EDTECH
An innovation domain of the canton of Vaud
AT THE FOREFRONT OF EDUCATIONAL INNOVATION

Like so many other fields, education is being turned upside down by technology. With its excellent public schools, world-class universities and dynamic leadership, the French-speaking canton of Vaud is determined to lead the way.

The ability to learn, and continue learning, has become the key to success in the 21st century. In the field of education, digital technologies are both a major challenge and a huge opportunity. A challenge because the technology does not stand still; an opportunity because it offers learning opportunities on a scale never imagined.

Screens, distance learning, flipped classrooms, digital libraries, robot teachers, AI, video and audio formats, apps, new evaluation methods – these are all part of the brave new digital world. With the support of public authorities and the professional classes, paradigms are constantly changing in a world in which few people under the age of 20 will have the same job their entire life.

What will learning be like in the future? How will students and teachers be trained in classrooms, lecture halls and offices? How will we address exploding student populations when schools are already crowded? How will we make knowledge accessible to the largest possible number of people while freeing ourselves from time, cost, and space constraints?

Faced with these questions, the canton of Vaud is striving to be at the forefront of pedagogical innovation. Thanks to the high density of gray matter in a region renowned for research and training excellence, and with a wealth of first-class teaching and research institutions, the region has what it takes to produce the professionals and entrepreneurs of the future.

“Lausanne is at an important crossroads for the future of teaching. It offers opportunities and an environment that are ideal for a huge expansion in learning technologies.”

PIERRE DILLENBOURG
Professor at EPFL


Photo: A. Herzog/EPFL
EDTECH: BEYOND THE BUZZWORD

From primary school to university, technology has become an essential classroom tool, but it must be understood and mastered if it’s to prove truly useful.

At its simplest, EdTech aims to facilitate learning using new technologies. This may involve apps, serious games, enhanced reality tools, videos, virtual universe, massive open online courses (MOOCs), robots, distance learning platforms, assisted tools, virtual coaches, e-learning, etc. Whatever the interface or solution used, EdTech designers want to meet the demands of increasingly connected users who expect access to content wherever and whenever they want.

EdTech is also a way of meeting increasingly relevant challenges in the world of teaching and training by overcoming at least some of the time and space constraints of today’s classical model: a MOOC is accessible at any time; learning at home means avoiding rush hour and crowded lecture halls.

Teaching will undergo a technological revolution in the coming years. Thanks to the quality of its teaching and innovation, Switzerland offers a unique environment for developing the next generation of EdTech, which will have a universal impact.

Simple in theory, the field is infinitely large because demand for learning in all fields, at all ages, never stops. From the pleasure of acquiring fundamental knowledge, to gaining specific skills in state-of-the-art fields, no area of learning can escape the digital revolution.

“The launch of vertical EdTech in western Switzerland reaffirms the region’s commitment and capacity in terms of developing revolutionary technologies that change lives. The ecosystem here is stimulating and innovative, while offering stable infrastructure and access to finance and expertise.”

NICOLAS BÜRER
Managing Director of digitalswitzerland

64
the number of startups at the Swiss EdTech Collider, EPFL's incubator for EdTech. They all develop teaching-related technologies in a wide range of fields.

250 billion
the estimated turnover for the digital education market in 2020 (USD).
INNOVATION AND RESEARCH: SUCCESS STORIES

EPFL has not only strengthened edtech through its own example as Europe’s leading creator of massive online courses, it has fostered an entire ecosystem that encourages dynamic startups in the Lake Geneva region.

The digital learning revolution, which is as fundamental to the history of education as the invention of the printing press, combines AI, online learning, and virtual reality. But if EdTechs are the future of education, technology is only a method of teaching, not the immediate solution to present and future pedagogical challenges. Using the right tool in the right format for the public good involves working in a favorable environment, whether in terms of expertise, research, or facilities to develop, test, and refine solutions.

Switzerland offers easy access to investment, a long tradition of innovation, and accumulated expertise in research and teaching. Star performer EPFL became a pioneer of MOOCs in 2012 and today leads Europe, with nearly 2 million subscribers and 80 courses offered. This combination of favorable factors explains why Lausanne and surrounding areas play host to so many leading EdTech businesses.

Founded at EPFL in 1998, Cyberbotics has become the leading company in the sector of robot simulation thanks to the reference software Webots, which is used by more than 1,300 universities and research centers around the world today.

