✚ **SWITZERLAND GLOBAL ENTERPRISE**

KEY FIGURES

2.2
CHF billion
expenditure in Swiss ICT
security market

31.4
CHF billion
total sales Swiss ICT
industry

1,106
Swiss patents in
network security (2017)

> 50%
of global digital policies
happen from Geneva

Sources: DiploFoundation;
BAK Economics, 2018

SWITZERLAND AS A CYBERSECURITY LOCATION

AT A GLANCE

Switzerland's strengths such as neutrality, legal certainty and political stability are also valid in the cybersecurity sector. Its greatest asset lies in a high level of privacy protection and a low density of regulations. Switzerland has a top-notch internet infrastructure in comparison to other countries. Its reliable and cost-effective power supply ensures flawless operation of servers in data centers and security operations centers (SOCs). Furthermore, Switzerland provides a large pool of specialized engineers in cybersecurity, attracting top tech giants to build their research hubs here.

In its humanitarian tradition, Switzerland is making an important contribution to improving cybersecurity across the world and to promoting a peaceful use of ICT. The country hosts many organizations, such as the Internet Society, the Internet Governance Forum (IGF), DiploFoundation, the International Telecommunication Union (ITU), ICT4Peace, the Geneva Centre for Security Policy (GCSP), and the WEF Cyber Security Center.

Switzerland. ✚
Trade & Investment Promotion

RESEARCH AND DEVELOPMENT (R+D)

- Switzerland's expertise is defined by excellence in engineering, encryption and algorithms. The country has a strong commercial base in the areas of security and encryption, with companies such as Kudelski, OneConsult, Infoguard, Omnisec, Securosys and IDQuantique, a world leader in quantum cryptography. In addition, many companies in Switzerland offer niche services in all important areas of cybersecurity with a strong hands-on approach.

- As security concerns become increasingly important in hardware manufacturing, there is a growing demand for better manufacturing processes that provide optimal device security. Swiss companies such as Securosys have built an international reputation for the reliability, quality and end-to-end security of "Swiss Made" products and manufacturing methods. The encryption for mobile phones is particularly good in Switzerland, since small companies, mainly spin-offs from the Swiss Federal Institutes of Technology in Zurich (ETHZ) or Lausanne (EPFL), offer cutting-edge technology.

- The biggest cyber security segment in Switzerland is network security. In 2017, there were 1,106 patents from Switzerland in this field; 151 of these were ranked as top impact patents. In the field of hardware security, patent numbers in Switzerland have climbed from 61 to 847 since 2000.

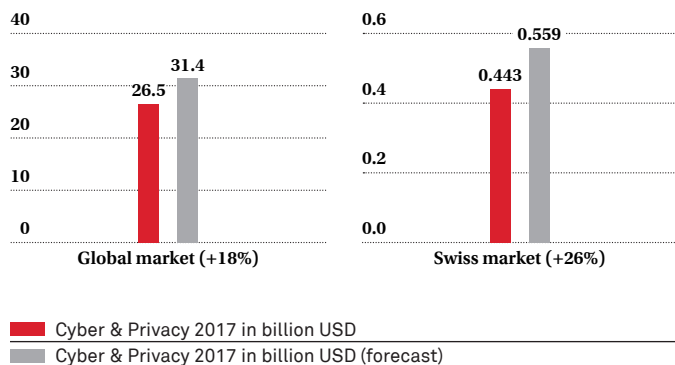**Top Research Companies in Terms of Patent Portfolio Size**

Hardware	Network	Authentication
IBM	IBM	Kudelski
Kudelski	Cisco	Swisscom
Alphabet	Kudelski	Alphabet
Nokia	Swisscom	Schindler Holding
UBS	Nokia	SICPA
Intellectual Ventures	Qualcomm	IBM
Siemens	ABB	Dormakaba
Western Digital	Adobe	Glory Ltd.
Oracle	Alphabet	Amadeus IT Group
Intel	ID Quantique	Swatch

Source: BAK Economics, 2018

- Geneva is already a recognized center of excellence in the field of internet governance, with key organizations such as the Internet Society, the ITU and the Secretariat of the Internet Governance Forum. The city is home to more than 50% of global internet activity.

- ETHZ has one of the world's top five cybersecurity teams at its disposal. The cross-sectoral Zurich Information Security & Privacy Center (ZISC) was founded back in 2003 at ETHZ; it provides clear technical focus to develop solutions to the growing challenges of information security together with industry and politics. The scientists at ETH-ZISC work on next-generation networks, cyber-physical systems and cryptography.

