

INFORMATION AND DIGITAL TECHNOLOGIES

A cutting-edge industry
of the canton of Vaud



A BOOMING DIGITAL SECTOR IN VAUD

From local startups to multinational companies, businesses that are active in Information and Communication Technologies (ICT) find the ideal conditions for success in the canton of Vaud.

The birthplace of the World Wide Web in 1989, Switzerland has excelled in digital technology for decades. From big data to robots, AI, and cybersecurity, Switzerland is at the forefront in digital technologies. The country did not wait around for the digital revolution or “industry 4.0” to lay this foundation. It has a first-rate IT infrastructure (its broadband coverage is the best in Europe), the high stability needed for data backups, and a highly skilled labor pool.

According to Switzerland Global Enterprise, strengthening data protection and improving industrial processes will boost the Swiss economy on the international scene. Fully convinced, world leaders like Logitech, Intel, IBM, and Google emerged from or have set up business in Switzerland.

The approximately 18,000 of the country’s companies active in information technology, digital technology, and telecommunications are known for their adaptability and interdisciplinarity.

Vaud has pioneered within this one-of-a-kind environment. The region hosted the creation of ELCA in 1968, Logitech in 1981, and large data centers in the 2000s. Valuing speed, security, and customization, IT and telecommunications are continuously evolving to meet new user needs. The canton actively participates in these innovations and is home to 1,500 companies in the sector.

A digital safe, the canton is the ideal setting for secure digital activities. It lies within a politically neutral, stable, and pragmatic democracy with a culture of confidentiality, and it is accessible within Europe by high-speed connections. Vaud-based companies that own enormous data centers, like Safe Host and BrainService, illustrate this.

When it comes to technological development, startups like the multinationals in the canton of Vaud can count on the expertise of internationally recognized universities and research laboratories. Several academic institutions (EPFL, HEIG-VD, and UNIL) bring together key strengths within the ICT sector. The École polytechnique fédérale de Lausanne (EPFL) has multiple centers devoted to data sciences such as the Data Science Center, EcoCloud and Center for Digital Trust (C4DT).



DANIEL BOREL
Co-founder and President
Emeritus of Logitech, Écublens

“The canton of Vaud has the potential to become the next Silicon Valley. This region is extremely attractive. We just have to be here.”



AN IDEAL FRAMEWORK FOR INVESTING

Located in the heart of Europe, Switzerland enjoys stunning diversity and prosperity. Its political system is based on direct democracy and consensus, which generates a productive stability that boosts the economy. The country regularly ranks about the world's most competitive.

As the largest French-speaking canton, Vaud is also the most populated, with more than 800,000 residents. Reflecting the country's openness, nearly a third of its population is foreign born. A good portion of residents qualify as high skilled and were drawn to the working conditions and the excellence of the region's institutions.

The region's approximately 50,000 companies are active in the service sector, but they are also notable in high value-added technology sectors, such as precision instruments, medical equipment, and information technology.

A VARIETY OF SKILLS IN DIGITAL TECHNOLOGIES

The canton of Vaud currently enjoys a cross-section of skills in today's top digital technologies, including the Internet of Things, blockchain technology, artificial intelligence, big data, robotics, web platforms, e-commerce, cybersecurity, and machine learning.

The canton of Vaud is a fertile breeding ground for new startups. It brings together optimal conditions for the emergence of new and innovative businesses. Out of the CHF 1.2 billion in venture capital invested in Switzerland in 2018, CHF 267,5 million went to young, Vaud-based companies. Other startups have succeeded in convincing the industrial sector to implement their innovations. Vaud's core strength lies in creating interdisciplinarity within today's top digital technologies and identifying areas of state-of-the-art innovation.



1,500

ICT companies located in the canton of Vaud, employing some 10,700 people.

THE RESEARCH INSTITUTES

CHUV

NeuroTech Foundation

EPFL

ALGO: Algorithm Laboratory
BioRob: Biorobotics Laboratory
BIOS: BioNanoPhotonic Systems Laboratory
C4DT: Center for Digital Trust
CHILI: Computer-Human Interaction in Learning and Instruction
CLSE: Laboratory of Life Sciences Electronics
CNBI: Defitech Chair in Brain-Machine Interface
CVLAB: Computer Vision Lab
DATA: Data Analysis Theory and Applications Lab
DCSL: Data Center Systems Laboratory
DEDIS: Decentralized and Distributed Systems
DESL: Distributed Electrical Systems Lab
DIAS: Data-Intensive Applications and Systems Lab
DISAL: Distributed Intelligent Systems and Algorithms Laboratory
dlab: Data Science Lab
DSLAB: Dependable Systems Lab
ESL: Embedded Systems Laboratory
Galatea: Galatea Laboratory
HCI: Human-Computer Interaction group
ICLAB: Integrated Circuits Laboratory
ICT4SM: ICT for Sustainable Manufacturing Group
IIG: Immersive Interaction Group
ISI: Department of Information Systems
IRP: Chair in Spinal Cord Repair
LA: Automatic Control Laboratory
LABOS: Operating Systems Laboratory
LACAL: Laboratory for Cryptologic Algorithms
LAMP: Programming Methods Laboratory
LARA: Lab for Automated Reasoning and Analysis

LASA: Learning Algorithms and Systems Lab

LASEC: Security and Cryptography Lab
LCA: Laboratory for Communications and Applications
LCN: Laboratory for Computational Neuroscience
LIA: Artificial Intelligence Lab
LIONS: Laboratory for Information and Inference Systems
LIS: Laboratory for Intelligent Systems
LMAM: Laboratory for Movement Analysis and Measurement
LMIS1: Microsystems Laboratory
LMM: Laboratory for Mechanical Metallurgy
LMTM: Laboratory for Thermomechanical Metallurgy
LNCO: Laboratory for Cognitive Neuroscience
LPD: Distributed Programming Laboratory
LSBI: Laboratory for Soft Bioelectronic Interfaces
LSI: Integrated Systems Laboratory
LSIR: Distributed Information Systems Laboratory
LSRO: Robotics Systems Laboratory
LTCM: Heat and Mass Transfer Laboratory
MLO: Machine Learning and Optimization Lab
MMSPG: Multimedia Signal Processing Group
NAL: Network Architecture Lab
NCCR: The National Center of Competence in Research (NCCR) Robotics
PARSA: Parallel Systems Architecture Lab
RRL: Reconfigurable Robotics Laboratory
TNE: Translational Neural Engineering lab
TRANSP-OR: Transport and Mobility laboratory
SDSC: Swiss Data Science Center
UPSALATHE: Laboratory of Prof. Marcel Salathé
UPCOURTINE: Laboratory of Prof. Courtine
VLSC: Very Large Scale Computing Laboratory
VPI: Vice Presidency for Innovation