Coorpacademy is another company spearheading the sector. In close cooperation with EPFL, it was founded by a former director of Google France and has quickly found its market by developing online and bespoke training programs mainly for professional clients. Available via digital platform, the themes developed by the company are based on micro-learning, or even nano-learning (essentially, very short video content, accessible at any time of the day from any connected device, laptop, or smartphone).

Based on the idea that the learning experience must adapt to the student’s rhythm, and supported by data collected from more than 500,000 users, the Coorpacademy concept proves that one of the keys to commitment in learning is easy access to content and freedom to use it at one’s own pace. These personalized teaching programs rely heavily on emulation and the community, via tasks that users set for each other. The last innovation is a joint project with Google using Google Home, the American giant’s conversation aid that will ask students questions in order to help them learn.

Other projects created in the Lake Geneva region include robots like Thymio, which enables children to discover robotics and basic programming. Designed at EPFL’s Robotic Systems Laboratory (LSRO), the robot is today housed at the Mobsya association, which now manages production and distribution having participated in its development. Another famous robot created with Swiss expertise is NAO: although the small humanoid was developed by French company Aldébaran, the CoWriter program, aimed at children who have trouble writing, was developed by EPFL’s Computer Interaction in Learning and Instruction (CHILI) laboratory. NAO is based on a pedagogical strategy known as “the protégé effect”: children teach the small robot to write, and by correcting it, they progress while feeling valued.

“Our dense ecosystem makes it a genuine force in the Lake Geneva region, and around Lausanne in particular.”

NOURIA HERNANDEZ
Rector of the University of Lausanne
CREATING THE RIGHT CONDITIONS

In the heart of Europe, open to the world, Vaud is putting significant resources behind efforts to encourage innovation and enterprise.

Whether EdTech actors settled around Lausanne a long time ago or recently, they all rely on an economic and political context that supports innovation. Situated at the heart of Europe, easily and directly linked to hundreds of international destinations, the canton of Vaud is at the center of one of the most competitive and innovation-friendly countries in the world. Strategically located at the crossroads of the major rail and road corridors of Switzerland and Europe, the canton is open to the world and easily accessible from all major European capitals. Finally, the population of the canton of Vaud is characterized by the presence of the highly talented individuals emerging from universities and schools in the region. In Lausanne alone, there are 25,000 students in educational and research establishments whose reputation for excellence and capacity for innovation are widely recognized throughout the world. Economic actors also have a rich pool of skills from which to recruit highly qualified people.

SPEI – A PUBLIC ASSET FOR STARTUPS AND SMES
With resources available to businesses, regions, and tourist sites, the Office for Economic Affairs and Innovation (SPEI) can provide direct financial incentives for specific innovation projects in Vaud. Under the law to support economic development (LADE), financial help aims to support the creation and registration of businesses, as well as the development of industrial SMEs and startups that want to innovate, expand, or internationalize. From 2012 to 2016 it supported nearly 2,500 projects by 510 companies. In 2018, it supported nearly 1,200 companies and 437 regional projects.

DEV – DEDICATED TO FOREIGN BUSINESS
The Economic Development – canton of Vaud (DEV) is responsible for facilitating and encouraging foreign companies to register in the canton. Its wide-ranging services all aim to guide businesses by facilitating exchanges with the administration and enabling them to benefit from its experience, knowledge, understanding of the terrain, and economic expertise. DEV supports interested companies every step of the way: information, advice; compiling business plans; legal support; tax advice; deposits, bank loans, financial training aid; links with academic, financial, and industrial partners; administrative and property questions; professional networks, etc.

INNOSUISSE – THE SWISS INNOVATION AGENCY
All Swiss companies have access to a federal agency that handles up to 50% of R&D projects in cooperation with a Swiss university. Innosuisse and its innovation council can grant subsidies or loans as incentives. Innosuisse has 950 million CHF in funds for the period 2017-20. It will also support coaching and training for people who wish to create or resume a business. Finally, Innosuisse will be in charge of issuing diploma grants to schools involved with original entrepreneurial projects. In the canton of Vaud, Innovaud stands as the first port of call for innovation in the region.
Companies that settle in the canton of Vaud will find an extremely business-friendly climate, backed by the political will to support new arrivals. At an administrative level, help is given to ease the bureaucratic burden, speed up procedures, and secure commercial space. A number of support programs are also in place to help to stimulate innovative projects in the region, including financial support. Public assistance involves a particularly favorable context for fundraising in the canton, where a large number of investors and businesses focus on high-tech industries.

