ECONOMY
HOME OF INNOVATIONS
VAUD: A HOTBED OF INNOVATION

What do the first mouse invented in 1981 by Logitech, Nespresso coffee capsules, the Scala programming language and the groundbreaking Solar Impulse unmanned aircraft equipment all have in common? These great inventions all saw the light of day in the canton of Vaud.

For nearly 20 years, Vaud – “the discreet tiger of the European economy” (with a 40% increase in GDP between 2000 and 2015, compared with +20% for the EU) – has positioned itself as a global hub of innovation and technology.

This success is the result of a benefit-rich ecosystem. It is home to some 15 internationally renowned institutes of higher education and research, surrounded by a diverse, dynamic and particularly innovative economic base. Comprehensive expertise in precision industry dating back over a century – a great legacy of the local watchmaking industry – allows fields such as medtech, drones and robotics to excel on a daily basis. The worlds of finance and academic research work closely together and reap the benefits of the seven innovation parks, as well as the effective networking between businesses and laboratories. Last but not least, the State provision of efficient investment aid has also contributed to making the canton of Vaud the most successful innovation hub in Switzerland. All this is located in a secure environment, founded on the excellence of the “Swiss made” principle which offers a living standard that is second to none.

The digital revolution is well under way here and will benefit from the region’s well-established centers of expertise and innovation: oncology and immunology, cybersecurity, aerospace, agritech and energy efficiency, to name but a few. Indeed, about 350 digital innovation companies based in Vaud have been identified. All these resources are available to entrepreneurs who are prepared to network and take disruptive paths.

Innovate, succeed, go beyond: entrepreneurs successfully meet these challenges in Vaud thanks to constructive and smart public-private collaboration.

EDITORIAL BY
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Switzerland is an international hub of innovation. This reputation is well deserved, given that spending on research and development ranks among the highest in the world (around 3.5% of the GDP). Close ties with universities, colleges and industry facilitate the transfer of knowledge and technology. International institutes such as the European Organization for Nuclear Research (CERN) and the Paul Scherrer Institute for Natural and Engineering Sciences attract specialists from all over the world.

Switzerland regularly emerges on top of international rankings in terms of innovation. It has consistently ranked at the top of global competitiveness according to the WEF index since 2009. Moreover, thanks to its effective system of intellectual protection, the country is a world champion in patent-filing.

Vaud has the country’s largest university campus and world-renowned research centers, such as the École Polytechnique Fédérale de Lausanne (EPFL), Lausanne University Hospital (CHUV) and the Ludwig Institute for Cancer Research. Not satisfied with being at the heart of “Health Valley”, Vaud also occupies a central place within highly respected technology clusters.

The canton is strongly committed to supporting innovation and the founding of startups, notably through the availability of innovation parks such as the EPFL Innovation Park, the Y-Parc in Yverdon-les-Bains and the Biopôle in Epalinges, specializing in life sciences. In all, more than 400 companies, representing over 4,000 jobs, are already established in these three innovation parks.
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LIFE SCIENCES & HEALTH

AT THE HEART OF HEALTH VALLEY

In the field of life sciences, the canton of Vaud has an abundance of high-quality infrastructure, and also cutting-edge knowledge and expertise. The region is often referred to as “Health Valley”.

The Lausanne University Hospital (CHUV) plays a central role in the fields of medical care, medical research and training. It runs challenging projects such as Neurotech, a platform unique to Europe which assesses the impact of connected medical devices. The Department of Oncology conducts internationally recognized research, particularly in the field of immunotherapy.

The region is at the forefront of research in these fields, and also neuroscience, immunology, nutrition and cardiovascular diseases. Innovative disciplines including bioinformatics, medical imaging and robotic surgery are also developing rapidly. The canton has nearly 400 companies and a similar number of laboratories active in life sciences, representing a total of more than 20,000 jobs.

To find out more about the key industry sectors of the canton of Vaud, visit: invest-vaud.swiss/key-sectors
1.1 ONCOLOGY

A REMARKABLE HUB OF RESEARCHERS AND CLINICIANS

In the field of oncology, the canton of Vaud, and in particular the Lausanne region, benefit from a remarkably concentrated network of research institutes and training centers. These are also supported by foundations which play a key role in terms of financing.

Among the companies in the field that are active in the region, nearly 40% develop products or services that have an application in oncology.

The Swiss Cancer Center in Lausanne is one of the main centers of cancer research in Switzerland. The center is the result of a partnership between the CHUV, the UNIL, the EPFL, the Ludwig Cancer Research Institute and the ISREC Foundation, and will enable the canton of Vaud to remain at the forefront of oncology worldwide for decades to come. The region is home to a multitude of biotech and medtech companies, biomedical research laboratories and incubators such as Start-Lab, whose aim is to develop innovative projects in the field of life sciences.

Located on the CHUV premises, the new Agora clinical research center will welcome 300 researchers and clinicians specializing in cancer research.

1.2 IMMUNOLOGY

STATE-OF-THE-ART PROCESSES AT THE SERVICE OF MANKIND

Developing better targeted drugs against all kinds of diseases, designing effective immunotherapy and formulating consumer products to fight diabetes.

A major focus of immunology research is the development and production of a new type of so-called “biological” drug. This involves developing antibodies to positively alter a biological mechanism, allowing it to act more effectively against a pathology or a dysfunction than conventional medicine.

These new remedies are hi-tech, and have emerged from the fields of engineering and molecular biology. In the canton of Vaud, the broad spectrum of immunology is covered by specialized firms. They focus among other areas on innovation in vaccines, antibodies, cell therapies and immuno-modulators.

FERRING PHARMACEUTICALS

A GLOBAL EXPERT IN BIOPHARMACEUTICALS

Ferring Pharmaceuticals excels in reproductive and maternal health, and urology. The Swedish company established itself in the canton of Vaud in 2006.