HEIG-VD

COMATEC: Institute of Mechanical Design, Materials Science and Packaging
mecatronYx group
HEE: Health, Engineering & Economics group
iAi: Industrial Automation Institute
IESE: Energy and Electrical Systems Institute
IGT: Institute of Thermal Engineering
IICT: Information and Communication Technology Institute
IIDE: Interdisciplinary Institute of Business Development
INSIT: Regional Planning Institute
INNOVAKIDS: Promotes learning about digital technology for children
MNT: Institute of Micro & Nano Techniques
MEI: Media Engineering Institute
SIM: In-vehicle Information Systems Institute
REDS: Reconfigurable & Embedded Digital Systems Institute

Idiap

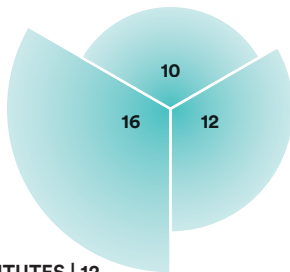
BPR Group: Biometric Person Recognition Group
CB Group: Computational Bioimaging Group
ML Group: Machine Learning Group
NLU Group: Natural Language Understanding Group
PAU Group: Perception and Activity Understanding Group
SAP Group: Speech and Audio Processing Group
SC Group: Social Computing Group

UNIL

SCARG: Swiss Cybersecurity Advisory and Research Group
DESI: Information Systems Department
SIB: Swiss Institute of Bioinformatics

Cybersecurity

In Vaud, startups (Sysmosoft, Metaco and Snap Suisse) and well-established companies (Kudelski Group) alike are developing cutting-edge solutions in the field of cybersecurity. In other words, they are protecting the structures and computer data of others connected directly or indirectly to the internet. They are active in operational risk management and fraud monitoring, cryptography, and algorithm acceleration. The HEIG-VD engineering school, the Y-PARC technological park, and EPFL are boosting innovation in these areas and training the next generation of security engineers.



RESEARCH INSTITUTES | 12

EPFL: ALGO, C4DT, DEDIS, DSLAB, LACAL, LASEC, LCA, MMSPG, VPI

HEIG-VD: IICT

Idiap: BPR Group

UNIL: DESI

STARTUPS | 16

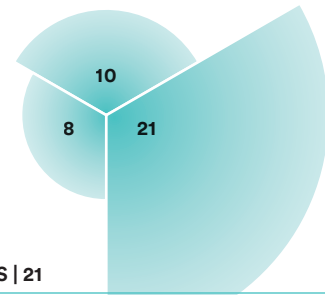
Agam Security, Cysec, CodeTickler, Cyber Resilience Suisse, Global ID, Metaco, NextPrivacy, OneVisage, Privately, PRODAFT, Pryv, Revapost, ScanTrust, Snap Suisse, Seculting, Sysmosoft

SMEs AND LARGE ENTERPRISES | 10

AlpVision, Cisco, ELCA, e-Parc, Kudelski, Navixia, NetGuardians, Nexthink, SCRT, Swisscom

Cloud and data centers

Many data processing and storage activities are hosted within the canton of Vaud due to its undeniable benefits in the field. Several companies, including Safe Host, SyselCloud (active since 1995), and BrainServe (in Crissier), have chosen to set up huge data centers in Vaud. In fact, Vaud is home to the largest data center in Switzerland. Opened by Safe Host in summer 2017 in Gland, the datacenter features thousands of servers over an area of 14,000 m². The Swiss Data Science Center at EPFL creates synergies between data providers, experts, and scientists.



RESEARCH INSTITUTES | 21

EPFL: C4DT, DATA, DCSL, DEDIS, DIAS, DSLAB, LA, LABOS, LACAL, LAMP, LIONS, LPD, LTCM, MLO, NAL, NCCR, PARSA, SDSC, VLSC, VPI

HEIG-VD: mecatronYx group

STARTUPS | 8

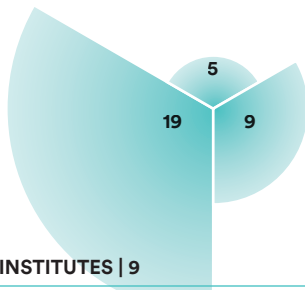
Akenes, EDIFICOM, Exoscale, GenomSys, Immersion4, Matchmore, Saphetor, SERIAL

SMEs AND LARGE ENTERPRISES | 10

Bacula, BrainServe, Cisco, Radix Technologies, Safe Host, Sprinklr Switzerland, SQLI, Swisscom, SyselCloud, Thermo Fischer Scientific

Fintech

With more than 200 financial technology (fintech) companies in the region, Switzerland is an ideal location for this sector. Most fintech firms (60%) have international B2B strategies. That means that they sell specialized products to foreign companies that are already well established in finance. The canton of Vaud has around 20 fintech companies, including CashSentinel, NetGuardians, and Monito. Another Vaud-based heavyweight in the financial sector is the online bank Swissquote. Two organizations represent this sector: the Swiss Finance and Technology Association and Swiss Finance Startups.



RESEARCH INSTITUTES | 9

EPFL: ALGO, C4DT, DEDIS, DSLAB, LACAL, LASEC, LCA, MMSPG, VPI

STARTUPS | 19

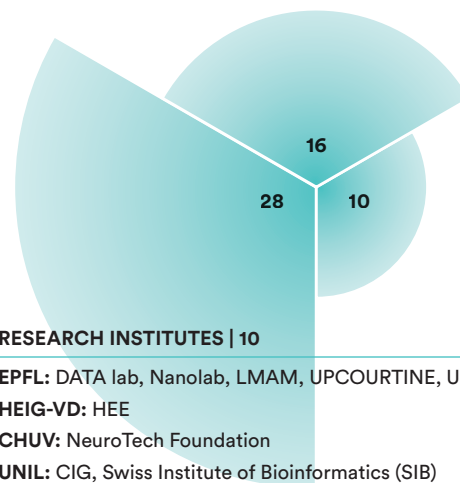
Adeya, Cysec, AUBEP, Be-Cash, Buildigo, Cfinancials, Hiboutik, inpher, eBOP (KiWi), Metaco, myBrick, NVISO, Predictive Layer, SmartWall, Sysmosoft, Swiss Cofunding, theScreener, Twist Lab, Webloyalty International

SMEs AND LARGE ENTERPRISES | 5

CashSentinel, Monito, NetGuardians, SICPA, Swissquote

Digital health

Digital health is where the most advanced information and communication technologies to improve the healthcare system is used. In the canton of Vaud, medical professionals, innovators, and entrepreneurs work within a network. The Vaud-based computer company ELCA has developed the first system that collects electronic files for Swiss patients. In this field, Pryv is working with various hospitals, insurance companies, pharmacies, and providers of connected objects and sensors. Their aim is to provide a secure platform to support the development of personalized medicine, based on digital patient data.