The canton of Vaud, a pioneer of Swiss innovation
This combination of intentions bears important results: in 2018, nearly CHF 1.24 billion was invested in Swiss startups, an increase of 31.8% over the previous year, according to the Swiss Venture Capital Report. In the canton of Vaud alone, investments in the sector increased from 25 million in 2017 to 137 million in 2018. This record places the region at the top of the Swiss cantons in terms of private fundraising, proving once again that innovation is a major catalyst for its economic development.

9.5 billion
the estimated value of the edtech market (USD).
ACADEMIA AT THE SERVICE OF INNOVATION AND BUSINESS

Startups and innovative companies can rely on a highly structured academic fabric to support their development.

The Swiss EdTech Collider: Success for startups

Links between academic research and the economic world have enabled a series of startups to emerge, many of which can be found within the Swiss EdTech Collider, EPFL’s EdTech incubator. These startups develop teaching-related technologies in a wide range of fields. Created in 2017 by Pierre Dillenbourg and three of his colleagues, this international digital education hub already brings together more than 60 startups at EPFL Innovation Park, located right next to the campus and its research laboratories.

By using the same space to house entrepreneurs and EPFL professors researching education sciences and digital learning, the University aims to become an international digital education hub and contribute to the development of new methods and solutions for pedagogic innovation. The structure enriches research into education by supporting the latest in machine learning and data science work.

To assist digital startups, the Swiss EdTech Collider is supported by Venture Lab. Stemming from the digitalswitzerland initiative, the program – one of the largest accelerators in Europe – supports startups without claiming any capital share or rights, in order to expand the Swiss innovation ecosystem to global entrepreneurs. At one of its last sessions, KickStart Accelerator selected 10 startups in the EdTech sector from 54 candidates. In 11 weeks, their teams increased meetings with investors and enjoyed access to shared workspaces and industrial partners, mentors, lawyers, and experts.

Open to international candidates, the program accepts highly diverse initiatives such as UbiSim. This award-winning Lausanne startup, founded by a former EPFL employee, is working on the use of virtual reality to train students in nursing and medical care in a decentralized training space where techniques and procedures can be repeated often and easily at all times. The startup works with the La Source nursing school, which is also based in Lausanne, developing the first blood transfusion scenario. Another startup in the program is The Experience Accelerator. Founded by the former director of the Les Roche hotel school, the system is based on the idea that the brain learns best when it has a self-visualization process. This led to the idea of an avatar created from the user’s selfie: users then direct their avatar via a digital platform, which makes it possible to learn in situ using the self-projection.

1.75 million

of people (from 198 countries) signed up for 76 online courses offered by EPFL, the pioneer of MOOCs (massive open online courses) in Europe.

“The financial support and sponsorship provided by the KickStart Accelerator program has really helped us to refine our product range and commercial offer.”

FLORIAN BRUTSCHE
Co-founder of UbiSim
EPFL Extension School: A pilot program for digital culture

Launched in the fall of 2017, the EPFL Extension School is open to everyone, without any prior conditions. Rich in experience accumulated by the school via its MOOCs, these online programs make it possible to obtain a Certificate of Open Studies (COS) without any prerequisites, focusing mainly on the economic world. The proposed content is specialized in advanced fields that are particularly sought after by businesses: web development, data science, machine learning etc. The programs, which last several months depending on the pace desired by the learners, are provided online and involve individual support. Although the Extension School mainly targets the continuing education sector, its long-term goal is much broader: to educate in the most noble sense of the word, the wider public on crucial themes and thus participate in the emergence of a digital culture. It is a world-first for future education, which will finally remove the infrastructure and organizational problems linked to the complexity of managing limited teaching time.

“The culture of excellence in terms of training is unique in the canton. Not only is the concentration of high-level education actors impressive, but the capacity to release funding is much higher that what is found elsewhere in Europe.”