“We are ideally positioned in the heart of Health Valley. We have a highly-skilled workforce there and the quality of life is excellent,” says an enthusiastic Michel Pettigrew, CEO of Ferring Pharmaceuticals. Based in Saint-Prex, the site houses both the group’s global headquarters and a manufacturing plant.

The latter manufactures two products in the fields of gastroenterology for the treatment of inflammatory bowel disease and urology for treatment of enuresis in children and nocturia in adults.

The biopharmaceutical company also focuses on research, particularly in reproductive and maternal health, urology, gastroenterology, endocrinology and orthopedics.
VAUD – HOME OF INNOVATIONS

ATTRACTIVE TAX REGIME

THE CANTON OF VAUD OFFERS ATTRACTIVE TAX RATES FOR COMPANIES

In the canton of Vaud, the tax rate on corporate income as of January 1, 2019, including federal tax, will be 13.79% of taxable income for all companies in the canton.

The canton also grants temporary tax exemptions of up to 100% for 10 years from income tax and capital at municipal and cantonal levels, in order to facilitate the setting-up and expansion of new companies.

MEDTRONIC

THE BEATING HEART OF TECHNOLOGY

US giant Medtronic chose to move to the canton of Vaud in 1996. It currently employs 750 people here, and works closely with various universities and hospitals in the region.

In its 20 years in the canton, Medtronic has developed co-operative partnerships with local businesses and scientific institutes, which include technological development projects with the EPFL and the School of Management and Engineering Vaud (HEIG-VD), clinical research partnerships with the CHUV, the sponsorship of a chair at the EPFL, and the recruitment of engineers, not to mention its relationships with numerous suppliers.

“Medtronic chose the canton of Vaud for its location in the heart of Europe, as well as the political, economic and social stability of Switzerland and its reliable infrastructure,” explains spokesman Eric Gasser. “The Lake Geneva technology pool with suppliers and research and training centers – as well as excellent university hospitals, a highly qualified and motivated workforce and accessibility of local government are other important factors.”

HEADQUARTERS

AN ATTRACTIVE SETTING FOR BUSINESSES AT THE HEART OF EUROPE

The canton of Vaud has many advantages. It is both a highly prosperous region and a center of global innovation, with a high concentration of academic institutes located in the heart of Switzerland, a country that enjoys great economic stability, marked by a strong work ethic.

Its exceptionally high living standards explain the presence of the headquarters of many foreign companies, including Medtronic, Nestlé, Chiquita, Edwards Lifesciences, Honeywell, ADM, Cisco, Bobst, Incyte, Nestlé Health Sciences and Intuitive Surgical.

Some more recent companies, such as the Russian-US startup Vizerra which is active in the IT sector, have also chosen the canton of Vaud to expand into Europe, or even into the Asian market.
A SHOWCASE FOR BIOTECHNOLOGIES IN EUROPE

Cancer, diabetes and Alzheimer’s disease are major public health issues that have a human, medical, social and economic cost. Identifying these diseases, developing therapies appropriate to each patient and facilitating their follow-up requires effective and adequate tools.

In Europe, Switzerland stands out as one of the best places to develop activities in the biotechnology and laboratory technology sector. The quality of its infrastructure, competitiveness, standard of living and flexible labor laws combined with a pool of qualified staff trained in local institutes of higher education and universities make it the ideal environment.

In the canton of Vaud, the wealth and diversity of both academic and private sector laboratories are the catalyst for an ecosystem which helps first-rate innovation to flourish. The concentration and proliferation of skills in the fields of engineering, microfluidics, optics, biomaterials and molecular biology form a unique synergy which favors the research and development of new analytical and diagnostic processes. High-potential companies such as Lunaphore and Abionic have emerged from these technologies.

For example, the Laboratory of Stem Cell Bioengineering (LSCB) at the EPFL can be considered a pioneer in this field. It attempts to identify the mechanisms governing the future of stem cells and to control the micro-environment that surrounds them, to induce them to form mini-organs, among other things.

THE CANTON OF VAUD HAS POSITIONED ITSELF AT THE FOREFRONT OF RESEARCH

The canton of Vaud plays a vital role in Switzerland in terms of education. Together with Zurich, it is home to the largest concentration of academic institutes in the country. The Swiss Federal Institutes of Technology of Lausanne (EPFL) and Zurich (ETHZ) are among the top 100 universities in the world according to the renowned Shanghai Ranking. EPFL has risen significantly (up 16 spots) in the space of a year (2016–2017) and ranks among the top five universities in Europe. Its excellence is regularly confirmed by international rankings, but perhaps more importantly by its achievements.

Meanwhile, several researchers from the University of Lausanne have been awarded a Nobel Prize. The most recent is Jacques Dubochet, honored in December 2017 for his promising cutting-edge research in chemistry.

The International Institute of Management (IMD) regularly has its MBA programs ranked among the best in the world while the École hôtelière de Lausanne (EHL) is a world reference in hospitality and hotel management.

Specialist institutes of higher education are located throughout the canton and they too contribute to excellence in learning, including the University of Management and Engineering Vaud (HEIG-VD) and the École technique de la Vallée de Joux (ETVJ) which teaches traditional watchmaking skills. The concentration of research institutes in the canton offers access to a pool of talent that is unique thanks to the multidisciplinary nature of the existing institutes and skills.
1.4

NEUROTECHNOLOGIES

A FUNDAMENTAL FIELD OF RESEARCH

Neurotechnology is a booming field in the Vaud region. Benefiting from the expertise of the CHUV in the field of medicine and that of the EPFL in scientific excellence and innovation, as well as being home to numerous Swiss and international companies that are active in the sector, means the canton of Vaud has everything it takes to rise to the top of this fascinating and demanding field.

The study of the brain and the means to better understand its functioning, including treatments related to neurological diseases and their prevention, is a meticulous and fundamental field of research. Such research requires excellent infrastructure and equipment as well as highly qualified personnel. The canton of Vaud, like the rest of Switzerland, meets these requirements. For example, there is the Human Brain Project piloted by EPFL.

