

Earn While You Learn:

# Switzerland's Vocational and Professional Education and Training System

A Model for Apprenticeships in the United States



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# **Forewords**

"In Switzerland, more than one-third of businesses across all industries train apprentices as part of their human resource strategy, thus creating a highly skilled talent pool of young professionals."



The private sector is the biggest driving force behind our apprenticeship system. Many Swiss companies have taken a similar approach at their U.S. facilities, which further strengthens our already close economic and educational ties. I strongly support our cooperation in the field of apprenticeships. Investing in a strong and sustainable workforce in our advanced economies should ultimately benefit both the Swiss economy and the U.S. economy—and our societies.

Guy Parmelin
Federal Councillor
Head of the Swiss Federal Department
of Economic Affairs, Education and Research

"I am delighted to see that the interest in Switzerland's vocational and professional education and training system has continued to grow."



We value our dialogue with the United States because it not only allows us to raise awareness and appreciation for our robust apprenticeship system, it also inspires us to adapt it to new challenges. At the Embassy of Switzerland, we liaise with government officials, the private sector, education and workforce specialists, and other stakeholders to foster discussions in this field. We are committed to exchanging best practices and fostering a dialogue between our two countries.

Jacques Pitteloud

Ambassador of Switzerland
to the United States of America

# "As we work to make colleges more affordable and accountable, we must also make them more accessible."



That means creating stronger college and career pathways between our pre-k through grade 12 systems, our two- and four-year colleges, and our workforce partners so that our systems lead the world. We are providing America's high school students a path to rewarding and high-paying careers through work-based learning and career and technical education, and this partnership will allow more students to benefit from these opportunities.

Miguel Cardon
Secretary of Education
U.S. Department of Education

# "Registered apprenticeships are a proven earn-while-you-learn model and path to good paying, middle class jobs."



Swiss-owned businesses have long demonstrated the value of this approach, and with greater engagement with Switzerland and other partners, we can increase foreign investment in the U.S. and expand opportunities for America's workers. This partnership will help promote the establishment, growth, and diversification of Registered Apprenticeship programs and provides a framework for our governments to support future investments to support this model.

Marty Walsh Secretary of Labor U.S. Department of Labor

# "The competitiveness of Switzerland and its companies is tied directly to its apprenticeship system."



Switzerland is a true global expert on building a talented workforce through apprenticeships As the United States greatly expands its investments to support the creation of new apprenticeships, we must look to the examples set by Swiss multinationals, and we should partner to learn directly from the successes of true global experts on apprenticeships. All companies, whether experienced or new to apprenticeships, should ask themselves, "What will our next apprenticeship opportunity be?" and "Who can I partner with to develop it?" The Department of Commerce and our sister agencies across the Biden-Harris Administration stand by to support all companies considering their next apprenticeships.

Gina Raimondo
Secretary of Commerce
U.S. Department of Commerce

# The Swiss Vocational and Professional Education and Training System

In Switzerland, apprenticeships are an integral part of the educational system. In recent years, the United States has shown increasing interest in learning more about the Swiss system and other European models. This brochure explains the key characteristics of the Swiss system, highlights the Swiss-U.S. dialogue, and showcases current initiatives in the field.

## The Swiss System in a Nutshell

Additional details and statistics about the Swiss apprenticeship system and the Swiss educational system as a whole can be found on the website of the Swiss State Secretariat for Education, Research and Innovation at www.sbfi.admin.ch/berufsbildung (also available in English).

In Switzerland, two-thirds of all students coming out of compulsory education decide to start their careers with an apprenticeship. At the ages of 15–16, they can take very diverse career paths: there are around 230 professions, across all industries, which can be learned through an apprenticeship. An apprenticeship usually takes three to four years and combines classes at a vocational school with on-the-job training at a host company, where apprentices are employed. Once they have graduated, usually between the ages of 18 and 20, apprentices receive a federal diploma, which is recognized by employers all across Switzerland.

During the program, the host company pays the apprentice a salary, which increases with each completed year. Salaries vary for each occupational field and are lower than what regular employees would earn. However, apprenticeships are regarded as education, not primarily as work. Even so, the amount represents compensation for their performance and allows apprentices to have their own disposable income at a very young age.

Two-thirds of Swiss students coming out of compulsory education decide to do an apprenticeship.

