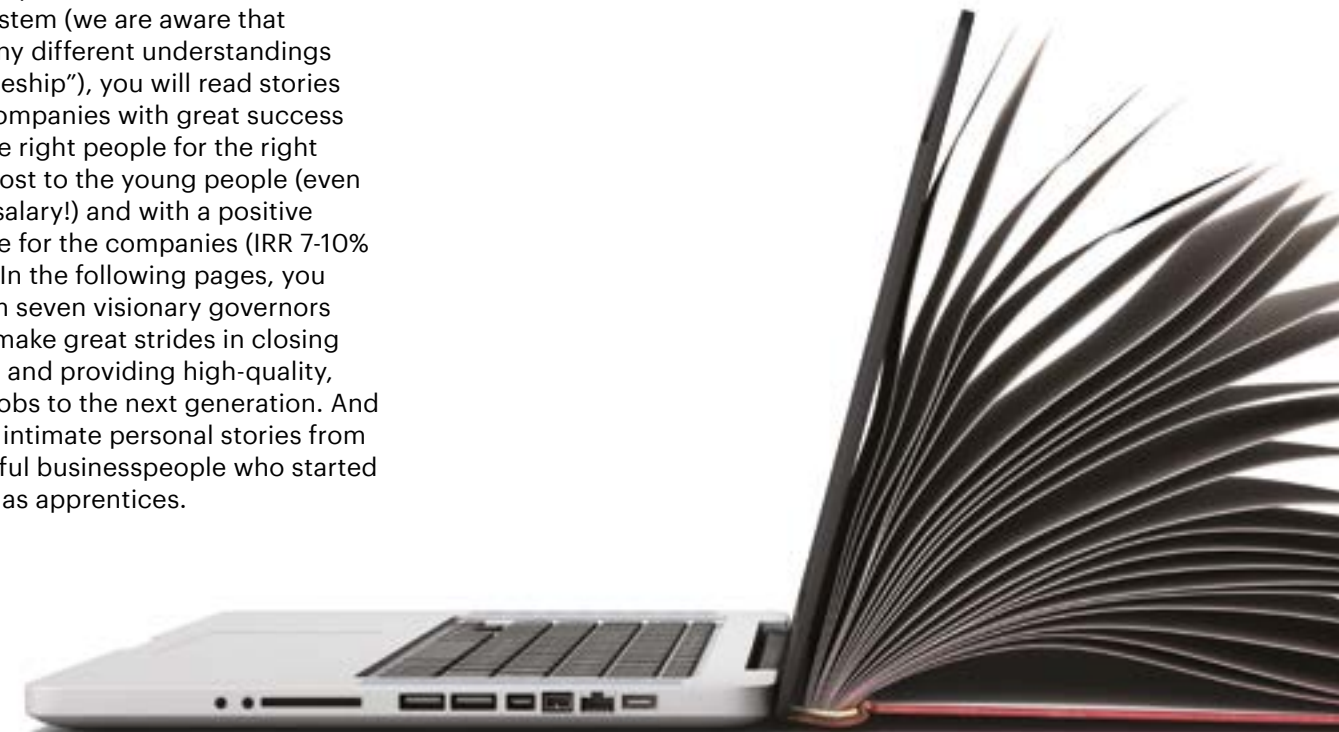
In the following pages, you will learn what “apprenticeship” means in in the Swiss education system (we are aware that there are many different understandings of “apprenticeship”), you will read stories from great companies with great success in training the right people for the right jobs—at no cost to the young people (even with a small salary!) and with a positive business case for the companies (IRR 7-10% on average). In the following pages, you will read from seven visionary governors who plan to make great strides in closing the skills gap and providing high-quality, high-skilled jobs to the next generation. And you will read intimate personal stories from very successful businesspeople who started their careers as apprentices.

We hope that this publication will accelerate a movement that has already shown great promise and begin an intensive exchange between Switzerland and the US.

Zurich, October 2017

Thomas D. Meyer
Country Managing Director
Accenture Switzerland

Martin Naville
CEO Swiss-American Chamber
of Commerce



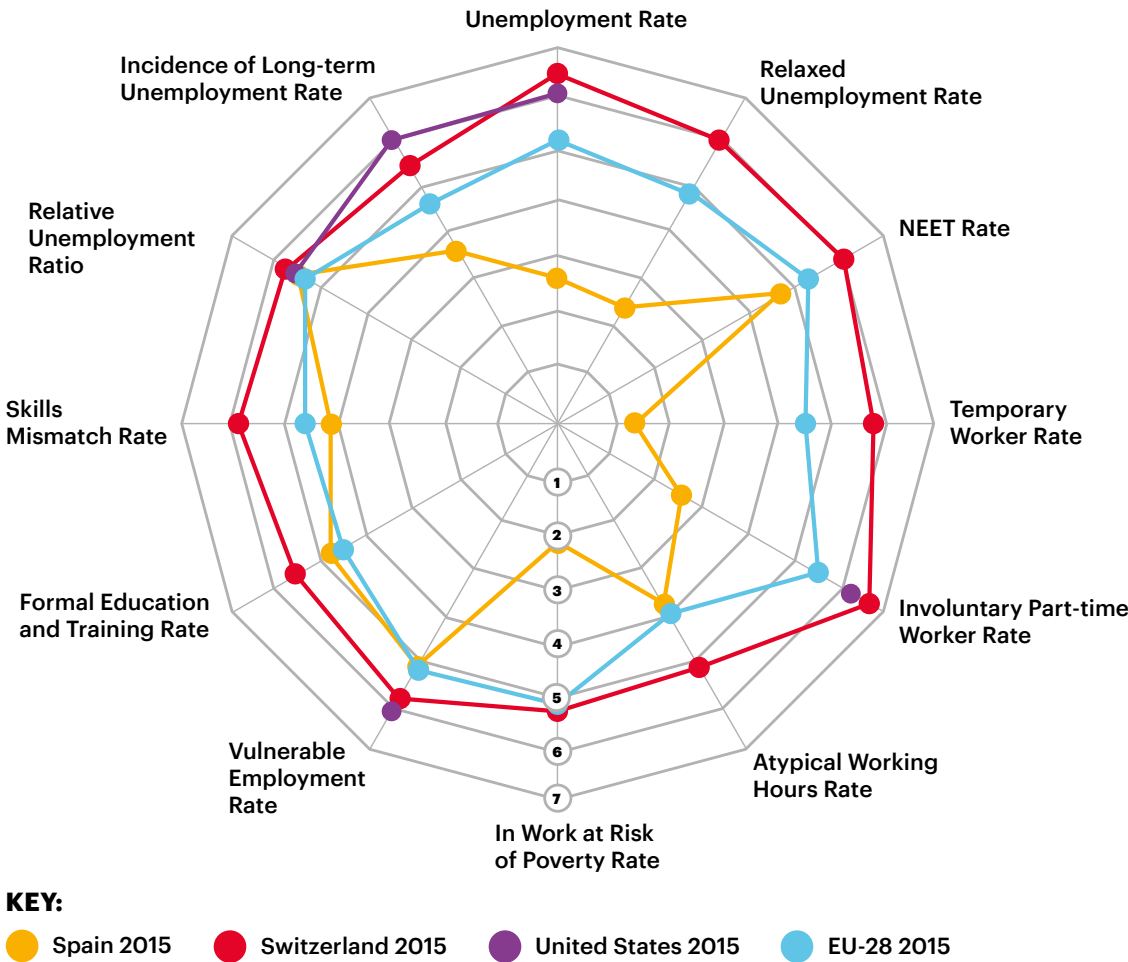
Why is Swiss-style apprenticeship so attractive?

Prof. Dr. Ursula Renold and Dr. Katherine Caves

The Swiss Vocational Education and Training (VET) system has recently been presented as the gold standard for upper-secondary VET (see e.g. NCEE, 2015) due to its apparent positive impact on Switzerland's economy, its rich engagement of employers, and Switzerland's low youth unemployment rate. Switzerland is ranked first globally in innovation (INSEAD Global Innovation Index, 2016) and competitiveness (WEF, 2016). It also has

a low unemployment, especially among young people (the ILO reports 8.6% for 2016) despite an environment of high wages and high operating costs. Figure 1 shows Switzerland's strong KOF Youth Labor Market Index score, indicating that young people enjoy not only high labor market activity but also good working conditions, well-matched education, and smooth transitions from school to work.

FIGURE 1: KOF YOUTH LABOR MARKET INDEX, SPIDERWEB OF SPAIN, SWITZERLAND, UNITED STATES AND EU-28



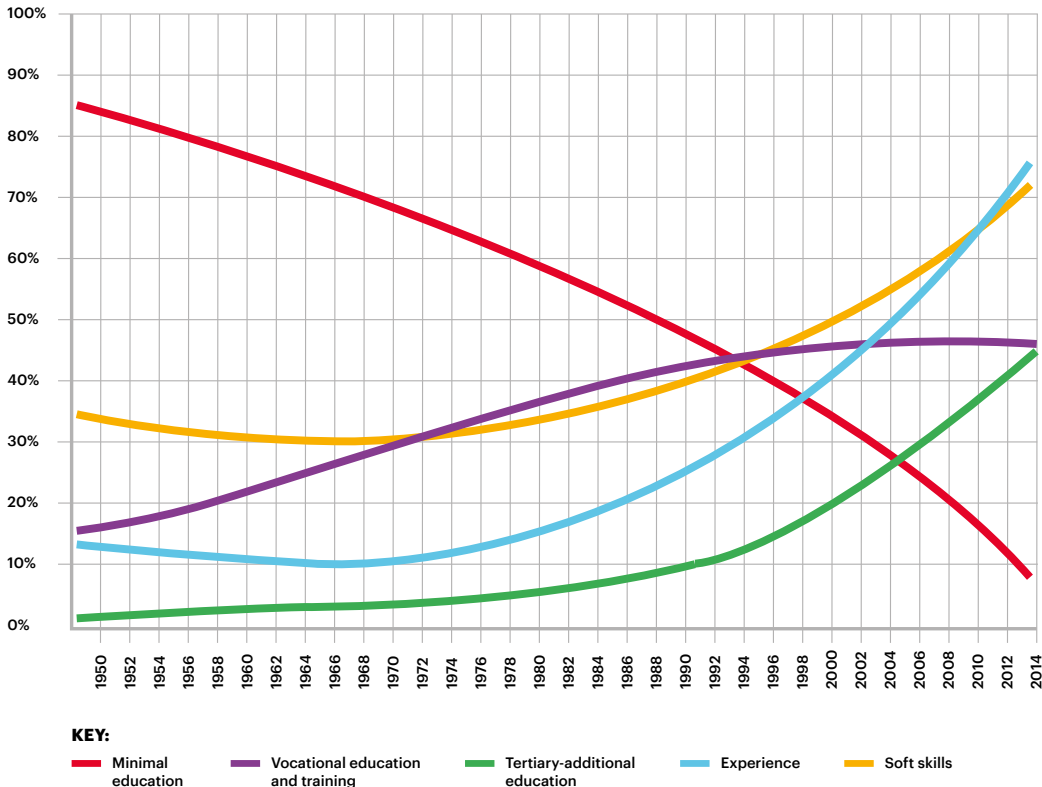
(own graph) - A value further away from the center indicates a better outcome for that indicator (see Renold, et al., 2014).

Figure 1 compares the youth labor markets in Switzerland, Spain, the United States and the EU-28 in 2015. Taking the EU-28 as a baseline, Switzerland's youth labor market overall is strong and shows higher values for most indicators. In contrast, Spain's labor market is generally poor for young, especially in the dimensions Activity State and Working Conditions. The United States reports few internationally comparable indicators, so its performance is difficult to state. Many studies reason that the richness of the Swiss economy is rooted in—among other factors—the country's VET system (Strahm, 2010). Unlike other systems, including the VET-type programs that exist in the United States, Switzerland's VET system is characterized by its intense employer engagement throughout all educational processes. This strongly aligns the Swiss VET system with the needs of the labor market.

The Swiss Job Market Monitor, summarized in Figure 2, is an ongoing longitudinal study of employers' demand for skills and qualifications in job postings.

Approximately 50% of Swiss jobs require a three- or four-year Federal VET Diploma, earned by completing the upper-secondary apprenticeship program. Over time, the demand for tertiary qualifications shows strong growth, but the growth in demand for experience and soft skills is the most striking. Both are based on competencies that cannot be easily taught in school; experience and soft skills require authentic learning environments where participants are exposed to unexpected and unfamiliar situations every day. Workers with experience and strong soft skills can master any new situation with professional expertise, and companies can hire them without incurring major onboarding costs (Bolli/Renold, 2017). The Swiss economy is driven by well-educated employees with the right mix of skills and qualifications both horizontally and vertically. Vertical education diversity is a prerequisite for competitiveness (Bolli/Renold/Wörter, 2017), so Switzerland's high participation in upper-secondary VET—70% of young people ages 15-19 choose the VET pathway—puts the country in the international spotlight.

FIGURE 2: JOB MARKET DEMAND – TRENDS 1950 THROUGH 2014



(Source: Based on data given to the authors by those responsible for the Job Market Monitor, University of Zurich.)

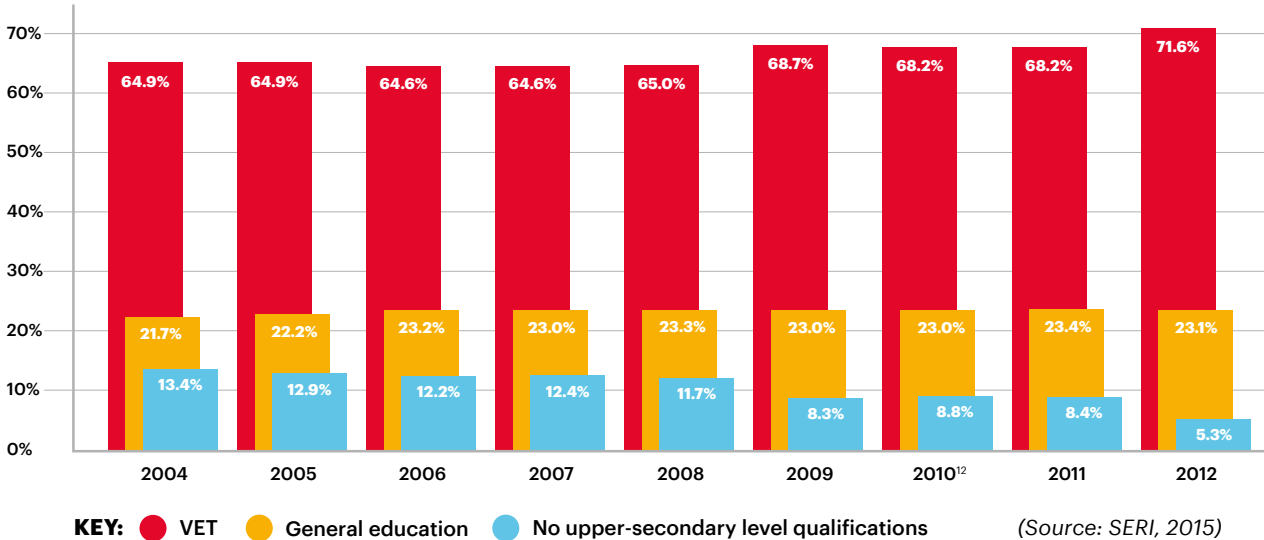
Why is Swiss-style apprenticeship so attractive?

Key features of the Swiss VET system

The Swiss VET system is fully embedded in and connected to the country’s overall education system. At the age of 15 or 16, young people decide what to do for their post- compulsory degrees. Essentially, they choose between the general education and VET pathways. Two further options exist within each pathway: the academic baccalaureate and special baccalaureate in general education, and the two-year certificate or three-to-four-year Federal VET Diploma within VET. Thanks to Switzerland’s nationally recognized credentials for all programs, graduates can be sure that VET diplomas will have currency with future employers or further education institutions.

The transition from compulsory schooling is very demanding, especially for students who choose the VET pathway and must choose from 230 occupations. The transition confronts young people with a real labor market—in this case the apprenticeship market—for the first time, and they have to cope with the realities of supply and demand. Participants apply and each hopes to be accepted into their favorite occupation and company, but they usually fill out multiple applications. The VET pathway is the most popular choice and a critical part of the country’s education system with 70% of young people choosing VET in every cohort (see Figure 3).

FIGURE 3: BREAKDOWN OF DIPLOMA CHOICE AT UPPER-SECONDARY II EDUCATION LEVEL

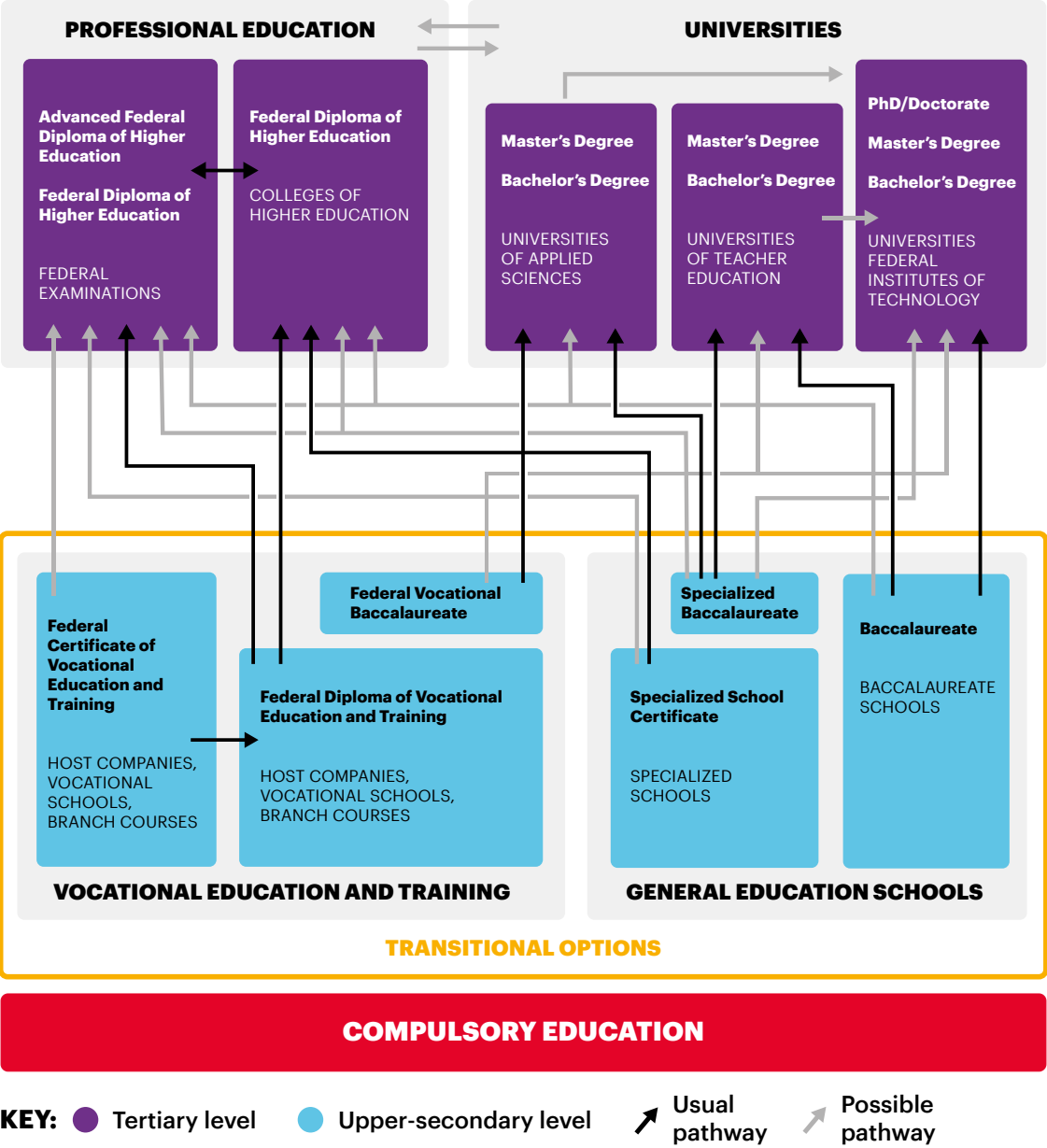


Independent career guidance and counseling centers provide information on the many programs available and offer guidance to adolescents so they can make informed decisions and succeed in the apprenticeship market (SDBB/CSFO, 2008). Further support measures ensure that as many young people as possible have access to upper-secondary education. This includes selection guidance, application help, bridge courses, and case management to give every student the best chance while supporting those at risk of dropping out of school.

Finally, as shown by the many arrows in Figure 4, the Swiss VET system’s permeability enables young people to make up for less than ideal choices and changing preferences by providing progression routes among every education level and type. For example, the Federal VET Diploma can be

combined with the Federal Vocational Baccalaureate for strong students who want to continue their education at a University of Applied Sciences. With the addition of the University Aptitude Test, the student can progress into a conventional university.

FIGURE 4: OVERVIEW OF THE SWISS EDUCATION SYSTEM



(Source: SERI, 2017)

Why is Swiss-style apprenticeship so attractive?

Equipped with an upper-secondary education, young people in all programs and pathways have a variety of further opportunities to progress in education or in the labor market. VET graduates have two “tickets” at the end of their apprenticeships. The first enables them to enter the labor market directly, and likely succeed, thanks to the work experience earned through apprenticeship. The second lets them pursue further education with clear entry conditions for each. The arrows in Figure 4 show the requirements for moving from each upper-secondary program to programs available at the tertiary level. This strategy of permeability is the Swiss way of combining college and career readiness over a lifespan and avoiding early tracking.

Students with a Federal VET Diploma have free access to professional education and training through Federal Professional Education and Training (PET) examinations, Advanced Federal PET examinations, and PET colleges. Individuals usually pursue these options after working for a while, and PET programs are typically chosen by adult learners ages 25-35 (Renold, 2016). Therefore, PET programs are designed for experienced people seeking in-depth knowledge in a particular field, aspiring to a management position, or taking their next step on the career ladder.

Students who are interested in an academic career are best served with higher education in Tertiary A, made up of conventional universities, the Swiss Federal Institutes of Technology ETH Zurich or EPF Lausanne, or the Universities for Applied Sciences. Individuals can even change education pathways at the tertiary level, switching within and between Tertiary A and the PET colleges at Tertiary B. For example, a student might earn a bachelor’s degree at a University of Applied Sciences and—possibly with extra requirements—switch

to global top 10 ranking ETH Zurich for a master’s or PhD later on.

There is always some concern that students who change pathways incur costs in the process, but Backes-Gellner and Tuor (2010) show otherwise. They find that companies pay higher wages to employees with mixed education backgrounds—those who start in either the academic or VET upper-secondary pathway and finish tertiary education in the other. The overall mantra of the Swiss education system is “no education program without access to further education,” or put more simply, “no dead ends.” Thanks to this philosophy and the advantages it creates, the VET system has high social status and attracts high-quality students, perpetuating a virtuous cycle.

Switzerland’s remarkable outcome effects and its permeability throughout the whole education system do not stand alone. They are founded on managing the specific challenges adolescents face in their teenage years and on strong commitment from Swiss companies. VET offers young adults an alternative where they are integrated into a team with experienced professionals and thus, they gain a great deal of self-confidence and self-reliance. The Swiss VET model also keeps all career options open with the Federal VET Diploma considered the first step into a career with an option for access to higher education.

Another key factor underpinning the strength of the Swiss VET system is the commitment of companies. However, employer engagement is not simply due to tradition, culture, or social responsibility. A clear governance framework and coordination through professional associations helps to facilitate participation in VET by Swiss companies, enable financial sustainability, and prioritize employer voices in key VET decisions. The next section describes Swiss VET governance.

The overall mantra of the Swiss education system is “no education program without access to further education,” or put more simply, “no dead ends.”

VET system governance and the importance of professional associations

According to the Swiss Vocational and Professional Education and Training (VPET) Act, the Confederation (federal government), cantons (member states of Switzerland), and professional associations must work in partnership for the benefit of all involved in VPET. The Confederation is responsible for strategic oversight, steering, and VPET system development. Its specific tasks include ensuring training quality, facilitating comparability and transparency of all programs nationwide, enacting the VET ordinances that detail each occupation, and recognizing PET exam ordinances as well as the PET framework curricula. The 26 cantons implement legislation, own and operate VPET schools, manage apprenticeship contracts, and establish career guidance and counseling centers.

The driving force behind the whole VPET process is the professional associations, consisting of member companies. There are more than 600 professional associations responsible for VET and PET programs in Switzerland. In a joint effort with the cantons and the Confederation, they revise occupation-specific VET ordinances every three to five years and are responsible for defining and updating the framework curricula for VET programs. That responsibility for defining the curriculum framework puts professional associations in the driver’s seat for the VET system. Further tasks undertaken by the professional associations include advertising for apprenticeship positions at member companies, contribution and operation of industry-wide courses, preparation of training materials for host companies, supervision of the workplace-related part of national examinations, and much more.

The great advantage of this model is the knowledge the member firms in the professional associations have about demand for skills in emerging technologies. Therefore, they know in advance if new qualification requirements should be integrated into an occupation’s curriculum. The more that companies at the forefront of applied research and innovation are involved in curriculum design, the faster the curriculum can adapt to develop skills in leading-edge technologies. This close collaboration between the education system and labor market is essential for avoiding a mismatch of skills between what participants learn and what employers need. The high engagement of professional associations also benefits companies that are lagging behind the technology curve because once the new national curriculum framework is implemented, all apprentices are trained in new technologies (Rupietta and Backes-Gellner, 2012). However, appropriately skilled workers and increased innovation are not the only benefits of training for companies.

The driving force behind the whole VPET process is the professional associations, consisting of member companies.

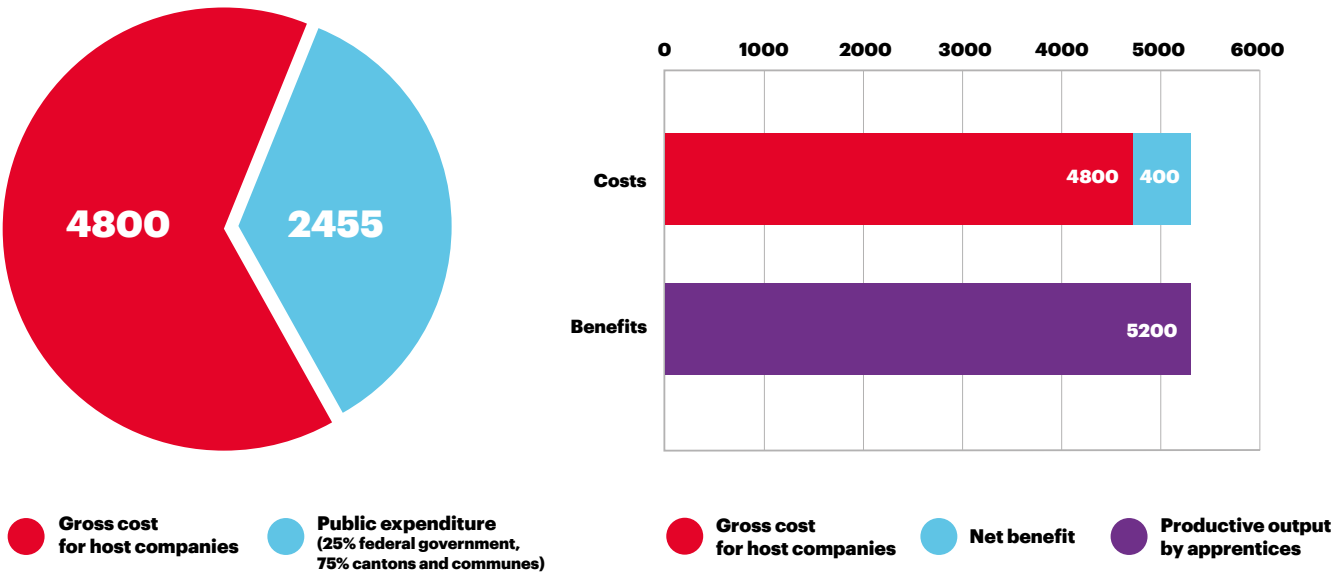
Why is Swiss-style apprenticeship so attractive?