This field of research is highly relevant in the context of an aging population in the Western world. The probability of developing a neurodegenerative disease, such as Alzheimer’s or Parkinson’s, increases with age. 144,000 people are thought to be affected by Alzheimer’s disease alone in Switzerland. That figure is forecast to reach 300,000 by 2040.

Photo: Z. Adamczewska-Bolle

44 million

people around the world suffering from Alzheimer’s disease or dementia. This figure is forecast to rise to 135 million by 2050.


MINDMAZE

TREATMENT THROUGH VIRTUAL REALITY

Thanks to its neurological re-education system, MindMaze is now worth over a billion dollars. MindMaze is Switzerland’s only officially recognized unicorn, or billion-dollar startup.

MindMaze is an EPFL spin-off which has revolutionized neurological treatments. Its technology facilitates and speeds up the rehabilitation of stroke victims through virtual reality. And thus MindMotionPRO was born – a platform that combines neural sensors, cameras and computer graphics.

It allows the patient to follow a series of exercises and see his or her movements reproduced on the screen by an avatar, and thus be able to correct them. Performance is displayed as a score, just like in a video game. This entertaining software program comes in two formats – a version for hospitals and another portable format for clinics or home rehabilitation which has just been launched on the European market.
DIGITAL HEALTH

A HOTBED OF TALENT CREATING INVENTIONS FOR THE HEALTH OF THE FUTURE

Digital health, also called e-health, crosses over several disciplines. It uses information and communication technologies to improve health and the healthcare system.

Many Swiss companies, notably scale-ups such as Sophia Genetics and MindMaze, are breaking through in this rapidly growing market. New companies are making a name for themselves with applications focused on diagnostics, aiding medical decision-making and improving patient-doctor relations.

At the heart of Health Valley, the canton of Vaud is now a globally recognized digital health platform. Its public hospitals, in particular the CHUV and private clinics such as those in the Swiss Medical Network, are renowned for their advanced medicine.

These treatment facilities are an ideal setting for the many life sciences engineers and researchers working at local universities, the University of Lausanne and the EPFL. Synergies come naturally with large companies and startups in the Lake Geneva area.

SPORTECHNOLOGIES

WHERE INNOVATIONS MEET

It all started more than a century ago with the establishment of the IOC headquarters in Lausanne, which has gone on to become the Olympic Capital (1994). Today, the canton of Vaud is home to more than 50 sports headquarters and organizations. As well as the various international organizations, the region also has many companies and research institutes specializing in sports.

This dynamic, combined with active support from the authorities, makes the Lausanne region a “Silicon Valley” of sports. This concentration is conducive to the emergence of partnerships between different fields such as digital health and digital technologies. An example of this is the startup Gait Up, which combines intelligent sensors and biomechanics to provide portable motion analysis solutions for the sports and health industries.

“Some have succeeded in standardizing the quality of the data produced by rectifying it with artificial intelligence systems,” explains Jurgi Camblong, CEO and founder of the company. “Our success has been in rising to this challenge. Exposed to hundreds of thousands of complex problems, our algorithm has continually enhanced the performance of our artificial intelligence.” Even though the company signed its first contracts in Switzerland, it quickly began to export its technology “to demonstrate that the model was robust and that it worked irrespective of national borders.”
INFORMATION & DIGITAL TECHNOLOGIES

A RESOLUTELY CONTEMPORARY CHALLENGE

Switzerland is where the world wide web was created in 1989, and has proved itself to be a dynamic player in the digital field for several decades now. In this context, the canton of Vaud has played a pioneering role with the founding of Elca Informatique in 1968, followed by Logitech in 1981, and the large data centers of the 2000s. It represents a digital safe house and the ideal environment in which to conduct secure digital activities. Vaud-based companies such as Safe Host and Brainserve are examples of this.

The Swiss Federal Institute of Technology Lausanne (EPFL) has two centers dedicated to data science – the Swiss Data Science Center and EcoCloud – not to mention the brand new Center for Digital Trust, a unique institution in the field of cybersecurity.

To find out more about the key industry sectors of the canton of Vaud, visit: invest-vaud.swiss/key-sectors
2.1 DIGITAL TECHNOLOGIES

RECOGNIZED EXCELLENCE IN DIGITAL TRANSFORMATION

Be it big data, robots, artificial intelligence, blockchain or cybersecurity, Switzerland is at the forefront of digital technologies.

The canton of Vaud boasts the largest data center in Switzerland. It was inaugurated in 2017 in Gland by the company Safe Host. It groups together thousands of servers over 14,000 m². The canton is home to several other companies in the cloud computing field, including SyselCloud. Then there is the data protection sector. The canton of Vaud excels in cybersecurity thanks to the expertise of the EPFL and other universities. At the end of 2017, the EPFL founded the Center for Digital Trust — a platform that brings together researchers and economic stakeholders to unite against cyber-hacking and protect privacy.

Over 24 research laboratories active in various fields are involved, as well as the CHUV, the International Committee of the Red Cross, and private companies including Swisscom and Swiss Re.

Seventy EPFL research entities, the University of Lausanne and the HEIG-VD have links with digital technologies. UNIL’s expertise is reflected by its information systems department and a group of researchers active in the fields of cybersecurity and cyber defense. Meanwhile, the University of Management and Engineering Vaud has an institute dedicated to communication and information technologies and a group of multidisciplinary researchers developing solutions in the health field.

CISCO

THE GLOBAL LEADER OF TOMORROW’S DIGITAL WORLD

Based in the canton of Vaud since 2007, US company Cisco has made a name for itself in the fields of internet infrastructure, connected objects and cybersecurity.