RESEARCH INSTITUTES | 10

EPFL: DATA lab, Nanolab, LMAM, UPCOURTINE, UPSALATHE, VPI

HEIG-VD: HEE

CHUV: NeuroTech Foundation

UNIL: CIG, Swiss Institute of Bioinformatics (SIB)

STARTUPS | 28

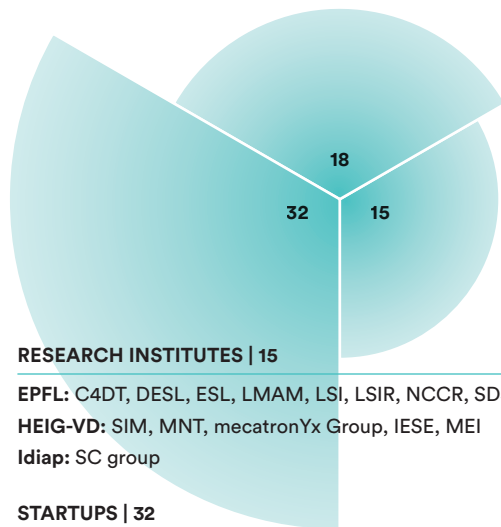
Arkimed, Asecud, Bioinnovation Solutions, Biophos, Biospectral, BrainGenetics, Cassiopee Applied Solutions, CrisaliX, EP Solutions, GenomSys, Haemonetics, Intuitive Surgical, Lambda Health System, Leman Micro Devices, Liris Tech, Lucentix, Med-eBox, My-vitality, Nevier, Pryv, SamanTree Medical, SATHeart, SmartCardia, Streamgenomics, SwissDeCode, SWISS MEDBANK, Teamnet, Xsensio

SMEs AND LARGE ENTERPRISES | 16

Abionic, Debiotech, DomoSafety, Extrapolation, Gait Up, Gene Predictis, Genohm/Agilent Technologies, IBM Watson Health, MindMaze, Nestlé Health Science, NetUnion, PhenoSystems, Saphetor, SmartGene Services, SOPHiA GENETICS, Volv Global

Internet of Things

Digitization is causing transformations within Vaud. These include automation and the exchange and analysis of data. The Internet of Things is the cornerstone of the digital revolution. Several Vaud-based companies are active in this sector, including Objectis and TCI Engineering.



RESEARCH INSTITUTES | 15

EPFL: C4DT, DESL, ESL, LMAM, LSI, LSIR, NCCR, SDSC, VPI

HEIG-VD: SIM, MNT, mecatronYx Group, IESE, MEI

Idiap: SC group

STARTUPS | 32

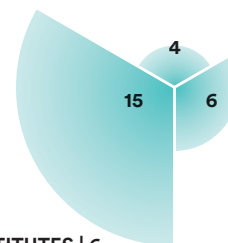
Alogo Analysis, anemomind, Aquatechnique, AreaTwin, Asecud, Advanced Sport Instruments, Biophos, Biospectal, eeproperty, Wine Technologies, GPST, Kateo, Leman Micro Devices, Livetools Technology, Mobsya, My-vitality, Novaccess, Octonion, Provatis, SamanTree Medical, Sedect, Sensima Inspection, SmartCardia, Sootech, Stignergy, SwissDeCode, TalisLife, Technis, ThinkEE, Xsensio, Zaphiro Technologies

SMEs AND LARGE ENTERPRISES | 18

AGORABee, AMRX Technology, Cisco, Cla-Val, DEPSys, DomoSafety, EcoWaste, eSMART, Logifleet, Green Motion, Objectis, Omnisens, Salt Mobile, Schick Electronic, Sensile Technologies, Swisscom, TCI Engineering, Virtual Switches

Virtual and augmented reality

Virtual and augmented reality offer a multitude of new innovations in various sectors. A host of companies and start-ups are developing a myriad of technologies. Their success builds on strong synergies with EPFL and HEIG-VD engineers. This is especially true in the case of the tech unicorn MindMaze, which has developed smart sensors to be worn during physical therapy.



RESEARCH INSTITUTES | 6

EPFL: CVLAB, IIG, RRL, VPI

HEIG-VD: mecatronYx Group, MEI

STARTUPS | 15

ArtMyn, AVK Systems, CREAL3D, Darix, Digital Kingdom, Ekstra, Furinkazan, Future Instruments, GenView, LEDsafari, Odoma, OZWE, TFC, Simpliquity, UbiSim

SMEs AND LARGE ENTERPRISES | 4

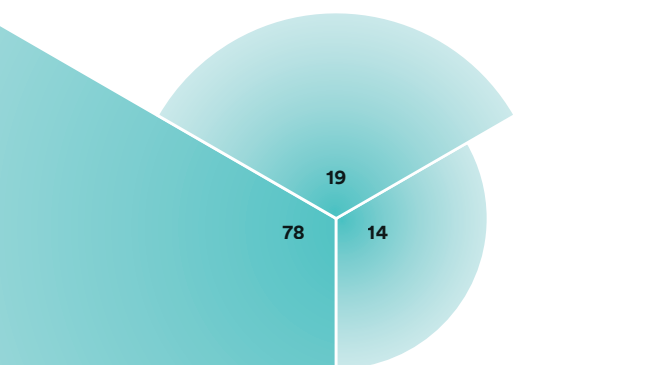
Atracsys Interactive, Intel, MagicLeap, MindMaze

Software innovation

The extensive field of software innovation demonstrates the interdisciplinarity of technologies in all of Vaud's high tech fields. Software innovation provides technical advancement across the entire canton of Vaud, in the food sector with Nestlé Health Science, a subsidiary of the Vaud-based food giant, cybersecurity with Kudelski, and in e-commerce with CashSentinel.

Blockchain

Developed in the late 2000s, blockchain is a distributed database whose information is verified and stored across all decentralized members of the network. This technology is used in all fields that require an intermediary, such as a bank, a notary, or a government employee. The company Metaco, based in Vevey, illustrates blockchain's massive potential. This Vaud company has developed an IT system that secures assets denominated in virtual currencies, such as bitcoin, in banks. As another example, Lausanne Industrial Services (SIL) is collaborating with five other cantonal industrial services to use blockchain technology to reduce transaction costs in the energy sector.