How most companies gain a net benefit from training apprentices

Numerous studies have shown that there is a business case for companies to train apprentices in the Swiss VET system (i.e. Mühlemann et al., 2007; Muehleemann, 2010; Strupler and Wolter, 2012). Put simply, on average, companies who train earn

money by doing so. The costs of training are counterbalanced by delivering a return on investment, generating a net benefit as shown in Figure 5 (right side). Again, this is not a coincidence or good luck but the product of the system’s design.

FIGURE 5: COST DISTRIBUTION BETWEEN PUBLIC AND PRIVATE SOURCES AND COMPANIES’ NET BENEFIT FROM TRAINING APPRENTICES



The costs of the professional associations are not included in this diagram.
(Source: Renold/Probst, 2016, p. 48)

How is it possible that Switzerland has achieved a situation where training apprentices pays off for companies, but other countries with ostensibly similar dual VET systems have not?

The first reason is the system’s public-private funding distribution. The Confederation provides 25% of the public funding for VET, and the cantons contribute the remaining public funding. Together, they provide around 40% of the system’s overall funding with the other 60% coming from host companies.

Note that none of the public funding is used to directly subsidize companies for taking on apprentices. Public funds go to VET schools, system oversight and development, career counseling and guidance centers, and similar capacity-building measures. Professional associations convene companies and occasionally produce materials. Companies pay their own trainees’ salaries, training costs, and trainers. This balance between the three partners is ideal for all parties.

The second—less obvious—reason that training pays off for companies in Switzerland is the establishment of the third learning location. The third location complements school and workplace learning with fundamental knowledge and skills that are applicable industry-wide—so they differ from totally transferrable school-learned skills or very occupation-specific workplace-learned skills. This model is cheaper than every company teaching every skill by itself, without forcing the school to play an industry-focused role. Having a learning location like this thus reduces the costs for companies significantly.

A third reason for Swiss companies’ cost-effective VET participation is apprentice salaries. As the largest cost of training, they range from 400 CHF per month in the first year to 1,400 CHF per month in the last¹. Apprentices do not contribute to funding the VET system and programs are free of charge, but they do accept low training wages. There are no binding minimum wages and Switzerland has a very liberal labor market. Typically, when they start training, apprentices’ productivity is even lower than their wages. However, over time

they reach the skill level of a fully skilled worker, yet still earn much less than their skilled colleagues, generating a return that pays back the initial deficit.

The key element to balancing the incentives for the various players is the curriculum framework designed by the professional organizations. It ensures the balance between apprenticeship wages, time spent at school, time spent at the workplace and skills that are specific to the training company or applicable across the occupation. In the end, apprentices graduate with a skill set specific enough to get work but general enough to pursue other opportunities if they want. Companies earn back their training costs—and often more—and have access to skilled workers who already know their processes and might feel enough loyalty to stay. The Swiss economy gets a smoothly functioning youth labor market, strong innovation and a population of lifelong learners who can choose to update or reorient their skills whenever they like.

Companies earn back their training costs—and often more—and have access to skilled workers who already know their processes and might feel enough loyalty to stay.

¹ For salaries in each profession, see <https://berufsberatung.ch/dyn/show/3231>

Why is Swiss-style apprenticeship so attractive?

What makes the Swiss VET system attractive for the United States?

The United States faces a huge challenge to meet the demand for skills, especially in “middle skilled” jobs. These are jobs that require post-secondary education, but not a four-year college degree. Offering an alternative pathway to young people would be an effective way to fill the gap (National Academies of Sciences, Engineering and Medicine, 2017; Symonds, Schwartz and Ferguson, 2011). At the same time, the US education system faces ongoing pressure to improve equity, reduce dropout rates, and serve the needs of diverse students—all on a tight budget. While VET specifically is not the panacea to all these problems, a permeable education system with multiple levels and types of degrees opens a path to lifelong learning and skills improvement that a silo-bound or all-academic system cannot offer. When employers participate as training companies for apprentices in a coordinated approach, the quality of VET goes up while its public costs go down.

Switzerland is not the United States and its VET system should not be copied wholesale and applied abroad. However, both Switzerland and the United States are business-oriented, have liberal market economies, and pride themselves on competitiveness and innovation. While some successful international models of VET rely

on the economic specifics of their home countries to yield benefits for employers—for example the German system’s reliance on coordination and labor market regulation—the Swiss VET model enables employers to earn back their investments before the end of the training period. That key feature makes the system attractive and financially sustainable for employers—and is critical to maintaining their engagement.

There is opportunity for Switzerland and the United States to collaborate on VET. There have already been efforts by the US Embassy in Bern to promote exchange among multinational companies operating in both countries; some American-based companies in Switzerland are beginning to train apprentices, and Swiss-based companies in the United States are ready to share their expertise. Switzerland is, as mentioned in other chapters of this publication, a major investor in the United States. Sharing knowledge on a key foundation of Swiss innovation and competitiveness is in the interest of both countries.

There are also a number of American projects already working in this space, notably including the Pathways to Prosperity Project through Harvard University and Jobs for the Future (Hoffman and Schwartz, 2017), and the

CareerWise Colorado initiative (see <http://www.careerwisecolorado.org/>) to develop statewide dual-VET apprenticeships for Colorado high school students.

Past efforts to increase VET in the United States have focused on school-based VET, company-specific training, exclusively post-secondary training, and labor market integration. Often, programs have become quickly outdated, financially unsustainable, or out of necessity, second-choice options.

However, this new generation of effort is very similar to the Swiss model—and intentionally so. This approach can help the United States develop upper-secondary VET programs with significant workplace training, employer engagement, strong education-employment linkages and permeability throughout the education system.

Both Switzerland and the United States are business-oriented, have liberal market economies, and pride themselves on competitiveness and innovation.



Why is Swiss-style apprenticeship a win-win-win proposition for the United States?

By Accenture

Swiss companies are large investors in the US

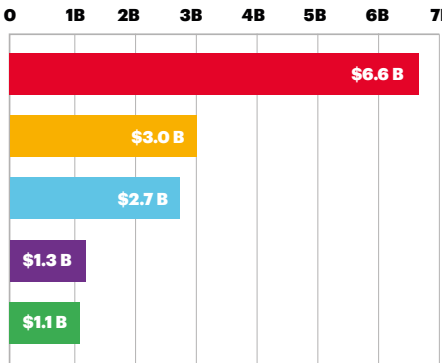
A study recently conducted by the Swiss Embassy in the US has shown that Switzerland is one of the largest foreign investors in the US². Switzerland is ranked as the seventh largest foreign direct investor in the US, representing an investment as of year-end 2014 of \$224 billion. Swiss companies have invested in the US market as much as Germany or France. In term of investment growth, Switzerland surpassed France and Germany between 2009 and 2014 with about 60% growth and ranks second for cumulative direct investment in US just behind Luxembourg. The study shows that Swiss companies are well integrated in the US economy. They are

present in different industry markets covering a wide range of skilled workers as well as having many import and export trade links between the two countries.

According to the Swiss Embassy analysis, total goods exported from the US to Switzerland in 2015 accounted for \$22.3 billion. Most exports were primary metal (\$6.6 billion), chemical (\$3 billion) and used merchandise (\$2.7 billion). Goods imported to the US from Switzerland in 2015 totaled \$31.5 billion with chemical goods accounting for more than a third of the total trade (\$11.6 billion), computer and electronic products (\$4.7 billion) and machinery (\$2.4 billion).

TOP GOODS EXPORTS BY INDUSTRY FROM THE UNITED STATES TO SWITZERLAND, 2015

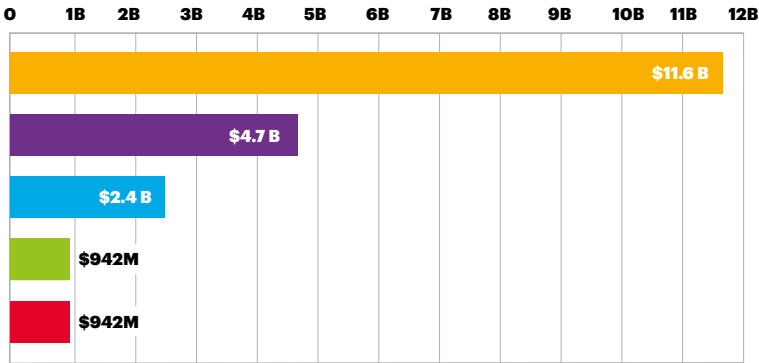
TOTAL US GOODS EXPORTS TO SWITZERLAND = \$22.3B



- Primary Metals
- Chemicals
- Used Merchandise
- Computer & Electronic Products
- Transportation Equipment

TOP GOODS IMPORTS BY INDUSTRY FROM SWITZERLAND TO THE UNITED STATES, 2015

TOTAL US GOODS IMPORTS FROM SWITZERLAND = \$31.2B



- Chemicals
- Computer & Electronic Products
- Machinery
- Beverages & tobacco products
- Primary Metals

(Source: Embassy of Switzerland in US, 2017)

Swiss companies are investing in the manufacturing, wholesale, retail, and service sectors of the US economy.

Service sectors are also well represented in Swiss trade with the US. In 2015, \$28.9 billion of services were exported to Switzerland and \$20.8 billion of services imported from Switzerland. These included activities, such as research and development (R&D) services, consulting services, insurance services, financial services, travel, and transport.

Swiss companies are investing in the manufacturing, wholesale, retail, and services sectors of the US economy. Swiss affiliates make an especially strong contribution in pharmaceuticals, medicines and food manufacturing. To sustain these investments, Swiss companies spent \$10 billion on R&D activities in the US putting Switzerland first among all foreign countries investing and supporting 24,000 R&D-related jobs.

Some 500 Swiss companies have operations in the US, and many own branches in several states, accounting for a rounded total of 3,500 affiliates. Swiss companies and their branches account for nearly 462,000 US jobs nationwide. Among these, the average annual salary rises to about \$103,000, putting Swiss company salaries in the US ahead of those of all other major investing countries.

The presence in the US of a wide spectrum of Swiss companies shows the strength of the binational relationship to its economy.

The profile of Swiss companies in the US is diversified, including large multinational Swiss firms, such as ABB, Credit Suisse, Nestlé and Novartis, but also many SMEs, which are active in niche markets, manufacturing highly specialized goods for various industry sectors. This presence in the US added to jobs supported by US exports of services to Switzerland and jobs linked to US exports of goods to Switzerland represents about 725,000 jobs across the 50 US states.

Swiss affiliates support more than 460,000 US jobs

Swiss affiliates create hundreds of thousands of American jobs. In 2013, Swiss investments supported 461,900 jobs across the United States, representing 8% of the 6.1 million jobs sustained by all foreign affiliates.

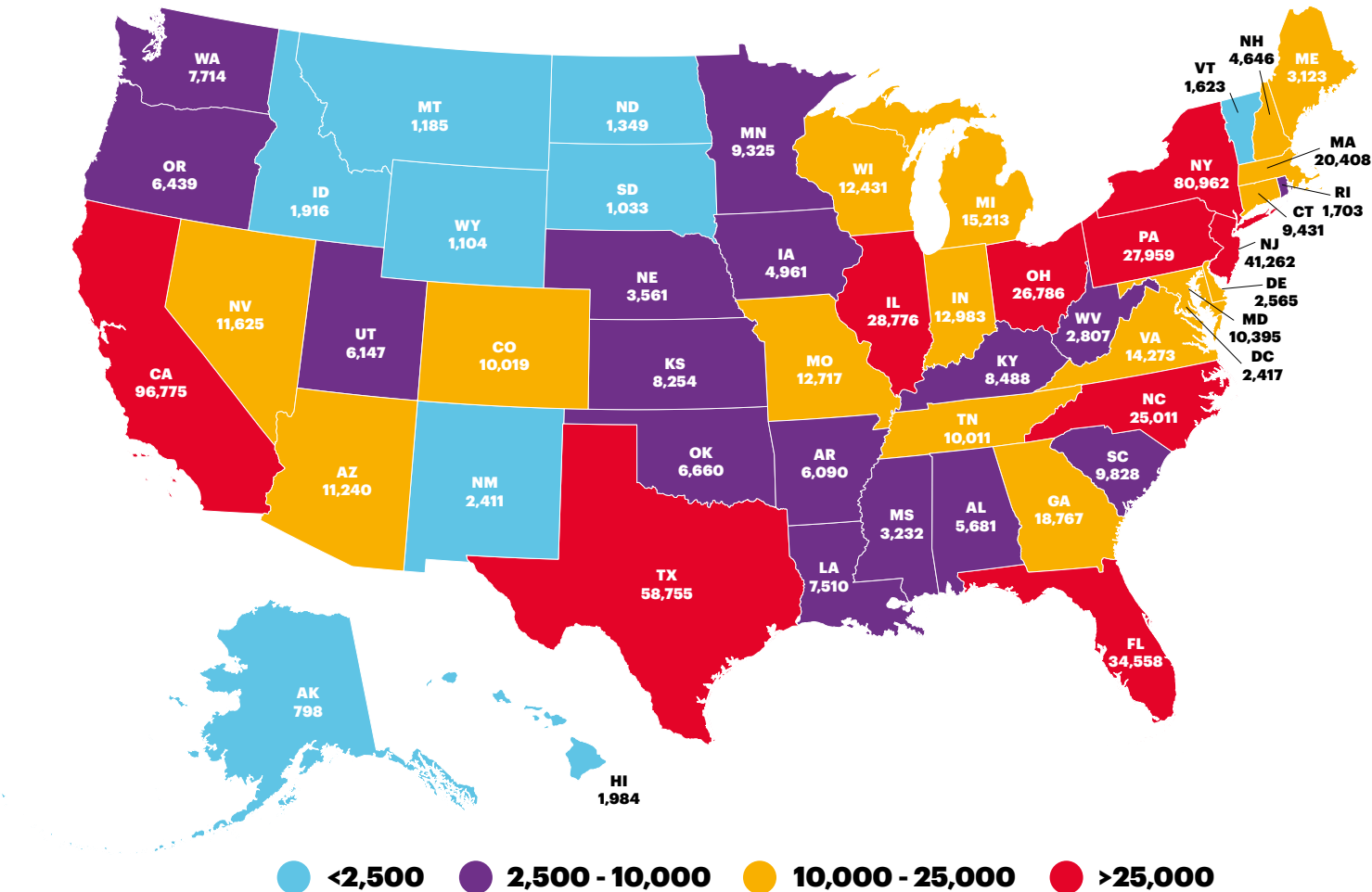
Between 2008 and 2013, Swiss affiliates added jobs every year, except in 2012, when employment contracted slightly. In that five-year period, Swiss firms added nearly 73,000 new jobs in the United States, posting a growth rate of 19%. Of the seven largest foreign direct investors in the United States, employment at Swiss affiliates grew the fastest, outpacing the Netherlands at 18% and Japan at 16%.

Switzerland's Economic Footprint in the United States, Embassy of Switzerland in US, 2017

² Embassy of Switzerland in US (2017). Switzerland's Economic Footprint in the United States.

Why is Swiss-style apprenticeship
a win-win-win proposition for the US?

FIGURE 6: SWITZERLAND’S ECONOMIC IMPACT ON EMPLOYMENT IN
THE UNITED STATES TOTAL JOBS SUPPORTED BY STATE³



Every US state benefits from Swiss trade and investment. In California alone, Swiss company jobs represent close to 100,000 positions. Several other large states benefit from Swiss trade and investment, supporting tens of thousands of jobs in states, such as New York, Texas, New Jersey, and Florida. Smaller states also benefit from Swiss investment with, for example, more than 1,000 jobs in states, such as Rhode Island, South Dakota, and Idaho.

³ Embassy of Switzerland in US (2017). Switzerland's Economic Footprint in the United States.

The United States is the top
destination for Swiss direct
investment abroad

Manufacturing is the most important sector for Swiss direct investment abroad, making up 36% of total Swiss investment overseas. Within manufacturing, the largest segments were chemicals and plastics (16.4%), followed by other manufacturing and construction (9.9%), and electronics, optical, and watchmaking (6%). Financial and holding companies' capital stock in subsidiaries abroad totaled 34% by the end of 2014, down from 40% in 2010. The services sector accounted for 30%, a third of which was in trade (10.6%), followed by banks (8%), and insurance (6.8%).

Swiss companies have a long history of investing in the large and diversified US

economy, which offers domestic and foreign firms extraordinary business opportunities. States and localities nationwide aggressively vie for investment from Swiss firms, which bring skilled, and often highly paid, jobs to their communities. Switzerland is the seventh-largest foreign direct investor in the United States with \$224 billion in cumulative investment by year-end 2014.

Switzerland's Economic Footprint in the United States, Embassy of Switzerland in US, 2017



Why is Swiss-style apprenticeship a win-win-win proposition for the US?

Swiss-style apprenticeship will boost the appeal of US states for foreign and domestic investments

Swiss companies see apprenticeships as a strategy for building a talent pool. Therefore, they have a strong interest in investing in the next generation of skilled workers. Apprenticeship offers great benefits to companies, and decreases their recruitment costs. Some Swiss firms have set up apprenticeship programs at their US locations, showing the way for developing and implementing apprenticeship programs inspired by the Swiss model in the US. They often use apprenticeships as a strategy to attract and train skilled workforce. They retain and hire the most suitable apprentices as regular employees. Even if a benefit is not immediately achieved at the end of the apprenticeship period, it usually becomes evident after the apprenticeship is completed. Apprenticeships can serve as a trial period for companies. If an apprentice is hired after the completion, the employer already knows him/her and knows he/she is fit for the position, which saves additional recruitment costs. Cases where an apprentice might not be retained must not be seen as a failure—companies and mentors gain value in learning

about new technologies and in keeping contact with the next generation. Offering apprenticeships has a positive influence on society’s perception of company and creates other external recruitment opportunities. As Dr. Uschi Backes-Gellner explains, offering apprenticeships is always a positive way to improve a company’s reputation and is indicative of a positive work culture.

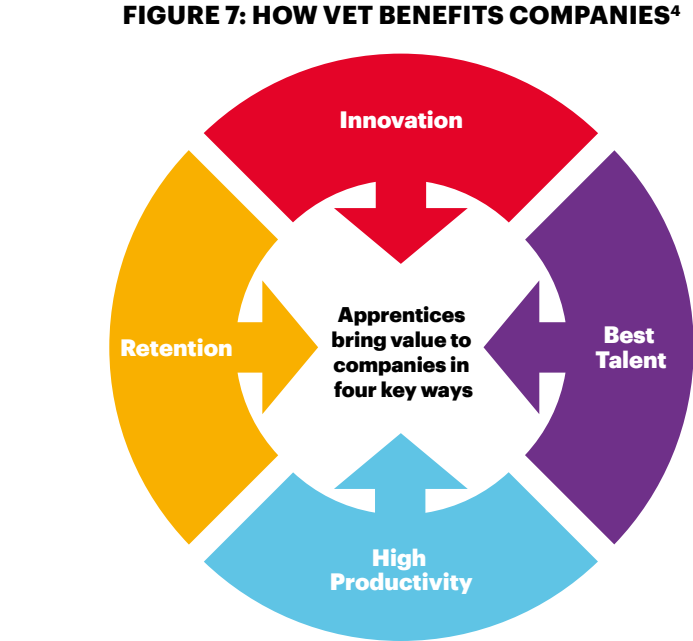
Not only companies, but also state administrations, researchers, educational institutions, and workforce development advocates in the US have shown a great interest in the topic of apprenticeships. Both the White House and Congress have decided to put apprenticeship at the top of their upcoming educational agenda. The Swiss VET system has been identified as one of the models for reforming American upper-secondary qualifications and addressing the skills gap. Switzerland and the US have signed a joint declaration of intent to continue strengthening their cooperation in this area.

Both the White House and Congress have decided to put apprenticeship at the top of their upcoming educational agenda.

Lack of qualified workforce could be a restraint for foreign companies who wish to have an entity in the US. However, they will be reassured knowing that they will have the possibility to onboard and train apprentices. With a Swiss-style apprenticeship model available in the US, these companies can benefit from being able to train their people on the job, for any skilled positions where the labor market lacks the available professionals. This should encourage businesses to set up an entity in the US as they will be able to train young professionals to develop the right expertise. A better-skilled workforce leads to higher productivity as well as better innovation capabilities. Apprentices bring new vision, up-to-date knowledge and creativity to the job, leading to innovation.

With a Swiss-style apprenticeship model available in the US, companies will benefit from being able to train their people on the job.

This opportunity might also be positive for domestic companies for the exact same reasons. In the “college for all” educational model led by college/university training, young professionals are well educated but lack hands-on knowledge and on-the-job experience. This often means new hires take longer to adapt and understand the specifics of their industry when joining a company, delaying the time until they are fully efficient and cost more. This can



be prevented by hiring someone who has been trained following an apprenticeship program as he or she is already familiar with the industry and the tasks that will be required to perform.

In both cases, foreign and domestic companies will have an additional means of recruiting well-trained people. They will not to be tied or limited by a lack of resources.

4 Hunziker, K. (2016). Switzerland’s Vocational Education and Training System.

Why is Swiss-style apprenticeship
a win-win-win proposition for the US?

It's great for individuals

For personal development

Current feedback from the employment administrations and services, and from the labor world shows a trend where people need key behaviors and 21st century skills to be able to face the challenges of daily life, in society and in the labor market: a combination of knowledge, skills and attitudes. These behaviors are necessary to build up their strengths to reach personal fulfilment and development, social inclusion, active citizenship and employment. The main purpose of developing such behaviors is to enable individuals to adapt faster to constant changes. It immediately puts young people in a setting with experienced workers where they are treated differently than in school and given more responsibility coupled with lots of coaching and support.

For salary and recognized value

The possibility to earn while they learn is an asset for young people to take up apprenticeships, and it also gives them the opportunity to start a professional career without burden of debt, which they might have accumulated to pay for their higher education. At the heart of the process, the VET model naturally leads to finding a job more readily. Students are paid usually the equivalent of about \$600- \$700 a month at the beginning of the program, growing from \$1,100 to \$1,200 a month, and this for three to four days of work a week at the most. At the end of the apprenticeship they have a nationally recognized qualification that is portable, and the opportunity to move directly into full-time employment or to continue to get more education.

Good career guidance can help young people
to gain a greater understanding of the labor
market and the different options offered.

For the working environment
and social protection

A benefit for apprentices in having a contract of employment is that they are socially protected. They know what the obligations of the employer are in terms of working time, holidays, pay, health insurance, parental leave, and importantly health and safety regulation and practice. Moreover, health and safety awareness would normally feature as a part of apprenticeship training, particularly in high-risk industries.

For guidance and counseling

Good career guidance can help young people to gain a greater understanding of the labor market and the different options offered. It helps them in evaluating their strengths and weaknesses to know what skills and competence they have and what skills and competence they need to build on. Altogether it helps them to make informed choices about what they could realistically do as they move up in their career.

FIGURE 8: HOW VET BENEFITS YOUNG PEOPLE ⁵

Students give apprenticeships an



They join the workforce **prepared**
thanks to a top-notch education



**A prestigious
education pathway**



**Flexibility regarding
future career option**



**Skills and knowledge
aligned with labor market**



No student debt
Tuition paid by cantons (states)
Apprentices earn a progressive wage



⁵ Hunziker, K. (2016). Switzerland's Vocational Education and Training System.

Best practices from companies in Switzerland who have installed apprenticeship programs in their US facilities

For this publication, several companies in Switzerland were approached who have installed apprenticeship programs in their US facilities. These include Accenture, The Adecco Group, Autoneum, Bühler, Daetwyler, Firmenich, Mikron, Nestlé, SFS, and Zurich. The companies have been asked to present their best practices, giving insights about their reasons for developing apprenticeship programs, challenges, external, private or public support in the implementation, figures, recognition and recommendations.

In particular, the companies were asked to address some of the following points:

- Briefly present your company businesses and describe any specificity in your industry sector that requires specific skills.
- Why and when did you decide to develop the Swiss apprenticeship program in your company's US subsidiary?
- What were some of the challenges in implementing the VET programs in the US? Were local institutions, schools and universities eager to participate and help you implement your vocational training program?
- How many apprentices a year do you take? How many applications do you receive per year? And how many apprenticeship contracts are converted into full-term employment at the end of the program?
- How much and what kind of support did you get from local, state and federal government?
- Since your company implemented the VET program, did you notice not only better recognition for apprentices (when entering the labor market), but also in the program (when applying for a teaching program)? Is this something positively valued by students and companies as equivalent to other educational programs?
- What are your recommendations to other companies thinking about or starting a VET program in the US? What are the biggest mistakes to avoid?



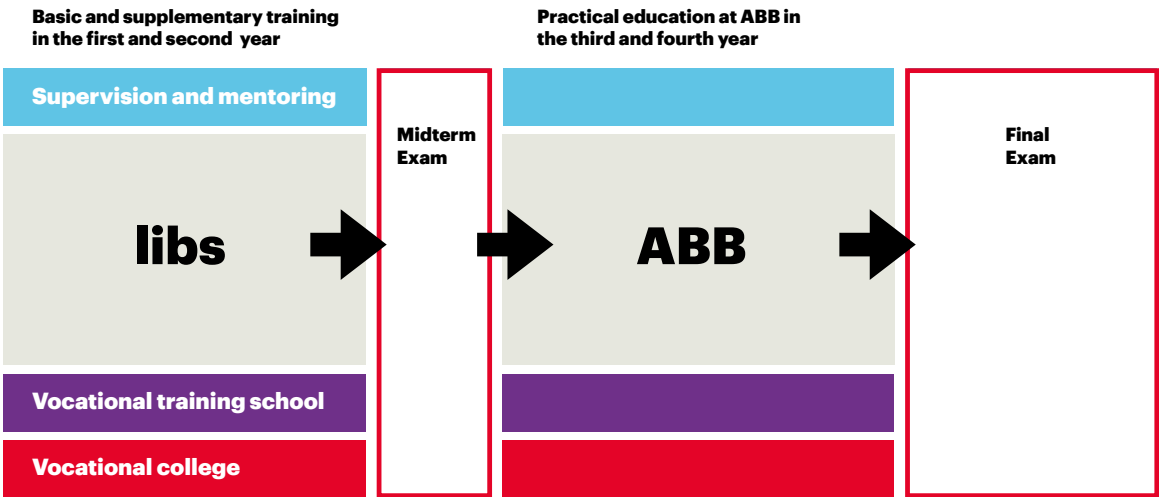
- + Industrial technology company
- + 132,000 employees worldwide
- + Revenue: \$33.8 billion (2016)

The ABB apprenticeship model in Switzerland

ABB is a pioneering technology leader in electrification products, robotics and motion, industrial automation and power grids, serving customers in utilities, industry, and transport and infrastructure globally. Continuing more than a 125-year history of innovation, ABB today is writing the future of industrial digitalization and driving the Energy and Fourth Industrial Revolutions. ABB operates in more than 100 countries with about 132,000 employees, thereof 6,000 in Switzerland.

Ever since the founding of ABB, offering apprenticeships has been key to attract, educate and retain highly skilled employees.