The Swiss vocational and professional education and training (VPET) system is managed as a public-private partnership: the professional organizations, the cantons (state governments), and the Swiss Confederation (federal government) have found ways to jointly define curricula, skill sets and standards for occupations throughout the country. The most important partner is the private sector. It is the companies that employ apprentices and provide on-the-job education and training. Professional organizations play an important leading role in defining the industry-wide skill standards and training content. Therefore, the VPET system is very labor market-driven and based on the needs of the different industries, while the cantons and the federal government ensure quality control and recognition.

Apprentices not only learn a profession, but also a broad range of soft skills that are helpful for their future careers. Once apprentices have graduated from their program, they are immediately prepared to work, and employers are aware of the abilities they bring with them. A broad skill set combined with a nationally recognized diploma offers young professionals the chance to work for potentially any company in their field. As a talent pool, apprentices are a great benefit to employers, decreasing recruitment costs.

Another important feature of the Swiss educational system is its high degree of permeability. The system provides career prospects for everyone and delivers a basis for lifelong learning. For example, after apprentices graduate, they can take further education leading to a university degree. Or, they can take additional classes in professional education, which provides the skills needed to handle challenging technical or managerial activities. There are plenty of options and pathways to continue one's education or even to change one's professional field.



Apprentices are integrated into their host company's normal work processes from day one. They are supervised and mentored, but become more and more independent as the apprenticeship progresses. (Credit: Iris Krebs)

# **Key Features**

## **Popular** Career Pathway:

Apprenticeships offer a prestigious career option to many high achievers since they provide them with a basis for lifelong learning and a wealth of job and further education prospects.

## Labor-Market Orientation:

Knowledge and skill standards for occupations are closely connected with the demands of the labor market, which ensures high employability of young

# **Public-Private**

Partnership: The Swiss apprenticeship system is jointly governed by the Swiss Confederation (federal government), the cantons (state governments), and the professional organizations to ensure high quality.

professionals.

## Dual Approach: Most apprenticeship programs combine classes at a vocational school with

practical, work-based learning at a host company where apprentices are employed

## Permeability:

Apprenticeships form a substantial part of the Swiss educational system. There are many pathways for young professionals to follow further education or even to change their occupational field.

## Across All Industries:

There are around 230 different professions which can be learned through an apprenticeship.

## **Funding**

The costs of the vocational and professional education and training system are borne by: the Swiss Confederation (federal government), the cantons (state governments), and the employers. The latter are the main financial contributors to the VPET system: about 60% of the costs are borne by the employers. The cantons provide about 30% of the total funding and the Swiss Confederation contributes about 10%. The annual costs for the VPET system have amounted to approximately \$9 billion in recent years. The employers contribute a large share of the costs for training and intercompany courses and pay for the apprentices' salaries and their supervision and training at the company. The majority of the public expenditure goes toward the vocational schools, which are funded by the cantons. The cantons also fund career guidance services and train apprenticeship trainers. In addition, they are responsible for quality control and support the Swiss Confederation in ensuring portability and further development of the system as a whole.



Apprenticeships are deeply rooted in Swiss society and are seen as a respected, high-quality education.

# Apprenticeships and the Skills Gap

Labor markets continuously change and rely on an educational system that can adapt to such changes. In Switzerland, vocational and professional education and training constitutes one of the reasons for the country's economic stability and innovation capabilities. It's a dynamic system: learning curricula are updated on a regular basis, usually every five years, so they can be adapted to new developments in the labor market. That helps to prevent a skills gap. Apprenticeships provide a way for employers to build their workforce, and the concept of "earn while you learn" gives young professionals the chance to start their careers with a set of practical skills and no student debt.



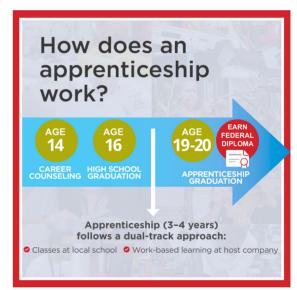
Swiss students can benefit from a range of guidance and career counseling services that help them to find a career path after they leave compulsory education. (Credit: Iris Krebs)

## Choosing an Apprenticeship

Apprenticeships in Switzerland generally target young adults who are about to graduate from compulsory education (similar to high school). The timeline shows that students start seriously thinking about their future careers at the young age of 14.

With regard to career choice, students can benefit from career counseling and other career guidance services to learn about their options and find out about their professional interests. That is the point when students decide whether they want to continue with general education or whether they would like to pursue the VPET pathway. If they choose the latter, one of the options is to start applying for apprenticeship positions with companies, which is a competitive process.