RESEARCH INSTITUTES | 14

EPFL: BIOS, C4DT, CLSE, TNE, NCCR, SDSC, VPI

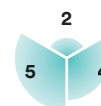
HEIG-VD: mecatronYx Group, HEE, IGT, MEI, MNT, REDS, SIM

STARTUPS | 78

Adeya, Altrove Innovation, ARCATrust, AreaTwin, AUBEP, Avalia, AVAtronics, Azbooka, Beelong, Bestmile, Bhaasha, Blue Ocean Entertainment, CashSentinel, Chréage, Concierge Maps, Connect-i, Coopacademy, Corpus Health, Dawn Technologies, Ebail, eBOP (KiWi), Educabay, eMedics, eSMART, FLON Solutions, FlySpa, Global Impact Finance, Greenastic, HMonster, Home.Global, Hoskit, INculture, InnovaKids, Immgate, IOxOS Technologies, IPSEITE, Kaelim, Kitewalk, Kiwix, Largo, Les Éditions de l'Utopie, Lifeaddwiser, Marquise Technologies, MobileMed, Monito, myBrick, Noverturn International, OneVisage, Olympe, OrientSwiss (Zoodel.com), Privately, ProcSea, Proov, PropTech Partners, Pryv, routeRANK, S.Now, Schick Electronic, ScanTrust, SD Technologies, Share A Dream Solutions, Simpliquity, SkaD Labs, Skioo, Swibeco, SWISS MEDBANK, SwissPay, Sylex, Tayo, The Insiders, Tombooks, Triplequote, TTHF Media, Vanguard Internet (Batmaid), Visto&Vista, WeGaw, Zaphiro Technologies, Ziboo

SMEs AND LARGE ENTERPRISES | 19

Akselos, Camptocamp, Cisco, Cla-Val, Crossing-Tech, EDSI-Tech, EPSITEC, Haemonetics, ID Mobile, Intuitive Surgical, Kudelski, MCR Solutions, Nestlé Health Science, Nevier, Novaccess, OnYourMap, praxo, Salesforce, Swisscom



RESEARCH INSTITUTES | 4

EPFL: C4DT, DEDIS, VPI

UNIL: DESI

STARTUPS | 5

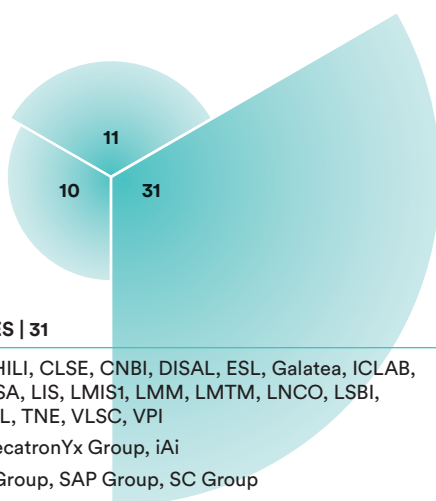
Metaco, Peerspoint, Pryv, Smart Security Systems, Sopra Steria

SMEs AND LARGE ENTERPRISES | 2

SICPA, SQLI

Robotics

Robotics is fundamental to digitalization. Like the Internet of Things and big data, robotics helps innovation flourish in many sectors. In agriculture, CombaGroup specializes in growing lettuce above the ground. The company's aeroponic system can control water consumption and thus minimize waste in the production chain. Another company, Flyability, has become a household name in aviation and drones. This EPFL spin-off designs safe robots that hold up against collisions. These robots are used to inspect inaccessible areas, effectively replacing dangerous human involvement with unmanned aircraft.



RESEARCH INSTITUTES | 31

EPFL: BioRob, BIOS, CHILI, CLSE, CNBI, DISAL, ESL, Galatea, ICLAB, ICT4SM, IRP, LASA, LIS, LMIS1, LMM, LMTM, LNCO, LSBI, LSRO, NCCR, RRL, TNE, VLSC, VPI

HEIG-VD: Comatec, mecatronYx Group, iAi

Idiap: ML Group, PAU Group, SAP Group, SC Group

STARTUPS | 10

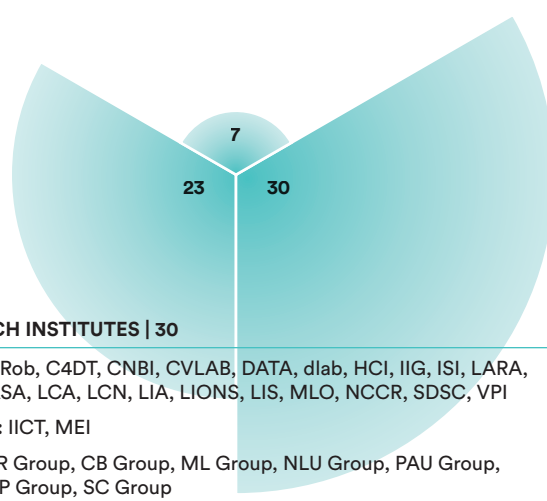
Anabatic, ASSY Fastree3D, INVOLI, Lambda Health System, Mobsya, MotionPilot, RB2.io, Rovenso, Sonceboz

SMEs AND LARGE ENTERPRISES | 11

BlueBotics, CombaGroup, ecoRobotix, FiveCo, Flyability, Force Dimension Technologies, IMINA Technologies, K-Team, MECCAD, senseFly, Wise Robotics

Artificial intelligence and machine learning

From autonomous cars to online music streaming services and chatbots, these technologies would not be possible without machine learning. This domain consists in feeding a computer massive amounts of data so it can act independently in the future. In the canton of Vaud, several companies are excelling in this area. Technis has developed smart flooring that measures and analyzes population movements. Similarly, the young enterprise NVISO specializes in facial emotion recognition. The technology would make it possible for a bank advisor to judge a customer's emotions during an interview.