PIERRE DILLENBOURG
Professor at EPFL
RESEARCH AND DEVELOPMENT

Computer-Human Interaction Lab for Learning & Instruction (CHILI)
CHILI focuses its research on new learning interfaces, especially team-based ones. Its researchers develop new training and education tools (tangibles, tabletop environments, paper-based interfaces, etc.) for various fields, including logistics apprentices, carpenters, and primary students, etc.
chili.epfl.ch

EPFL Extension School
The online EPFL Extension School offers continuing education modules online in technology fields, which are open to individuals and professionals.
exts.epfl.ch

the canton of Vaud is ranked first in Switzerland for investment in ICT startups.
ESTABLISHED BUSINESSES AND STARTUPS

**AIM.feedback**
AIM.feedback is a web-based platform powered by Artificial Intelligence that helps employees to give feedback and get recommendation of the most adapted training to their needs.
aimfeedback.com

**Coorpacademy**
Specialized in digital learning, Coorpacademy empowers businesses facing major transformations with an user-centric training experience for leaders and team members, helping them anticipate and make the right decisions for their companies.
coorpacademy.com

**Cyberbotics**
Created in 1998, Cyberbotics develops Webots, a type of robot simulation software used by more than 1,300 universities and research centers around the world.
cyberbotics.com

**Dual Academy**
Dual Academy provides personalized workplace learning for SME. Their training approach is based on experiential learning directly linked to the learner’s own business objectives.
dual.ac

**Educabay**
Educabay is an e-learning platform offering a wide range of online content (courses, academic works, specialist reviews, etc.) to students based on a simple principle: only pay for the pages you read.
educabay.com

**Frontiers**
A community-based, open-access academic editor, Frontiers is an Open Science platform where everyone can research, share, and generate knowledge.
frontiersin.org

**Goodwall**
Goodwall is the first social network where 14-19 year olds are connected and guided to the right universities and companies; get support and connections from likeminded teens and find ways to improve themselves, win scholarships and awards.
goodwall.io

**HMonster**
HMonsters offers an online guitar course software with image recognition for automated advice.
hguitare.com

**InnovaKids**
The association provides courses to children and teens in the fields of programming and robotics.
innovakids.ch

**Kiwix**
Kiwix is an offline reader that brings internet content like Wikipedia, TED conferences, the Gutenberg Library, or the PhET math and physics simulations to people without internet access. With a million individual downloads a year, it is used all around the world but mostly in places where internet connectivity is poor, or internet access expensive or censored.
kiwix.org

**Lillup**
Lillup address learning by enabling employees to upgrade their skills and improve their employability by helping companies to gain in performance and ensure a qualified workforce.
lillup.com
Mathrix
Mathrix is an online educational platform designed for middle and high school French students. The learning system is based on Gamification.
mathrix.fr

Mobysa
This association develops the famous educational robot Thymio as well as related material and tools.
mobsya.org

Simpliquity
The business develops software for collaborative work and learning.
simpliquity.com

SLX
SLX is a learning exchange platform that integrates the best of Swiss classroom based learning with an opportunity to interact with global markets through travel.
slxlearning.com

The Experience Accelerator
The Experience Accelerator use digital visualization methods (like avatars and VR) combined with behavioural practice and personalized feedback to improve manager’s skills and behaviours.
theexperienceaccelerator.com

UbiSim
UbiSim is the Virtual Reality training solution for nurses with real procedures and gestures. The software allows schools and health care institutions to access simulation or expand their training capacity.
ubisimvr.com
NETWORK OF SUPPORTING PARTNERS

**digitalswitzerland**
An interprofessional association, digitalswitzerland brings a common vision to its members to strengthen Switzerland’s position as a digital innovation hub and benefit Swiss industries.
digitalswitzerland.com

**Economic Development – Canton of Vaud (DEV)**
Promotes the economy, facilitates the establishment of new companies and supports jobs creation in Vaud – the entry point for companies interested in developing business activities in the canton of Vaud.
dev.ch

**EdTech Collider**
The first collaborative space for entrepreneurs transforming education and learning through technology.
edtech-collider.ch

**Innovaud**
Supports startups, scale-ups and SMEs with coaching, financing, hosting and promotion.
innovaud.ch

**Office for Economic Affairs and Innovation (SPEI)**
The Office for Economic Affairs and Innovation is a public institution that deals with the creation, development and establishment of companies in the canton of Vaud.
invest-vaud.swiss