At ABB, we offer apprenticeships in all key industrial areas, such as automation techniques, electronics engineering, and polymechanics as well as computer sciences. Whereas some details might have changed over time, the basic idea of an apprenticeship at ABB remains the same. Young students ages 16 to 20 are educated and trained by a dual school system offered by ABB and our educational partner libs (former ABB apprenticeship center). During a three- to four-year training program, students spend the first one to two years at vocational colleges and the libs vocational school. In the second half of their apprenticeship they are at ABB



Best practices from companies in Switzerland

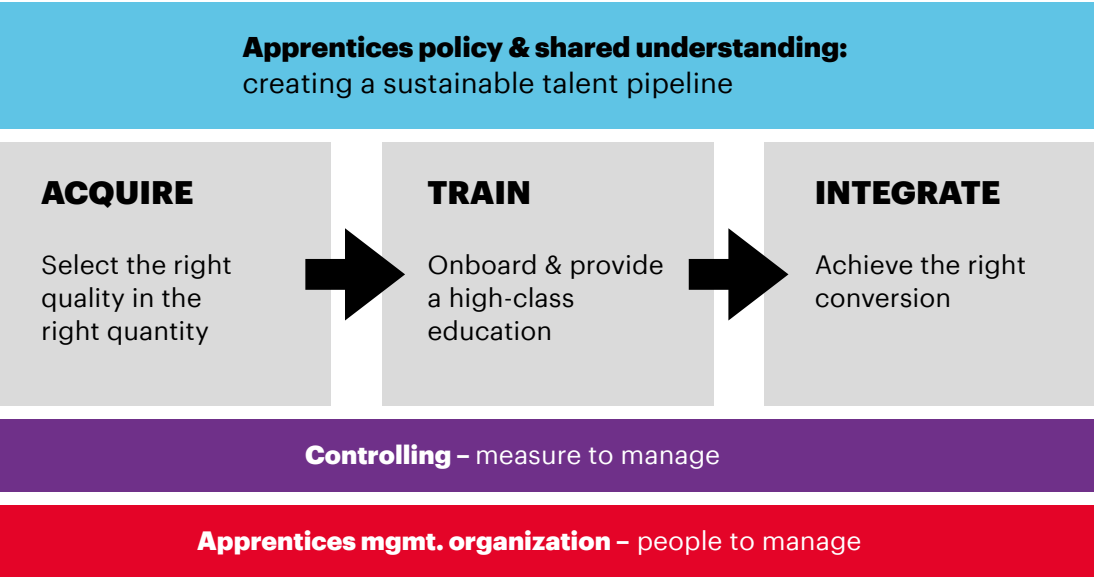
ABB

being trained on the job while being fully integrated in our teams.

Even though the idea of a dual education system appears simple, providing a high-class education requires organizational commitment, resources and a strong knowledge of working with early career talents. In addition, governmental requirements need to be met in order to become a state recognized educational institute. ABB's vocational training is therefore based on two main elements.

The first element is the close collaboration with our educational partner libs. Originally founded by ABB, libs now operates as an independent institution in order to allow other companies to utilize its vocational training services. By offering educational services to almost 100 companies in Switzerland the vocational training institute ensures that our apprentices get a premium school education from the libs vocational

schools. Having profound knowledge in all of our educational fields and in-depth knowledge of the Swiss requirements, our apprentices are offered the best possible education. During the first years of the vocational training our apprentices are trained at the apprentice workshops at libs. In this secure environment, they are trained to use various machines as well as computer programs to teach them all the skills needed for their practical assignments at ABB. During their training, they work with the newest technologies and are already starting to innovate during their school time, while working on commercial products. This model allows libs to be a vendor to ABB and other member companies, producing high-quality products and services, which subsidize the cost of the vocational training. libs also provides apprentices with the opportunity to work on real-life projects, which in turn is a huge motivation to them.



This leads to the second element of the vocational training, the apprentice organization within ABB. Using the apprentice program to build a pipeline of qualified specialists and enhance the diversity of our workforce, ABB is committed to vocational training throughout all levels of the organization. Whereas the dual-educational system is driven by our management and business units, the strategic steering is done through HR. By living and constantly developing our apprentice's skill set, we add value to the vocational training by ensuring the strategic orientation of the program and provide a vast variety of trainings and activities for our apprentices.

Looking at the ABB apprentice model, one is tempted to think that applying all regular HR activities like standard sourcing or performance management could be easily applied to apprentices, too. In fact, developing early talents requires thinking outside the box and some adjustment to standard HR tools. Early career talents need different measures to be assessed and developed but most importantly, apprentices need closer supervision tailored to their needs.

This is why, at ABB, every apprentice has a tutor who is responsible for the operational education of the apprentice. In addition to the direct supervision provided by the tutors, we organize welcome days, customer visits and workshops for our apprentices. With these supporting programs, they learn more about ABB, our products and are coached throughout their apprenticeship. Applying performance management, including benefits linked to the apprentices' performance at ABB and

in school, our apprentices are committed, focused, and motivated. High potential apprentices even get the chance to work internationally during a stay abroad at one of our locations throughout Europe. Engaging our apprentices is key for a successful apprenticeship and also for retaining their talents after they finish the vocational training at ABB. The majority of our apprentices decide to stay with ABB after their graduation. By applying their skills long-term after the apprenticeship at ABB, the return on investment is significant. For those graduate apprentices who want to advance their education at the university level, we are in the process of extending offers for university scholarships or the possibility of working part time while attending university.

Offering vocational training certainly requires some profound knowledge in the field and resources will be needed for the initial setup. But comparing the benefits of a highly skilled workforce and committed employees who believe in ABB, the value of investing in their education far outweighs the costs of vocational training. Many of our former apprentices have pursued very successful careers at ABB, both in technical and managerial areas. At ABB, we believe in our vocational training and can only encourage other companies to implement such programs. Looking at the next industrial revolution and digitalization, it is key to ensure that the future skills needed in our industry are made available through high-quality vocational training, which remains a main differentiator in Switzerland's global competitiveness.

Many of our former apprentices have pursued very successful careers at ABB, both in technical and managerial areas.



- + Professional services company
- + More than 411,000 employees worldwide
- + Revenue: \$32.9 billion (2016)

Preparing the workforce of the future: Best practices based on Accenture's skilling initiatives

Briefly present your company businesses and describe any specificity in your industry sector that requires specific skills.

Accenture is a global professional services company, providing a broad range of services in strategy, consulting, digital, technology and operations to help clients across more than 40 industries create sustainable value. We partner with more than three-quarters of the Fortune Global 500, driving innovation to improve the way the world works and lives.

As we rapidly rotate our business to what we refer to as "the New"—digital-, cloud- and security-related services, enabled by artificial intelligence and other new and innovative technologies—we recognize that these technologies have far-reaching implications for tomorrow's workforce and that the unprecedented pace of change is disrupting society faster than people are acquiring the skills to adapt. For instance, according to the World Economic Forum's Future of Jobs report, approximately two-thirds of children entering primary school today will ultimately hold jobs that do not currently exist.

At Accenture, we believe that skilling initiatives and apprenticeship programs, particularly at the local level, are critical to igniting a spark of interest in technology fields and building a pipeline to help address the skills gap. The best way to quickly reskill at scale is through a proven method that combines today's learning methods (e.g., digital, classroom training) and applying what has been learned to fieldwork or job training.

When and why did you decide to develop skilling programs?

As technology touches and transforms every corner of society, achieving business and economic growth requires preparing the workforce of the future with the skills required to thrive in the digital economy.

Recognizing that tailoring skilling and training to the jobs relevant to people in local markets is the key to long-term talent development, Accenture offers numerous skilling initiatives adapted to local needs, cultures and educational systems. These include well-established apprenticeship programs, as well as many internship and youth skilling programs around the globe.

In 2010, we launched our Skills to Succeed corporate citizenship initiative to advance employment and entrepreneurship opportunities for individuals worldwide, leveraging digital innovation to drive impact at scale. To date, we—along with our nonprofit partners—have equipped nearly 400,000 individuals in the US with employment and entrepreneurship skills.

Additionally, our Skills to Succeed Internship Program in the US invites high school and college students to join Accenture during the summer or academic year from our local nonprofit partners, including KIPP, Year Up and Genesys Works. For most students, the Accenture internship is their first exposure to a corporate business setting and plays an influential role in their future educational and career goals and success. With a focus on developing new skills, our interns have worked internally to troubleshoot urgent technology issues, as well as externally with our client-facing project teams in such areas as data analysis, coding, project management and cloud-infrastructure development.

Beyond Skills to Succeed, and as part of our commitment to local workforce development, Accenture has partnered with nonprofits and established pilot apprenticeship initiatives across the US.

In Texas, for instance, Accenture provides mentoring workshops, internships and college-preparatory curriculum guidance at the Business Careers High School, a magnet high school at the Oliver Wendell Holmes High School campus in San Antonio's Northside Independent School District. Further, in 2017 we introduced a new US-based apprenticeship program for entry-level developers and testers in our San Antonio Technology and Innovation Center. The goal of this innovative public-private partnership with the city of San Antonio and Bexar County, Texas, is to grow and develop the next-generation technology workforce, focusing on the Eastside Promise Zone in San Antonio.

In Illinois, Accenture became a lead partner of the city of Chicago's College to Careers Initiative in 2016. The pilot apprenticeship program aligns each city college with a high-demand career sector and partners faculty and staff with leading employers and universities. In our role as a proud partner of one of the participating schools—Wilbur Wright College, which houses the City Colleges' Center for Excellence for IT—we are actively enhancing and shaping the IT and cybersecurity curricula. In addition to enabling graduates who have traditionally fallen outside our recruiting pipeline to develop skills in fast-growing fields like IT and cybersecurity, the apprenticeship program provides graduates with on-the-job experience—and the potential of full-time employment with Accenture.

Accenture also has a formal paid internship summer analyst program for undergraduate and MBA/advanced-degree students in the US. The 10-12-week program gives these students the opportunity to work on an Accenture project and assimilates them into the Accenture culture to better position them for the future.

In 2010, we launched our Skills to Succeed corporate citizenship initiative to advance employment and entrepreneurship opportunities for individuals worldwide.

Best practices from companies in Switzerland

Accenture

What were some of the challenges in implementing the VET programs in the US? Were local institutions, schools and universities eager to participate and help you implement your vocational training program? How much and what kind of support did you get from local, state and federal government?

The support from the community for Accenture's apprenticeship program in San Antonio, Texas, has been phenomenal—and instrumental to the monumental task of program establishment. We started by meeting directly with the Promise Zone, which then led to meetings with Alamo Colleges, the city of San Antonio, Bexar County and nonprofit partners of the city and county.

We were greatly assisted by our historical relationships in the community, but achieving our goals required taking those relationships to a new level—including several meetings with each stakeholder group to reinforce our commitment and explain specifically how the community would benefit from the program. Once we established credibility, the community opened its arms with support and funding.

The schools were eager to participate, due in part to their knowledge that elected officials were fully supportive of the program. The city engaged Workforce Solutions Alamo, which shepherds Department of Labor funds (eligibility-based), and we subsequently signed several agreements with them for youth programs, adult programs and on-the-job training program funding. The county also made us aware of potential grants.

We've received similar support in Illinois as lead partner at Chicago's Wright College, where we're building the Skills to Succeed approach into the fabric of the school through:

- Work-based learning: Volunteering, mentoring, guest lecturing, and a cybersecurity hackathon with the Department of Defense are a few ways our employees engage with students.
- Enhancing the curriculum: Our technology experts are actively working with the Mayor's office and City College leadership team to strengthen the cybersecurity curriculum.
- Job placement: Sourcing talent directly through technology apprenticeships and, eventually, offers of full-time employment.

How many apprentices a year do you take? How many applications do you receive per year? And how many apprenticeship contracts are converted into full-term employment at the end of the program?

We are hosting approximately 180 Skills to Succeed interns across all major US markets, an increase of more than 50% over 2016. To date, one former Skills to Succeed intern has been hired for a full-time role with Accenture, and others have joined Accenture's formal undergraduate intern program.

Our new pilot program in San Antonio will provide up to 50 paid apprenticeships in 2017 for students and adults from the Eastside Education and Training Center, Sam Houston High School, and St. Philips College. We hope to expand this to a comprehensive year-round program through which students and adults gain hands-on experience to better position themselves for entry-level jobs and careers in the digital economy.

Digital innovation, combined with the movement of different generations into and out of the workforce, is fundamentally changing the concept of work.

Our US summer paid internship program welcomed more than 450 summer interns across 26 locations in 2017. Approximately 90% of our interns go on to become full-time Accenture employees when they graduate from college.

In Chicago, early outcomes from our apprenticeship pilot suggest it can be an effective model to develop skills and recruitment. Most of the City College graduates hired in 2016 to work in our technology team for a 12-month opportunity were subsequently recruited to full-time roles. In 2017 we doubled the number of full-time offers, and we plan to extend City College recruitment into other areas of our business and continue increasing job opportunities to prepare the IT workforce of tomorrow.

In addition, we are establishing apprenticeship programs in several countries. In Switzerland, for example, we started with two apprentices in mediamatics in 2011 and have since established commercial and IT apprenticeship programs there. We currently have 16 apprentices and are taking on more each year, with plans to have 50 within the next three years. We collaborate with our experienced partner, Noser Young Professionals, where apprentices get a basic education in the first two years of the apprenticeship, working in teams of four and learning different coding languages. Following this two-year basic education, our IT apprentices are staffed on projects during

their third and fourth years, deepening their knowledge and skills.

What are your recommendations to other companies thinking about or starting a VET program in the US?

Based on our experience developing skills-development programs, including our Skills to Succeed initiative, we recommend that other companies embarking on such programs carefully consider the following three areas:

- **The evolving concept of work and its impact on skills development.** Digital innovation, combined with the movement of different generations into and out of the workforce, is fundamentally changing the concept of work. As workers must reinvent themselves and embrace lifelong learning to stay relevant and keep pace, skills-focused programming must evolve along with the marketplace.
- **Programs and beneficiaries.** We must look for ways to continuously improve the impact and reach of skilling initiatives by leveraging new technologies. While we increasingly turn to digital learning to support the greatest number of beneficiaries possible, many of the people who participate in these programs have limited digital skills. As a result, we must constantly balance scaling our programs with being mindful of beneficiaries' needs — including meeting them where they are and their need for truly human interaction.
- **National and local action.** Leaders—CEOs, government leaders and community organizations—need to work together to educate communities on the skills relevant for the future. The key to long-term talent development is thinking nationally and acting “community by community,” tailoring skilling and training to the jobs relevant to people in local markets.

Among other lessons we learned in developing our apprenticeship programs:

Best practices from companies in Switzerland

Accenture

- **Bring in community partners.** Schools, colleges, local government and nonprofits can all play critical roles in ensuring the success of skills-development programs.
- **Rally around a common objective.** We shared upfront how many people we could potentially fund and our desire to expand the program. Local partners who shared our ambitions, including the Workforce Development Office, helped identify funding channels and opened new doors.
- **Ask for help.** We directly asked the mayor and county judge for help and socialized our plans with other elected officials who helped us make local connections and continue to build relationships in the community.
- **Look to the partnership between Accenture and the city of Chicago as a proven, effective blueprint.** While there is work to be done to scale the initiative, it's a model that can be replicated by policymakers, businesses and higher education nationwide to give our young people skills to succeed in an increasingly digital world.



THE ADECCO GROUP

- + **Workforce solutions provider**
- + **33,000 full-time employees worldwide**
- + **Revenue: € 22.7 billion (2016)**

Unleashing the power of work through employability solutions

Headquartered in Zurich, Switzerland, The Adecco Group has a fundamental appreciation and respect for the dual education system, where students work and study in parallel. With a presence in 60 countries around the world, we have first-hand experience with the benefits of dual education apprenticeship programs in a diverse group of countries.

As the leading workforce solutions provider, we support our clients in finding the right

talent to match the skills they require. Increasingly, we face situations where we are not able to source the talent directly in the labor market. Often this relates to the area of skilled or technical work, although it strongly depends on the local labor market situation. This has led to a bottom-up process where colleagues in various countries simultaneously started to develop work-based learning solutions for The Adecco Group clients.

Our ambition for America

The Adecco Group North America is among the leaders in the Group when it comes to the topic of apprenticeships. Seeing our clients' needs, we are committed to leading an employment revolution in the United States, leveraging our global experience and network to close America's growing skills gap and provide Americans with the relevant work experience needed to succeed in the future workforce. With more than 50 years of experience, The Adecco Group North America is the ideal advocate to inform US employers and policymakers about the value of work-based learning.

In September 2016, The Adecco Group North America took a "leap of faith" with regard to making a difference for the benefit of future young professionals and employers in the country. Taking advantage of a meeting of the Global Apprenticeship Network (GAN) in Washington, DC, we made a pledge, to be met by 2020.

Our goal is to facilitate 10,000 work-based learning opportunities by then. To achieve that, we vowed to work with federal, state and local officials to adopt policies and practices that promote work-based learning opportunities and support policymakers, business leaders, nonprofits and educators to provide work-based learning solutions to prepare workers for the future of work in America.

Best practices from companies in Switzerland

The Adecco Group

The power of partnerships

The Adecco Group has a long tradition of partnering with strong stakeholders in the private and public realms. Building and co-creating solutions that enhance the skills of workers has been in the DNA of The Adecco Group colleagues across the globe for many years. Because experience has taught us that solutions work best if they are tailor-made, The Adecco Group was among the first private sector partners to join the first public-private partnership initiative that came out of a global effort: the Global Apprenticeship Network (GAN), set up in 2013. In 2016, The Adecco Group was honored when our CEO Alain Dehaze was named Chair of the GAN—and has since then been tirelessly on track to expand apprenticeship opportunities for people around the world. In the opinion of The Adecco Group, GAN is the “red thread” bringing together—at global and national

levels—policymakers and companies around the common goal of “Skills for Business, Jobs for Youth,” acting as the global unifying vehicle to educate employers and regulators about how apprenticeships can bolster productivity and profits and how it can be part of the solution to the looming skills gap.

For apprenticeships to succeed, employers must communicate their need for these experienced, skilled employees. Ultimately, employer demand will determine how rapidly and successfully policymakers will adopt apprenticeship programs. Therefore, the United States is a key focus of our efforts. We know our global network, along with the GAN, can educate and promote the advantages of apprenticeships and work-based learning throughout the 50 states of the US.

The truth about teaching

Implementing its apprenticeship solution, The Adecco Group North America realized that in order to make vocational educational training work in the US, we need to have a tough conversation about education. We must be honest about the reality of work in this country, that not all Americans need to go to college to succeed. As in many other countries, we see that today, a college degree no longer guarantees high-paid, managerial positions. The fact is that many blue-collar jobs (plumber, welder, truck driver) are well-paid and often earn more than many entry-level white-collar jobs.

With the advances in technology, we see that college-educated workers are being displaced. In the same way, technology and cheap labor abroad replaced blue-collar workers in the 1980s and 1990s, many white-collar workers are facing the same threat

today. Meanwhile, employers often complain that they cannot find candidates with the right technical and soft skills to succeed in the jobs available.

Middle-collar opportunities can be high-paid positions, but require an employee who possesses the relevant skills, experience and work ethic to succeed. Unfortunately, colleges and universities are often not the most appropriate or economical venues to acquire them. Work-based learning is the way to acquire middle-collar skills, as well as white-collar and no-collar skills. That’s why The Adecco Group North America is committed to offering Americans, most of whom will never graduate from college, a viable path to participate and prosper in the workforce of the future.

Taking appropriate action

The Adecco Group North America is currently working with partners in Kentucky and several other states to tailor programs that are unique to their populations and standards. In this specific current offering, we are working to identify people to provide career-based training. We are also working with secondary school systems to develop and encourage work-based learning among high school students. The Adecco Group North America is eager to lead this revolution and expand work-based learning opportunities across the country.

The Adecco Group North America serves as a resource for best practices, expertise and lessons learned. We stand ready as a global nexus for policymakers, nonprofits, educators, business leaders and students. We are confident that we can facilitate opportunities in which people, businesses and communities can grow and prosper together.

Regulate to innovate

We face many challenges along the way, the most obvious is regulation. Today, employers must contend with a tangle of local, state and federal regulations. While we recognize each state and locality has its own unique set of laws and guidelines, we believe that ultimately, policymakers will need to work together to provide more flexibility to employers who adopt these work-based learning solutions operating in multiple states. Otherwise, the programs will not be scalable because employers face varying regulations in each market. The Adecco Group is working with clients to develop customized programs that meet their needs and the regulatory environment in which they work. As regulations are improved, successful programs will surely flourish. Additionally, The Adecco Group is considering internal positions that could be part of an apprenticeship program.

Our success story

As one of our apprenticeship programs, The Adecco Group North America sponsors the Youth Employment Solutions (YES!) Program, which offers work-based learning opportunities to high school students in Kentucky. The state program known as TRACK (Tech Ready Apprentices for Careers in Kentucky) is serviced by The Adecco Group’s YES! Program through co-ops, paid internships, apprenticeships, and other work-based learning arrangements. The Adecco Group North America has partnered with state and local officials in Kentucky to grow the program. Since 2015, the YES! Program has:

- Introduced 2,500 students and educators to the merits of work-based learning
- Placed 60+ students in work-based learning opportunities who have worked over 10,000 hours
- Secured permanent employment for 93% of participants in their chosen field

Best practices from companies in Switzerland

The Adecco Group

- Created a pool of skilled candidates with work-based training and employability in the most in-demand industries including health care, welding, IT, supply chain management, business administration, and engineering
 - Resulted in participants earning more per hour than the Kentucky minimum wage.
- Further, The Adecco Group North America is committed to working with states and companies to structure customized programs as there is no one-size-fits-all approach. Through our YES! Program in Kentucky, we know that career-based learning opportunities (inclusive of internships with the more sophisticated work-based learning structures being apprenticeships) provide young adults with a path to pursue a meaningful and prosperous career by combining experience on the job while continuing to learn and grow. We will continue to partner with client organizations to ensure we facilitate 10,000 work-based learnings, with an emphasis on apprenticeships, by 2020.

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- + Automobile supplier in acoustic and thermal management
- + 11,725 employees worldwide
- + Revenue: CHF 2.2 billion (2016)

Autoneum North America Apprenticeship Program

Autoneum, with its headquarters in Winterthur, Switzerland, is the global market and technology leader in acoustic and thermal management for vehicles. The Company develops and produces multifunctional and lightweight components for optimal protection against noise and heat in the engine bay, the underbody and interior floor as well as the body-in-white. Customers include leading automobile producers in the markets of Europe, Africa, North and South America and Asia. Autoneum is represented at about 50 locations in over 20 countries and employs more than 11,000 people worldwide. The Company is listed on the SIX Swiss Exchange.

As a pilot, Autoneum decided to implement an apprenticeship program at its biggest US plant in Bloomsburg, Pennsylvania. Here, Autoneum manufactures carpet systems for international OEMs in the North American automotive market. The plant has been operating for over 125 years and is one of the largest employers in the mostly rural area of north east Pennsylvania, with approximately 700 employees.

One of the challenges Autoneum has been facing at its Bloomsburg facility is to ensure that its industrial maintenance personnel is able to adapt to increasing levels of automation and technological advancements in manufacturing. Most maintenance personnel is “home-grown” and lacked the formal training necessary to remain competitive in today’s market

environment. To address this challenge, Autoneum began exploring several options including apprenticeships.

As current employees retire or leave, all future maintenance mechanical personnel will be mechatronics apprentices or journeyworkers.

After hosting and attending several symposia on the need to enhance the skill levels of maintenance tradesmen, Autoneum became aware of the recently certified trade of mechatronics. There was a lot of collaboration with other local manufacturers and government officials from the US Department of Labor. A consensus emerged that mechatronics was the path to follow. Mechatronics is a multi-skilled trade that includes mechanical components, industrial electricity, fluid power and programmable logic controllers. It is a competency-based program that was recently recognized by the US Department of Labor as an apprenticeable trade and is based on standards developed by The Association for Packaging and Processing Technologies (PMMI).

Best practices from companies in Switzerland

Autoneum

The next challenge was to locate a provider for the academic or in class portion of the program. Local community colleges were set up to provide mechatronics training as part of a credit program leading to a college degree and for full time students. The Company worked with two local colleges who presented proposals to the consortium of companies that had been assembled. Penn College, an affiliate of Penn State University, presented a custom-designed program that met the PMMI standards and would accommodate training for apprentices who had full time jobs with participating companies. They agreed to present much of the training at the Bloomsburg facility and to also record the sessions for apprentices unable to attend the class. The program consists of 144 hours of in class training each year, plus on the job training and demonstration of the defined competencies. By partnering with two other local companies, Arconic and Sekisui SPI, Autoneum was able to obtain the critical mass that makes it economical for Penn College to deliver the classroom training at the Company's facility. Two sessions each week take place to allow for employees on all shifts to attend.

Concurrent with the above activity, Autoneum negotiated a formal apprenticeship agreement with the local union that established a Joint Apprenticeship Committee to administer and oversee the program. Existing maintenance personnel had the opportunity to register as apprentices and go through the program. Twenty-seven out of thirty-five mechanical maintenance employees elected to enroll in the program. Anyone now entering the trade will be required to complete the full mechatronics program. The rationale for allowing current maintenance employees to enroll is to enhance their skill levels to help prepare Autoneum for future business challenges. As current employees retire or leave, all future maintenance mechanical personnel

will be mechatronics apprentices or journeyworkers. In 2016, the Autoneum apprenticeship program was formally registered with the Apprenticeship Branch of the Pennsylvania Department of Labor and Industry.

The US Department of Labor has placed a focus on developing and promoting apprenticeships as a means to enhance the country's competitiveness and maintain its manufacturing base. Autoneum is optimistic that the model the Company has pioneered can be used as a template for other apprenticeships.

Additional information:

Autoneum is represented on the Board of Directors of the Workforce Investment Board for north east Pennsylvania, which oversees training grants and workforce development activities in the region. Through its involvement, Autoneum has taken an active role in promoting apprenticeships in the region and is seen as a leader in this area. The Company's involvement in this Board facilitated connecting with officials from the Department of Labor when setting up the program. Autoneum was also invited to participate in a roundtable discussion with the Secretary of Labor on apprenticeships in 2014.





- + **Technology group, processor of grains, rice, cocoa, coffee and other raw materials**
- + **10,600 employees worldwide**
- + **Revenue: CHF 2.4 billion (2016)**

Earn while you learn—the Swiss apprenticeship model at Bühler

Bühler is committed to training and continuing education on a global scale. For over 100 years, it has supported the career prospects of young apprentices in Switzerland. For the past decade, it has expanded the program to many more countries including the United States.

Bühler has been a pioneer in training and the further development of its employees since 1915. It was then that Albert Bürkler began a metalworking apprenticeship in Uzwil at the company headquarters. Today, the company offers apprenticeships in 12 vocational areas and about 600 apprentices are enrolled worldwide. As the company grew, Bühler exported its vocational training model not only to the US, but also to Brazil, China, Germany, India, and South America. The Bühler academy in Minneapolis, Minnesota is operated based on the Swiss dual education system of practical training at a host company, in this case Bühler, combined with classes at a vocational school. Three months of classroom work at the Dunwoody College of Technology, then three months of hands-on work at Bühler: this is the cycle of the three-year training program. In the first year, the apprentices learn how to use tools and machinery. In the second, they familiarize themselves with everything electrical, and in the third they learn the fundamentals of machine design and business administration.

Apprenticeship training content:

- Manufacturing processes & materials
- Blueprint reading
- Algebra, trigonometry and geometry
- Geometric dimensioning & tolerancing
- Introduction to mechanical components
- Statistics & strength of materials
- Production drawing & application of GDT
- Math for machining technology
- Communication
- Interaction & process
- Project management
- Electrical fundamental theory
- Electrical application I
- Statistics
- Basic understanding of schematics
- Electrical application II
- Math for computers
- Schematics
- Electronic devices lab
- Introduction to PLCs
- Product design
- Introduction to management & supervision
- Operations management
- Principles of business accounting
- Quality & lean systems theory

Training, classes, tools, books, uniforms and a computer are all covered by Bühler. The apprentices also receive a salary and social benefits. “This concept of being paid to learn a trade is something many applicants in the US find hard to believe,” says Andreas Bischof, Head of Vocational Education and Training at Bühler. “In fact, we invest \$30,000 per apprentice per year.” Bischof believes every dollar invested in these promising talents is money well spent and a win-win for workers and companies. The entire first class of graduates of the Minneapolis academy are now employed at Bühler in Minnesota. “We gained five very loyal technicians as a result of our investment into their training,” Bischof explains. “The Swiss apprenticeship model makes economic sense because it not only gives graduates a chance to start their careers fully prepared for a job without the burden of student debt—the company also profits from hiring a highly skilled workforce. “But it’s not only companies that benefit from implementing this vocational learning model. Countries that use the dual-track system, including Germany, Austria, Denmark and

the Netherlands, have markedly lower youth unemployment. Switzerland has the lowest, which is why the Swiss system is viewed as a benchmark by many countries, especially the US. The successes of Bühler’s own apprenticeship program caught the attention of high-level US officials in 2015. Then, the former US Second Lady, Jill Biden, visited Uzwil personally to see the system in action. Meanwhile, Bühler Chairman, Calvin Grieder, was invited to the White House to share the company’s expertise in this field. The exchange between Switzerland and the US continues with a three-year joint declaration of intent signed by the two countries in 2016 to work together and share knowledge about vocational education. Bühler’s apprenticeship program in the US is still going strong. Its Raleigh, North Carolina location started its own academy in 2015. A total of 22 trainees are now enrolled at the two academies. “I am proud of what we have achieved in the US,” Bischof says. “I encourage anyone to apply who has a willingness to learn and the desire to succeed.”