RESEARCH INSTITUTES | 30

EPFL: BioRob, C4DT, CNBI, CVLAB, DATA, dlab, HCI, IIG, ISI, LARA, LASA, LCA, LCN, LIA, LIONS, LIS, MLO, NCCR, SDSC, VPI

HEIG-VD: IICT, MEI

Idiap: BPR Group, CB Group, ML Group, NLU Group, PAU Group, SAP Group, SC Group

UNIL: DESI

STARTUPS | 23

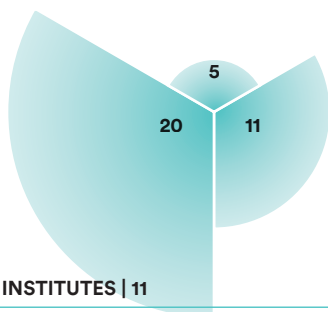
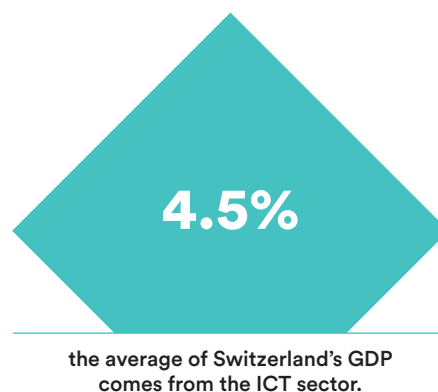
Adilem, Avalia Sytems, Axom, Cogniprise, Datapred, Deeption, Finité, Iprova, LinkAlong, L2F, LEDsafari, NVISO, Odoma, Oqtor, Picterra, Predictive Layer, RB2.io, SmartCardia, Socialease, Tayo, Technicis, Unit8, Wasabi

SMEs AND LARGE ENTERPRISES | 7

e-Parc, ecoRobotix, ELCA, NetGuardians, SOPHiA GENETICS, Swisscom, Visium

Big data

The processing and analysis of large amounts of data (big data) is popular among many companies and research institutes in Vaud. For example, the Vaud startup DomoSafety has tackled the challenge of the aging population. Using sensors and software, its product provides a real-time analysis of the behavior of at-risk patients who prefer to live at home. It then transmits the relevant information to the individual's family and healthcare professionals. In the agritech sector, big data processing provides a major advantage. Created on the EPFL campus, Gamaya uses remote sensing cameras mounted on drones to diagnose crops on a large scale and assess the condition of vast expanses of land.



RESEARCH INSTITUTES | 11

EPFL: C4DT, SDSC, VPI

HEIG-VD: IICT, IIIDE, InnovaKids

Idiap: BPR Group, PAU Group, NLU Group, SC Group

UNIL: DESI

STARTUPS | 20

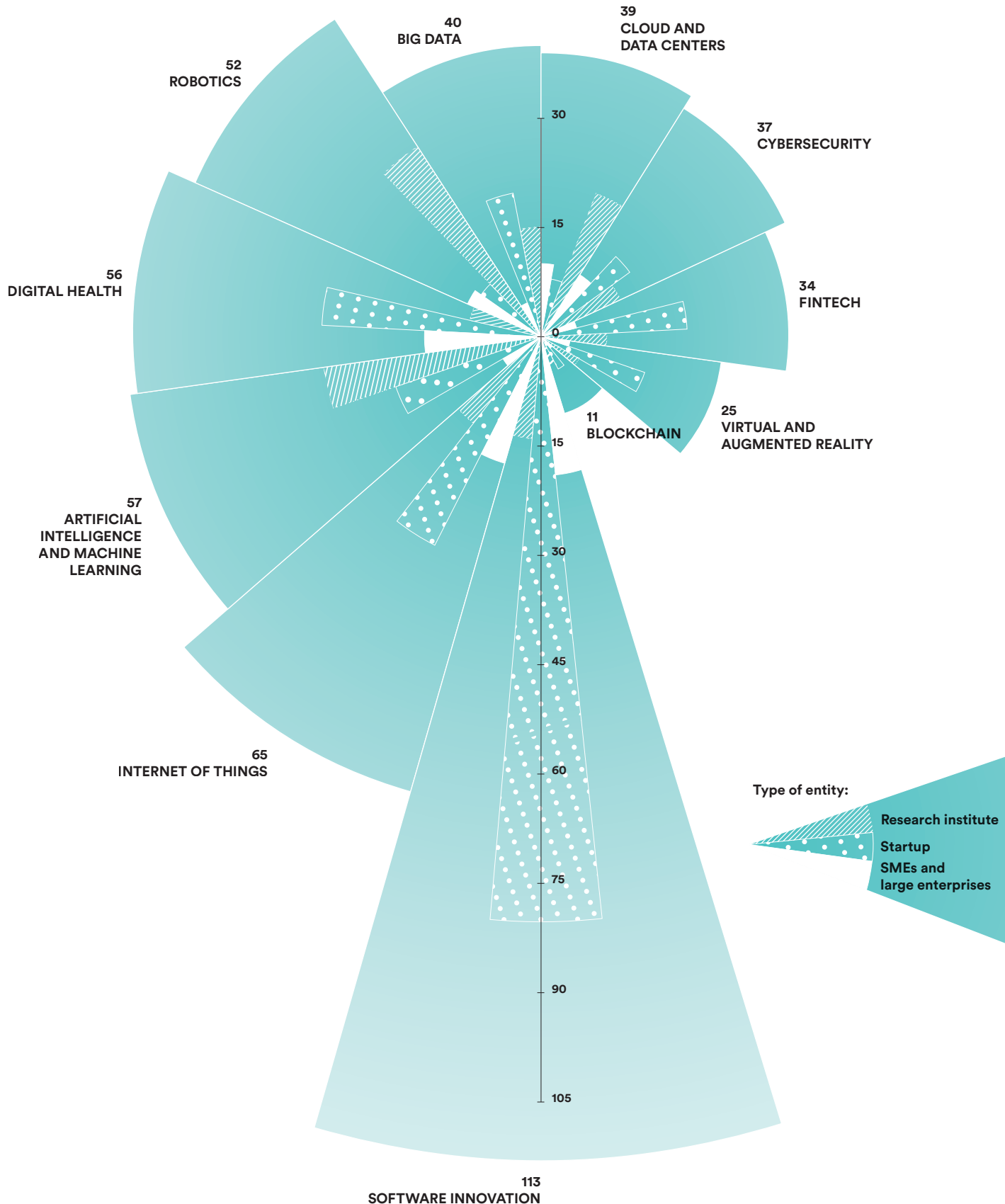
Aurora's Grid, AVAtronics, Finitly, Gait Up, Gamaya, Genohm/Agilent Technologies, Geosys, HydroMonitoring, Iprova, Kandou Bus, KITRO, Novertur International, NVISO, Picterra, Prediggo, PRODAFT, RAW-LAB, SThAR, Gene Predictis, Technis

SMEs AND LARGE ENTERPRISES | 5

Cisco, Crossing-Tech, DomoSafety, Pix4D, Swisscom

VAUD: MORE THAN 300 ENTITIES OFFERING SOLUTIONS IN DIGITAL TECHNOLOGIES

vaud.digital



A PRIORITY ON RESEARCH

Multiple Vaud-based centers offer innovation and talent in digital information technologies. Together, these structures put a priority on research.

The canton of Vaud boasts one of the most dynamic digital ecosystems in the country. This includes several research institutes, such as EPFL, UNIL-CHUV, and HEIG-VD, working hand-in-hand with the business community, with leading figures such as Logitech, Cisco, and Nestlé Health Science. Other structures contribute to helping startups flourish.