Upon graduation from compulsory education—roughly at age 16—the students who have opted for an apprenticeship start their three- or four-year programs. Since apprenticeships are organized in a dual approach, apprentices spend between one and three days per week at a vocational school, where they learn technical, methodological and social skills, and also more general academic skills. The remaining days of the week are spent at the host company, where apprentices acquire practical know-how through on-the-job training.



At the end of the training period, apprentices have to take a final exam. If they are successful, they graduate with a federal apprenticeship diploma, which is recognized and respected everywhere in Switzerland. It is the "entry ticket" into the job market and allows young professionals to kickstart their careers without any student debt and with hands-on work experience. In addition, they can pursue further education if they want to.

Apprenticeship diploma holders are highly sought after by employers because these young professionals are trained in a large variety of skills and can be tasked with versatile jobs and responsibilities. Moreover, companies have realized that new generations of qualified workers can have a positive impact on their competitiveness and innovation capacity.

# Swiss-U.S. Cooperation

Exchanges with other countries allow for valuable insights into keeping educational systems up-to-date and in line with new trends and developments. Switzerland and the U.S. have conducted an intense dialogue on apprenticeships in recent years. In November 2021, the two countries signed a Memorandum of Understanding to reaffirm their will to cooperate in this area.

## **Exchanging Best Practices**

Visit the Embassy of Switzerland's website and download the report Gold Standard: The Swiss Vocational Education and Training System by Nancy Hoffman and Robert Schwartz (Washington, D.C.: National Center on Education and the Economy, 2015). An updated version of the report appeared in Vocational Education and Training for a Global Economy. Harvard Education Press, September 2019. The book profiles the systems of China, Singapore, Switzerland, and the United States

In recent years, Swiss and U.S. delegations have frequently visited each other's country to get first-hand impressions of their educational systems. Many Swiss companies have introduced Swiss-inspired apprenticeships at their U.S. facilities. Labor markets rapidly change and especially the current advancement of technology poses many challenges, which must also be addressed at the educational level. It is therefore crucial for Switzerland to exchange educational best practices.

The Swiss apprenticeship model has also inspired U.S. companies to adopt similar programs and it has reached the attention of various stakeholders: federal and state agencies, researchers, educational institutions, and workforce development advocates in the U.S. have shown great interest in the Swiss model.

Apprenticeships have also been placed on the agenda of the U.S. administration.

Moreover, U.S. education researchers have started to look into the setup and functioning of Switzerland's educational system. Some of them have acquired extensive knowledge about Swiss vocational and professional education and training. For instance, Dr. Nancy Hoffman, who is senior advisor at Jobs for the Future and became enthusiastic about the Swiss model while consulting for the OECD on their study, Learning for Jobs. She works closely with Robert Schwartz, Professor Emeritus of Practice in Educational Policy and Administration at the Harvard Graduate School of Education:

"The Swiss education system is the gold standard in vocational education and training for young people. Sources of its strength are that it is the mainstream system—the way most 16 to 20 year olds make the transition from schooling to working life—and it is employer driven."

Nancy Hoffman and Robert Schwartz Gold Standard: The Swiss Vocational Education and Training System



U.S. Secretary of Labor
Marty Walsh, Swiss Federal
Councillor Guy Parmelin, U.S.
Secretary of Education Miguel
Cardona, and U.S. Deputy
Secretary of Commerce Don
Graves (from left to right) at the
Memorandum of Understanding signing ceremony.
(Credit: Embassy of Switzerland in the United States)

# Memorandum of Understanding

To further strengthen the cooperation between the two countries, Switzerland and the United States signed a new Memorandum of Understanding (MoU) on Apprenticeships that built on the two countries' previous collaboration in the area of vocational and professional education and training. The signing ceremony took place on November 18, 2021, between then Swiss President and Head of the Federal Department of Economic Affairs, Education, and Research

Guy Parmelin, U.S. Secretary of Labor Marty Walsh, U.S. Secretary of Education Miguel Cardona, and U.S. Deputy Secretary of Commerce Don Graves. The MoU recognizes the added value of the Swissstyle apprenticeship model in the United States, reinforces the strong bilateral relationship and collaboration between the two countries, and emphasizes that apprenticeships represent an opportunity open to all.