About Bühler

Every day, billions of people come into contact with Bühler technologies to cover their basic needs for food and mobility. Bühler strives for innovations for a better world, with a special focus on healthy, safe, and sustainable solutions. The company is a leader in processing grains, rice, cocoa, coffee, and other raw materials and is also a leading solution provider of die-

casting and surface coating technologies in high-volume application areas, such as automotive, optics, and inks. In 2016, its 10,640 employees in over 140 countries generated a turnover of CHF 2.45 billion. Bühler is a Swiss family-owned company committed to sustainability.



- + Focused industrial supplier
- + 496 employees worldwide (July 2017)

Briefly present your company businesses and describe any specificity in your industry sector that requires specific skills.

As a direct subsidiary of the family-owned Swiss-based Daetwyler Group, Max Daetwyler Corporation (MDC) is a leading manufacturer and supplier to the North American market of uncoated Doctor Blades, a consumable which is used to wipe the excessive ink off a printing cylinder. With our Faessler brand we are serving the automotive industry with gear honing machines. Furthermore, we are the exclusive US distributor of the German-based ContiTech (Continental) elastomer plates as well as the exclusive distributor in the US and Canada of Renzmann washing and distillation machines. MDC- US also builds customized turnkey systems and rebuilds existing equipment for customers located within a 100-mile radius from our Huntersville, NC location. We need skilled labor to install and service the gear honing machines, washing and distillation equipment as well as the customized turnkey systems.

Why and when did you decide to develop the Swiss apprenticeship program in your company's US subsidiary?

The apprenticeship program was originally started in 1995 to fill the need of skilled labor in field service for our graphics equipment in the US and Canada. One year later, in 1996, Apprenticeship 2000 was founded together with our partner firms Blum (Austria), Sarstedt (Germany), Ameritech (US), and the local Central Piedmont Community College.

The apprenticeship program was originally started in 1995 to fill the need of skilled labor in field service for our graphics equipment in the United States and Canada.

What were some of the challenges in implementing the VET programs in the US? Were local institutions, schools and universities eager to participate and help you implement your vocational training program?

Back in 1996, the apprenticeship programs were widely unknown and mainly related to unions. The local community colleges did not have the required understanding of apprenticeship programs and needed a lot of clarification. Fortunately, Central Piedmont Community College agreed to work with us and was willing to make the necessary adjustments to meet our needs. To this day, one of the big challenges is to find qualified students who want to participate in an apprenticeship. Unlike Europe, where students are searching for a company at which to do their apprenticeship, in the US we must look for the students. Since we start our apprentices during their senior year in high school, we work with the high schools in our area to make teachers, guidance counselors, and students aware of the apprenticeship opportunities. In addition, we make the parents of potential apprentices aware of what an apprenticeship is about. This effort to elevate the awareness of apprenticeships is ongoing.

How many apprentices a year do you take? How many applications do you receive per year? And how many apprenticeship contracts are converted into full-term employment at the end of the program?

On average, we hire one apprentice per year, but together with the other partners in the Apprenticeship 2000 program, the total is 10 to 15 apprentices a year. The main difference between the Swiss and US apprenticeship program is the effort we must put into recruiting an apprentice here in the US. The first step in finding the right apprentice is to invite the teachers to the company to explain what our apprenticeship program involves. We then visit the high schools and present our program. During these visits, we see over 100 students. All interested candidates, including at least one of their parents, are invited to the company for a presentation and plant tour. During four orientation evenings, the candidates will execute a project that is given to them by the apprenticeship coordinator, and a test will be conducted that includes mathematics, reasoning, and items learned in previous lessons. At the end of the recruiting process, the prospective apprentices attend a six-week paid internship before the final selection takes place. Every apprentice is offered full-time employment after graduation; however, not every apprentice will stay.

How much and what kind of support did you get from local, state and federal government?

From the registering body of North Carolina Apprenticeships, we received support for the documentation of the programs, answers to ensure a certain standard, and a federal and state journeyman certificate. The community college in North Carolina is providing a tuition waiver for apprentices who start their program during high school.

Since your company implemented the VET program, did you notice not only better recognition for apprentices (when entering the labor market), but also in the program (when applying for a teaching program)? Is this something positively valued by students and companies as equivalent to other educational programs?

Yes, we see better recognition for apprentices in the labor market as well as from the teachers. However, we still have a long way to go to get the same recognition as we get in Switzerland. Apprentices and their parents clearly see the apprenticeship program as an equal or better education than other programs. However, there are still too many people who do not understand what an apprenticeship really is.

What are your recommendations to other companies thinking about or starting a VET program in the US? What are the biggest mistakes to avoid?

The apprenticeship program is an essential part of our growth. Without this program, we would not be able to minimize the skills gap. The apprentices learn about the company culture, our technically demanding products and the required technical skills. The biggest mistake for a company to make is to wait and hope that somebody else will close the skills gap. These companies need to be part of the solution.



- + **Fragrance and flavor company**
- + **7,000 employees worldwide**
- + **Revenue: CHF 3.34 billion (2016)**

Firmenich committed to apprenticeships in North America

Firmenich has been very successful with its apprenticeship program in Switzerland. Initiated over 60 years ago with roles across commercial, supply chain, research and support functions, Firmenich has been acknowledged as the best “Entreprise Formatrice” in Switzerland by La Cité des Métiers.

An example of how successful this program has been for Firmenich is the story of Dr. Christian Starkenmann. As a 16-year-old, he joined Firmenich as an apprentice supply chain operator in the Group’s ingredients plant in La Plaine, Geneva. Today, he is leading the company’s breakthrough research in malodor control in partnership with the Bill & Melinda Gates Foundation.

As Christian began his apprenticeship with Firmenich, he discovered his passion and ability in chemistry and subsequently went all the way up to getting a PhD—all while working at Firmenich. Ultimately, he rose to become one of the company’s six distinguished scientists, Firmenich’s circle of most outstanding researchers driving the greatest impact in the world.

Dr. Starkenmann today is not only improving Firmenich’s business results, he is actively applying his science and expertise to help solve the world’s global sanitation crisis with 2.5 billion people lacking access to proper sanitation facilities, leading to the

spread of hygiene-related diseases and a child mortality rate of 800,000 a year. When Firmenich realized that smell could play a key role in solving this challenge, Dr. Starkenmann took on the challenge and has since delivered breakthrough technologies that effectively counter malodor.

When the US Embassy approached Firmenich to commit to an apprenticeship program in the United States, the Group embraced the opportunity. The leading fragrance and flavor house proudly signed the pledge to hire up to 10 apprentices across its New Jersey operations in supply chain manufacturing, laboratory, and maintenance engineering roles. The Group plans to launch its program to include up to 10 apprenticeships next year to support its operations.

Firmenich at a glance

Firmenich is the world’s largest privately owned fragrance and flavor company and ranks number two in the industry with a turnover of CHF 3.34 billion. Founded in 1895 in Geneva, Switzerland, Firmenich has a 120+ year heritage of leading its business responsibly, spanning five generations of Firmenich leaders. A private company, operating according to the highest standards of public governance, the Group values its independence and takes a long-term view of the industry.

Firmenich’s vision is to be the most trusted and aspirational fragrance and flavor house in the industry, committed to:

- Partnering to win with customers around the world
- World-class research and creativity, as the company’s engine of growth
- Responsible business practices with a strategic focus on sustainability and governance.

Globally, 7,000 colleagues advance this vision, working across 63 facilities that serve more than 100 markets. Today, Firmenich makes some of the world’s greatest brands, delighting more than four billion consumers globally every day. Driving excellence across the Group’s four key competencies—perfumery, flavors, ingredients and research—Firmenich sells to global, regional and local customers in the fragrance, household, and food and beverage industries.

Fostering a culture of diversity and inclusiveness

Firmenich is on an active journey to keep on nurturing its culture of inclusiveness and diversity across all levels of the company, starting with its executive committee, which has a one-third female membership and represents eight nationalities. Globally, the company’s progress to date is positive with female colleagues representing 40% of its global workforce and 35% of its employees at director level and above. However, this is just the beginning.

The Group is committed to going beyond just closing the gender gap by embedding key performance indicators for diversity directly into its programs and processes, supported by a compelling range of leadership trainings, cross-generational initiatives and succession planning focusing on growth for emerging market talent.

Gender equal pay

Firmenich proudly champions equal treatment for all. For example, following a state-driven equal pay study in Switzerland, Firmenich was ranked in the top tier of equal pay employers with women earning 1% more than men with equal competencies and experience. Taking this as the benchmark, the Group then ran the same study at its Princeton campus in the US and found similar results. Building on this success, Firmenich is rolling this study out around the world to ensure all sites reflect the company’s commitment to gender equal pay.

Millennials at Firmenich

Another key focus area of Firmenich’s strategy is developing its talent and capabilities. With millennials representing 62% of all new hires worldwide, Firmenich is committed to developing its next generation of professionals, who will play a key role in driving the Group’s long-term success.

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This year, Firmenich championed a millennials community, designed, produced and executed by millennials for millennials to empower its young and energetic colleagues. Building on this commitment, Firmenich sends a group of millennials to experience “One Young World,” an annual global leadership event for young leaders under 30 years of age. In 2016, Firmenich millennials joined 1,300 young leaders from global and national companies, NGOs and

Best practices from companies in Switzerland

Firmenich

universities to share innovative solutions for the pressing issues the world is facing, spanning human rights, global business, education and the environment.

Accelerating innovation

Firmenich deeply believes in the power of education. Not only does the company strive to attract, develop and retain the best talent in the industry, it also focuses on accelerating cutting-edge science and innovation through strong links with state-of-the-art research universities.

In 2015, Firmenich created two next generation research programs to support the advancement of breakthrough science in neurosciences. Through this program, Firmenich is supporting two leading professors at Stanford University in the US and the Ecole Polytechnique Fédérale de Lausanne (EPFL) in Switzerland. These endowments build on two chairs Firmenich runs at MIT in the area of organic chemistry.

Not only does the company strive to attract, develop and retain the best talent in the industry, it also focuses on accelerating cutting-edge science and innovation through strong links with state-of-the-art research universities.

Making a difference in our communities

Finally, as a family-owned company, making a positive contribution to its communities has always been a priority. Fostering a culture of inclusiveness is not only about offering equal opportunities for Firmenich colleagues, but also local communities. Some of the most vulnerable groups within Firmenich's value chain are the smallholder farming families at the source of its natural ingredients, such as vanilla in Madagascar, patchouli in Indonesia or vetiver in Haiti.

Through its Naturals Together initiative, Firmenich is committed to supporting sustainable livelihoods and actively works with local farmers, as well as with NGOs and governments, to reinvest back in their communities. Today, Firmenich is proud to support the livelihoods of 250,000 farming families at the source of 170 varieties of natural ingredients.



Briefly present your company businesses and describe any specificity in your industry sector that requires specific skills.

Mikron Corporation Denver is a US subsidiary of Mikron Group, a Swiss-based company that creates automation and machining systems that enable extremely precise and productive manufacturing processes. This company, based in Englewood, Colorado, is part of the automation division and is one of the world's leading manufacturers of customized, highly productive automation solutions for the assembly and testing of complex products.

The customers we partner typically Fortune 500 companies developing and selling complex products small enough to fit in your hands. Mikron-designed automation solutions are developed specifically for the customer. Their modularity, precision and process flexibility help you to realize your project quickly and efficiently. A flexible solution, that can change to suit your production needs within an ever-changing marketplace.

The Colorado company has turnkey responsibility for concepting, selling, designing, building, debugging, and after-sales support of customized assembly equipment for a wide variety of industries in North America from medical device and pharma to automotive and consumer goods.

Our greatest asset is the knowledge of our people and their ability to design complex machines for products, most of which are prototypes themselves. We are

- + **Producer of automation and machining systems**
- + **1,200 employees worldwide**
- + **Revenue: CHF 0.3 billion (2016)**

very heavily dependent on the expertise of our people who are highly qualified engineers and technicians, predominantly in the mechanical and control fields.

Why and when did you decide to develop the Swiss apprenticeship program in your company's US subsidiary?

Revenue growth in the US since 2012 has seen our workforce triple. Highly qualified and experienced Swiss expatriates, recruiting and training people has been critical to this success. Our traditional recruiting method of hiring people with two to five years of experience had been disappointing, especially in the mechanical technician department, where our success rate had rarely exceeded 50%.

This lack of success led to a reassessment of our recruiting methods and in 2015 we decided to implement a Swiss-style apprenticeship program focusing specifically on mechanical technicians.

What were some of the challenges in implementing the VET programs in the US? Were local institutions, schools and universities eager to participate and help you to implement your vocational training program?

The biggest initial challenge was deciding where to start. The Swiss Embassy in Washington, DC, was instrumental in introducing us to two Swiss companies who have implemented apprenticeships in the US: Max Daetwyler Corporation and

Best practices from companies in Switzerland

Mikron

Bühler Inc. From their generous sharing of knowledge, we were able to put a plan together of how to proceed.

The second challenge is that very few people in the US understand what an apprenticeship is as there is no common or federal program. This means that you need to “sell” the program to everyone: internally to managers and employees, the prospective apprentices and their parents, and the school districts and the colleges.

Long term, the US needs a new approach to college schooling for apprentices that mirrors the Swiss VET model. This will assist smaller companies to take on the apprenticeship model and give greater consistency to the US apprentice model.

How many apprentices a year do you take? How many applications do you receive per year? And how many apprenticeship contracts are converted into full-term employment at the end of the program?

Our program has two elements:

- A five-week internship during the high school vacation as the key element of the selection process
- The 8,000-hour apprenticeship over four years.

The Cherry Creek School District has managed to limit the number of applicants each year to 35 by understanding our program and selecting the best-fit students for us.

In the first year, 2016, we had 10 interns and then selected three apprentices from the internship group. As we enter our second year, six students will be selected for the internship, and two will be selected as apprentices.

Although it is still a new program, we

can already tell that these apprentices will become the future leaders inside our organization based on their knowledge, work ethic, and understanding of the Mikron way.

How much and what kind of support did you get from local, state and federal government?

The state of Colorado was very proactive during the development of our program, starting with Governor Hickenlooper and his staff. His belief in the program is so strong that he brought a 50-member delegation of state officials and company leaders to Switzerland for a week to learn about the Swiss apprentice program. We were then assisted by the group’s entities formed by the state: Colorado Advanced Manufacturing Alliance (CAMA) and CareerWise Colorado. CAMA helped us meet with other companies looking to create similar programs: Pilatus Business Aircraft Ltd and Sandoz Inc (both Swiss-based) and Intertech Plastics Inc (US-based). This enabled us to share knowledge and contacts as we created the program.

The support of the Cherry Creek School District has been incredible. They have helped to promote the apprenticeship program to the students and assisted us in the selection of the best candidates for our program. The US Department of Labor was very helpful, assisting and advising on the registration of the program as well as connecting us to other useful resources.

The other great supporter of the Mikron Apprenticeship program is the former US ambassador to Switzerland and Liechtenstein, Suzi LeVine and her husband Eric LeVine, who have both provided a wealth of knowledge and contacts. Suzi is also a board member of CareerWise Colorado, which is part of Governor Hickenlooper’s effort to create a sustainable apprenticeship program in Colorado.

Since your company implemented the VET program, did you notice not only better recognition for apprentices (when entering the labor market), but also in the program (when applying for a teaching program)? Is this something positively valued by students and companies as equivalent to other educational programs?

It is too early to understand the long-term influence of our program. We do understand that this has a massive influence on our apprentices, and they are very proud to be Mikron apprentices. We are now approached by other companies, including customers and competitors, who are interested in developing their own programs.

What are your recommendations to other companies thinking about or starting a VET program in the US? What are the biggest mistakes to avoid?

The best recommendations we can make are:

- Don’t overthink it. As you learn more about apprentices and realize that they are a key part of your company’s long-term future, then quickly move into the phase of clarifying how to make it work and not the why.
- Don’t proceed alone. There are many resources at the federal and state level to guide you through setting up the apprentice program. In addition, the Department of Labor and apprentice leaders like Mikron who want to share their knowledge and experience with other companies to create opportunities for companies and students.

The biggest mistake to avoid is underestimating the ability of US students. The school systems are far better than we are led to believe and once on board, the students will be totally committed and will have a very positive impact on your company’s culture.



Jeremiah Desen, apprentice (left) and Matthew Burnett, apprentice (right) with mentor Modesto Quezada.



Selena Elekovic, apprentice, with mentor Zach Cranford.



Suzi LeVine and her husband Eric LeVine during a visit at Mikron Denver.

“I’m proud to be part of Mikron. In the first year of my apprenticeship, I’ve already learned so much.”

Jeremiah Desen



- + **Food and beverage company**
- + **328,000 employees worldwide**
- + **Revenue: CHF 89.5 billion (2016)**

Building a workforce for the future

Briefly present your company businesses and describe any specificity in your industry sector that requires specific skills.

Nestlé in the United States is committed to enhancing quality of life and contributing to a healthier future—for individuals and families, for our thriving and resilient communities, and for the planet. To support thriving communities and livelihoods where we operate, Nestlé leads the way in developing programs like apprenticeships in the US to advance the skills needed for career development within today's workforce. Specifically, Nestlé recognizes the unique skills needed within modern day manufacturing. Recognizing this need, Nestlé sees US-based apprenticeships as

as manufacturing. Beyond manufacturing, employers are increasingly finding that applicants lack the necessary skills and training for the positions they need to fill. This skills gap is only expected to grow over time if left unaddressed. Given this challenge for both communities and companies, Nestlé identified a valuable opportunity for bringing the Swiss model of apprenticeship development to the US.

When and why did you decide to develop the Swiss apprenticeship program in your company's US subsidiary?

In 2015, Nestlé launched Project Opportunity in the US. Through this initiative, we have committed to

Nestlé leads the way in developing programs like apprenticeships in the US to advance the skills needed for career development within today's workforce.

critical to developing specific skill sets and the knowledge transfer needed to ensure success for the next generation of our workforce.

Over time, companies in the US have offered fewer apprenticeship programs, leaving a critical skills gap in industries such

establishing 136 apprenticeship programs across our US factories by 2020. Legacy apprenticeship programs did exist prior to the launch of Project Opportunity; however, in 2015, we made a larger commitment to formalize our apprenticeship programs and expand our operations across the country.

Project Opportunity is part of Nestlé's Global Youth Initiative, which seeks to lessen the unemployment gap across the globe. Over the last two years, Nestlé in the US has developed apprenticeships to help people of all ages gain work experience and strengthen their professional development skills in food and beverage manufacturing. The initiative seeks to enhance the employability of people in the workforce, helping better prepare participants for career development. Using the Swiss model of apprenticeship development, Nestlé is committed to lessening the unemployment gap and providing the needed skills, resources, and training to best equip the next generation of our workforce in the US.

The lifeblood of successful businesses—especially one with Nestlé's mission, scope, and reach—is a modern workforce. At Nestlé, our ability to create value for our shareholders depends on the value we create for society. We can only achieve these dual goals by investing in our people and supporting their career development.

Therefore, providing practical job and training opportunities is not only good for our employees, it's good for business. A highly skilled workforce is key to meeting today's fast-moving business demands.

What were some of the challenges in implementing the VET programs in the US? Were local institutions, schools and universities eager to participate and help you implement your vocational training program? How much and what kind of support did you get from local, state and federal government?

Developing our apprenticeship program is an intensive process given that apprenticeship sites vary in size of market and individual needs for that site's talent pipeline. Given that this is the case, developing our apprenticeship programs

requires elements of customization, but also requires that standardized processes are in place, such as the selection process and performance reviews.

Local community colleges and vocational schools have offered strong support in establishing Nestlé's US apprenticeships. Nestlé in the US has partnered with vocational schools in close proximity to our factory locations, working together to build a curriculum and training program for a career in high-tech manufacturing—with a specific focus on roles of maintenance mechanic and electrical & control technician. Nestlé offers strong support to those in the program by paying for their training, classes, schooling, books, supplies and tools. The programs consist of 144 hours of in-class training at the local community college/technical school each year and approximately 2,000 hours of on-the-job training per year. Upon completion of the program, every apprentice is offered full-time employment as either a maintenance mechanic or an electrical & controls technician.

We are working with educational institutions in Indiana, South Carolina, Illinois, New Jersey, Arkansas, Kentucky, Michigan, California, Wisconsin, Maryland and several other states to tailor training programs to business needs. At Nestlé, we believe that our people are our most important asset and the source of our competitive advantage. Therefore, we see these programs as the key driver to long-term talent development within our organization.

Partnering with local vocational schools has provided the needed education, training and development pathway for further career advancement in today's workforce. Additionally, the Department of Labor has provided helpful assistance in getting the programs registered and ensuring Nestlé is meeting the various requirements for each state.

Best practices from companies in Switzerland

Nestlé

One fruitful institutional partnership is based at Nestlé's Anderson factory in Indiana, the pilot location for Nestlé US's newly developed apprenticeship program in partnership with Ivy Tech Community College. The program itself was developed by a dedicated task force who then used their learnings to construct the Apprenticeship Program Guidebook. This guidebook was a tool developed to ensure Nestlé sites have a clear understanding of the steps needed to implement an apprenticeship program and to ensure a standardized and consistent approach. Since its development, the guidebook has been recognized as a best practice and highlighted in other global markets within Nestlé S.A.

To celebrate and highlight the Anderson factory's achievements, US Senator Joe Donnelly visited the factory in August 2016 with Dr. Sue Ellsperman, the President of Ivy Tech Community College, which partnered to develop the program curriculum. The visit positioned Nestlé as a true leader in developing apprenticeship programs in the US and emphasized the impact of apprenticeships in closing the unemployment gap, particularly in that region of Indiana.

How many apprentices a year do you take? How many applications do you receive per year? And how many apprenticeship contracts are converted into full-term employment at the end of the program?

The number of apprentices are identified on a factory-by-factory basis. When implementing these programs, our factory teams perform a deep dive analysis of future workforce gaps. Based on those gaps, our teams then determine how many apprentices would be needed at each factory location to ensure a strong talent pipeline for our future workforce.

To attract candidates, our factory locations are posting roles internally and externally. Many candidates for our programs are current employees at Nestlé who want to increase their own competency levels for career advancement.

Many of our apprenticeship programs are still serving their first cohort, however, Nestlé did have existing and legacy programs in place prior to launching Project Opportunity, and from those programs, Nestlé has retained 96% of the apprentices within the maintenance function. Typically, the programs are structured over a three-to-four-year time period, and upon completing the program- the participants are reclassified as maintenance mechanic or electrical & controls technician, then slated into a full-time role automatically. Since launching Project Opportunity, we have developed 13 new apprenticeship programs and hired 33 new apprentices for a total of 88 across the Nestlé USA, Nutrition, and Professional factories.

What are your recommendations to other companies thinking about or starting a VET program in the US? What are the biggest mistakes to avoid?

As other companies look to develop apprenticeship programs in the US, we at Nestlé hope they will follow the path we have set out on. It is important to first develop program standards, ensuring there is a thorough selection process in place so that participating candidates have the aptitude to be successful. It is also crucial to assess the needs of the business

To celebrate and highlight the Anderson factory's achievements, US Senator Joe Donnelly visited the factory in August 2016 with Dr. Sue Ellsperman.



and determine the knowledge and skills needed for the future. Business leaders and program architects must clearly identify training objectives for the technical school curriculum and on-the-job training plans. Alignment between academic learning and practical on-the-job training is key for success.

Additionally, business leaders should ensure on-the-job trainers are competent in training and coaching others. To assist in this, businesses should identify journeyworkers who are capable and committed "coaches" or mentors to those going through the program and also conduct six-month performance reviews to ensure the apprentice is successfully completing their classroom training, on

the job training, and is able to successfully demonstrate the defined competencies/key learning objectives.

It is equally important to train the existing workforce on the value and importance of having apprentices to create a positive working environment for these individuals. Make the development and sustainability of apprenticeship programs a part of your company's training strategy and let it become a part of your culture, your company DNA, and a point of pride within your organization.

Alignment between academic learning and practical on-the-job training is key for success.



- + **Development, manufacturing and distribution specialist**
- + **9,000 employees worldwide**
- + **Revenue: \$1.5 billion (2016)**

SFS Group in brief

SFS is an international development, manufacturing and distribution specialist focused on developing, manufacturing and supplying precision components, engineered fasteners, and application specific fastening systems for a range of applications to customers in various industries, including the automotive, electronics, medical, aerospace, general industrial, and construction industries.

Third-party sales in 2016 were \$1,457.1 million and SFS employed 9,000 people globally.

US-Medina site

The primary manufacturing plant for our automotive division in North America is

located in Medina, Ohio. Precision-formed metal parts for applications like seat belts, air bags, anti-lock breaking systems, electric parking breaks and power trains are typical products manufactured on-site.

Our core cold-forming technology requires highly skilled operators to mass-produce automotive safety parts with tight tolerances and zero-defects. Tooling for cold forming is produced and maintained on-site by highly skilled toolmakers. Furthermore, skilled operators in our secondary operations, such as machining are a must for delivering perfect quality ready-to-assemble products.

Vocational training and education at US-Medina

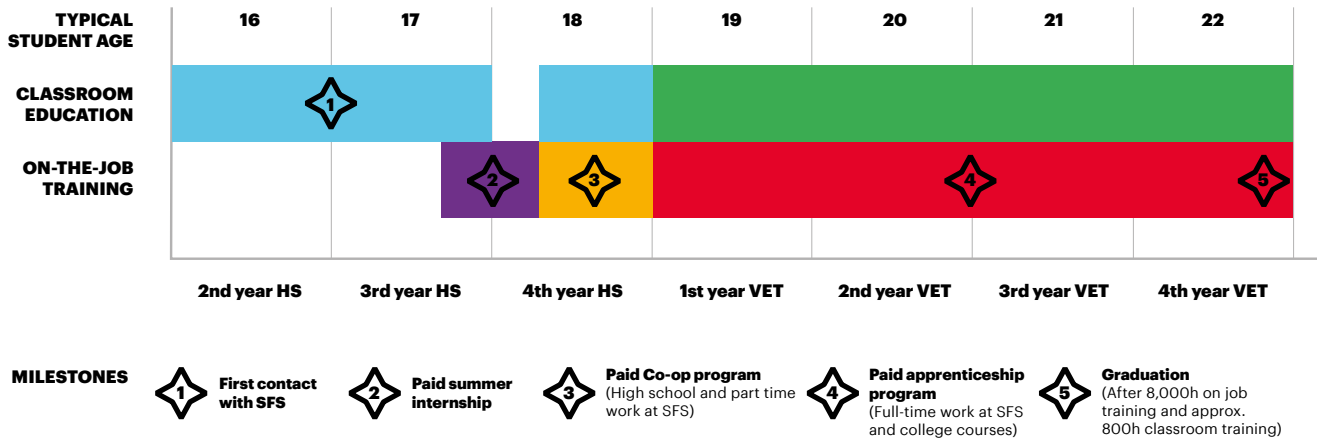
The Medina division has offered an apprenticeship program since 2002. However, a workforce planning and talent management analysis in 2014 resulted in a commitment to expand the apprenticeship program beyond the traditional US model.

To get the right people in the right jobs for the future, an assessment was conducted, which covered:

- Potential skill shortage in critical positions
- Career development demands on new job entrants

- Emerging automation and technology
 - Critical job competencies
 - Access to resources
 - Market and environmental trends
 - Alignment of talent to accomplish objectives
- The solution was to implement the Swiss apprenticeship model within the US automotive division.

The learning journey



First contact

High school students get the opportunity to tour our facility and participate in an informational open house, along with their parents and teachers, to learn about our vocational education and training (VET) programs.