École polytechnique fédérale de Lausanne (EPFL)

EPFL's School of Computer and Communication Sciences stands out especially in information security research. It is considered to be one of Europe's top institutions for learning and research in the field of information technology.

The school is also active in algorithmic and theoretical computer science, artificial intelligence, machine learning, data management, human-machine interaction, and cryptography.

13
fields of research

4
centers and 3 groups of
specialized or transdisciplinary research

KEY DATES

EPFL paved the way for new innovations in computer science:

At EPFL, Jean-Daniel Nicoud improves the computer mouse (invented in the USA in 1963) by adding a ball and sensors. This innovation led to the creation of Logitech two years later.

The Scala programming language is invented at EPFL by the team of Martin Odersky. It is widely used today among the web giants (Netflix, Twitter, and LinkedIn).

EPFL announces and introduces its 1,000th invention. Kandou Bus allows processors to communicate with their peripheral devices (memory, printers, monitors, etc.) more quickly and more efficiently, all thanks to algorithms.

1979

2003

2010

CENTER FOR DIGITAL TRUST

Created in December 2017, EPFL's Center for Digital Trust is on track to become the digital world's authority for computer security, data protection, and privacy. The center features a panel of first-rate industrial and institutional partners, including the International Committee of the Red Cross, Lausanne University Hospital (CHUV),

and the companies ELCA, SICPA, Swisscom, Swissquote, SGS, and Swiss Re. These partners, in direct contact with industry and the population, serve to highlight the needs and concerns of their contacts in the digital world and bring together their own specialists and EPFL's researchers to solve real-world problems. The part-

ners also help with the center's funding. In addition, EPFL opened new teaching and research chairs to address matters related to digital trust. This one-of-a-kind center puts the canton of Vaud in a strong position for research in these areas, which will be crucial in the future.

School of Engineering and Management of the canton of Vaud (HEIG-VD)

HEIG-VD trains professionals on the forefront of knowledge and technology to meet the challenges of tomorrow. More than 10,000 experts have already graduated from the school. Working with the region's companies, it is involved in more than 250 R&D projects. Four institutes active in R&D related to digital technology offer direct services to the region's economy, as well as continuous training: Media Engineering Institute (MEI), Industrial Automation Institute (iAi), Information and Communication Technology Institute (IICT), and the Reconfigurable & Embedded Digital Systems (REDS) Institute.

10
areas of Bachelor
studies at HES

250
R&D projects

University of Lausanne (UNIL)

UNIL's Information Systems Institute (ISI) conducts research in about 20 fields, from algorithms to human-machine interfaces. The ISI's interdisciplinary scientific approach attracts researchers with a wide variety of skills, including management, engineering and design, mathematics and logic, computer science, biology, and cyber-crime. With about 40 employees, the institute also provides instruction on the most advanced fields of ICT.

SWISS DATA SCIENCE CENTER (SDSC)

A joint venture between two federal polytechnic schools in Switzerland (Lausanne and Zurich), the Swiss Data Science Center creates synergies among transdisciplinary researchers and data providers. These collaborations include the fields of data processing ("Big and Fast Data") and/or analytics ("machine learning and statistics"). The center also provides an analysis platform hosted on the cloud. Called "Insight Factory", it allows users to search for a scientific project, view its data, reuse it, and add more data to it. It also trains engineers in the field of data science, with two Swiss masters on the subject.

30
million in CHF received
by the center for its
starting budget

40
data experts present

INFORMATION AND COMMUNICATION TECHNOLOGY (IICT)

The Information and Communication Technology Institute at the Vaud School of Business and Engineering (HEIG-VD) is the university's largest research department. Each year, it conducts about 50 projects in applied research and development, often in cooperation with these industrial partners. Its Bachelor degree in information and communication technology (ICT) security is unique within Switzerland.

4
startups from IICT since
2007

60
employees lead and carry
out projects, under the su-
pervision of more than
20 professors and research
managers

84

research units at EPFL, UNIL, and HEIG-VD
are involved with digital technologies.

CUTTING-EDGE RESEARCH INSTITUTES

EPFL Artificial Intelligence Lab

Development of technologies in the area of artificial intelligence.

lia.epfl.ch

EPFL Center for Digital Trust

Creation of a platform bringing together researchers and economic players involved in combating cybercrime and in privacy protection.

c4dt.org

EPFL Decentralized and Distributed Systems Lab

Innovations in the following areas: secure decentralized systems, cryptocurrencies, blockchain applications and smart contracts.

ic.epfl.ch

EPFL EcoCloud Research Center

Creation of sustainable cloud computing technologies.

ecocloud.ch

EPFL Social Media Lab

Innovations in the following areas: big data and social media analysis, artificial intelligence, deep learning, graphic analysis.

socialmedialab.epfl.ch

HEIG-VD Health, Engineering & Economics

Group of multidisciplinary researchers developing solutions for the health sector.

hee.heig-vd.ch

HEIG-VD Institute for Information and Communication Technologies

Innovations in the areas of artificial intelligence and virtual/augmented reality.

iiict.heig-vd.ch

NCCR Robotics

Development of smart robots to improve quality of life.

nccr-robotics.ch

UNIL Information Systems Department

Development of tools and competencies in the area of the digital transformation.

unil.ch/desi

UNIL Swiss Cybersecurity Advisory and Research Group

Group of researchers active in areas such as cybersecurity, cybercrime, and cyberdefence.

scarg.org

CUTTING-EDGE COMPANIES

AlpVision

Established in Vevey, AlpVision specializes in protecting brands against fraud and counterfeiting. It produces software and authentication solutions.

alpvision.com

Atracsys

Active in human-machine interaction, the Puidoux-based company develops custom, high-end software (natural user interface software) for its customers, as well as a selection of hardware (multi-touch hardware).

atracsys.com

AXA Technology Services

This insurance company created a technical laboratory at EPFL to conduct testing and support the digital transformation.

axa.com

Bacula Systems

This startup develops back-up, verification, and restoration software. The company is located in Yverdon-les-Bains.

baculasystems.com

Bestmile

A pioneer in the management of autonomous vehicle fleets, the Vaud-based scale-up sells its technology to be used in many cities in Switzerland and around the world.

bestmile.com

BrainServe

The Crissier data center offers physical data hosting solutions for all sorts of customers.

brainserve.ch

CA Technologies Europe

Founded in 1976 in New York as Computer Associates International, CA Technologies is active in 40 countries around the world. Its headquarters for the EMEA region is located in Morges, where the software publisher employs 50 people.

ca.com

CashSentinel

Active in fintech and e-commerce, Lausanne-based CashSentinel offers a platform for buying and selling used vehicles, using various forms of secure online payment.