# The Role of the Embassy of Switzerland and Swiss Representations in the U.S.

At the Embassy of Switzerland in Washington, D.C., and the Swiss representations across the U.S., we encourage bilateral and international dialogue and promote awareness of Swiss vocational and professional education and training. We are delighted to see that the U.S. government has placed apprenticeship on its political agenda, and we are committed to sharing Switzerland's expertise in the area.

We liaise with the U.S. government and connect stakeholders. We also work together with Swiss companies doing business in the United States, many of which have started apprenticeship programs inspired by the Swiss model.

Switzerland and the U.S. signed a Memorandum of Understanding to strengthen their cooperation in the area of apprenticeships.

# Success Factors of the Swiss System: A Source of Inspiration

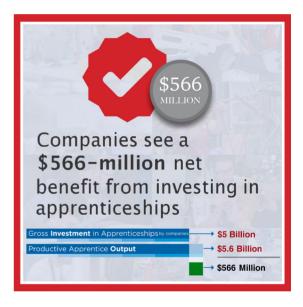
Vocational and professional education and training has a long tradition in Switzerland and is deeply rooted in Swiss society and the country's educational system. Its success can serve as an inspiration for other countries. Most companies get a return on investment for training apprentices already during the training period. Apprenticeships can also serve as reliable recruitment strategies. Ultimately, apprenticeships are valuable to the entire society and economy since they create a highly skilled and sustainable talent pool.

# The Return on Investment for Companies

The costs for host companies offering apprenticeships include: salaries paid to apprentices as well as contributions to costs related to providing a workplace, time invested by trainers for instructing apprentices, and recruitment and administrative costs.

At the beginning of an apprenticeship, associated costs are higher than output since apprentices still need to learn a lot. Toward the end of the program, however, apprentices assume many skilled tasks, require less instruction, contribute to the daily work, and have a productive output.

Apprentices earn a progressive salary, but their remuneration is lower compared with what the company would have to pay a skilled worker for the same job. In most cases, the apprentices' productive output offsets the investments made and leaves companies with a net benefit already during the training period.



Additional information and research articles on the benefits of apprenticeships can be found at www.educationeconomics.uzh.ch, the website of the Swiss Leading House "Economics of Education".

The Swiss Leading House "Economics of Education" is codirected by Dr. Uschi Backes-Gellner and Dr. Stefan C. Wolter. They are professors at the Swiss Universities of Zurich and Bern, respectively, and have each done extensive research on the return on investment and other benefits that companies derive from training apprentices.

# Apprenticeships as a Recruitment Strategy

Companies often use apprenticeships as a strategy for recruiting their future workforce. They retain the most suitable apprentices and hire them as regular employees. If the company did not achieve a net benefit from training beforehand, it definitely will at this point.

If an apprentice is hired after completing the program, the employer already knows the apprentice is a good match and the employer can save additional recruitment costs. Overall, a better qualified workforce leads to higher productivity as well as better innovation capabilities. Apprentices bring new input, up-to-date knowledge, and creativity to the workplace, which can inspire new, innovative ideas.

Even if the apprentices cannot be retained, training apprentices might have a positive influence on external recruitment options. Offering apprenticeships is said to increase a company's reputation and is a sign of good working conditions. This improves an employer's image and can result in more and better-guality applicants for job vacancies.



Switzerland is often associated with quality and innovation. Apprenticeships make a crucial contribution toward maintaining a qualified and innovative workforce in the Swiss economy. (Credit: Iris Krebs)

# Creating a Highly Skilled and Sustainable Talent Pool

Since Switzerland is a knowledge-based country with hardly any natural resources, its main competitive advantage is its skilled workforce. Many experts believe that Switzerland's robust apprenticeship system plays a crucial role in the country's innovation capabilities. Apprenticeships provide an important way to ensure long-lasting availability of highly qualified and innovative employees.

Although Swiss companies are not obligated to offer apprenticeships, over one third of all Swiss companies which are able to train apprentices choose to do so. For the host companies, apprenticeships provide a way of creating a talent pool and contributing toward the next generation of skilled workers.

Switzerland has a well-established apprenticeship ecosystem. All host companies follow certain industry-specific skill standards for training their appren-

tices and the training content is very comprehensive. Employers are aware of the qualifications an apprenticeship graduate can offer, even if the apprentice was trained by another company. That way, companies can benefit from each other: apprentices who could not be retained by one company are available in the labor market and can be recruited by another company, with very low recruitment costs. Apprenticeship diplomas are nationally recognized, allowing workers to be mobile in the labor market and to find work all across Switzerland.