Paid Summer internship

The summer internship program is designed to expose high school vocational students to various manufacturing processes before their last year of studies. Throughout the program, students begin to understand the different manufacturing processes as they rotate through departments, including cold-forming technology, production machining, tool and die, engineering and quality control.

Paid co-op program

The co-op program allows students to receive more in-depth exposure to each department while still finishing the last year of vocational school. Through this process, the mentor of the given department conducts evaluations. Near the end of the co-op, the student may apply for the State Certified Apprenticeship Program.

Best practices from companies in Switzerland

SFS

Apprenticeship program

Once students finish high school, they can apply for an apprenticeship position at SFS. Each applicant must also complete the agreement issued by the state of Ohio Apprenticeship Council. Applicants are selected for enrollment based on the company hiring requirements and their eligibility to learn and work in the apprentice occupation. Currently, SFS has the following programs certified by the state of Ohio:

RA TITLE	RAPIDS #	OCCUPATIONAL CODE	ON-THE-JOB TRAINING HOURS	CLASSROOM HOURS
Machinist, precision	0296	51-4041-00	8,000	800
Tool and die maker	0586	51-4111-00	8,000	800
Machine repairer-maintenance	0292	49-9041-00	8,000	848
Automated equipment engineer technician	0821	49-9044-00	8,000	729
Heavy forger-cold forming production machinist	0947	51-4022-00	8,000	768
Machine setter production machinist	0938	51-4081-00	8,000	864

Rotation and learning

During the first year, the apprentice will begin the employment rotation throughout the facility. The apprentice will be challenged on technical know-how to help determine the best occupation for their career. Additionally, the apprentice will attend job-related classes at the university or college and complete several online technical classes as part of the overall curriculum.

In the second year, the scope of the on-the-job training narrows with rotation in a specific department. Together, mentors and the apprentice determine the specialized occupation while the related studies become more robust. The apprentice will continue rotating within the given department, gaining additional knowledge.

During the third and fourth year, the apprentice continues with on-the-job training on specific machinery and related instruction, becoming specialists in their given field.

Learning abroad

During the third and fourth year of the program, selected students who are highly competent, could be awarded an opportunity to experience the culture and technical heritage of Switzerland and become reacquainted with the Swiss colleagues they met during their summer, co-op or apprenticeship experience.

Graduation

After 8,000 hours of on-the-job training and over 725 hours of related classroom instruction, the apprentice will graduate, receiving the certification. The apprentice also achieves a university or college credit worth over 50% toward a technical associate’s degree.

Enrollment

The initial goal of the program was to incrementally employ up to 10% of the population as apprentices. For the first time, this year, the number of students and parents attending the apprenticeship open houses yielded over 60 students and parents.

YEAR (JUNE - JUNE)	SUMMER INTERN APPLICANTS	SUMMER INTERNS	CO-OPS	APPRENTICE APPLICANTS	APPRENTICES ACCEPTED	GRADUATED APPRENTICE
2016	7	6	2	3	2	0
2017	15	7	5	12	5	3
2018		8	6		7	1
2019		8	6		8	3

Former apprentice in management positions at US-Medina

POSITION DESCRIPTION	TOTAL EMPLOYEES	TOTAL FORMER APPRENTICE *	% FORMER APPRENTICE
Vice president level	2	1	50
Management level	7	4	57
Supervisor level	13	2	15

* includes expats

Lessons learned

Challenges

The most difficult hurdle to overcome is the fact that VET models are not very well known in US. This creates a whole set of challenges:

- **Internal resistance** – leadership staff and subject matter experts were skeptical at first about the value of their time commitment. “We need to hire experienced people” was a phrase often heard.

- **VET versus college** – parents and teachers see success when their students/children get accepted to a college. This makes it difficult to draw the right talent toward VET.
- **No standards** – the standards for VET models in US are not as defined as they are in Switzerland, which can be a challenge when defining the curriculum for the apprentice. Colleges are not necessarily set up to support the schedules needed for VET programs.

Best practices from companies in Switzerland

SFS

Recommendations

- **Be clear** – make it very clear to all management staff and subject matter experts that there is a strategic need for VET and that it is imperative for future success. Allocate the necessary resources and reward employees who are advocates of the program.
- **Build your network** – there are resources at the federal and state level to get VET programs designed and certified. A good relationship with one or more colleges is crucial for a successful program. Involving the local schools, chamber of commerce, manufacturing community, economic development organizations, and others that support growth of local business helps to gain the necessary momentum in attracting the pool for future students.
- **Start early** – engage students from local schools early and show them there is a successful alternative. Invite students, teachers and parents to tour your operation. Create early engagement programs like student manufacturing days, summer internships and co-ops.
- **Make it a big deal** – make sure the program becomes known in the community. SFS regularly posts articles in local newspapers, attends and shares success stories on developing talent and how our different programs make it happen. We make sure the community knows about our programs, and we spread the word about our focus on international exchange. We celebrate milestones and the successful graduation of our apprentices.
- **Further grow your talent** – don't forget about the VET students after graduation. SFS invests a significant amount of time and money in our VET program. Most of our graduates are part of the internal talent pool for future leaders and specialists. We encourage our grads to continue their education toward an associate's, bachelor's or even master's degrees and offer financial support up to 100% of tuition!



- + **Insurance provider**
- + **54,000 employees worldwide**
- + **Revenue: \$67.2 billion**

Imported from Switzerland: professional apprenticeship programs

To pharmaceuticals, timepieces and chocolate, we can now add an apprenticeship model for professionals to the list of things imported from Switzerland.

Zurich Insurance Group, a global insurance provider based in Switzerland, has introduced the concept of an apprenticeship program to its North American subsidiary as a way to train new employees and provide them with a college education. The program began in January 2016, and Zurich North America has committed to accepting 100 apprentices over a five-year period.

The Zurich apprenticeship program has gained wide attention for its unique approach to on-the-job training and its ability to attract workers to an industry that sometimes struggles to compete for talent. Others in insurance have already adopted the approach—most notably, Aon and the Hartford.

Work apprenticeships have been around for centuries, but most are designed to teach people a craft or trade—think of a cobbler or an automobile technician. The concept is simple—earn income while you earn an education and/or a skill.

In many ways, the Zurich North America apprenticeship program is no different. Apprentices enroll in classes at Harper College in Palatine, Illinois, where they study a variety of topics, including business and insurance. On alternate days, they work

at Zurich North America's headquarters in Schaumburg, Illinois, where they apply their knowledge and gain on-the-job training. After two years, an apprentice will earn an associate's degree from Harper and continue to work at Zurich.

Zurich initially began hiring apprentices to fill roles as underwriting associates and claims associates. As the company's talent needs have evolved, so has the apprenticeship program. This fall, Zurich will begin hiring apprentices and training them for roles in finance and technical underwriting. Other functions might be added to the program in the future.

The program is attractive to people who don't already have a college degree, but that doesn't mean that every apprentice is a recent high school graduate. Many have been in the workforce for years and view the Zurich program as an opportunity to start a challenging and rewarding career in the insurance industry while also earning a college degree at no additional cost.

Implementing a corporate apprenticeship program is not without its challenges. Because it is a fairly new concept in the United States, it can be difficult to get key constituents, like company executives and colleges, on board. Zurich was fortunate to have Harper College nearby, as the school has a history of supporting traditional apprenticeships and was able to adapt its programs to meet Zurich's needs.

Best practices from companies in Switzerland

Zurich

Another challenge that comes with trying something so new is being flexible enough to revise and amend the program throughout the process to ensure that it is working for everyone. That might mean adding more class time for apprentices who need it and adjusting work rotations to meet the needs of the apprentices and the business.

Some companies have already followed Zurich's lead and are beginning their own corporate apprenticeship program. Zurich encourages other insurers to adopt their model and help to attract more talent to the industry. Those companies interested in starting their own apprenticeship program would be wise to look at companies, like Zurich, that have had success. They should determine if an apprenticeship program can help with their talent acquisition needs.

They should seek an education partner who can help develop the curriculum and contact the US Department of Labor, which can provide critical support. Most importantly, they should gain senior-level executive support. One mistake to avoid is assuming that an apprenticeship program is similar to any other existing training programs: In reality, it is a wholly unique approach that can be used to supplement those programs.

Apprenticeship programs for professionals might not be the right training and recruitment tool for every organization, but if done properly, they can bring a much-needed talent boost to a company and provide a pathway for individuals to start a rewarding professional career.

Testimonials from governors: best practice examples from states with great support programs

Testimonials from governors



COLORADO GOVERNOR John Hickenlooper

- + Population: 5,540 million
- + 8th biggest state (in size)
- + GDP: \$323.7 billion (2016)
- + Unemployment rate: 2.3 % (June 2017)



Colorado's Swiss apprenticeship model

Colorado has the best economy in the country (US News & World Report) and the lowest unemployment rate in the nation at 2.3% in June 2017. At the same time, we have thousands of jobs that go unfilled every week, from construction to health care to technology and everything in between. Colorado employers have identified a lack of qualified candidates with the right skills as the primary reason for not filling hundreds of middle-skill positions. We know that one of the most effective

Work-based learning combines skills training with related employment in real-life settings.

ways to get adults and youth into jobs is to give them real world experience. Work-based learning combines skills training with related employment in real-life settings. Apprenticeships and other work-based learning opportunities are a foundational piece of creating and maintaining a talent pipeline for Colorado's businesses.

A skilled workforce is a critical economic driver

A skilled workforce remains the most important driver for our state's future competitiveness. We have laid a strong foundation for building the Colorado talent pipeline. Through the Workforce and Education Committee of the Governor's Cabinet, we have brought together the relevant government agencies to work as a single unit, with shared goals, to avoid duplication of effort, effectively use resources and focus on the needs of business in Colorado. Then, two years ago, we created the Business Experiential Learning (BEL) Commission, which is composed of business leaders from in-demand industries across Colorado along with state leadership. It is tasked with developing an apprenticeship and work-based learning system in Colorado that prepares students and individuals with the skills needed to meet the demands of the state's economy.

The members of this Commission, along with representatives from our education system, foundations and other state agencies, joined me on a five-day trip to Switzerland in January 2016 to experience the Swiss apprenticeship system firsthand.



Pilatus apprentice presents to Gov. Hickenlooper and BEL commissioner.



Pilatus apprentice teaches Gov. Hickenlooper and Jon Kinning.

50 of us embarked on this journey and returned to Colorado determined to adopt and adapt the Swiss model here in our state.

As a result, we are focusing on building out apprenticeships in a statewide, systematic manner. We are integrating the importance of apprenticeships and work-based learning at all education levels, and for the current workforce, who might need to upskill or reskill to better fill the jobs of today.

The role of business

We learned that with apprenticeships, businesses become producers of talent, not just consumers of talent (and not just advisors or critics of education). Apprenticeships bring together key workforce stakeholders, working collaboratively to build a talent pipeline in which all partners succeed.

Education becomes competency-based, not course-based. Students become productive contributors to society and build their self-worth. Business and education collaborate to create a relevant and agile workforce. Higher education becomes part of lifelong learning—not simply the next step after high school. Careers become the focus of educational outcomes. Career exploration becomes a focus earlier in education (elementary and middle school).

Forming strategic partnerships

Colorado is developing industry-led, competency-based, career pathways including work-based learning opportunities. We have developed tools and programs through public-private partnerships, including CareerWise Colorado (more below), Skillful, the work-based learning unit at the Colorado Department of Labor and Employment, Sector Partnerships, our Workforce Centers and state workforce council, and the BEL Commission.

Sector partnerships have been active in Colorado for over 10 years, and they serve as a great foundation to build work-based learning because we have ready pools of businesses prioritizing what they need to be successful. These partnerships act as a coordinating body across multiple education, workforce development and economic development programs.

Skillful is a partnership with the Markle Foundation, LinkedIn and the state of Colorado to help build a skills-based labor market for today's digital economy. It's helping connect workers to good-paying, middle-skills jobs by providing them with opportunities and training options for a meaningful career path—and helping businesses find the skilled talent they need to grow.

Testimonials from governors

Colorado

Our Colorado Department of Labor and Employment (CDLE) established a Work- Based Learning (CDLE-WBL) unit to coordinate and align federal, state and local strategies. They are working with existing apprenticeship programs to determine their needs and help with recruitment, skill assessment, training, and with sector partnerships and industry/trade associations to develop new apprenticeship programs. They are also focusing on developing nontraditional industries for apprenticeships that are in demand in Colorado.

A prime example of an apprenticeship program in Colorado, focused on youth, is CareerWise Colorado (CWC).

Overview of CareerWise Colorado

CWC is a stand-alone nonprofit that acts as an intermediary to assist businesses in meeting their talent needs through paid apprenticeships—beginning in high school. CareerWise embodies the idea that businesses should lead the effort to ensure our education system prepares students for the competitive, global 21st-century economy. CareerWise Colorado believes business associations and professional organizations should identify core competencies and skills necessary for success in the workplace. Career pathways include jobs in financial services, IT, health care, advanced manufacturing, business operations, and hospitality.

Within the CareerWise program, there are currently three-year apprenticeships in tech, financial services, business operations, advanced manufacturing and apprenticeships in health care will be added in 2019. There are 10 training plans agreed upon by business coalitions in accounting, insurance, machining, computer technicians and project coordination. Each apprenticeship training plan includes an industry credential and 25-60 college credits. Educational partners include four school districts, two charter schools and one inner-city nonprofit private school. 60 businesses are offering apprenticeships to high school juniors across Colorado

beginning fall 2017 and 20,000 students will be apprentices by 2027 (~125 participated in professionalism boot camp, June 2017).

Moving the work-based learning model forward

Career exploration and real-world work experience through apprenticeships allow students to make more educated decisions about their higher education options thus reducing the amount of unnecessary credits that cost them time and money, and increasing their likelihood of success. From the employer's perspective, by working with youth, they are building a pipeline that is more innovative, agile, and cost effective. Training should be productive and result in a positive ROI at the end of the apprenticeship. There is no loss to a company when an apprentice leaves and there is increased profitability when they stay.

In an effort to help companies begin apprenticeship programs in Colorado, the CDLE-WBL unit (along with local workforce center staff) and CareerWise are partnering to streamline the process for creation and expansion of apprenticeship programs within businesses and with business coalitions. By serving as consultants to businesses, they are providing support through the development, implementation and recruitment process. They work with our network of industry-led sector partnerships and statewide trade associations to maximize industry outreach. This work will result in a clear process for business, consistency across programs and expansion of the number and type of apprenticeships in Colorado.

Colorado's commitment to apprenticeships and work-based learning is unparalleled. We are approaching the issues on multiple fronts, engaging and involving our businesses and trade associations and empowering our education systems to build the workforce of the future.

Success story

Mikron is a Swiss company that was ready to begin with apprentices in 2016. They currently have three apprentices from Colorado's Cherry Creek School District. After a year of working together Mikron reports their youth apprentices are strong workers, in some ways stronger than adults they usually hire for entry-level production roles both in terms of technical skills—in this case all three came with SolidWorks credentials—but also in terms of having a positive attitude about work. Students report they are learning technical skills, and how to be professional. They say they are more mature than their friends because in a professional setting, unlike a school setting, you see the negative and positive consequences of your choices—and you have clear incentives to make good choices.

Colorado's focused strategy for economic growth

- Creating a diverse economy in key industries: technology and information, aerospace, bioscience, energy and natural resources, infrastructure engineering, electronics, and advanced manufacturing.
- Cultivating a hub for innovation and entrepreneurship with a rich R&D community supported by 31 universities and 21 federal laboratories.

Workforce facts

- Colorado is the **second most highly educated state in the US** and its workforce is projected to grow faster than the nation, most notably in knowledge-based jobs including engineering, computing, and professional services.
- **Fifth in the US** for the number of scientists and engineers as a share of all occupations.
- Colorado's economy was **ranked number one in the US** by US News & World Report.

Business facts

- At 3.2%, Colorado's annual GDP growth is one of the highest in the nation. This trend continues into the most recent quarters.
- It has one of the lowest state corporate income taxes at 4.63%.
- It is one of the fastest growing economies in the US with tech jobs increasing 3%.
- In 2016, Forbes ranked Denver as the No. 1 Best Place to Do Business for the second year in a row.
- It has the second largest aerospace economy in the US.
- Colorado ranks No. 5 among the states for fostering innovation through investments in education, research and business creation, especially in highly specialized industries, according to a study by WalletHub.

Pioneer a partnership with Colorado

[COLORADO.GOV/CDLE/APPRENTICESHIPS](https://colorado.gov/cdle/apprenticeships)



Colorado Workforce Development Council

Testimonials from governors



KENTUCKY GOVERNOR Matt Bevin

- + **Population: 4,436 million**
- + **Known as the Bluegrass State**
- + **GDP: \$197.0 billion (2016)**
- + **Unemployment rate: 5.0 % (May 2017)**



In November 2015, I was elected as the governor of Kentucky. My vision for our state is that we will be recognized around the world as the center of engineering and manufacturing excellence in the United States. To achieve that goal, we are working to develop a highly trained workforce that can fill needs within rapidly changing industries.

During our research into how best to develop our workforce, we have studied apprenticeship and training efforts in countries around the globe. It quickly became clear that Switzerland stands out from the pack in this regard, and its success could serve as a model to assist in meeting our new workforce goals.

That is why Kentucky’s cabinet secretaries for Economic Development, Labor, as well as Education and Workforce, recently joined me during a trip to Switzerland sponsored by the National Governors Association. We wanted to gain a better understanding of how Switzerland trains its workforce and knew that we needed to see things firsthand.

All of us from Kentucky who took part in this visit have extensive business backgrounds and we are committed to using our private sector experience to ensure our state’s workforce is properly skilled and trained to best meet the needs of businesses in the 21st century. Our recent visit to Switzerland

has helped to focus our strategy, as we learned a great deal that we have already begun incorporating into our workforce development plans.

Kentucky has begun a workforce revolution that includes an increased focus on apprenticeships, work-study options for students and providing financial aid incentives for anyone entering career fields in areas of high demand.

- First, we are expanding and improving our workforce training facilities. More than \$200 million is being invested in this initiative to ensure our workers are trained on the most current methods and equipment.
- In addition, we are expanding the apprenticeship program throughout Kentucky. More than 1,100 businesses are now taking part, and this program is continuing to grow. Employers and employees are both finding this to be beneficial.
- Our communities throughout Kentucky are focused on ensuring that wherever a business locates, they will have access to skilled and educated workers. A majority of our communities in Kentucky have been certified “work ready” or “work ready in progress,” meaning they have met, or are on track to meet, the work standards that industry needs.

- Our educational systems at every level are catering to the needs of employers by establishing scholarships for in-demand professions and by expanding dual-credit opportunities for high school students.

In addition to the initiatives noted above, one of the fastest growing apprenticeship programs in the state is a program aimed at educating the high-tech manufacturing workers of the future. The Kentucky Federation for Advanced Manufacturing Education (KY FAME) has been working for nearly a decade to address the need for skilled workers in advanced manufacturing. KY FAME is a work/study program that allows employees to attend school to earn an associate’s degree in advance manufacturing technology (AMT) while also earning a paycheck and gaining valuable on-the-job experience. Graduates of the program are helping to meet the need for multi-skilled maintenance positions at manufacturers across Kentucky.

Stacey Johnson Hughes, human resources manager at Logan Aluminum in Russellville, served as president of the Southcentral KY FAME chapter before being named statewide chair earlier this year. She said one of the primary benefits of the program is that it encourages business and community leaders to work together.

“The most important thing is that it’s industry led. It doesn’t come from the outside,” she said. “We’re bound together to help our communities, to help our companies and help people get into good jobs and get a good education. We partner with our community and technical colleges and work together rather than in isolation, and we talk about things—not just maintenance programs but other challenges in our industry. It’s just a wonderful idea.”

Currently, more than 200 companies participate in KY FAME, which recently announced its 10th local chapter. To date, more than 225 students have graduated from the program, and more than 650 additional students are expected to enroll this fall.

Another reason we are so excited about this program is its high success rate. KY FAME boasted an 89% graduation rate this past May. That far exceeds the graduation rate for two- and- four-year colleges and universities nationally.

Josh Benton, executive director of workforce development for the Kentucky Cabinet for Economic Development, said KY FAME’s recent growth has allowed its leaders to turn their focus to areas beyond recruitment.

“For four or five years, there were only 10 to 15 companies, and then other communities and companies began hearing about it,” he said. “It’s grown organically, from one chapter to six, and we’re now at 10. We’ve gone from growth mode to operational mode and sustainment. We’re now looking at other needs.”

KY FAME was recently recognized in a publication from the National Network of Business and Industry Associations as a workforce development program that should serve as a template for workforce efforts across the United States. Students who have participated in KY FAME agree.

“I didn’t really think about it. I just applied. It was the best decision I ever made,” said Aaron Beyersdoerfer, who entered the program in fall 2015 on the advice of a high school teacher. “Without the program, I wouldn’t have been able to go to college.”

Swiss companies in Kentucky have discovered the benefits of KY FAME as well. Louisville-based Clariant Corp. and UGN, in Somerset, are both active members of the program while Nestlé Prepared Foods, Kaba Mas LLC and 3A Composites US Inc. have also participated in recent years.

In total, nearly 20 Swiss-owned companies have established facilities in Kentucky and they employ more than 2,700 men and women. We greatly appreciate that growing presence and want to strengthen that relationship with Switzerland even further.

Companies from around the world, have

Testimonials from governors

Kentucky

discovered that Kentucky provides the perfect balance of skilled workforce, logistical advantages, low business costs and an unparalleled quality of life. There are nearly 500 internationally owned Kentucky companies employing more than 105,000 people. Even now, companies are locating in Kentucky like never before. In the first half of 2017, we shattered our best ever, full-

year record for private capital investment, and we are also on track to add a record number of new jobs. Companies are coming here because they see the pro-business government we have put in place, and they want to be part of something special that is coming together in our state. The enthusiasm and momentum is contagious!

Kentucky has begun a workforce revolution that includes an increased focus on apprenticeships, work-study options for students and providing financial aid incentives for anyone entering career fields in areas of high demand.

The economic relationship between Switzerland and Kentucky continues to grow. Switzerland has moved into our top 20 export destinations. Through May 2017, Kentucky shipped more than \$52 million in products to Switzerland, a substantial increase from less than \$15 million during the same time frame in 2016. Aerospace products and parts have driven that growth, making up 78% of products shipped to Switzerland. With the expected increase in growth of our state's aerospace industry, there is plenty of reason to expect the export growth to remain at its current level or rise even further.

In the end, all of the numbers tell the same story: Kentucky and Switzerland form a partnership that works. We have the necessary resources to ensure a Swiss company has all the tools it needs to be successful in the

United States and a pro-business government looking to work together with each company that locates here in Kentucky. We are excited by the possibility of increasing our business relationship with Switzerland in the months and years ahead. We welcome you to discover firsthand what the Commonwealth of Kentucky has to offer and are confident that you will love what you find here!

We are excited by the possibility of increasing our business relationship with Switzerland in the months and years ahead.



Testimonials from governors



NEVADA GOVERNOR Brian Sandoval

- + **Population: 2,940 million**
- + **7th biggest state, known as the Silver State**
- + **GDP: \$147.5 billion (2016)**
- + **Unemployment rate: 4.7%**



Nevada's economic story 150 years on

Nevada has seen more than its share of economic booms and busts because the state's economic model has historically relied heavily on consumption-based industries dependent on disposable income. As a result, Nevada was hit hardest by the great recession in 2010. Jobs in tourism, gaming, and construction were eliminated at alarming rates, and as a result, the Silver State was highest in the nation for foreclosures, bankruptcies, uninsured citizens, and unemployment.

However, one of the state's greatest assets is its resilience. Upon taking office, I put measures in place to ensure economic recovery through diversification of Nevada's labor market, including the creation of the Governors' Office of Economic Development (GOED), which led efforts to attract new, and grow existing companies ready for the 21st century. Through the legislature, I also directed approximately \$2 million to create the Workforce Innovations for the new Nevada (WINN) funds, which GOED manages. The WINN funds provide workforce training dollars to Nevada companies in emerging industries, such as advanced manufacturing and technology.

The creation of this office, in addition to other measures, has helped to inform my vision for a new Nevada, firmly supported

by the lessons learned from the past and sustained by an optimistic pursuit toward the possibilities of the future. At the heart of the new Nevada is the statewide alignment of education, career training, and workforce development programs to produce an integrated workforce system in traditional and emerging sectors. While GOED has had tremendous success leading economic development efforts, the next phase is focused on increasing coordination of the disparate parts of the workforce systems. Therefore, in March 2016, I issued executive order 2016-08, establishing the Office of Workforce Innovation (OWINN) with the mission of creating a skilled, diverse, and aligned workforce in the state of Nevada by promoting collaboration and cooperation among all entities focused on workforce development. OWINN ensures alignment of the workforce system by coordinating and partnering with GOED, the Nevada Department of Education, the community college system, the state's labor agency, the industry sector councils, nonprofits, and the state's workforce development board. OWINN has developed a close partnership with the state's career technical education department to align courses of study with in-demand industries and occupations.

A great example of partnership is GOED's development of the Learn and Earn

I deeply believe that our state's business-friendly reputation, commitment to education, bold workforce and economic development strategies all make Nevada the best place for business investment and expansion.

Advanced Career Pathway (LEAP) in advanced manufacturing. LEAP addresses workforce needs by aligning skills and credentials with employer needs in an integrated pathway that includes robust employer engagement and endorsement. Beginning in secondary schools, career technical education students can begin attaining the skills, experiences, and credentials that align with industry needs. GOED has since partnered with OWINN to scale LEAP statewide in health care and technology.

Further, OWINN works to address Nevada's workforce needs by leveraging labor-market data, scaling career pathways and industry-recognized credentials, expanding apprenticeships, and designing responsive workforce policies. A key strategy of OWINN is scaling apprenticeship programs in emerging industries. State strategy to enhance apprenticeships has been first to elevate the status of the state's apprenticeship council by making members Governor's appointments. Additionally, to ensure alignment, I have transferred the apprenticeship council from the office of the Labor Commissioner to OWINN. OWINN's deep engagement with K-12, higher education, employers and the broader community will bring more focus on apprenticeships and allow for stronger coordination across agencies. I have also included additional investments in my budget for a full-time state apprenticeship director with the sole focus of outreach, alignment with career technical education state leaders, and

supporting employers and coordination of the apprenticeship council. Companies will have a dedicated staff to support them in starting apprenticeship programs. Our work to leverage apprenticeship as a key workforce strategy coincides with almost \$1 million the state was awarded in grants from the US Department of Labor. The grants provide revenue to expand, diversify, and advance apprenticeships through strategic stakeholder convening, state infrastructure and capacity building, and targeted outreach to employers and the community.

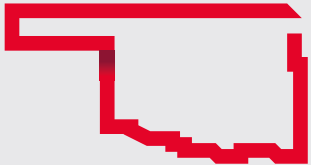
The efforts to modernize and diversify the economy by recruiting innovative companies and entrepreneurs and strategically investing in education, workforce, and economic development, will help us sustain our growth for years to come. I deeply believe that our state's business-friendly reputation, commitment to education, bold workforce and economic development strategies all make Nevada the best place for business investment and expansion. These opportunities will strengthen opportunities for our business communities for the generations to come.

Testimonials from governors



OKLAHOMA GOVERNOR Mary Fallin

- + **Population: 3,923 million**
- + **Known as the Sooner State**
- + **GDP: \$182.9 billion (2016)**
- + **Unemployment rate: 4.3% (May 2017)**



Apprenticeships in Oklahoma

Oklahoma's challenge

Oklahoma's economy is more diversified than ever. Industries, such as aerospace and defense, agriculture, biosciences, energy, information and financial services, and transportation and distribution support the ongoing growth of the state's economy. Governor Mary Fallin and her administration are listening to executives in large and small businesses across multiple industries within the state, many of whom communicate the importance of a skilled workforce to remain competitive in the global marketplace. Each industry is unique in its need for more credentials, apprentices, certificates, and/or college degrees. Oklahoma is committed to ensuring our citizens have the specific skills employers demand for their businesses to grow and prosper.