Cisco specializes in network hardware (routers, switches, servers), and it could be said that they are what enables the internet to function. “Our employees, products and partners help people and companies to connect securely, but also to seize the digital opportunities of tomorrow,” says Cisco Switzerland CEO Christian Martin. “The canton of Vaud is an important pool of talent for innovative global companies seeking excellence,” observes Cisco Head of Strategic Innovation in Rolle, Anuj Jain. “Being based in the heart of the canton of Vaud allows us to connect with these companies, to know their needs and the challenges they face in the digital world, especially when it comes to non-tech companies. This gives us a good overview.”

Cisco has a development unit at the EPFL Innovation Park and finances the Global Center for Digital Business Transformation at IMD, a joint applied research center for digitization.
IDENTIFY AND ENCOURAGE INNOVATION

The canton of Vaud has launched the first scale-up support program in Switzerland. The “Scale-Up Vaud” label is intended for technology or innovation-based companies with a minimum annual workforce growth of 20% over three years, entered in the companies register for at least three years and having at least 10 employees. The initiative aims to enhance their success and support their growth. Twenty-one companies have already joined the initiative and benefit from this label initiated by Innovaud, the partner of the economic development agency which promotes innovative companies. These scale-ups benefit from targeted access to various partners offering coaching services, support for international expansion, promotion of public-private partnerships and legal facilities. Another objective is to encourage exchanges with large companies with a view to increasing opportunities for marketing and selling their products and services.

SCALE-UPS

FROM ARTIFICIAL INTELLIGENCE TO DIGITAL SUPPORT FOR BUSINESSES

Nexthink, a spin-off from the EPFL founded in 2004, helps its clients improve their digital infrastructure.

Nexthink offers large companies a solution for managing their digital experience. In concrete terms, this software company provides its customers with the information they need to limit their costs, reduce their IT issues and ensure the security of their data. “Our solution combines data collection, supervision, analysis, proactive anticipation, problem-solving and interactive dialogs with employees to communicate, raise awareness and provide continuous improvements in quality,” explains Pedro Bados, CEO and co-founder of Nexthink, which is based in Prilly.

The Vaud-based company’s innovative product makes it possible to discover, capture and analyze any network connections and dependencies across applications from all the workplaces (desktop, laptop etc.) in a company or institution. All of this can be done in real time, even in organizations with hundreds of thousands of computer workstations.

1,300 jobs created by the 21 Vaud-based labeled scale-ups as of January 1, 2018 (scale-up-vaud.ch).
DATA CENTERS

DATA STORAGE – A HIGHLY TOPICAL ISSUE

With its reputation for discretion inherited from its banking legacy, the canton of Vaud is a key player in data hosting. It has data centers in Crissier, Gland, Avenches (managed by Safe Host), Renens (BrainServe, Edificom) and Lausanne (Syselcom).

Research is also a key factor: in February 2017, the Swiss Federal Institutes of Technology in Lausanne and Zurich launched the Swiss Data Science Center – a national center for data science to promote innovation in this field.

The main players in the Swiss market have joined forces to form the Vigiswiss association, a network of professionals whose infrastructure is capable of responding to the main risks associated with data storage. In the event of a problem, Vigiswiss-approved companies have agreed to offer a coordinated solution.

SAFE HOST
THE SWISS LEADER IN DATA STORAGE

Safe Host is an SME managing three data centers, including the largest in Switzerland, based in Gland. The company is continuing to expand at a time when data volumes are exploding.

14,000 square meters. This is the size of the data center opened in May 2017 by Safe Host in Gland, near the main Lausanne-Geneva highway. It is the largest center of its kind in Switzerland. The SME provides its customers with everything they need in terms of data storage. “Companies bring their servers. We provide them with a physical cocoon including rooms and connectivity, And of course, security,” explains Elena Sikias, Marketing Project Coordinator at Safe Host.

Security also implies the guarantee of continued services. With clients active in strategic areas such as healthcare and trading, even the smallest interruption can cost millions of francs or even lives. The data center is equipped with a system to deal with any power outage, loss of connectivity or cooling system failure. Safe Host also has an extremely innovative air conditioning system in Avenches.

180,000 m²
the total area dedicated to data hosting in the 80 data centers in Switzerland, including seven in the canton of Vaud.

Source: S-GE
Interruptions, manipulation, sabotage and other targeted attacks via electronic networks are among the cyber-risks that are part and parcel of the information society. In an increasingly connected and interdependent world, computer attacks are becoming all the more inevitable as cyber-crime is no longer restricted to a handful of experts but has become more widespread.

Faced with these challenges, Switzerland is particularly well positioned to become an international cybersecurity powerhouse. With its reputation for discretion, security and reliability, it is home to many NGOs, banks and healthcare companies that manage the data of millions of customers. Around Lausanne and Yverdon-les-Bains, the concentration of companies with experience in computer security, research centers and high-level incubators, encourages fundamental and applied research to flourish in all sectors concerned by cybersecurity. The launch of the Center for Digital Trust, supported by the EPFL, is also proof of this.

The HEIG-Vd has a computer security skills center with a dozen specialists that is in permanent collaboration with the industrial fabric of the canton and has an excellent professional network.

The center is very active in teaching, with a Bachelor in Information Security since 2010. Its many applied research activities have allowed the development of several start-ups, including NetGuardians, Strong.codes, and Sysmosoft.

**2.2 CYBERSECURITY**

**AT THE CUTTING EDGE OF IT SECURITY**

The company is developing innovative technology to fight financial crime.

NetGuardians is a company that is active in fraud prevention and risk mitigation. Solutions are developed by experts in risk, particularly in financial institutions. Its main innovation lies in its ability to detect fraud before it occurs, thanks to its behavioral analysis technology. Its holistic approach, i.e. the ability to analyze human behavior throughout the banking system, makes it possible to detect the most complex frauds which until now had gone unnoticed.