cashsentinel.com

Cisco

The American telecommunications giant has its headquarters in Rolle. Its primary innovations include cloud solutions, big data, operating process automation, SmartCities, Smart Grids, mobility, the Internet of Things, and digital health.

cisco.com

Cla-Val

Operating in Lausanne since 1983, Cla-Val specializes in selling and maintaining automatic control valves. Its area of expertise includes fire protection for marine and aviation.

cla-val.ch

CombaGroup

Created in 2012, CombaGroup specializes in growing lettuce above the ground. By controlling water consumption, it minimizes waste in the production chain.

combagroup.com

Coorpacademy

Based in Lausanne at the Swiss EdTech Collider at EPFL, as well as in Paris and London, Coorpacademy is at the forefront of research in the EdTech field. The startup specializes in adapting its clients' training content to new ways of learning.

coorpacademy.com

DomoSafety

The Écublens startup has created a device to analyze the at-home behavior of high-risk populations (the elderly and chronically ill) in real time and transmit the information to the individual's family and healthcare professionals.

domo-safety.com

ecoRobotix

The mission of ecoRobotix is to produce a robot that pulls weeds. The startup has developed a more environmentally-friendly and economical autonomous weeding machine. The robot is capable of spraying herbicide at the right dose and in the right location, thereby reducing costs and lowering the environmental impact of operations.

ecorobotix.com

ELCA

A historic company in the canton of Vaud, ELCA is active in IT business consulting, software engineering, and system integration. The company has designed standard and customized solutions for more than 1,000 customers in 10 years.

elca.ch

eSMART Technologies

The Écublens-based startup designs smart solutions for better energy management in buildings. Electricity, video, lighting, and heating can also be managed from an app or screen in the apartment.

myesmart.com

Flyability

Established in Lausanne, this young company specializes in designing drones that can be used in inaccessible or confined spaces.

flyability.com

Gait Up

Recently acquired by MindMaze, this company designs and sells portable technologies in the fields of health, entertainment, and sports, particularly for the analysis of movements using connected objects and accessories.

gaitup.com

Gamaya

The EPFL-based company is active in the analysis of agricultural plots using hyperspectral imaging and artificial intelligence to optimize the use of chemicals, identify illnesses, and more.

gamaya.com

Geosys

Active in technologies for agriculture and big data, this Morges company designs decision-support tools based on satellite imaging, geographic information systems, the latest agronomic research results, and the web.

geosys.com

Kandou Bus

Behind the concept of chordal codes, Kandou Bus is active in electronic, information theory, mathematics, and algorithms.

kandou.com

Kudelski

At Cheseaux-sur-Lausanne, Kudelski is active in digital security and solutions in media. It is responsible for the first portable audio recorders and television decoders.

nagra.com

LIGHTBEND / SCALA SOLUTIONS

The startup Typesafe, which changed its name to Lightbend in 2016, was founded at EPFL in 2011 by the creator of the Scala language, Martin Odersky. This programming language was designed to express current programming models in a concise, elegant manner, representing a minor revolution in programming. Since its creation, the language has been used to develop 141 projects, accounting for 2.8 million lines of code. Scala is currently used by many companies, from web-based companies like Twitter, Foursquare, and LinkedIn to companies in other sectors, like France's EDF, Siemens, and the English newspaper *The Guardian*, all of which have adopted this language, lauded for its conciseness and efficiency, at various levels. Lightbend is still in operation in Switzerland and now has an office in San Francisco. The company has product development operations and commercial activities at both sites.

lightbend.com

LOGITECH

At EPFL in 1979, Jean-Daniel Nicoud improved the computer mouse (invented in the USA in 1963) by adding a ball and sensors. This new innovation would lead to the creation of Logitech two years later, in Apples, in the district of Morges. Over the years, the company became a global leader in computer devices (mice, keyboards, and accessories for game consoles, digital music, and multimedia systems). Logitech distributes its products in more than 100 countries and has offices in major cities throughout North America, Europe, and the Asia-Pacific region. Its EMEA headquarters is still located in the canton of Vaud, in Écublens, at the EPFL Innovation Park.

“I believe in the potential of the Lake Geneva region, and I personally support various innovative projects. Logitech is also active in this field and supports venture capital in the region through an incubator at EPFL,” said Daniel Borel, founder and member of the company’s executive team a few years ago. In his opinion, the canton of Vaud’s main assets are “primarily the quality of people we can hire here and the quality of life in the region. It’s important to be able to attract and retain talent. The region has top quality infrastructure, and local governments are eager to support businesses. Little by little, a critical mass of high-tech companies are forming, and I hope that the Lake Geneva region will one day become a new Silicon Valley.”

logitech.com

Magic Leap

Established in Lausanne since 2018, Magic Leap is one of the most promising Amercian startups. Active in the field of augmented reality, it acquired Lemoptix and Composyt Light Labs from Intel in 2019. The technology developed by EPFL’s two spin-offs allows virtual reality glasses to project information directly onto the retina.

magicleap.com

Metaco

Created in 2014, Metaco specializes in creating blockchain-based technology solutions for the financial sector.

silo.metaco.com

MindMaze

This EPFL spin-off has developed a neurological rehabilitation platform that combines neural sensors, cameras, and synthetic images. The startup fits the category of unicorns, used to describe young companies valued at more than \$1 billion.

mindmaze.com

Nestlé Health Science

Created in 2011, Nestlé Health Science, an entity of the Vaud-based food giant, operates within the food segment to prevent chronic disease.

nestlehealthscience.ch

NetGuardians

Established in Y-PARC, the fintech firm NetGuardians is developing an anti-fraud, digital compliance platform.

netguardians.ch

Objectis

Active in industrial computer science, Objectis, from Yverdon-les-Bains, is developing software solutions for new generations of machinery.

objectis.com

NEXTHINK

Based in Prilly, in the canton of Vaud, Nexthink offers solutions to help large companies manage their digital experience. This software company provides its customers with the information they need to control their costs, reduce their IT problems, and keep their data secure. Nexthink develops its products with 60 engineers from the canton of Vaud.