The solution

Governor Mary Fallin created Oklahoma Works to address the workforce crisis. Oklahoma Works is a statewide initiative designed to increase the wealth of all Oklahomans by aligning education and training to create a workforce for Oklahoma's businesses. Oklahoma Works is a coalition of businesses, educational

institutions, state agencies and other partners who catalyze the creation of a talent pipeline to ensure all Oklahomans have the skills and education necessary to enter and advance in rewarding careers.

Launch Oklahoma

In 2016, Governor Fallin established a statewide educational attainment goal, called Launch Oklahoma, which called for 70% of Oklahoma's workforce ages 25-64 to have education or training beyond high school by 2025. Quality Apprenticeships that result in a credential are included in this goal.

Specifically, Oklahoma is working to motivate businesses to create Registered Apprenticeship (RA) programs and attract Oklahoma's workforce to fill these in-demand occupations and earn while they learn. The result is a skilled workforce at the speed of business—and trained and credentialed citizens to bolster Oklahoma's economy. Registered Apprenticeships are a key part of Oklahoma's workforce development strategy, as apprentices grow the economy by making Oklahoma businesses more competitive.

Oklahoma's industry engagement

Exports from Oklahoma total \$5 billion and foreign-owned parent companies employ nearly 50,000 Oklahomans. International trade and foreign direct investment are critical to Oklahoma's economy. Further, Swiss-owned companies, such as Georg Fischer, ABB, Farmers Insurance, Baldor Electric, and Nestlé among others, employ a considerable number of Oklahomans in diverse industries. All of these companies have a need for a skilled workforce, and we are engaging with these companies and other major employers in the state to continue to learn about their unique needs in order to develop industry training, apprenticeships and other short-term certificates.

Oklahoma actively engages the business community to learn about the training needs they demand from their workforce. Our CareerTech system and higher education institutions, such as Oklahoma State University and the University of Oklahoma, are strong, and tailor training programs for the needs of specific corporations and industries that employ

Oklahomans. For example, Macy's department stores recently invested \$160 million in a distribution center in Oklahoma. Part of the state's incentive to the company included the CareerTech system coordinating and aligning with company needs to provide material handling and logistics training to the company's employees.



Testimonials from governors

Oklahoma

Apprenticeships in Oklahoma

Oklahoma has a strong history of Registered Apprenticeship programs covering 179 different occupations in such industries as manufacturing, aerospace and defense, energy, and public service. Oklahoma’s RA programs are statewide, in over 76% of Oklahoma’s counties. In 2016, Oklahoma received an Apprenticeship US grant from the US Department of Labor to promote, expand, and diversify RA for both businesses and Oklahomans.

Registered Apprenticeships enable our youth to learn at an early age about expectations from the business community. Apprenticeships are not a one-size-fits-all training program, but offer the important feature of the early exposure to the workforce. At the same time as learning about company culture, apprenticeships enable our youth to hone their soft skills, thus launching them for a successful career path in the future.



Oklahoma’s Commitment

To meet our goal and the needs of business, Oklahoma is committed to supporting companies who begin Registered Apprenticeship programs. Together with the US Department of Labor Office of Apprenticeship in Oklahoma, the Oklahoma Office of Workforce Development, and the Oklahoma Department of Commerce, businesses will have the support they need operate a RA program.



RHODE ISLAND GOVERNOR Gina M. Raimondo

- + Population: 1,056 million
- + Smallest state in the US
- + GDP: \$57.4 billion (2016)
- + Unemployment rate: 4.1% (May 2017)



Our ecosystem looks a lot like the Swiss ecosystem

I invite you to consider investing in Rhode Island where we are building an educational and workforce development ecosystem that closely resembles the Swiss vocational education and training system. Both Switzerland and Rhode Island recognize that doing right by workers and companies doesn’t have to be —and isn’t—an either/or proposition. With smart, measurable, and accountable programs, government can invest in the potential and competitiveness of people and employers at the same time.

Rhode Island is on the move

Rhode Island is on the move. Three years ago, we had the highest unemployment rate in America. Today, it’s the lowest it’s been since 2001. Over the past two and half years, businesses and other employers have created nearly 13,000 new jobs. My budget investments in job training and education have resulted in Rhode Island becoming the fourth state in the United States to offer every graduating high school senior tuition-free access to community college. I called this proposal the RI Promise Scholarship because I believe—as you do—that we have a collective responsibility to make sure that workers can get the good jobs that businesses are creating.

We want to give every student a shot at opportunity and success. We want our schools and teachers to help young students become better educated because better educated, higher skilled workers make companies more competitive and profitable—and competitive companies employing workers earning solid, middle-class wages are the keystones of a strong and resilient economy.

When I took office, only 1% of Rhode Island public high school students were enrolled in computer science classes and only nine of 57 high schools offered advanced-level classes for computer science. We have acted with urgency to increase digital literacy. By partnering with Microsoft, we launched our Computer Science for Rhode Island (CS4RI) initiative. By the end of 2017, every public school in every school district in the state will be teaching computer science, thanks to CS4RI.

Through our \$2 million investment in TechHireRI, we are hitting our IT skills-shortage head on by unlocking new tech talent that was previously screened out of the hiring process. TechHireRI works with companies to align job needs with training, hire based on candidate potential and mastery of IT skills (as opposed to a college

Testimonials from governors

Rhode Island

degree), and fast-track these nontraditional job seekers into open IT jobs. Working with some of our most important employers, including GE Digital and CVS Health, it's on pace to train and place 2,000 workers by 2020.

I talk to business owners every day and they tell me the hardest part of growing is finding the educated, trained workers for the jobs they need to fill. The RI Promise Scholarship—through which around 2,500 to 3,000 students are expected to benefit from free tuition at the Community College of Rhode Island (CCRI) starting in 2018—strong investments in pre-K and K-12 education, CS4RI, and TechHire RI all are examples of our state's commitment to employer-centered solutions to workforce challenges.

Our central job-training program, Real Jobs RI, is another definitive commitment. It aims to build pipelines of trained, skilled workers in industry sectors across the state economy, connecting this supply of labor with employers in need of (i.e., demanding) workers with these very skills. This is the essence of a demand-driven program. Through Real Jobs RI, the Department of Labor and Training (DLT) and other state government agencies:

- Coordinate statewide job-training resources to meet employer demand
- Put employers in the driver's seat—letting employers identify their own skills needs and develop their own job-training solutions
- Let employers collaborate with whatever partners they need—trainers and educators, labor unions, or nonprofit organizations—to train workers for job openings.

There are 26 Real Jobs RI partnerships spanning 11 industry sectors, such as biosciences, construction, defense, design, finance and insurance, health care, hospitality, IT, manufacturing, and marine trades, one of the iconic industries of the Ocean State. As I write this, 250 employers across the state are benefiting from Real Jobs RI. Since the start of 2016 through

mid-2017, nearly 750 job seekers—many of whom were unemployed beforehand—have gone through various training programs in the sector partnerships and gotten jobs, and another 400+ existing or incumbent workers have been upskilled for better jobs at their current employers.

Rhode Island is open for business—let us customize an apprenticeship for you

As business leaders who must make shrewd decisions to help your companies grow and further extend Switzerland's global reach and influence, you very likely want as much information as possible to form a complete picture of an opportunity before investing. It's for this reason that I've taken time to lay out Rhode Island's economic comeback for you, and establish our bona fides as a place and a partner that puts your needs front and center in all our workforce development and skills training initiatives.

Our approach to apprenticeship is no different: your needs are still front and center. Here's what we've done to build a robust infrastructure to support apprenticeship since I took office 30 months ago.

Early in my term, Rhode Island targeted and successfully obtained US Department of Labor (USDOL) grant funding of \$5 million to expand our state apprenticeship system and create new nontraditional registered apprenticeship programs. With strong leadership provided by DLT and Building Futures—a workforce intermediary that has developed and run pre-apprenticeship programs in our capitol city, Providence, and other urban areas—our Apprenticeship RI initiative has exceeded even our ambitious grant application to USDOL.

In our grant application, we promised that five employer partners would propose to develop 17 new apprenticeships by 2020. Already, we have exceeded our goals with 18 employer partners who have registered 20 apprenticeship programs with DLT, including pharmacy technicians for CVS,

licensed drug and alcohol counselors for Care New England, boat builders for the RI Marine Trades Association—and the first US apprenticeship program for graphic designers and account executives for a Providence-based communications firm.

One of Apprenticeship RI's specific strategic goals is promoting greater inclusion and attracting diversity, and we are well on the way to keeping this promise, too. A year and a half into this initiative and with two and a half years to go to reach our goal of placing 1,200 apprentices in new industry sectors by 2020, 55% of all apprentices in new Apprenticeship RI programs are Hispanic or African-American, are low income and/or unemployed at entrance, or have other barriers to employment.

Rhode Island, though, is doing even more to close our skills gap. In 2016, we started a wage reimbursement incentive for each apprentice enrolled in a non-trade apprenticeship program. This incentive reimburses employers up to 50% of wages paid to a new apprentice, or \$1,000, whichever is less, maxing out at \$5,000 per company per year. In addition, the fiscal year 2018 budget included my proposal to cut red tape by eliminating the fees for apprenticeship sponsors and apprentices as well as removing the annual renewal fees for apprentice registrations.

We value apprenticeship so much because its benefits are so clear. Apprenticeship is structured, hands-on, on-the-job training combined with related instruction tailored to the specific needs of the employer. Apprentices learn valuable, in-demand skills while advancing their careers. From their first day of work, apprentices earn a paycheck (usually earning about half of their eventual wages) that's guaranteed to increase as their training progresses. Once they graduate—with an average starting pay of more than \$50,000 a year, according to USDOL, and maybe just as important, with little to no crushing college debt—they're on a firm pathway to meaningful and secure middle-class jobs.

Businesses drive every apprenticeship program in Rhode Island and we customize every program for each employer. Businesses benefit by lowering their cost of recruitment, growing talent in house, and developing a systematic and consistent approach to training that results in the highest skill levels required for the job. All this helps employers' competitiveness and profitability. Apprenticeship also delivers a strong return to taxpayers, who

Apprenticeship also delivers a strong return to taxpayers, who gain by knowing that 87% of apprentices are employed after completing their programs.

gain by knowing that 87% of apprentices are employed after completing their programs and that for every \$1 invested in apprenticeship, there is about \$27 in economic activity in return, according to USDOL.

Swiss direct investment in Rhode Island is a quiet but real success story: More than 1,700 jobs are supported by Swiss affiliates and services and goods exported to Switzerland. We have some great Swiss companies in Rhode Island: Bernina, Gurit, LafargeHolcim, Leister Technologies, Optrel, Schindler, UBS, and Zurich.

I've appreciated this chance to describe how we've made Rhode Island a safe, smart business investment opportunity. Along with these many actions, the best way we can welcome you is by making this promise: Rhode Island regards every dollar we invest in apprenticeship as smart money that sharpens your competitiveness, puts our people to work, and strengthens your, our, and the global economy.

Testimonials from governors



TEXAS GOVERNOR
Greg Abbott

- + **Population: 27,862 million**
- + **Second largest state**
- + **GDP: \$1,616.8 billion (2016)**
- + **Unemployment rate: 4.8% (May 2017)**



Texas: A limitless frontier in a global economy

Texans have always been hardworking, innovative and driven to achieve. My goal as governor is to help the next generation build on that legacy and perpetuate the Texas brand of exceptionalism.

While in Switzerland in January 2016 on a business development trip, I was pleased to announce Texas would participate in apprenticeship programs with Burckhardt Compression, Mercuria Energy and Supra Group, three of the 80 Swiss companies located in the Lone Star State, building on our already strong workforce and developing new skills for a 21st-century global economy.

Mercuria Energy was recently recognized at the White House for its apprenticeship program in the highly competitive energy and commodities trading sectors. I was proud that two graduates of the intensive training program in Houston, both military veterans, were also recognized.

As the 10th-largest economy among the nations of the world and home to 50 Fortune 500 headquarters, Texas combines a business-friendly climate and a highly skilled workforce with easy access to global markets, first-class infrastructure, predictable regulations and overall

economic strength, creating a framework in which businesses flourish.

An IBM study shows Texas leading the nation over two years for jobs from foreign investment. These jobs would not have been created without the more than 1,300 international businesses operating here.

These growing businesses enjoy the advantages Texas offers: one of the lowest tax burdens with no corporate income tax and no individual income tax, in addition to one of the most competitive incentive programs in the nation.

Centrally located, Texas serves as a major logistical hub for easy access to markets across North America. With 11 deep-water ports, 28 border crossings with Mexico and the most extensive freight rail system in the US, Texas gives companies the ability to quickly move products across the world.

Texas offers other operating advantages. As the largest oil and gas producer in the US, Texas also ranks as the top state for sustainability with more wind- generation capacity and a growing solar power market. Finally, Texas is blessed with a robust, reliable and competitive wholesale and retail electricity market.

Lower energy costs, lower land costs and fewer land-use restrictions mean lower operating costs for businesses and a lower cost of living for employees.

That is why innovative startups are joining global leaders in technology, manufacturing and financial services in calling Texas home. And that is why Texas is the top exporting state, the top high-tech exporting state and the top state for new tech establishments.

International companies and industries of all sizes are welcome to go big in Texas.

Building on the strength of the Texas workforce

Our greatest natural resource in Texas is our job-ready workforce. At 13 million strong, it is the second largest labor pool in the nation. And with one of the youngest median ages among the states, employees here are also among the most engaged.

Much of that high-performing employee base is drawn from our top-ranked colleges and universities. Texas ranks in the top three states for biotech doctorates awarded in agricultural sciences/natural resources, health sciences, life sciences

and biological/biomedical sciences. And we are second for engineering and electrical engineering doctorates.

To further elevate our national research standings, funding from the Governor’s University Research Initiative is helping to recruit even more Nobel laureates and National Academy members to teach in our leading universities.

These internationally recognized researchers are partnering with the private sector to develop ideas that will transform the world and inspire the next generation of innovators already learning in our classrooms.

From kindergarten through high school, Texas public schools educate more than one in 10 of all US students.

That’s why I’m proud more Texas public high schools rank in the top 100 than any other state. We also have the fourth-highest high school graduation rate in the nation and second-highest among Hispanic and African-American students.

And we are aiming to be the No. 1 education system in America.

From kindergarten through high school, Texas public schools educate more than one in 10 of all US students.



Testimonials from governors

Texas

Matching workforce training to employers’ needs

Understanding the needs of job creators today is paramount to ensure Texas remains the top state for business expansion tomorrow.

In a recent survey of Texas employers, maintaining a skilled, flexible workforce was identified as a critical competitive advantage.

That is why I launched a statewide initiative to assess employers’ needs and identify innovative approaches to match workforce development programs to regional industry demands.

One result of that initiative—similar to the Swiss apprenticeship model that engages students at 15 or 16 years of age—is the formation of Texas Industry Cluster Innovative Academies, providing high school students with the opportunity to earn college credits, certifications and degrees as well as gain hands-on experience through internships and mentorships.

We are directly coordinating with employers and focusing on high-demand fields and on science, technology, engineering and math (STEM) degrees.

The grant program expands partnerships between employers, school districts, community colleges and universities and our local workforce boards.

Our goal is to help students enter the workforce more quickly with marketable skills that meet industry and regional economic needs.

Opening the doors to higher education

To create a steady pipeline of new workers with the technical skills and advanced education businesses require, we are also opening the doors to higher education for more Texans.

The ambitious goals of our 60x30TX plan include: 60% of Texans ages 25-34 having earned a post-secondary workforce certificate or college degree by 2030; all graduates from public higher education institutions having completed programs with identified marketable skills; and undergraduate loan debt not exceeding 60% of first-year wages.

Of added interest for businesses considering Texas for expansion or relocation: An in-state tuition rate may be offered to qualified businesses, allowing employees and family members to pay the Texas resident tuition rate at Texas public colleges and universities—a benefit that normally requires a student to have resided in the state for 12 months.

Earning while learning through apprenticeships

Apprenticeship training programs provide another time-honored path for Texans to gain industry-specific skills through on-the-job training and classroom education.

The Texas Workforce Commission plays an active role in administering federally registered apprenticeships and in funding grants to community and technical colleges to provide customized job-training programs for businesses wanting to train new workers or upgrade the skills of their workforce.

Apprenticeships must be registered to qualify for funding. Registered apprenticeships in Texas span industries from advanced manufacturing and engineering services to health care, and more. Most training programs last from three to five years as determined by industry standards. Apprentices must be at least 18 years old and have completed high school or received an equivalent certificate.

A business, consortium of businesses or trade union identifies a training need and then typically partners with a public school district or a community or technical college to fill its specific needs.

A change in Texas law effective September 1, 2017, allows independent apprenticeship committees to sponsor registered apprenticeships without administrative oversight of a public school district or post-secondary institution.

While apprentices gain important skills, businesses can save on recruiting and labor costs.

The completion rate for apprentices in registered programs administered by the Texas Workforce Commission is more than 80%.

In one Texas city, apprentices work and learn alongside journeymen, performing plumbing, pipe fitting and HVAC-related tasks, at one of 32 businesses that are members of the multi-craft apprenticeship program, which provides a ready source of labor.

With apprentice crane and heavy equipment operators earning 65% of a journeyworker’s wages while having less than 1,000 hours of experience, one plant manager reported including apprentices as 25% of his workforce, which correlated to a 17% saving on the budget for a large construction project.

Welcoming you to the limitless frontier of opportunity

When it comes to doing business, there is really no place like Texas. Here you will find global business leaders, innovative entrepreneurs, elite academic institutions and an outstanding business environment all contributing to our expanding economy. We invite you to contact us at 512-936-0100 or visit gobigintexas.com to explore how the Lone Star State can provide just the right opportunity your business needs to succeed.

And for more information on all of the workforce development programs available in Texas—or to start a registered apprenticeship training program—contact the Office of Apprenticeships at the Texas Workforce Commission at apprenticeship@twc.state.tx.us.

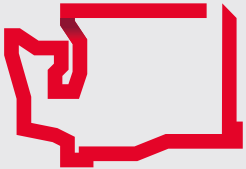


Testimonials from governors



WASHINGTON GOVERNOR Jay Inslee

- + Population: 7,288 million
- + 13th most populous state
- + GDP: \$469.7 billion (2016)
- + Unemployment rate: 4.5% (May 2017)



Apprenticeships gain in Washington state based on Swiss model

High school sophomore Sam Yost arrives at Stadium High School in Tacoma early every morning for his zero-hour jazz band class at 6:30 a.m. But when most students are wrapping up their school day at 2:05 p.m., he still has another four hours to go.

You won't hear Yost complain about it though. In fact, Yost said he hopes more students choose to take part in the state's new registered youth apprenticeship program that he says is giving him valuable job training—and a paycheck.

Yost was one of 15 youths recently celebrated at a ceremony. They were the first class of an Aerospace Joint Apprenticeship Committee (AJAC) youth program. The program combines traditional classroom learning with 2,000 hours of paid, on-the-job apprenticeship training at an AJAC-employer, and college-level instruction that high school students can use toward their diploma, journey-level mastery card, and a college certificate.

For Yost, that means working four hours after school at Quality Stamping and Machining in Sumner, where in just the

first month, he's learned how to use design software to draw parts, for planes, such as Boeing's 777.

The goal of the program is to help more high school students at ages 16 and 17 develop career-ready skills in the aerospace and advanced manufacturing industries. At the end of their 2,000 hours, they each will have earned about \$28,000.

"There is no better way to give a student a vision for their future than to get them in an apprenticeship program," said Gov. Jay Inslee, who spoke at the ceremony. "We are leading the country in aerospace. We are leading the country in computer science. And now we are leading the country in apprenticeships."

The earn-while-you-learn style of apprenticeship has taken hold in the state as a way to expand opportunities in career and technical education. In Washington state, there are about 200 registered apprenticeship programs involving about 7,000 employers and 12,000 program participants. The numbers have been growing steadily over the past five years.



For the first time, youth, ages 16 and 17, in Washington state can earn money while getting experience in aerospace-related manufacturing. The state teamed up with the Aerospace Joint Apprenticeship Committee (AJAC) to create a youth apprenticeship program that started in 2017 and will provide training for 600 young people.

"There is no better way to give a student a vision for their future than to get them in an apprenticeship program."

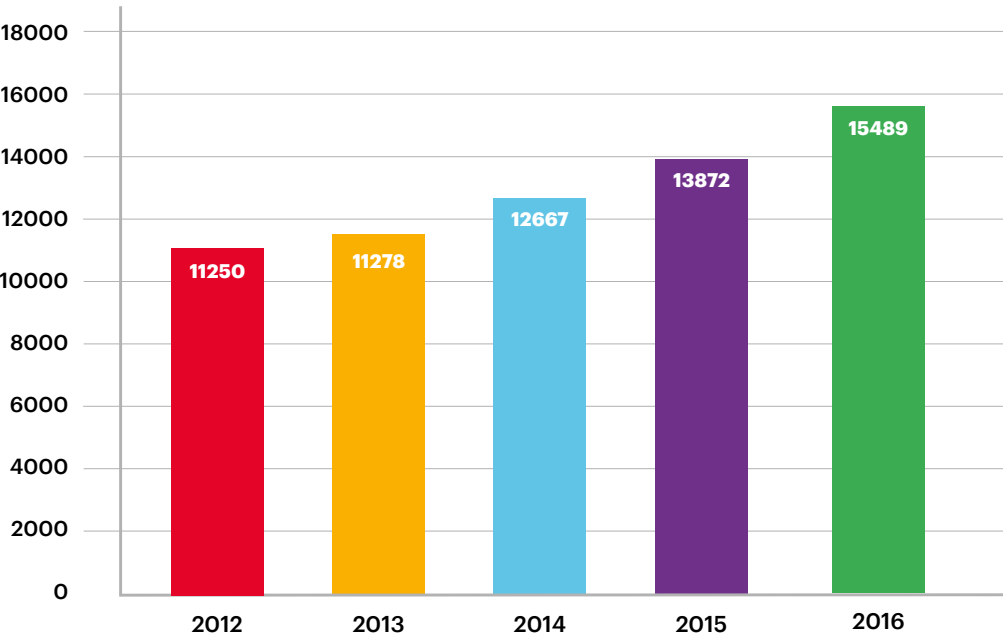
According to the Washington State Department of Labor & Industries (L&I), most apprenticeship graduates are in the construction trades, such as electrician, carpenter, and laborer. There has been growth in other fields, such as medical assistant, corrections officer, and firefighter.

For apprentices who reach journeyworker status, graduating a program can make the years of study worth it for the wages they can earn. The median salary for apprenticeship graduates is more than \$73,000 a year.

Testimonials from governors

Washington

APPRENTICES PARTICIPATING IN REGISTERED PROGRAMS IN WASHINGTON STATE



Swiss opportunities for apprenticeships

L&I's Apprenticeship Program provides a variety of services for employers looking to start an apprenticeship or tap into a program already running. The agency provides technical assistance and helps develop a curriculum, besides offering ongoing consultation and ensuring compliance through the Washington State Apprenticeship and Training Council.

More information is available online at www.Lni.wa.gov/Apprenticeship.

Other workforce development programs specifically for young adults are available through community colleges across the state, or through workforce development councils. Find still more services for employers at the Washington State

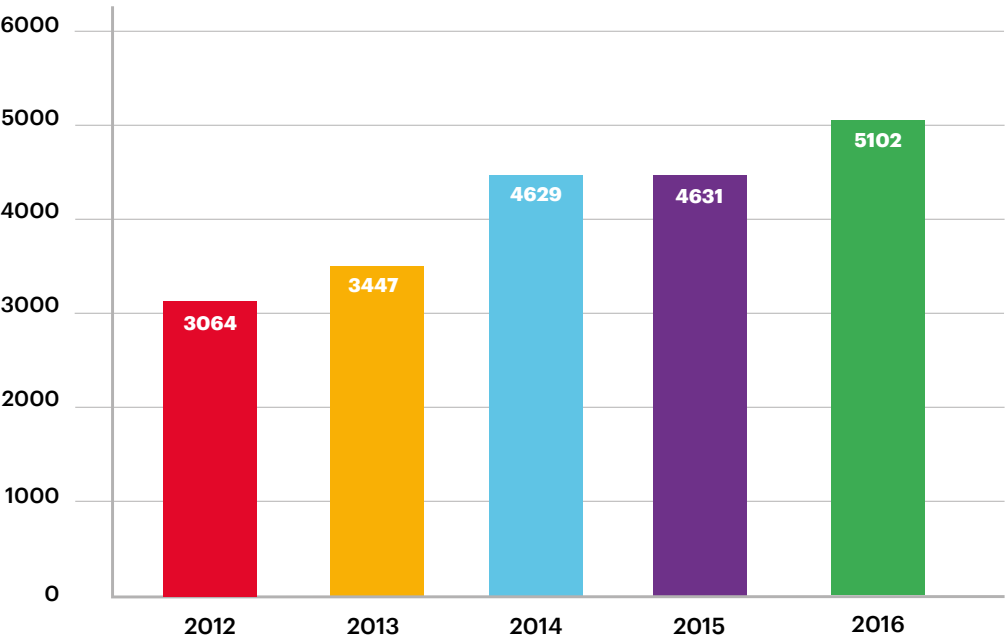
Department of Commerce, <http://www.commerce.wa.gov/>.

For Swiss-based companies, Washington State represents a growing opportunity to find qualified workers. Swiss companies, such as Tetra Pak, a packaging and food manufacturer, and agribusiness giant Syngenta, have invested more than \$33 million in the state.

In fact, Swiss affiliates account for more than 7,000 jobs in the state. The trade relationship between Switzerland and Washington state, in imports and exports, reaches nearly \$300 million.

Jim Tschimperle, owner of Pacific Machine who hosted the AJAC ceremony, sees very direct benefits of apprenticeships, for companies and participants.

NEW APPRENTICES ENTERING PROGRAMS ANNUALLY



"This is a huge step forward for students, manufacturing companies and the general public to provide a skilled workforce and help students who don't want to go to a four-year college [with] a lifetime opportunity to work in advanced manufacturing," said Tschimperle. The company provides a variety of services from machining and fabricating parts to manufacturing and repair.

In many cases, employers face an aging workforce with a very pressing need to gain access to a trained workforce. Apprenticeships fill the void and even expand into areas, such as high-tech, and health care.

Expanding apprenticeships into IT

A prime example is the state's partnering with the Washington Technology Industry Association. With a \$3.5 million federal grant, an IT apprenticeship involving companies including Microsoft, F5, and AT&T will train 600 people over the next five years.

"Washington is the first state to create a large-scale apprenticeship program, finding and training workers for the high-demand tech sector," said WTIA CEO Michael Schutzler. "These apprenticeships are a critical step toward bridging the current tech-talent gap we face, empowering us to build a stronger, homegrown workforce representative of the diversity in our state."

Testimonials from governors

Washington

Gov. Inslee and the state continue to lead on apprenticeship efforts.

In May 2017, the state launched a new Career Connect Washington initiative, built on lessons learned from the Swiss apprenticeship model. The goal is to connect 100,000 students over the next five years with career-connected learning opportunities. The effort is a public-private partnership that includes Microsoft and JPMorgan Chase & Co., which announced a \$1 million investment in the initiative.

“We have to stop telling our kids that a four-year degree is the only path to success,” said Gov. Inslee. “Most of them will require education and training after high school, but that doesn’t necessarily mean a four-year college degree.”

“Through registered apprenticeships, technical training programs and other career-connected learning opportunities, we’ll give students all kinds of ways to fulfill their dreams of helping build airplanes, cure

diseases or design innovative new software.”

In October 2016, a \$2.7 million federal grant helped support the AJAC youth apprenticeship program. The grant, part of Project RAISE (Registered Apprenticeship Initiative for System Expansion), targets 600 more youth, women, veterans, and others to participate in apprenticeships.

L&I is overseeing the grant.

“We’ll use these funds to make a real difference for Washington workers,” said Joel Sacks, L&I Director. “Through Project RAISE, we will recruit new employers, promote the value of apprenticeships, and help more workers find and keep self-sufficient jobs.”

For Sam Yost, the Stadium High School student in Tacoma, apprenticeship will mean a whole new future.

“I have no doubt this technical and work experience will open doors for me,” he said. “This is an unprecedented opportunity.”