The company was founded in 2007 by two HEIG-Vd students, Raffael Maio and Joël Winteregg, as a spin-off from the university. It still pursues research projects today in machine-learning and artificial intelligence, in conjunction with the HEIG-Vd. In addition to its headquarters in Yverdon-les-Bains, the company has offices in Kenya, Poland and Singapore. With over 60 employees, the startup has grown into a true SME with more than 60 customers in 15 countries in Europe, the Middle East, Asia and Africa.
THE TEACHING OF TOMORROW

While new technologies are profoundly changing teaching, learning and training methods, the EdTech sector is constantly innovating to answer profoundly complex question: how should we be teaching and learning in the future?

In the face of these challenges, the canton of Vaud is particularly well positioned to become one of the pioneers of educational innovation. With the extreme density of intelligence that characterizes a country renowned for the excellence of its research and training, and with leading educational and research institutions, it has everything to make it the ideal location for entrepreneurs.

It is therefore clear to see why digitalswitzerland, the national program for the promotion of digital technologies, recently named Lausanne and the surrounding region as the focal point of the education of tomorrow. There is also the Swiss EdTech Collider, EPFL’s incubator which currently helps 70 new companies in their efforts to transform education through digital tools.

2.3 EDTECH

HIGH-PERFORMANCE INFRASTRUCTURES

AT THE HEART OF A MODERN NETWORK

With its position at the heart of Europe, small size and high-performing infrastructure, Switzerland is close to everything. With 9,000 trains running every day on some 3,000 kilometers of track, the Swiss are the world champions of rail. Its three international airports connect the country to the outside world, while about 10% of imports arrive via the Rhine waterway between the North Sea and Basle.

Its energy supply is reliable and diversified. Access to telecommunications is among the most developed in the world, with 98% of the Swiss population having access to 4G (soon 5G) mobile telephony. The health system meanwhile regularly ranks among the top five in the Global Competitiveness Index.

Of course, the canton of Vaud benefits from this infrastructure. It is situated at the center of a modern network linking it effectively to a number of major European cities by rail and air. The canton also benefits from two regional airports (Payerne and Lausanne-Blécherette) accommodating private jets and freight planes.

Companies are particularly well looked-after, since the canton has a policy of developing strategic sites throughout its territory. These offer equipped, legalized and rapidly accessible land for companies wishing to set up business there.

SICPA

A MOST DISCREET WORLD LEADER

This Vaud-based company has established itself as the leading supplier of ultra-secure ink for bank notes worldwide. It has just celebrated its 90th birthday.

SICPA is the world leader in the production of ultra-low viscosity ink for the protection of bank notes and identity documents. It also specializes in the development of security solutions for product authentication and identification (tobacco, alcohol, luxury goods etc.). Of the company’s 2,500 employees, around a third are located in the canton of Vaud, at the Chavornay plant and in the Prilly research laboratories.

In recent years, SICPA has also diversified into digital technologies, with cutting-edge solutions for digital product traceability. “Technologies are evolving,” explains Christine Macqueen, the company’s Corporate Affairs Director, “but we have won market share thanks to quality solutions. Furthermore, for activities as secure as ours, Switzerland’s neutrality, stability and dependability are additional reassuring elements for anyone seeking to combat fraud and illegal trade.”
The canton of Vaud has long distinguished itself in the fields of miniaturization and micromechanics. This expertise is now being extended to around a dozen sectors of activity such as machine manufacture and medical technologies. Vaud’s research institutes and companies are also renowned in the areas of robotics, aerospace, metrology and drones.

The more traditional sectors, such as watchmaking, have not been left behind. Watch manufactures such as Blancpain, Audemars Piguet and Jaeger-Lecoultre are all based in the canton of Vaud and their watches are now sold throughout the world. Its reputation for quality makes the “Swiss Made” label one that can be relied on when it comes to developing activities and products with high added value.

To find out more about the key industry sectors of the canton of Vaud, visit: invest-vaud.swiss/key-sectors
Since its foundation in 1875 in the village of Le Brassus, watch manufacture Audemars Piguet has earned an international reputation. Its turnover has increased tenfold over the past 30 years.

Audemars Piguet was founded in the heart of the Vallée de Joux, well known for its expertise in complex mechanisms. The watchmaking company has always been dedicated to breaking new ground. In 1972, the Royal Oak, the first high-end watch with a case made of steel rather than precious metals, revolutionized the sector at the time. Its philosophy of anticipating customers’ needs and adapting to changes in society goes a long way to explaining the company’s success.

Audemars Piguet is still distinguishing itself today by using hi-tech materials and researching ever more sophisticated mechanisms, combining technology and tradition. This constant effort to innovate has led to a mastery of miniaturization, which has directly contributed to the development of sectors where microtechnology is crucial, such as medical technologies, robotics and aerospace.

The Swiss apprenticeship system is virtually the only one of its kind in the world, and it has helped to maintain the standards of industrial excellence that have seen “Swiss Made” become a global watchword for quality. The type of training involves significant practical experience within a company as well as theory-based courses in a professional college, and is highly regarded throughout the country. Two-thirds of young people choose to follow this path and to learn one of 250 trades, with over 58,000 companies involved in the training process.

The quality reputation of Swiss products makes the “Swiss Made” label one that can be relied on when it comes to developing activities and products with high added value. Many foreign companies choose Switzerland and the canton of Vaud to develop a new range of products with high added value. This is the case in industry and particularly medical technology, but also in the cosmetics sector.

Thanks to its century-old watchmaking tradition, the canton of Vaud has industrial expertise in precision work and miniaturization. While prestigious watch brands such as Audemars Piguet and Jaeger-LeCoultre are spreading industrial excellence developed in Vaud throughout the world, the canton’s microtechnology skills are now available in the full range of precision technologies, such as micromechanics, microelectronics and microsystems.

This unique technological expertise is in the hands of an extremely efficient network of subcontractors and is therefore an important cantonal asset that is available to numerous startups and of their innovations.
Driven by its tradition of innovation, Vaud-based industry is moving towards the 4.0. A number of companies are developing digital solutions to make their production more competitive and continue to produce high added value in the canton.