Professional organizations play an important role in the Swiss apprenticeship system; its labormarket orientation is crucial to its success.

# Swiss-Inspired Apprenticeships in the U.S.

In recent years, several Swiss companies with subsidiaries in the U.S. have brought the Swiss apprenticeship model to the United States. They usually work together with local community colleges to establish teaching curricula. Some of them have inspired other companies in their regions to adopt a similar apprenticeship model. Today, there are multiple region- or even state-wide apprenticeship "clusters" inspired by the Swiss model all across the U.S. Here are a few examples of Swiss-inspired apprenticeship pioneers.

Many Swiss companies are leaders in introducing Swiss-inspired apprenticeship programs into the U.S. labor market.

#### Bühler Aeroglide, North Carolina (Cary):

Among other Swiss companies, Bühler Aeroglide is also a founding member of a local apprenticeship program called North Carolina Triangle Apprenticeship Program (NCTAP). A number of local companies offer apprenticeship positions in advanced manufacturing as part of NCTAP. At the end of the program, graduates receive an associate's degree in mechanical engineering technology from Wake Technical Community College and a journeyman's certificate issued by the state of North Carolina.

## Bühler Group, Minnesota (Plymouth):

With over 100 years of successful apprenticeship training in Switzerland, Bühler is committed to expanding their program in the United States. With the Mechatronics Technician Program, the Bühler Apprenticeship Academy trains apprentices to become highly competent employees. After three years apprentices earn two associate's degrees from Hennepin Technical College, a journey worker card from the Minnesota Department of Labor and Industry, and a diploma from ICATT, an organization that supports companies to run European model apprenticeships.

# Feintool, Ohio (Cincinnati) and Tennessee (Nashville):

Feintool's four-year toolmaker apprenticeship program was started in Cincinnati in 1988 and continues today. Feintool partners with Cincinnati State Technical and Community College, Sinclair Community College, and other institutions. Autumn Kilgore is a fourth-year apprentice in Cincinnati and has completed her lathe, waterjet, and pre-machining apprenticeship requirements. "I thought about going into drafting, but I really like the hands-on approach to tool making," says Kilgore. "Tool making is all about

problem solving and requires out of the box thinking." Apprenticeship instructor Josh Younce is proud of the 46 people that have gone through Feintool's state accredited program

### Zurich North America:

Launched in 2016, Zurich's first-of-its-kind U.S. program adapted the insurance provider's Swiss model. Success has fueled expansion from Zurich North America's headquarters in Schaumburg, Illinois, to offices in New York, Atlanta, Chicago, and other locations across 16 states. Earning a salary, benefits, and tuition coverage, apprentices focus on general insurance, cyber, agriculture claims, or other business areas. Graduates of the two-year program receive an associate degree from Harper College, Borough of Manhattan Community College, Harold Washington College, or Northeast Iowa Community College, plus a job promotion.

## GF Machining Solutions, Illinois (Lincolnshire):

GF Machining Solutions, the global leader of excellence in precision machining and market-driven innovation, engages apprentices in training and education to become field service and application engineers. The program lasts a total of five years. For the first three years, apprentices attend William Rainey Harper College while participating in job training at GF Machining Solutions' U.S. headquarters. Upon successful completion, apprentices receive their associate's degree and industry certifications. Apprentices then work in the field alongside other GF engineers for the final two years.

## Stadler US, Salt Lake (Utah):

In partnership with the Utah Governor's Office, Salt Lake Community College, and Salt Lake School District, Stadler US has developed a Swiss-model dual educational program that combines theoretical lectures at school and practical training at work. Stadler has implemented this three-year program successfully; the first cohort of apprentices will graduate summer 2022. Graduates will have earned their associate degree, debt-free, and receive an offer of full time

employment. Currently, Stadler is assisting Utah in expanding the model to other industries and educational institutions.

### Mikron Corporation Denver, Colorado (Denver):

Mikron started an apprenticeship program at their U.S. facility in Denver in 2016. It is a three-year program in advanced manufacturing and partners with Metro State University. The first apprentices graduated in fall 2019. Currently, Mikron has had eight apprentices who have graduated the program and continued onto a four-year degree or into a career as a mechanical technician. Mikron is also a partner of the statewide nonprofit organization CareerWise Colorado.