Washington Gov. Jay Inslee stands with the first participants in a first-of-its-type apprenticeship program for the high-tech industry. The state joined with the Washington Technology Industry Association (WTIA) to create the program, which will provide training and jobs for up to 1,000 people.

Portraits of CEOs who started as apprentices

For this publication, the following CEOs have been approached who went through Swiss apprenticeship program.

- Markus Bucher, CEO Pilatus
- Sergio P. Ermotti, CEO UBS Group
- Barend Fruithof, CEO ASH Group
- Lukas Gähwiler, Chairman UBS Switzerland
- Martin Hirzel, CEO Autoneum
- Urs Honegger, CEO PwC Switzerland
- Markus Hongler, CEO Mobiliar
- Roger Huldi, General Manager Hotel W San Francisco
- Ruedi Noser, Senator and Entrepreneur (equals member of the US Senate)
- Martin Scholl, CEO Zürcher Kantonalbank
- Marcel Stalder, CEO EY Switzerland
- Peter Voser, Chairman of the Board of Directors ABB

In particular, the CEOs were asked to address some of the following points:

- + When and why did you choose to follow the Swiss apprenticeship program?
- + After graduating from the VET program, did you immediately start your professional career in the same company? Please comment on your career path to CEO?
- + Do you recognize that the apprenticeship program has prepared you for your career? How did the VET help you in building your career path?
- + As a CEO, do you feel apprenticeship is a successful way forward for young employees and for companies? Why?
- + What recommendations do you have for young people today? What are some of the challenges they face today that could be overcome with an apprenticeship?

Portraits of CEOs who started as apprentices



CEO PILATUS Markus Bucher

Former COO Pilatus

Former Vice President Operations Pilatus

Company: Pilatus Aircraft Ltd

Industry: Airplane Manufacturer

Revenue: CHF 821 million (2016)

Employees: 1,961 (2016)



When and why did you choose to follow the Swiss apprenticeship program?

I was born in 1964 and grew up on a farm in central Switzerland close to Lucerne. At that time, it was a standard path for young people to do an apprenticeship after completion of primary and secondary school. So, in 1981, along with about 80% of the other young people leaving school, I decided to do an apprenticeship, and I chose to enroll in the agricultural mechanic apprenticeship program. For me, it was clear that I wanted to work hands on, as I was not interested in studying at that time and age.

After graduating from the VET program, did you immediately start your professional career in the same company? Please comment on your career path to a CEO.

After graduating from the VET program, which I completed at a mechanical company with a focus on agriculture, I continued working for the micro-company for one more year. In fact, I wanted to start my own business but my partner unexpectedly got ill. Therefore, I decided to pursue a career at Pilatus.

I saw it as an opportunity to shape my career path. At Pilatus, I initially worked in the office as a program and project planner, and did process engineering. In parallel, I completed my seven semester undergraduate studies in industrial engineering. This was an ideal combination with my mechanical apprenticeship, and it taught me a lot about the economical side in the field of industrial engineering. In addition, a dual bachelor's degree (Swiss / US) in Business Administration was part of my career path to CEO.

Furthermore, I acknowledge the importance of my English skills as an asset and crucial for my career path. I had no English knowledge when I started at Pilatus. So, I went to the US to study English. This allowed me to execute various program and product management projects for different customers in various countries for Pilatus. This opportunity was given to me thanks to a profound knowledge of the products and technologies, plus the fact that I was able to communicate reasonably to customers. After 10 years in customer support, including building a new business entity from 20 to 100 million CHF, I was elected as an executive board member in 2008. Three years later, I got promoted to COO and then in 2013, I became CEO of Pilatus.

Do you recognize that the apprenticeship program has prepared you for your career? How did the VET help you in building your career path?

I absolutely agree that one size does not fit all; for me, in the environment where Pilatus operates, the apprenticeship prepared me very well for my career. The skills acquired from the apprenticeship were a perfect fit for the experience required at an industrial company. The experience and credibility acquired from doing an apprenticeship enables me to connect with our employees also working on the shop floor), so that I can advise and guide them. In return, they show me a high level of respect, which is my biggest reward. I am proud of the path I chose. Besides the practical knowledge and hands-on attitude, there are other attributes needed to be a CEO, for sure, such as dedication and character.

As the CEO of an international company do you feel apprenticeship is a successful way forward for the young employees and for companies? Why?

I firmly agree. Apprentices are most important for companies, such as Pilatus but also other international companies. Ex-apprentices are the backbone of Pilatus. Also in our business knowledge only resides with people, hence they are the most import asset we possess. I would say apprenticeships are part of the Swiss culture and are worth the investment. The work quality of someone we have trained for three to four years is typically higher than the work quality from someone coming from outside, who is trained on the job for a few months only.

Young people entering our company as apprentices have a high chance of being hired into a permanent position once they have successfully completed their apprenticeship. At any time, between 6% and 7% of our workforce are apprentices, in engineering and on the shop floor, and many of our employees are former apprentices who decided to stay with us for a long time. Typically, every year 30 to 40 people graduate. More than 50% receive an offer for a permanent job from us.

Apprenticeship is indeed a successful practical education. A career path can be offered in various businesses, allowing young people who are not interested in going to university to work hands on and to immediately transfer the theoretical education received to their daily job. Depending on your will, skill, and dedication to what you want to achieve in life, you can pursue a work career as mechanic or with a bit of luck become the CEO.

What recommendations do you have for young people today? What are some of the challenges they face today that could be overcome with an apprenticeship?

People should listen to themselves and figure out what they are interested in, what their abilities and true skills are. This is a challenging decision if you are 15 or 16. Therefore, parents need to support their children without directly or indirectly creating a two-class society. Especially in the US, this is a big challenge we are facing: to persuade parents to allow their children to do an apprenticeship. It is not part of the culture yet, and they are not sufficiently familiar with the advantages of it. In Switzerland, we invite 150 parents and young women and men every year to explain our apprenticeship program and to show them our facilities and advantages of an apprenticeship program.

Apprenticeships bring the benefits of becoming adult in a short period. And once finished, young people get a decent income and thus it enables them to afford to go on to higher education or a post-apprenticeship program on their own instead of taking on a high amount of debt for university. In addition, I acknowledge it as a gift, that apprenticeships in Switzerland are government funded. I strongly believe that an apprenticeship is a good starting point, no matter which career path you eventually choose.

The fundamental reason for Switzerland's low unemployment figure is the complementarity between apprenticeship and academic career paths.

Portraits of CEOs who started as apprentices



CEO UBS GROUP
Sergio P. Ermotti

Chairman of the Swiss-American Chamber of Commerce

Board member of the Global Apprenticeship Network

Company: UBS Group

Industry: Financial Services

Revenue: CHF 28.3 billion (2016)

Employees: 60,785 (2016)



Choosing the right career path for you

When I finished mandatory school at 15 and walked out of those doors for the last time, I thought my love of sports would define my career. At that time, studying wasn't what I wanted to spend time on. And so, I started an apprentice job in a small Swiss bank in my hometown of Lugano.

Starting in the stock exchange department at the very bottom, I got to see the industry in action. I experienced what I call "the magic of finance" firsthand, and how it is influenced by international events. I witnessed how macro and geopolitical events on one side of the world can reverberate to generate fluctuations in financial markets on the other side of it. I knew this was the world for me.

I got my first professional experience from my apprenticeship, and I carry the lessons with me to this day. It was enriching to work with experts who devoted their time to teaching and sharing their experience with me. I was executing trades and big orders. And despite my youth, I was given opportunities to push myself and succeed.

Of course, it wasn't always exciting. I also learned that when someone said "bring coffee," that was my job too. And that saying please was compulsory. It taught me how to behave in an adult world. I learned to appreciate the value of attention to detail in my work and how every job had many different parts to it, each as important in their own way.

The apprenticeship in my local bank in Lugano started me on a journey across different functions. It also afforded me the opportunity to work with great people. Thanks to this start, I acquired the skills needed to launch my career.

Working in this world, for example, helped me to cultivate the soft skills valued by employers, like communication, teamwork, willingness to learn and a strong work ethic. After a few months, I knew that banking was going to be my future. But back then, I never for one moment imagined that I would become the CEO of Switzerland's largest bank. For me, it was about learning and doing something exhilarating.

When I embarked on my career, the Swiss apprenticeship system was quite different to what it is now. Opportunities have now

One lesson I've learned in my career is to think big, but always plan carefully and focus on the job at hand. If you get distracted by what might come next, you can lose sight of what matters most and fall short of your final goal.

improved. If you want, the option to return and study is always there, after gaining real-life, hands-on experience in business. I believe it opens more doors and helps people discover where their true interests and talents really lie.

As Chairman of the Swiss-American Chamber of Commerce, board member of the Global Apprenticeship Network and head of Switzerland's largest bank, I know the value of apprenticeships to Swiss business. Apprenticeships perform an important function in our society that helps people fulfil their potential. Not everyone is suited to university, and so a vocational apprenticeship can help them acquire skills they need for career success. Similarly, it makes sense for the wider economy. In today's fast-moving, technology-driven world, it endows young professionals with the skills they need to confront change and adapt in a constructive way.

I do not think it is a coincidence that two of the most successful economies in Europe—Switzerland and Germany—have well-developed traditions of apprenticeships. The education system works closely with the public and private sectors when it comes to finding jobs for apprentices. It also helps to identify and plug skills gaps.

One lesson I've learned in my career is to think big, but always plan carefully and focus on the job at hand. If you get distracted by what might come next, you

can lose sight of what matters most and fall short of your final goal. This is not only frustrating—you will have squandered your talent. Young people today should expect their career path to change at least three or four times and so should embrace the kind of education and training that apprenticeships offer.

Through an apprenticeship, you can mix learning the theory of a job with gaining practical experience. It gives you exposure to seasoned professionals who invest their time in helping you develop and move forward. You also learn the soft skills that employers in every industry are looking for.

If this is the kind of experience you want, then follow my example and take the initiative to find the right apprenticeship. I don't regret it and neither will you.

Portraits of CEOs who started as apprentices



CEO ASH GROUP **Barend Fruithof**

Former Head of Corporate & Institutional Clients Credit Suisse

Former CFO Raiffeisen Schweiz

Company: ASH Group

Industry: Manufacturer of cleaning and agricultural equipment

Revenue: CHF 363 million (2016)

Employees: 1,583 FTE (2016)



It might be a surprise to discover that Barend Fruithof started his career as an apprentice farmer and then worked for several years at the Secretariat of the Swiss Farmers' Union. He went on to forge a very successful career in the financial sector while studying for an Executive MBA at the University of St. Gallen. After gaining experience in a variety of functions at the Zürcher Kantonalbank, he was appointed CEO of Viseca Card Services and then moved to Raiffeisen Schweiz as CFO. After that, he spent seven years at Credit Suisse as Head of Corporate & Institutional Clients. Today, as CEO of Aebi Schmidt Holding AG (ASH), he runs a leading Swiss industrial company with 1,600 employees worldwide.

"The apprenticeship program provided a very good foundation for my career," says Fruithof. "An apprenticeship provides complete immersion in professional life with a strong, practical connection to one's work. Everyday life often calls for pragmatic solutions that can't be learned at university." Fruithof also says his apprenticeship taught him three elementary things that have been invaluable in his career: leaning in, integrating into a team, and staying flexible.

Everyday life often calls for pragmatic solutions that can't be learned at university.

Barend Fruithof is a great believer in the dual system of education. In his opinion, apprenticeships have also proven to be an effective means of combatting youth unemployment and professional skill deficits. "Skilled people will be even more in demand in the future than they are today, so I am convinced that the apprenticeship system will become yet more important," says Fruithof. "Furthermore, young people have good prospects for staying on as permanent employees following their apprenticeship, and employers benefit as they are able to train recruits with the skills they need. This means there is no need to advertise vacancies, no nasty surprises after taking on new staff, no need for induction training, and costs are lower as the trainees are productive straight away." Last but not least, Fruithof says that the public perception of organizations that train apprentices is very positive.

An apprenticeship is not a cure-all, although it does prepare a young person for the challenges of today's world just as well as a university education does. It promotes interdisciplinary thought and action as well as self-confidence. "Young apprentices grow up faster," says Fruithof. Given time and energy, it is also not too late after completion of an apprenticeship to qualify for university by completing the high school matriculation through adult education programs, and hundreds of Swiss choose this second educational path each year.

So, what advice does the CEO of the ASH Group give his apprentices? "Stay flexible, in terms of location, ideas and time. See every change as an opportunity, because your lives will be marked by change. Be proactive, courageous and contribute your own ideas. Take charge of your own life. Self-determination is a great privilege in life, and—in my opinion—it is the basis for happiness and success."

"No matter which path you take: Remain inquisitive! Whatever you do, do it with passion, enthusiasm and without fear of failure. Failures are a part of life, they are not something to be ashamed of. Sometimes a detour or a second attempt is what gets us to the goal."

Finally, Fruithof, a former decathlete, says, "In life, the value of everything depends on contrast. What would the significance of winning be, if there wasn't also the chance of losing?"

Skilled people will be even more in demand in the future than they are today, so I am convinced that the apprenticeship system will become yet more important.

Portraits of CEOs who started as apprentices



CHAIRMAN UBS SWITZERLAND

Lukas Gähwiler

**Chairman of the Employers
Association of Banks in Switzerland
Board member of economiesuisse**

Company: UBS Group

Industry: Financial Services

Revenue: CHF 28.3 billion (2016)

Employees: 60,785 (2016)



Why did you choose to do a Swiss apprenticeship?

I come from a relatively modest background. I grew up in the country, and school was not easy for me—not so much because of my performance, but more because of my attitude. I had trouble sitting still, and preferred spending time on the farm or on the soccer pitch. So, the apprenticeship came along at the right time for me. I had to grow up and do so quickly. My parents gave me two options: do an apprenticeship, either with the local authority or at a bank. At that time, there were no other options. I knew that being a civil servant was out of the question for me, so I started an apprenticeship at a regional bank.

How did your career develop after completing the apprenticeship program?

After my apprenticeship, I was ready for action and knew that I wanted to work in the financial sector. However, it was always clear to me that I wanted to continue my education. So, I enrolled at the University of Applied Sciences in St. Gallen before I went back to work. After my studies, I went to a big bank to gain international experience. I had the opportunity to learn about the most important areas in a bank and to experience

different cultures. And these experiences helped me to develop—step by step. First, I went to Zurich, then to Calgary, Vancouver, New York and finally San Francisco.

The apprenticeship was the start of a lifelong learning process for me. I quickly learned that ongoing development is essential. The bank enabled me to complete an MBA in New York, and then an executive program at Harvard Business School. So, over the years, I was able to acquire both theoretical and practical knowledge. My backpack was, so to speak, well-equipped when I moved to UBS seven years ago and took charge of the Swiss business.

In what ways did the apprenticeship prepare you for your professional life?

The apprenticeship allowed me to take on responsibility when I was young and gain work experience. At the same time—and I realized this about myself early on—an apprenticeship helps you to identify your own strengths and interests. I achieved my first success and found that I was accepted and taken seriously. That felt good. And then it was the same as it is everywhere else: When you are successful and gain recognition for your work, you enjoy what you are doing more.

Often, you don't know yourself well enough to judge at the age of 15. This is why I believe an apprenticeship is an excellent foundation for exploring your own strengths and abilities and for gaining work experience.

However, an apprenticeship is often a lot like life: to get anything out of it, you have to work hard. An apprenticeship requires major commitment at a young age, and you need to be enthusiastic about what you are doing, as well as having tenacity and perseverance. The better you are at networked thinking, the more likely you are to succeed. You not only develop cognitive skills, you also develop important emotional skills. For example, you learn to work with your teammates, with people of different ages, genders and backgrounds.

Would you say that you are where you are today thanks to the apprenticeship?

A professional apprenticeship provides excellent basic training. For me, it was the ideal way to start my professional career. However, to be successful in the long term, continuous professional development is essential. It is also important to work with people. I always had good bosses who were also important mentors to me. To a certain degree, you can plan your career yourself. You have to be ambitious, know what you want and what you can do. But luck also plays a role. You have to be in the right place at the right time, and get to know the right people who will promote and support you. That's the beauty of the Swiss system: It's possible to begin with an apprenticeship, then continue your education, and in this way pursue a successful career. I think that's great.

How important is the dual education system for Swiss companies?

The dual education system has a high status in Switzerland. A look abroad shows the advantages it offers. The higher the

rate of school-leavers with university-entry qualifications, the higher the youth unemployment rate; we see this correlation in many countries. The dual education system with its flexibility continues to make Switzerland very competitive compared with other countries. That is why I am personally committed to professional apprenticeships. As a large international bank, we have a responsibility to train the next generation. This calls for both educational paths, the academic and the professional. At UBS, we also place great importance on balance in training positions: Currently, 1,800 young people in Switzerland are in trainee programs at the bank, and half of these are in professional apprenticeships.

What advice can you give to today's young people on choosing a career?

Getting started in the professional world has certainly not become easier since I was young. There are already important questions at a young age, and the possibilities have increased considerably compared with earlier. I encourage young people starting out to pursue the educational path that best reflects his or her own interests and abilities. Often, however, you don't know yourself well enough to judge this at the age of 15. This is why I believe an apprenticeship is an excellent foundation for exploring your own strengths and abilities and for gaining work experience. A professional apprenticeship does not exclude academic training at a later stage, but actually supports it. I have never regretted my decision to complete an apprenticeship.

Portraits of CEOs who started as apprentices



CEO AUTONEUM
Martin Hirzel

Former Head Business Group SAMEA (South America, Middle East & Africa), Rieter Group

Advisory Board Member, Zurich University of Applied Sciences ZHAW

Company: Autoneum

Industry: Automotive Supplier

Revenue: CHF 2.2 billion (2016)

Employees: 11,725 (2016)



CEO PWC SWITZERLAND
Urs Honegger

Territory Senior Partner PwC Switzerland
Former Swiss representative for Consumer & Industrial Product Services within the PwC network

Company: PwC Switzerland

Industry: Audit and Advisory

Revenue: CHF 704 million (2015/2016)

Employees: 3,022 (2015/2016)



Career path after Vocational Education and Training (VET)

When I finished my compulsory schooling at the age of 15, I had the choice of staying at school for another four years and taking the baccalaureate or completing a VET program. At that point, I wanted to enter the world of work at last rather than remaining at school even longer with the prospect of spending years studying afterward. I opted for a commercial apprenticeship, as this seemed to me to provide a good basis for embarking on a professional career spanning a broad range of potential occupations. I already realized back then that Switzerland’s dual system of vocational education and training offered many possibilities, including the option of higher education at a later stage, which made the choice of a VET program an easy one for me.

Following the VET program and a language stay abroad, I applied in Switzerland to a multinational company—IBM—and worked my way up there via various functions to become division controller. After five years at IBM I decided to take up studies. It was clear to me that a successful managerial career would be difficult with a VET program alone. As a new graduate with a bachelor’s degree in business administration, I was offered the prospect of an international career in an overseas management position with Rieter, at that time Switzerland’s leading textile machine and automotive supplier. Taking on the responsibility of a general manager in one of the key foreign

markets at the age of just 30 is undoubtedly something I owe to the combination of long-established practical experience from the VET program and requisite theoretical background gained through my studies. Based on my conviction that continuous lifelong learning is an essential ingredient of both personal and professional life, after 10 years at Rieter, I opted to undertake additional in-depth management training in the form of the GMP at Harvard Business School. One year later I was offered the post of CEO at newly founded stock-listed company Autoneum.

Looking back, I can say that thanks to the VET program I learned at an early stage from scratch how a company works. The practical approach of the VET program enables participants to acquire fundamental basic knowledge about business processes. Apprentices also gain insights that university graduates often do not experience in the same way owing to the higher entry level. On the other hand, the VET program imparts less general knowledge than staying at school for longer and going to university.

I can only recommend the VET program as a starting point for a successful professional career. The VET program is the ideal path for intelligent young people keen on getting practical experience. However, it is not sufficient on its own and additional qualifications in the form of further training programs are indispensable these days—particularly for a business career—if you wish to extend your career prospects beyond a given level.

“To know how things really work,” was always my theme. In school, I discovered that I like the combination of practical things and theoretical learning. For this reason, it was clear for me at a very early stage that the apprenticeship was the right way for me. The only problem, I had no clear idea which direction to take. I did a series of trial apprenticeships called “Schnupperlehre” lasting a few days to a week. One of these even took me to a carpenter. But that was way too practical!

Through many discussions and advice from parents and family, I decided to start a commercial apprenticeship at a small SME (around 200 employees) and that was the ideal start for my professional career.

I had the chance to learn all aspects of management—from the manufacturing processes, the organization of the material inventory, the inventory accounting, payment processes and payroll accounting to all other tasks that make a company’s day-to-day operations. I even took turns accompanying elder employees on installation tasks at clients’ sites.

After the three-year apprenticeship, I continued working for the company for two years before taking off, literally! I traveled around South America for eight months and did my compulsory military service before entering the University of Applied

Sciences (Fachhochschule) to strengthen my theoretical knowledge in business administration. I then had the chance to move on to an academic university, but decided instead to start my professional career for good. First steps included working in the industrial and travel sectors before joining PwC where I have enjoyed 30 great years!

I am proud of my career path. Real life situations with real people at a young age gave me a massive advantage early in my career. You learn to work in a team with people of different ages. You learn what it means to have responsibilities and to finish a task. And you learn why theoretical knowledge is important. This makes you hungry for new things, hungry to look outside the box and hungry to take on responsibility.

I can recommend such a path to all young people with aspirations and a curiosity for how the world works and with the drive to pursue new challenges. With an apprenticeship, you will always have the advantage of knowing how things really work and combine it with theoretical know-how. If you have fun at what you are doing, success will come about naturally.

Portraits of CEOs who started as apprentices



CEO MOBILIAR **Markus Hongler**

Former CEO Zurich Western Europe

**Former CEO Zurich Global
Corporate Europe**

Company: Mobiliar

Industry: Insurance

Revenue: CHF 4.4 billion (2016)

Employees: 5,259 (2016)

la Mobilière

You quickly realize how the business works

Why did I decide on a business apprenticeship? After nine years at school, I wanted to be independent, to work, earn money and discover the world.

The business apprenticeship, which combines education and business practice, gave me a solid foundation on which to build my career step by step. Those doing a business apprenticeship already have day-to-day contact with customers at the age of 16 and learn how to hold their own in the commercial world. This gives them an advantage over university students in terms of life experience and social skills. However, the knowledge gained by university graduates must later be acquired by other means in order to be well qualified for leadership positions.

**It's because of them
that we are here in the
first place. Another
thing I learned:
Common sense is our
best adviser.**

Bearing responsibility from day one

I have always considered my practice-based background as an advantage. In my business apprenticeship, I was given responsibility from the first day and quickly realized how the business works and what really matters. I also learned that, at the end of the day, it's all about customers. Customers are at the center of what we do. It's because of them that we are here in the first place. Another thing I learnt: Common sense is our best adviser.

After my apprenticeship, I worked at other companies for more than 30 years. I started off in Geneva with its international mix of inhabitants, which allowed me to put my French and English to use. Later on, at a large international corporation, I benefited from working in challenging management positions involving different countries and cultural environments. In 2011, I returned to Mobiliar, the firm I had done my apprenticeship with, to take over as CEO and lead the company into the digital future.

If in doubt, go for an apprenticeship

An apprenticeship alone, however, is not enough. You also need the permanent willingness to improve, to learn new things. In fact, learning is a lifelong enterprise. Ultimately, it doesn't matter whether this takes place at a university or elsewhere.

Apprenticeship and academic studies do not have to be an either/or. You need both—practical, work-related learning and formal education. One reason why Switzerland has such a powerful economy is that there are successful businesspeople coming from both sides. If in doubt, I would recommend to young people to choose an apprenticeship rather than embarking on university studies without inner conviction. The practical knowledge and abilities acquired during an apprenticeship can help a young person find their own path in the professional world. Thanks to the permeability of the Swiss educational system, you can always change from one track to the other.

And today, it doesn't matter so much what line of business you do your apprenticeship in. What matters is what you do with the knowledge and abilities acquired, in keeping with your own personality, and that you are always prepared for changes. Success comes to those who face challenges with passion and commitment.

**Apprenticeship and academic
studies do not have to be an
either/or. You need both—
practical, work-related
learning and formal education.**



Portraits of CEOs who started as apprentices



GM HOTEL W SAN FRANCISCO Roger Huld

**Former General Manager W Silicon Valley
Former Director of Food & Beverage at
the Sheraton San Diego and at the Westin
Maui Resort and Spa**

Company: Hotel W San Francisco
Industry: Hospitality
Revenue: \$68 million (2016)
Employees: 300 (2016)



Why did you choose to follow the Swiss apprenticeship program?

I started as a chef apprentice in the Zurich restaurant Cafe Oasis, working in various chef positions in Zurich, Geneva and Australia. I wanted to be productive and active at an early age.

After graduating from the VET program, did you immediately start your professional career in the same company? Please comment on your career path to a general manager.

After attending the Business and Hotel Management School and working at the Bürgenstock Hotel in Switzerland, I moved to Australia in 1991 and started working at the Sheraton Mirage Resort in Port Douglas, Queensland. After seven years in various positions, including in the food and beverage department, I was promoted to Food & Beverage Director. Meanwhile, I got married and became father of two children.

In 1999, there was a US lottery for green cards, where I won one, thus having the opportunity to move to the US. There, I spent six months working for the Hilton Waikoloa Village before serving in a senior position in the food and beverage department of the Westin Maui for three

years and then serving as Food & Beverage Director at the Sheraton San Diego Hotel.

In 2007, I joined W San Francisco as Director of Operations and then in 2011 joined the W Silicon Valley as general manager. Two years later, I had the opportunity to lead the flagship W San Francisco as the General Manager. As a leader in sustainability, in 2015 it became the first EB LEED Platinum certified hotel in California—one of only 11 worldwide at the time. It has won several other awards: American Hotel & Lodging Association (AH&LA) Property of the Year, Large Property (2016); the BizBash Event Style Award for Best Hotel Space for Meetings and Events (2015); and CA Green Lodging Program (2016), to name a few.

Do you recognize that the apprenticeship program has prepared you for your career? How did the VET help you in building your career path?

The apprenticeship program helped me to become productive and active at an early age, as I hoped for. And rather than going to college at that stage, completing an apprenticeship program ensured that I could start in life without college debt. I was then able to complete a college degree after I'd spent several years working in my profession.

As general manager of a prominent hotel in the US, do you feel apprenticeship is a successful way forward for the young employees and for companies? Why?

At our hotels, we often hire college graduates, for example, for front office positions. Although they have completed a four-year degree, they often have no hospitality-training. We provide some on-the-job training but believe it would be more beneficial for both employer and employee for recruits to bring some hospitality related training to the role. In the San Francisco Bay Area, I see how challenging it is to find people with the right skills—without these skills, they need extensive training. An apprenticeship program would create a win-win situation for employer and employee on the condition that the whole hotel industry accepts the idea. For the employee, it offers the opportunity to work while also continuing in school. And for the employer who invests in this talent for two or three years, it builds employee loyalty to the company. A company can train the employee in exactly the type of hands-on work they will do in the future, empowering them with the right skills and knowledge. This will be complemented by the theoretical knowledge they learn in school, preparing them for future advancement and keeping the opportunity open to study for a degree and advance to a more senior position at a later date.

In addition, I think some people are not ready to go to college or even make a decision on this. An apprenticeship program is a good alternative and allows young people to be productive at an early age. After a few years working with their newly

acquired skills, they can specialize in the area they are most passionate about then add to their secondary education. Typically, after gaining some work experience, a young professional has a better understanding of the field they want to invest their time in and how to complement their vocational training with a degree or further specialization.

What recommendations do you have for young people today? What are some of the challenges they face today that could be overcome with an apprenticeship?

For a career in the hospitality industry, an apprenticeship offers a great alternative to, for example, a college degree. An apprenticeship should not be considered as a secondary, less valued way of getting skilled and educated. Today, young people are not always aware of the options they have; therefore, a careful analysis of all possible options is necessary. With the support of the industry, an apprenticeship could be a great way forward.