Another 10 employees manage business throughout the French-speaking region of Switzerland. Some 30 others handle the company’s administration and financial matters in Switzerland and abroad. The company, which now has 800 customers worldwide, has received economic development assistance from the canton of Vaud since its start in 2014.

nexthink.com

Pix4D

Active in photogrammetry and software development, Pix4D is developing a software to create professional, geo-referenced maps and models from drone captures.

pix4d.com

Safe Host

Specializing in physical data hosting, Safe Host opened Switzerland's largest data center in Gland. It also operates data centers in Geneva and Avenches.

safehost.com

Salesforce

Located in Morges, Salesforce sells cloud-based CRM (customer relationship management) platforms.

salesforce.com

Salt Mobile

The third largest telephone operator in Switzerland has its headquarters in Renens.

salt.ch

ScanTrust

This company, which specializes in producing secure QR codes to authenticate brands and protect against counterfeiting, is based in the EPFL Innovation Park.

scantrust.com

senseFly

Created in 2009, this company develops drones capable of producing highly accurate 3D maps of large areas and inspecting buildings and artwork.

sensefly.com/

Sensile Technologies

This Morges-based company provides companies with solutions for measuring oil tanks remotely.

sensile.com

SICPA

This company develops authentication and identification solutions and protects identity documents. It is the world's first provider of ultra-secure ink for banknotes.

sicpa.com

SOPHiA GENETICS

SOPHiA GENETICS develops solutions for analyzing genomic data. It dissects and analyzes the patient's molecular information, provides a diagnosis, and suggest a personalized treatment.

sophiagenetics.com

Strong.codes/Snap Suisse

A spin-off from HEIG-VD, strong.codes develops solutions to protect application code. It was purchased by Snap, the Swiss subsidiary of Snapchat.

snap.com

SwissBorg

The Lausanne-based fintech is trying to become the first blockchain-based wealth management platform. It is designed as a democratic, decentralized financial ecosystem that can help its members manage their portfolio of cryptographic assets. Its services are executed by an algorithm, thereby eliminating any risk of hacking or manipulation.

swissborg.com

Swisscom Digital Lab

This subsidiary of the national telecoms operator works in the digital transformation of organizations. It also helps active digital technology startups to develop projects quickly.

swisscom.ch/fr/business/enterprise/actualites/digital-lab.html

Swissquote

Active in fintech, the Gland-based company designs solutions for online banking and trading services.

swissquote.com

Teamnet

This Lausanne-based company is active in the e-government, e-health, and smart cities sectors. It has developed a one-stop-shop platform for digital health solutions, drones, and more.

teamnet.ro

Vizerra

This startup designs software that produces a 3D view of an architectural or industrial project to identify any critical errors related to its planning.

vizerra.com

Webloyalty International

Active in e-commerce, this Eysins-based company innovates in online sales on behalf of other companies.

webloyalty.ch

NETWORK OF SUPPORTING PARTNERS

Having good ideas isn't enough. You have to know the right people to make those ideas grow. The canton of Vaud has a dynamic network in digital technology, based on public and private ventures.

CLUSTER Alp ICT

Alp ICT is the bridge between Swiss digital innovation and industry. Its network grows by 12% each year and now totals more than 950 companies. To help IT companies to network, it organizes around 50 events every year. The seven areas it targets are fintech, smart factories, smart cities, cybersecurity, wearables, e-tourism, and digital health. The organization also monitors digital innovation news in Switzerland.

alpict.com

Biopôle

An innovation park dedicated entirely to life sciences and inaugurated in 2004, Biopôle is home to more than 50 firms and institutes, including several headquarters of multinationals and innovative SMEs, employing more than 1,200 professionals.

biopole.ch

Cautionnement romand

Cautionnement romand is an organization that supports any business creation, development, takeover, or succession by financing machinery, tools, equipment, inventory, and working capital, through bank loans, for a maximum period of 10 years – depending on the project – and not exceeding CHF 1 million.

cautionnementromand.ch

Economic Development – Canton of Vaud (DEV)

The DEV is the main contact for foreign companies seeking to set up business in the region. To fulfill its mission, DEV works with both private (banks, notaries, lawyers, etc.) and public (other government services) partners. The agency provides guidance on administrative procedures and helps newly arrived businesses access the region's vast network.

dev.ch

CLUSTER DIGITALSWITZERLAND

Founded in 2015, digitalswitzerland aims to make Switzerland a hub for digital innovation through supporting companies, providing training, and networking. With strong public-private collaboration, the association's members include large companies (ABB, UBS, Swisscom, Migros, Coop, Adecco, etc.), research institutes (EPFL, EPFZ), NGOs (International Committee of the Red Cross), and governments (Canton of Vaud).

digitalswitzerland.com

INNOVAUD

Innovation gateway for the canton of Vaud, Innovaud supports startups and SMEs and helps them network to develop solutions for hosting, promotion, financing, and/or coaching. Innovaud is rooted in a vast network of partners, making it possible to direct requests to the best-suited organizations to meet each need. Innovaud focuses on high tech and innovative fields, including IT and digital technology.

innovaud.ch

EPFL Innovation Park

Established next to EPFL, the EPFL Innovation Park houses more than 160 companies, among 14 buildings, covering a surface area of 55,000 m². More than 2,000 researchers, engineers, scientists, and government workers spend their days there. Mixing research and business, the EPFL Innovation Park is in high demand by any innovative company, from startups to multinationals seeking to set up business there, collaborate, and work with the campus.

epfl-innovationpark.ch

Foundation for Technological Innovation (FIT)

The FIT issues grants and loans (ranging from CHF 100,000 to CHF 500,000) to support the development of innovative technological projects at various stages of their development.

fondation-fit.ch

InnoSuisse

Innosuisse is the Swiss Innovation Agency. It is responsible for encouraging knowledge-based innovation in Switzerland through financial support, consulting, and professional networks.

innosuisse.ch

Les Ateliers de Renens

This innovation park in western Lausanne is dedicated to training and design. To any company wanting to set up business there, it offers 10,000 m² of industrial and administrative space. Companies there also benefit from the skills of the Lausanne Cantonal School of Arts (ECAL), frequently ranked among the top 10 art and design schools in the world.

ateliersvdr.ch

Office for Economic Affairs and Innovation (SPEI)

The SPEI supports companies established in the canton of Vaud, particularly those active in industry and advanced technologies. The SPEI provides consulting and information to entrepreneurs and connects them with suitable organizations based on their specific needs. The SPEI can also provide direct financial support.

invest-vaud.swiss

Technopôle Ste-Croix

An innovation park dedicated to microtech with numerous specializations. AddiPole is a center of excellence in the field of additive manufacturing.

technopole1450.ch

Y-PARC

Created in 1991, this technological park in Yverdon-les-Bains is the first of its kind in Switzerland. It is also one of the largest, spanning 50 hectares. This center of excellence is home to more than 150 companies and startups. Y-PARC has a diverse, comprehensive infrastructure – land for sale, places to lease, business incubators, etc. – and support services for any need. One of its top research areas is computer security, particularly with the on-site presence of NetGuardians and eStrong.codes.

y-parc.ch



45%

of Vaud companies will use machine learning-based applications in 2022 (compared to 8% today).



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