Swiss watch, machine, measuring instruments and medicine manufacturers have led the way. Their reputation for reliability has spread far beyond the country’s borders with the result that manufacturing in Switzerland is synonymous with quality and precision throughout the world.

In this innovative landscape, the canton of Vaud is at the forefront in many domains: watch manufacture, mechanics, information technology and precision industry. Innovation is encouraged by the proximity and influence of highly reputed research institutes, such as the world-renowned EPFL and the HEIG-VD with its Mecatronyx specialized research center. Thanks to these institutes, the region has specialized in high value-added sectors such as medical technologies, cybersecurity and precision instruments.

CLA-VAL
CREATOR OF MULTIFUNCTIONAL VALVES

Cla-Val is active in a number of fields including fire protection systems, fuel supply and the distribution of drinking and industrial water.

A pioneer in the production, sale and maintenance of automatic control valves, Cla-Val has acquired unique expertise in the design of valves and the casting of special alloys, extending its activities to the fields of industry, fire protection, marine, aviation, fuel, water networks and hydraulic products.

Cla-Val Europe was founded in Lausanne in 1983 and became the European center for the production and sale of the group’s products. “Our role is to transform a customer’s hydraulic problem into a multifunctional valve capable of meeting their needs,” explains Hugo van Buel, Director of Cla-Val Europe. “Our company is completely independent from the US firm because of the different applicable standards. Cla-Val Europe can therefore be considered as an independent manufacturing center.” The group has two research centers: one in the canton of Vaud, the other in California. Projects are divided between these two sites according to specific market needs.

In the Vaud region, the company has forged partnerships with various local stakeholders. The most important synergies have resulted in the production of control valves, as well as electronic development. In total, Cla-Val Europe now has a network of around 30 subcontractors and suppliers in the canton.
3.1 MATERIALS, SURFACES & METROLOGY

PIioneer in Microtechnology

Materials and microtechnology are an integral part of our lives. Switzerland is heir to a significant legacy in the fields of watchmaking and precision industry, and microtechnology is the continuation of that tradition which remains deeply rooted in the country.

The canton of Vaud is home to high-tech companies and internationally renowned leading academic research institutes. These high added-value business areas leverage skills in electronics, computing, physics, microsystems and sensor technology, micromechanics, robotics and materials properties. They are an elementary discipline in the Swiss academic world.

The EPFL brings together dozens of laboratories working on materials science and microtechnology. Their variety – with laboratories working on metallurgy polymers and advanced composites – illustrates the diversity of this network. The HEIG-VD also has various hubs revolving around materials science.

30% of total Swiss exports in 2016 have been generated by the machine, electrical equipment and metals (MEM) industry.

3.2 ROBOTICS

A Pioneer for More Than Half a Century

The canton of Vaud is active in all categories of advanced robotics, focusing for example on man-machine interfaces, captors and sensors, microtechnical architecture and programming using new artificial intelligence tools.

This favorable breeding ground combined with academic excellence, an environment conducive to technology transfer and a strong interdisciplinary culture, has enabled a considerable number of start-ups and scale-ups to flourish and develop internationally, including Bluebotics, eco-robotix, Force Dimension and Rovenso.

Today, the region is a pioneer in the field of mobile robotics. Thanks to the presence of the National Center of Competence in Research Robotics (NCCR) – a robotics research consortium steered by the EPFL and comprising five research institutes in Switzerland – it also excels in the field of portable and educational robotics. Research into artificial intelligence and virtual reality also benefits from this same interest in innovation that is an integral part of the canton of Vaud.
INNOVATION TAKES OFF

Switzerland competes with the best in the world with its very own “Drone Valley”. Leveraging its expertise, the canton of Vaud anticipated the development of drones, and has been a leader in this field for many years now. Consequently, the authorities strongly support the development of new innovative uses of airspace. Various companies and academic institutions are working hand in hand to develop ever smaller and lighter drones.

The EPFL and NCCR Robotics form an impressive startup pool in this respect. Finally, a major effort is being made to develop methods of drone certification and licensing aimed at complete safety in airspace. The Swiss Aeropole is emerging as a vital skills center in this field.

senseFly has positioned itself as a world leader in the field of drones for professional use. It employs 120 people in the canton.

Since its foundation in 2009, senseFly has been one of the industry’s leading providers of professional drones, focusing on mapping applications. Its products enable large areas to be mapped in 3D with very high precision, and buildings and works of art to be inspected. “More generally, we develop solutions that allow our customers to carry out surveys more efficiently, more accurately and securely,” says Jean-Thomas Célette, Chief Sales and Marketing Officer at senseFly.

Together with its sister company, Pix4D, they are now the largest drone employers in Switzerland, and in particular in the canton of Vaud. The company collaborates with established players such as Skyguide, the Swiss company specializing in air traffic control and navigation, and the federal authorities (FOCA) in the field of air regulation and safety.
The canton of Vaud is home to a large network of research institutes and leading aerospace companies. This cantonal eco-system has academic institutions with state-of-the-art laboratories dedicated to it and established companies such as Viasat, APCO Technologies and RUAG Aerospace, as well as several startups (Almatech, Astrocast, Envirospace) whose work involves transforming research results into concrete applications. A large number of companies are also specialized in this high-tech sector in the EPFL Innovation Park. At the same time, the EPFL provides high-quality academic support in aerospace via the Swiss Space Center and promotes access to various industrial applications for space missions.

Meanwhile, the Swiss Aeropole in Pay-erne is also a center of excellence offering unique access to an airfield, as well as a site for industrial and technological activities in aeronautics and aerospace. The Innovation Park of Sainte-Croix also specializes in aerospace thanks to the presence of a Swiss Welding Institute foundation platform, specialized in welding techniques. This new skills center has received accreditation from the European Space Agency (ESA) and is part of a select club of six other training centers with advanced certification in this field in Europe.