However, we all have a different path to follow and it's important for everyone to follow the one that's best for them.

Today, young people are not always aware of the options they have; therefore, a careful analysis of all possible options is necessary. With the support of the industry an apprenticeship could be a great way forward.

Portraits of CEOs who started as apprentices



SENATOR AND ENTREPRENEUR
Ruedi Noser

Entrepreneur and sole shareholder of Noser Management AG
Former member of the lower chamber of the national parliament
Company: Noser Group
Industry: ICT Solutions
Revenue: CHF 83 million (2016)
Employees: 490 (2016)

NOSERMAGEMENT

many years on cantonal level, then 12 years in the lower chamber of the national parliament and since 2015 as a senator.

Apprenticeship is a great way to start it all. It teaches young people at an early age to accept advice and criticism, and to seek improvements in the day-to-day operations. They learn that a deadline is a deadline. A task has to be finished on time! They learn to work with all kinds of

people, some who will be better than them, some who will be challenged to cope. And they learn that a pragmatic and practical solution is often better than the elusive ideal solution.

I never regretted the apprenticeship path. On the contrary!

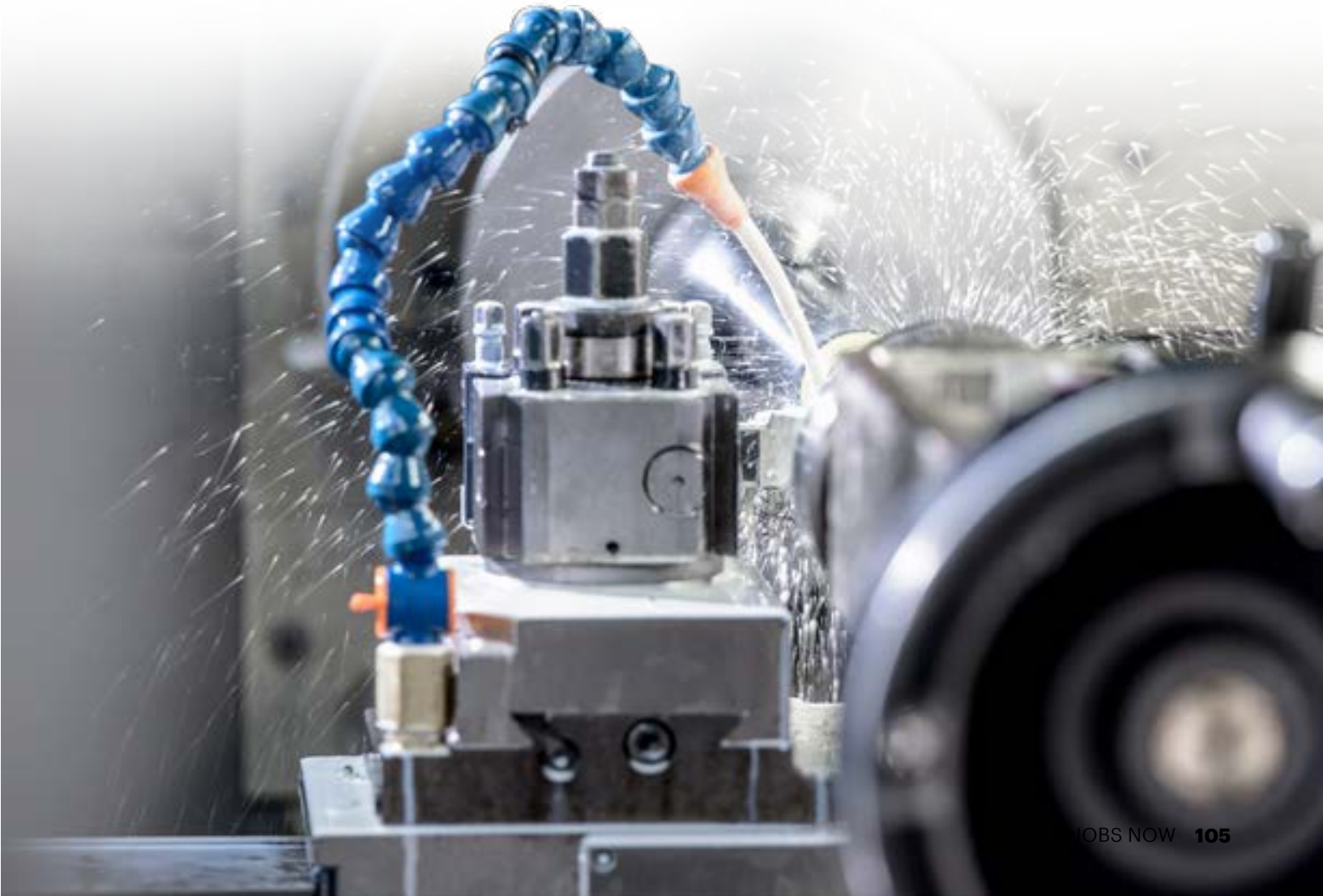
Since early schooling, I have suffered from dyslexia. Hard work gave me a top grade in biology, math and chemistry, but it also resulted in mediocre grades in languages. This brought my grade average to a rather uncomfortable place, making a classic college/university education impossible. My interest in all technical things brought me to an apprenticeship with a mid-size textile machinery manufacturer (Rieter Winterthur). These great years enabled me to complement practical experience with theoretical learning and I finished my schooling with a professional grade. This then allowed me to move on to a university of applied science, graduating as an electrical engineer.

In my first job at a specialized manufacturer, I took on the role of a software tester. With practical knowledge from my

apprenticeship, I astounded the whole team by being able to use high-tech machines they had just received. Also, my apprenticeship ideally prepared me to work in a team with many other, older people. In addition, it taught me that safety and precision was more important than pure speed.

I stayed in that field for 10 years, before partnering with my brother (who also went through an apprenticeship) in a startup developing embedded software, currently used in mobile phones and the like. Today the company has 430 full-time employees in Switzerland, Germany and Canada, resulting in sales of CHF 90 million. I have been CEO for 33 years and am today sole owner. I also had the chance for many years to contribute to society through political engagement in legislative functions, for

Apprenticeship is a great way to start it all. It teaches young people at an early age to accept advice and criticism, and to seek improvements in the day-to-day operations.



Portraits of CEOs who started as apprentices



CEO ZÜRCHER KANTONALBANK
Martin Scholl

**Member of the Board of Directors
of the Swiss Bankers Association**

**Member of the Executive Board
of economiesuisse**

Company: Zürcher Kantonalbank

Industry: Financial Services

Revenue: CHF 2.3 billion (2016)

Employees: 5,173 (2016)



My apprenticeship has stood me in good stead throughout my professional life. The fact that I had the opportunity to work with experts from many different fields of banking and learn the business from the ground up is still of benefit to me today.

Apprenticeships: An investment in the future

The commercial apprenticeship is probably the most typical of all forms of professional education in Switzerland—and it is also the path I took when embarking on my career over 35 years ago. As a 15-year-old apprentice, I never dreamt that I would one day become CEO of Zürcher Kantonalbank, the third- largest universal bank in Switzerland. However, learning about banking from the ground up clearly provided the basis for my career.

After high school, a careers adviser recommended that I become a food scientist or complete a commercial apprenticeship. With both parents having had successful careers in business, I opted for the latter—choosing an apprenticeship at a branch of Zürcher Kantonalbank. I had no particular interest in banking at the time. However, the motivation and pride with which the branch manager spoke to me about his work had such a striking impression on me that I simply wanted to be part of that team and company. This strong motivation, together with the practical and theoretical know-how I acquired during my apprenticeship, provided the basis on which I built my career.

During the 35 years that followed, I was able to continuously take on new roles, gain valuable insights and assume responsibility with each step building on my experience and creating an even stronger basis for the next stage in my career. My hands-on professional development evolved further with the help of training courses to become a Swiss certified banking expert for example. Then, 10 years ago, I was appointed CEO of Zürcher Kantonalbank.

My apprenticeship has stood me in good stead throughout my professional life. The fact that I had the opportunity to work with experts from many different fields of banking and learn the business from the ground up is still of benefit to me today. It was a valuable period when I discovered my strengths and weaknesses and developed my talents. Above all, it has helped me to stay grounded.

Today—even in an increasingly international and academic environment—an apprenticeship remains an excellent way to launch a career. It not only provides a solid start in professional terms but also valuable life skills. Apprentices immediately become part of a work environment where they can gain professional experience and demonstrate their abilities at a time when their peers are still at school. On completing

their training, they have more hands-on knowledge than others with a school-leavers certificate and consequently are at a significant advantage when entering the job market.

The completion of an apprenticeship is, however, just a milestone. In terms of lifelong learning, it is key for young professionals to continue developing their skills throughout their career—by, for example, pursuing further studies in parallel to their work or completing specialist training. Another ingredient for a successful career is the determination to succeed. Talent and stamina, coupled with a calm demeanor and an enjoyment of one’s work, are further important factors—and naturally, you need a little luck.

I am a strong advocate of apprenticeships and vocational training, not only because I experienced their many advantages firsthand but also because I see young people benefiting from this every day, right here at Zürcher Kantonalbank. We currently

have about 420 people in training, including around 300 apprentices, most of whom are enrolled in commercial or IT programs. This makes Zürcher Kantonalbank one of the largest providers of training in the canton of Zurich and demonstrates our belief that this not only represents an important investment in the future of our company, but is also a worthwhile long-term commitment to young people and our region.

Portraits of CEOs who started as apprentices



CEO EY SWITZERLAND
Marcel Stalder
Market Leader of Germany, Switzerland and Austria
Board member of digitalswitzerland
Company: EY Switzerland
Industry: Audit and Advisory
Revenue: CHF 661 million (2016)
Employees: 2,627 (2016)



Today, as the CEO of EY Switzerland, I value the Swiss apprenticeship model—it is a win-win situation.

At age 15, all my best friends started into business life, and my family did not have a big academic history—for me, the apprenticeship model was just the right way at the right time.

Learning a profession from bottom up: An apprenticeship at UBS in Emmenbrücke in the canton of Lucerne, close to my hometown of Rothenburg, offered me the opportunity to learn a profession from the bottom up. The combination of practical work at the bank and studying theory at the commercial business school in Lucerne was an ideal combination for me to learn the fundamentals of business life.

Technical expertise: As an apprentice you rotate among different business units. Experienced employees teach you business rules, practical application and how to deal with exceptions in a compliant but efficient customer-oriented way. After a few years, you have a solid understanding of your profession and how your company’s business model and industry work.

Social competence and skills: The apprenticeship exposes young people to a complex social environment. I got to learn to put client expectations and customer satisfaction and not personal interest first.

At a young age, I experienced how to integrate into a team, to deliver finished high quality work and to produce a result, despite operating in an unknown situation—however, in a protected environment.

Local versus International: Despite growing up in the countryside, the apprenticeship at UBS was an entry point into an international business. It exposed me to an international business context at a young age: currency trading, export risk insurance, stock exchange and many other banking operations.

An open education system: The value of the Swiss education system is not based on the existence and social acceptance of the apprenticeship model in isolation. It is the combination of the apprenticeship with the option of re-entering into an academic education path later on.

After finishing my apprenticeship, I got the opportunity to deepen my professional experience at UBS Geneva as a commercial clerk. Working in another cultural environment, learning a foreign language was an important element of my education before studying economics at Lucerne school of business administration to earn a bachelor’s degree in economics. Later, after continuing my professional career at EY, I

worked and lived in the US, in Cleveland, as the assistant to EY’s global Assurance and Advisory leader where I studied Public Accounting and passed the CPA exam.

A win-win situation: Today, as the CEO of EY Switzerland, I value the Swiss apprenticeship model—it is a win-win situation. On one hand, EY can get in contact with and develop young talent; on the other hand young people have the opportunity to learn a profession and the fundamentals of business life at a young age, early in their career.

An important foundation for success: I very much believe that the apprenticeship significantly shaped my attitudes and beliefs today about success:

- Customer centricity
- Think big
- Positive, “can do” mindset
- Attract, develop and inspire the best people—no matter of background
- Culture of diversity, integrity and teamwork
- Walk the talk
- Passion and discipline

My recommendation to young people:

- Gain solid professional and technical expertise
- Take responsibility early on whenever possible
- Spend some time abroad to learn languages and to build up intercultural competence
- And finally, build your network, build real relationships and ensure your development is market oriented!

Portraits of CEOs who started as apprentices



**CHAIRMAN OF THE BOARD
OF DIRECTORS ABB**

Peter Voser

**Member of the Board of Directors IBM,
Roche and Temasek**

Former CEO and CFO Royal Dutch Shell

Company: ABB

Industry: Industrial Technology

Revenue: CHF 33.8 billion (2016)

Employees: 132,000 (2016)



The “secret” to Switzerland’s success

Once again, Switzerland is the world’s most innovative country in the Global Innovation Index—for the seventh year running. One reason is that it is home to many of the world’s most innovative large companies, among them ABB, Nestlé, Novartis and Roche, as well as thousands of small and medium-size enterprises, many of which are leaders in their fields.

Switzerland is also a leading exporter of high-tech products with well over 60% of GDP earned abroad from sectors led by chemicals and pharmaceuticals, precision instruments and watches, and machinery and electronics. Together, these factors combine to make the country one of the richest in terms of GDP per capita, with consistently low unemployment.

As a Swiss person who grew up in the country’s industrial heartland before spending much of my career abroad, I am convinced that one of the most important ingredients in Switzerland’s success is our dual education system. Switzerland is one of the few countries that combines a first-class academic system with a vocational

education and training (VET) system based on the apprenticeship model.

Our apprenticeship model is something we are extremely proud of. Unlike in some countries, being an apprentice here carries no stigma. In fact, apprentices are often in greater demand than university graduates because they have tried-and-tested experience, acquired working side by side with experienced experts. Graduates by contrast, still have to demonstrate that they can apply the theoretical knowledge they have gained at university to the real world.

For me, the prospect of doing an apprenticeship was far more enticing than spending several more years in a classroom, not least because I would be earning a wage. At the age of 16, I left school and joined a local bank as a commercial apprentice. From day one, I was immersed in the real world of commercial and retail banking, with all its attendant activities, challenges and experiences, but crucially with the support and guidance of experienced mentors and professionals.

My time as an apprentice was undoubtedly one of the best of my life—a uniquely authentic, formative, and rewarding

learning experience. The best analogy I can think of is learning to ride a bicycle. You are given the equipment you need, you are supported, instructed, supervised, and picked up when you fall down. But ultimately, it is up to you, and once you’ve succeeded, you never forget how to apply what you have learned.

My apprenticeship showed me very clearly that I had a flair for finance, but that banking was not the right career for me. After a short spell in the finance department of ABB’s predecessor company, BBC, I decided that a career in industry was a better choice and went on to study business administration at the University of Applied Sciences in Zurich.

Directly afterward, I joined Royal Dutch Shell where I went on to have a long and rewarding career in business and finance roles that culminated in the position of chief financial officer and finally CEO. In between, I had the opportunity to join ABB as CFO two years at a time when the company was facing an existential crisis. That was a tremendous learning experience and one which, thankfully, ended with ABB returning to financial health. After retiring from operational management at Shell, I returned to ABB in 2015 as Chairman of the Board of Directors.

My apprenticeship not only helped me find the right career path early on, it allowed me to identify the gaps in my knowledge, which I went on to fill at university, and it made me appreciate from a young age that deepening my knowledge in certain areas of business would help me in my future career. These insights were extremely motivating.

It used to be thought that with the advance of knowledge and technological progress, the apprenticeship model would eventually give way to the academic one. Yet, what we see today is that countries with a strong apprenticeship system, such as Switzerland and Germany, have strong, innovative

economies and low unemployment. By contrast, countries that have prioritized the academic system—sometimes at the expense of apprenticeships—are experiencing a growing mismatch between the skills demanded by the market and those of graduates leaving university. For those without a university degree, the prospects of finding a good job are increasingly bleak. This is now being recognized, hence the rising and renewed interest in the apprenticeship system in the United States and elsewhere.

In the emerging Fourth Industrial Revolution, where industry is rapidly being transformed by digital technologies, existing education models are no longer adequate. At ABB, where we apply digital technologies to power transmission, industrial automation, and transport and infrastructure, our employees are increasingly engaged in lifelong learning. For the workforce of the future, education and training will have to consist of both practical and theoretical components, and people will increasingly take career breaks to pursue further education and training. Countries and companies that wish to stay ahead of the curve in the Fourth Industrial Revolution will have to develop new educational models and new ways of working to make lifelong learning feasible. The apprenticeship system offers a model upon which to build the education system of the future.

My apprenticeship not only helped me find the right career path early on, it allowed me to identify the gaps in my knowledge, which I went on to fill at university.

Appendix: Authors

Why is Swiss-style apprenticeship so attractive?



Prof. Dr. Ursula Renold is head of the research center for comparative education systems at the Swiss Federal Institute of Technology (ETH) in Zurich and Co-Director of the Center on the Economics and Management of Education and Training Systems (www.cemets.ethz.ch). In addition, she is Chairman of the University Board of the University of Applied Sciences and Arts, Northwestern Switzerland. She was a Visiting Fellow at the Harvard Graduate School of Education between September 2012 and March 2013.

Prior to this, Renold was Director General of the Federal Office for Professional Education and Technology (OPET) until June 2012. In this position, she headed Switzerland’s competence center for professional education, the universities of applied sciences, and had led program innovation since 2005. Before this, she was head of OPET’s Vocational Education and Training Division and Director of the Swiss Federal Institute of Vocational Education and Training (VET teacher education). During her career, Renold has launched numerous key initiatives that have had great impact on the vocational and professional education and training system in Switzerland. She holds an honorary Professorship in Professional Education at the University of Applied Labor Studies in Mannheim (Germany). Dr. Renold started her education as an apprentice in a bank.

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Dr. Katherine Caves is a postdoctoral researcher in the research center for comparative education systems at the Swiss Federal Institute of Technology (ETH) in Zurich. She has a bachelor’s degree from the University of California at Berkeley and earned her master’s degree in the field of education. Her PhD research was on the economics of education at the University of Zurich.

Her research interests center around the economic, institutional, and infrastructure foundations of strong vocational education and training (VET) systems all over the world, especially what those foundations are in successful VET systems and how they can be developed in nascent VET systems. In addition to this project, she is currently working on identifying the success factors and barriers to labor market-oriented education systems reform with the Center for the Economics and Management of Education and Training Systems (CEMETS).

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Why is Swiss-style apprenticeship a win-win-win proposition for the US?

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Appendix: Relevant Literature

Why is Swiss-style apprenticeship so attractive?

References

- BACKES-GELLNER, U. and TUOR, S. N. (2010): "Gleichwertig, andersartig und durchlässig?," Die Volkswirtschaft, 7/8-2010, pages 43-46.
- BOLLI, TH., RENOLD, U. and WÖRTER, M. (2017). Vertical Education Diversity. In: Economics of Innovation and New Technologies, DOI: 10.1080/10438599.2017.1314075.
- BOLLI, Th. and RENOLD, U. (2017): Comparative Advantages of School and Workplace Environment in Skill Acquisition: Empirical Evidence from a Survey among Professional Tertiary Education and Training Students in Switzerland. In: Evidence-based HRM: A Global Forum for Empirical Scholarship, pages 1-34.
- HOFFMAN, N. and SCHWARTZ, Robert B. (2017). Learning for Careers: The Pathways to Prosperity Network in Fall 2017, Harvard Education Publishing Group, Cambridge.
- INSEAD (2016): Global Innovation Index, 2016. Retrieved from: <https://www.globalinnovationindex.org/gii-2016-report#> (6.6.2017).
- MUEHLEMANN, S.; WOLTER, S. C.; FUHRER, M. and WUEEST, A. (2007): Lehrlingsausbildung - ökonomisch betrachtet, Zürich/Chur: Rüegger Verlag.
- MUEHLEMANN, Samuel (2010): "The Costs and Benefits of Apprenticeship Training: Evidence from Swiss Firms," Canadian Apprenticeship Journal, 1(1), pages 45-55.
- National Academies of Sciences, Engineering, and Medicine (2017): Building America's Skilled Technical Workforce. Washington, DC: The National Academies Press. DOI: [thtps://doi.org/10.17226/23472](https://doi.org/10.17226/23472).
- NCEE (2015): Gold Standard: The Swiss Vocational Education and Training, International Comparative Study of Vocational Education and Training, Washington, DC.
- RENOLD, U. (2016): Swiss Federal Office for Professional Education and Technology: Advanced Diploma Examination for Professional Credentialing, in: Wingard, Jason, and Michelle LaPointe. Learning for Life: How Continuous Education Will Keep Us Competitive in the Global Knowledge Economy. First Edition. New York: AMACOM-American Management Association, 2016, pages 195-208.
- RENOLD, U. and PROBST, F. (2016). The Swiss Vocational Education and Training Initiative India. Background, Concept and Results of the Pilot Project 2008-2013. hep publisher, Berne.
- RENOLD, U.; BOLLI, T.; EGG, M. E. and PUSTERLA, F. (2014): "On the Multiple Dimensions of Youth Labor Markets," KOF Studies, 51, August 2014, Zurich.
- RUPIETTA, C. and BACKES-GELLNER, U. (2012): "High quality workplace training and innovation in highly developed countries." Economics of Education Working Paper Series, 74.
- SDBB/CSFO (2008): What happens after school? An apprenticeship or an academic education? Information for parents, Berne.
- SERI (2017). Vocational and Professional Education and Training in Switzerland. Facts and Figures 2017, Berne.
- SERI (2015). Vocational and Professional Education and Training in Switzerland. Facts and Figures 2015, Berne.
- STRAHM, H.R. (2010). Warum wir so reich sind. Wirtschaftsbuch Schweiz. 2. Erweiterte und aktualisierte Auflage. Hep publisher, Berne.
- STRUPLER, M. and Wolter, S. C. (2012): Die duale Lehre eine Erfolgsgeschichte - auch für Betriebe. Ergebnisse der dritten Kosten-Nutzen-Erhebung der Lehrlingsausbildung aus der Sicht der Betriebe, Glarus/Chur: Rüegger Verlag.
- SYMONDS, William C., SCHWARTZ, Robert B. and FERGUSON, Ronald (2011). Pathways to Prosperity: Meeting the Challenge of Preparing Young Americans for the 21st Century. Report issued by the Pathways to Prosperity Project, Harvard Graduate School of Education.
- WEF (2016): WEF Global Competitiveness Report 2016-2017, Geneva 2016.

Why is Swiss-style apprenticeship a win-win-win proposition for the US?

References

ARTHUR, A. C.; SOARES, C.; LOOGMA, K. and BRUMFITT, K. (2016). The cost effectiveness of apprenticeship schemes. Published by Business Europe, CEEP, UEAPME.

Embassy of Switzerland in the United States of America (2017). Switzerland's Economic Footprint in the United States.

ETUC & UNIONLEARN (2016). A European Quality Framework for Apprenticeships: A European Trade Proposal.

FAZIO, M. V.; FERNÁNDEZ-COTO, R. and RIPANI, L. (2016). Apprenticeships for the XXI century: a model for Latin America and the Caribbean? Published by Inter-American Development Bank.

Federal Department of Economic Affairs, Education and Research EAER, State Secretariat for Education, Research and Innovation SERI International Education Projects (2014). International Cooperation in Vocational and Professional Education and Training (IC-VPET).

HOFFMAN, N. and SCHWARTZ, R. (2015). Gold Standard: The Swiss Vocational Education and Training System. Published by The National Center on Education and the Economy.

HUNZIKER, K. (2016). Switzerland's Vocational Education and Training System. Published by Embassy of Switzerland in the United States of America.

KUCZERA, M. (2017). Striking the right balance: Costs and benefits of apprenticeship, OECD Education Working Papers, No. 153, OECD Publishing, Paris. DOI: <http://dx.doi.org/10.1787/995fff01-en>

STEEDMAN, H. (2012). Overview of Apprenticeship Systems and Issues. Published by The International Labour Organization.

STRAHM, R. H.; GEIGER, B. H.; OERTLE, C. and SWARS, E. (2016). Vocational and Professional Education and Training in Switzerland: Success factors and challenges for sustainable implementation abroad. Published by Peter Egger. Bern: hep.

US Department of Labor (no date). A Quick-Start Toolkit: Building Registered Apprenticeship Programs. Retrieved from <https://21stcenturyapprenticeship.workforce3one.org/page/home>

Best practices from companies in Switzerland

References

Visit the Department of Labor's apprenticeship site which provides access to many resources including state specific contacts: <http://www.DOLeta.gov>; Apprenticeship reps: <https://doleta.gov/OA/contactus.cfm>

For tips to help you get your apprenticeship program started, the United States Department of Labor Employment and Training Administration website can be very helpful "How is An Apprenticeship Program Started" section <http://www.DOLeta.gov/oa/employer.cfm>. This site includes how to start a program with or without a labor union.

About

Accenture

Accenture is a leading global professional services company, providing a broad range of services and solutions in strategy, consulting, digital, technology and operations. Combining unmatched experience and specialized skills across more than 40 industries and all business functions—underpinned by the world’s largest delivery network—Accenture

works at the intersection of business and technology to help clients improve their performance and create sustainable value for their stakeholders. With more than 411,000 people serving clients in more than 120 countries, Accenture drives innovation to improve the way the world works and lives. Visit us at www.accenture.com.

Global Apprenticeship Network (GAN)

The GAN as a public-private partnership (PPP) is made up of multinational companies, employers’ federations and international organizations. It was launched as an action-driven initiative by the G20/B20 at the end of 2013 to promote skills for business and jobs for youth, notably through apprenticeships, as a solution to the skills mismatch and youth unemployment crises. In mid-2016, the GAN’s role was highlighted in a Declaration, signed by Employers at the G20 & B20 Labor and Employment Ministers Meeting. A few months later, the GAN coalition united in Washington, DC. to spark what is now known as the “Global Apprenticeship Movement.” At this occasion, the GAN brought together CEOs of GAN member companies, international organizations and

business & employer organizations together with high-level officials from governments, & NGOs to construct domestic and global solutions in bringing youth to jobs and skills to companies.

In 2015, the GAN launched its first GAN National Networks (GNNs) in Turkey, Indonesia, Spain and Argentina. Catalyzing a GNN movement, the GAN continued to launch GNNs in Colombia, Mexico, Malawi and Tanzania in the following years. Discussions with Costa Rica, Namibia and Kenya for GNNs focusing on promoting apprenticeship as a path to youth employment is already well underway. GAN France, the first GNN to be hosted by a company, will be launched in September 2017.



ETH Zurich / KOF

ETH Zurich regards itself as an institution with regional and national roots that is fully integrated in the international academic community. The ETH has more than 19,000 students from 120 countries. It measures itself in all respects against the world’s leading universities—from its education and research to its management. KOF Swiss Economic Institute, which is part of ETH Zurich, is the leading institute for research in applied economics in Switzerland. KOF has been providing independent and high-quality contributions both to

international research and to economic policy for more than 75 years. The institute focuses on research relating to innovation, internationalization, national regulatory frameworks and education systems. Its forward-looking research is sustained by national and international cooperation with scholars, institutions and economic operators.

Swiss-American Chamber of Commerce

The Swiss-American Chamber of Commerce promotes and facilitates better business relations between the US and Switzerland; provides essential information about doing business in these markets; brings business leaders together to facilitate contacts and provide platforms for networking in both countries; represents the mutual interests of members; promotes both countries as advantageous places to do business; and fosters good corporate citizenship to benefit the communities in which members do business.

As the largest association of multinational companies in Switzerland (Swiss and foreign, large and small), the Swiss AmCham addresses all issues of concern to this sector for the long-term success of the Swiss economy.

The Swiss AmCham, the second largest AmCham in Europe, is a private organization with 2,000 members representing 1,600 internationally active companies. Twenty-

five percent of the members are located in the US (with organizations in Boston, New York, Atlanta, Charlotte, Miami, San Francisco and Los Angeles) and 75% are distributed throughout Switzerland. The Swiss AmCham covers all areas of the private sector and does not accept any subsidies from any government entity. A very prominent group of Directors — CEOs of the largest Swiss companies and European headquarters of the largest US companies—oversees the direction of the Swiss AmCham.

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