# Various Companies in Partnership with CareerWise, Colorado:

In 2016, the non-profit organization CareerWise was established to expand Swiss-inspired apprentice-ships throughout the state of Colorado. Since then, the apprenticeship landscape in Colorado has seen rapid developments. The Swiss companies Mikron, DT Swiss, and Pilatus were among the first to offer Swiss-inspired apprenticeships in the state of Colorado. Now, more than 125 U.S. companies have set up similar programs. CareerWise is committed to continue the growth and expansion of these programs, in Colorado and across the United States.

#### The Adecco Group, Various Locations:

The Adecco Group's 360° talent solutions ecosystem enables sustainable and lifelong employability for individuals and empowers organizations to optimize their workforce, including through apprenticeships. We firmly believe in the registered apprenticeship model—the gold standard for workforce skilling—as a proven solution for the talent shortage. Through youth, pre, and registered apprenticeship, we are working to help businesses implement employer-sponsored apprenticeship pathways, positively impacting a broad range of industries and sectors.

# ABB, Arkansas (Fort Smith), Georgia (Athens) and North Carolina (Marion):

ABB, a pioneering technology leader with a comprehensive offering for digital industries, started its first Swiss-inspired apprenticeship programs in the United States in June 2019. In multiple facilities, today ABB trains apprentices in the fields of industrial maintenance, mechatronics, robotics automation, and machining. The company has been working closely with the educators and businesses in their communi-

ties to set up applicable and unique programs. ABB continues to further develop and replicate these programs at other manufacturing locations across the United States.

#### Kudelski Group, Arizona (Phoenix):

When the Kudelski Group decided in 2016 to open its new headquarters in the United States, the project to build an apprenticeship program inspired by the Swiss model was already a clear priority. In 2018, they hired their first Cyber Security apprentices in the Phoenix, Arizona headquarters. Kudelski Group's apprentices are provided the opportunity to work on exciting and impactful projects alongside their talented staff, leveraging a model that is both innovative and based on the proven experience of Swiss apprenticeships.

#### Mercuria, Houston (Texas):

After its purchase of the commodities businesses of J.P. Morgan Chase and Co in 2014, Mercuria found a lack of training programs in the United States to bring many, including college graduates and veterans, into the profession of commodities trading. Mercuria worked extensively with officials in the United States and Switzerland to create an apprenticeship program in the United States, which was modeled on its historic Swiss concept. The Apprenticeship Program integrates European-style business into the heart of the American commodities business. It transcends borders, giving people the opportunity to reach the most competitive level of the commodities trading world.

#### Swiss Krono USA, Barnwell (South Carolina):

Swiss Krono USA, a member of Swiss Krono Group, operates a world-class fully automated manufacturing facility in South Carolina that produces MDF/HDF and laminate flooring. Swiss Krono USA has been growing and expanding its local apprenticeship program since 2009. The apprenticeships focus on manufacturing operations and maintenance. Currently Swiss Krono USA offers five different apprenticeship programs; three adult and two youth programs. As part of its apprenticeship program, Swiss Krono USA has partnered with various technical colleges and universities, a career center, and five different high schools within the state of South Carolina.

Visit the Embassy of Switzerland's website and watch the video about the Swiss vocational and professional education and training model and see apprentices in action at www.eda.admin.ch/ countries/usa/en/home/ representations/embassy-washington/embassy-tasks/scienceoffice. html

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#### About the Content

The first edition of this brochure was published in 2016, shortly after Switzerland and the United States had signed a Joint Declaration of Intent on apprenticeships. In 2018, Switzerland and the United States celebrated the signing of a Memorandum of Understanding on Apprenticeship that resulted in a second edition of this brochure. Since then, there have been many developments in the Swiss-inspired apprenticeship landscape in the United States and in Swiss-U.S. cooperation in the field. More companies have established or expanded Swiss-inspired apprenticeship programs at their U.S. facilities. In addition, Switzerland and the United States signed a new Memorandum of Understanding on apprenticeships in 2021 to renew their commitment to advance apprenticeships and to reinforce collaboration. The content of the third edition reflects those updates and developments and presents the most current information at the time of publication.

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Visit us on YouTube to watch a short video about Swiss apprenticeships in the U.S. featuring interviews with apprentices and executives of Swiss companies at www.youtube.com/user/ThinkSwiss.

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