APCO TECHNOLOGY TO REACH FOR THE STARS

APCO Technologies manufactures space equipment and is working directly on the Ariane 6 rocket.

The APCO Technologies family business has 250 employees on its base in Aigle, in Vaud. The SME is specialized in the design and manufacture of equipment for the space and energy fields.

In 1997, the company moved to Kourou, in French Guiana, to the European Spaceport, where it is in charge of testing satellites before they are installed on the launcher. Building on its success, the SME has expanded its Aigle site with the construction of a new hall specially dedicated to the new European Ariane 6 rocket. The company is designing the upper part and the attachments of the launcher’s booster rockets.
FOCUS ON CLEANTECH

Climate change, pollution and ecosystem degradation are issues that are now part of our daily lives. The global market for cleantech, or clean technologies, is worth some 2,500 billion euros. It has been growing at an average annual rate of 10.6% for 10 years and is expected to continue to increase at 6.5% per annum until 2025.

The canton of Vaud has been addressing these issues for many years now, with support for the activities of companies such as Leclanché (energy storage solutions) and Romande Energie (development of renewable energies and energy efficiency), and participating in ground-breaking projects such as SolarImpulse – Bertrand Piccard’s famous solar plane.

In Western Switzerland, the CleantechAlps cluster is committed to promoting this sector. It supports and promotes the networking of companies in the sector and integrates research institutes. The Environmental Sciences and Engineering department at the EPFL and the Ecotechnology department at the HEIG-VD in particular produce expertise and train leading specialists.

To find out more about the key industry sectors of the canton of Vaud, visit: invest-vaud.swiss/key-sectors
Leclanché batteries are used all over the world in the cleantech field. The company was founded more than a century ago in the canton of Vaud.

Leclanché is the historic jewel in the crown of Swiss industry and is one of the world leaders in energy storage solutions. Today, the company is particularly active in three main sectors. It produces batteries to store various forms of renewable energy, including solar and wind, and to regulate frequencies.

Using the same technology, the company based in the north of Vaud is also active in mass transportation energy management. Its batteries can be found in electric buses as well as in autonomous vehicles operating 24 hours a day and used mainly in warehouses. The company’s third business segment is the manufacturing of customized batteries for very specific applications.

In 2015, Leclanché received significant financial support from the canton. “This funding helped us finance investment in our production line in Yverdon-les-Bains,” says CFO Hubert Angleys. “The State contribution was extremely welcome. It was seen internally as excellent news and an incentive to stay in the region. We are also well established in the local educational infrastructure, and employ many apprentices in various administrative, financial and technical functions.”
ENERGY EFFICIENCY

THE BUZZ AROUND TECHNOLOGICAL ADVANCES

Like many other countries, Switzerland will face considerable challenges in terms of energy consumption and reducing greenhouse gas emissions. Part of the overall solution depends on individual habits and behaviors. However, technological progress is also one of the keys to efficiency.

In this respect, the canton of Vaud appears to be one of the most innovation-friendly regions in Europe, offering researchers, entrepreneurs and investors a framework that is all the more favorable as it is based on a common desire on the part of public authorities, the research community, large companies and startups.

One figure is particularly revealing in the cleantech sector: of the more than 200 startups founded in Switzerland over the past 10 years, around 60 are based in the canton of Vaud. More than 40 of them are dedicated to the production or distribution of renewable energies and about 20 focus their activity on energy efficiency solutions.

The EPFL and companies such as Romande Energie and Leclanché also play a leading role in energy storage and efficiency. This is particularly the case in the “smart grid” sector, which enables the smart management of large networks or those in “smart cities”. Green Motion, a specialist in charging stations for electric vehicles, is particularly active in this field.

GREEN MOTION
THE SWISS MOBILITY LEADER

Green Motion manufactures charging infrastructures for electric vehicles and is now working with Chinese partners and hopes to expand into India in the near future.

Green Motion moved to its new headquarters in Mont-sur-Lausanne in February 2017, and is the leader in the field of charging infrastructures for electric vehicles. “We design and provide the necessary software platform to manage charging networks for our operator customers,” explains CEO François Randin. “We therefore provide both hardware and software.”

The company sells its products to customers looking to buy them for private use. When the terminals are intended for public use, Green Motion offers to finance the entire project as part of a concession system. Thanks to the quality and the density of its network, the company plans to convert 4% of Swiss cars from thermal to electric energy by 2020. “We are the market leader in Switzerland and this position is growing stronger.”

208 companies active in cleantech founded in Switzerland since 2006, including 61 in the canton of Vaud.
RESEARCH & DEVELOPMENT

IMAGINING THE SOLUTIONS OF TOMORROW

The canton of Vaud has leading expertise in life sciences, micro and nanotechnologies, information and digital technologies, energy and environmental technologies, as well as in nutrition and agri-food. This great diversity is the result both of the region’s long industrial tradition and its great capacity for innovation.

Vaud-based research institutes have put in place incubators to support the emergence of startups and support their development. Numerous partnerships have developed between the various laboratories, as well as with the business community and industry. Accelerating innovation, optimizing production processes and consolidating expertise are the main objectives of these collaborations.

It should be noted that the canton of Vaud is perfectly integrated into national, European and international research projects. The region brings added value in many areas through its solid expertise.

ECOROBOTIX

ROBOTICS AT THE SERVICE OF AGRICULTURE

The ecoRobotix robot is equipped with cameras, sensors and a tracking system, and has been introduced into the agricultural world to help weed control.

Based in the Y-Parc since 2014, ecoRobotix develops, manufactures and markets agricultural machinery capable of controlling weeds in sugar beet fields without human intervention. Co-founder Steve Tanner is the son of a farmer from La Plaine de l’Orbe, making him all too familiar with the tedious business of weeding. This is why he devised a robot to tirelessly track down weeds. As soon as a weed is spotted, the robot’s arms spray a small drop of pesticide onto it. “In launching this project,” Steve Tanner explains, “we also wanted to contribute to the global economy and create value and jobs in the region. Our relationship with the canton of Vaud is key.”

The farmer simply enters the GPS coordinates of his fields into a smartphone application. The robotic weeding tool can spray from a range of 2 cm from a plant. An algorithm is used to identify the weed and determine its exact position. “Thanks to a project with the EPFL, we are developing an image analysis software that allows us to recognize weeds and locate them with precision,” Tanner continues. “The robot is fully autonomous and runs on solar energy.”

ECONOMIC PROSPERITY

A THRIVING ECONOMY

Switzerland has led the Global Competitiveness Index for several years now, ahead of the USA and Singapore. The potential for innovation and the efficiency of the workforce are considered the best in the world by the authors of the report.

The canton of Vaud represents a concentration of Swiss economic prosperity, having produced the world’s largest food company, Nestlé, firms such as Bobst and Logitech, and prestigious watchmaking brands such as Audemars Piguet, which have gone from tiny villages to conquer the world. Some 51,500 companies make the Vaud economy tick. Most of them are active in advanced industries such as life sciences (pharma, biotech and medtech), measurement instrumentation and digital technologies.

Source: Vaud statistics

between 1997 and 2016, the GDP of Vaud recorded an average real growth (2.3% per year) that was higher than that of the whole of Switzerland (1.9%).
The canton of Vaud saw the agri-food sector develop more than a century ago, with the founding of Nestlé in Vevey in 1905. In 1986, the group founded Nespresso, a major success story in the food business. When it was founded, the Nestlé subsidiary had only five employees. Today, it has become the world leader in coffee machines and capsules. Nespresso employs 2,000 people in Switzerland and has its global headquarters in Lausanne, as well as two production plants in the canton of Vaud, in Avenches and Orbe, and one in Romont.

Other influential companies have followed, such as Eckes Granini, Reitzel and Hilcona. With a long industrial tradition and a strong spirit of innovation, the region is now at the forefront of designing solutions that can anticipate future challenges. The canton also benefits from the expertise and reputation of international companies that are leaders in their field, including General Mills, Chiquita, ADM and Starbucks.

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SOIL FOR TOMORROW’S AGRICULTURE

Agriculture and livestock have always been among the most inventive of human activities. They are now entering the era of digitization and big data, with the agricultural sector positioning itself in the space of just a few years as one of the most innovative in the world, with robotics, drones, crop monitoring and surveillance, imaging, input optimization, smart management of seed, water and fertilizer management, yield and product quality improvement.

Switzerland offers a particularly favorable environment for this wind of innovative change. Nowhere can this be seen more than in the canton of Vaud, which enjoys the support of the Swiss Confederation as part of its federal agricultural policies. Its varied landscape is home to numerous farms, pilot companies, leading universities and research laboratories as well as incubators and structures such as the Molondin Agropôle, a center designed for farmers, inventors and entrepreneurs wishing to test their solutions.

This continuous dialog between researchers, entrepreneurs and cantonal and federal structures has created a favorable breeding ground for the emergence of different companies, including: Gamaya and its range of agronomic services based on hyperspectral images, ecoRobotix and its robot weeders, senseFly and its drones dedicated to high-precision mapping, and Lumartix and its plasma lamp for crops which faithfully reproduces the spectrum of sunlight right down to UV radiation. Then there is the CombaGroup and its robotized soil-less production of lettuces.

5.1 AGRITECH

COMBAGROUP

TECHNIQUE INSPIRED BY NASA

As well as providing technological innovation, CombaGroup shortens production circuits and reduces waste. Based in the north of Vaud, this startup is shaking up the accepted conventions of agriculture by exporting its expertise.

Based in Molondin, CombaGroup has developed a new concept in the production and processing of lettuces that reduces the environmental impact (local pesticide-free production), improves quality and reduces several inefficiencies in the food value chain. To achieve this, the company has developed a technology capable of producing, in a controlled environment, up to 10 times more lettuce than in traditional production. It has developed various partnerships and entered the market in 2017 with several greenhouses now in an advanced phase of development.

Its founder, Benoît de Combaud, found an environment that was particularly conducive to entrepreneurship in Switzerland. “The support for startups in Switzerland is very good thanks to agencies like Innovaud and platinn. ‘Seed’ startup aid and financing are also facilitated through several very well-organized structures.”
The canton of Vaud is one of Switzerland’s most attractive regions. It has 2.5 million overnight stays per year, approximately 10% of the total of the country as a whole. On a fine summer’s day, you can hike in near solitude on an Alpine glacier, swim in the afternoon in the waters of Lake Geneva and finish the evening amongst the crowds at the fabulous Montreux Jazz Festival.

The canton boasts two world-famous events in the Montreux Jazz Festival and the Paléo Festival. The Ballet Béjart’s performances, meanwhile, are regularly sold out. The Collection de l’art brut, the Olympic Museum and, more recently, the Aquatis museum have made Lausanne a global tourist hotspot. The canton also has many other attractions, including the terraced vineyards of Lavaux, listed as a UNESCO World Heritage Site, the Chaplin’s World museum on the hilltops of Vevey, Chillon Castle and the Château d’Œx International Hot Air Balloon Festival, to name but a few.

A smorgasbord of sporting activities, including sailing, stand-up paddle, diving and fishing are available on the canton’s lakes. Hiking, paragliding, mountain biking, skiing or caving are all popular activities in the mountains of the Jura and the Alps.

The canton of Vaud also has a vast choice of eateries and restaurants, ranging from local specialties to a wide variety of world cuisine. Lausanne is a dynamic, student city with great nightlife, including concerts, cinemas, music, bars and terraces which are open during the summer months.

With its backdrop of lakes and mountains, the canton of Vaud offers an unparalleled quality of life and makes it possible to find the perfect work-life balance. Its tourism, cultural and sporting possibilities are exceptional.

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