- The researcher Adrian Perrig is developing the new SCION internet architecture at ETH Zurich's Institute of Information Security. Among other things, this security architecture prevents unwanted redirects (via centralized control codes) and provides advanced protection against cyberattacks. The Swiss National Bank SNB also has a pilot project with SCION.

Cybersecurity Market in the World and in Switzerland

Global market (+18%): Cyber & Privacy 2017 in billion USD = 26.5; forecast = 31.4
Swiss market (+26%): Cyber & Privacy 2017 in billion USD = 0.443; forecast = 0.559

- Cyber & Privacy 2017 in billion USD
- Cyber & Privacy 2017 in billion USD (forecast)

Source: PwC Digital Services; Gartner, 2018

- The Idiap research institute in Martigny has made a name for itself internationally with its Swiss Research and Evaluation Center for Biometric Security. Idiap was chosen as the only European partner in Google's exclusive Abacus research project. IARPA, the US intelligence department, has also partnered with Idiap for spoofing attacks.

- Switzerland is responding to increased demand for experts with new chairs and programs. To this end, work is underway at the Swiss Federal Institute of Technology Zurich (ETHZ) to create two new continuing education courses in cybersecurity. The Lucerne University of Applied Sciences and Arts is offering a bachelor's degree in information and cybersecurity from autumn 2018, and the professional association ICT-Berufsbildung Schweiz is planning a Federal Certificate in IT Security together with business and the army.

- Many Swiss regions, such as the Swiss Crypto Valley around the area of Zug, boast an innovative scene of startups that leverage blockchain based technologies for secure data processing, from smart contracts to crypto currencies.

COSTS AND FINANCING

- In 2017, the first Swiss-based accelerator focusing exclusively on cybersecurity was launched in Geneva. The Rising Star Accelerator offers potential startups from across Europe a 24-week training and networking program to prepare them for market entry.

Secure Internet Servers in Europe
Number of secure Internet servers per million inhabitants, 2017

Country	Number
Liechtenstein	11,018
Isle of Man	4,825
Monaco	4,234
Iceland	3,162
Switzerland	3,063
Netherlands	2,906
Luxembourg	2,634
Norway	2,077
Malta	1,906
Finland	1,791

Source: World Bank, 2017

FRAMEWORK CONDITIONS AND MARKET ENTRY

- The Swiss government also recognizes the growing importance of cybersecurity. On April 18, 2018, the Federal Council adopted the newly developed "National strategy for the protection of Switzerland against cyber risks (NCS)" for the years 2018-2022. The main components of the strategy are the development of skills and knowledge, the promotion of international cooperation and the strengthening of incident and crisis management and cooperation in cyber prosecution, as well as cyber defense measures by the army. The increased awareness drives demand for cybersecurity solutions and leads to an increased need for experts.

- Since 2004, the Reporting and Analysis Centre for Information Assurance (MELANI) has been providing information on cyber security threats and policies to individuals, businesses and selected operators of critical national infrastructures. The Swiss Federal Council has also been commissioned by Parliament to create a center of excellence for cybersecurity at national level.

- Compared to the US, for example, Switzerland offers significantly greater legal protection for personal data. Due to the rapid technological developments of recent years, an update of the Swiss Data Protection Act is underway. Swiss laws are also being adjusted to data protection legislation at the European level (EU GDPR) to ensure equivalence of the data protection levels between Switzerland and the EU.

- The future of cybersecurity is strongly linked to developments in the fintech industry and vice versa. As a fintech location, Switzerland already has a strong position on the world market, due to its historically established reputation as a secure and stable financial center. The Swiss authorities are working proactively to make regulatory adjustments that will facilitate market access for new business models.

- The nationwide initiative digitalswitzerland has set itself the goal of making Switzerland a leading digital business location for the cybersecurity industry, among others. Various measures are being implemented, which are supported by the government as well as by large companies from the industry such as Google, UBS or Swisscom.

- In June 2017, Federal Councilor Guy Parmelin, Minister of Defense, signed the Action Plan for Cyber Defense (APCD). This APCD will greatly strengthen Switzerland's defense mechanism in the fight against cyber threats. It will create 150 to 170 jobs by 2020. Cooperation between business, the authorities (military) and Swiss universities is a core content of the APCD.

TESTIMONIAL

"We are a global market leader in the field of data security and back-up services covering all cyber protection needs. In 2008, we established our international headquarters in Schaffhausen, Switzerland. We are working on the launch of Singularity City, a Hub for Technology and Innovation. From our base here in Switzerland, we can access the rest of Europe and the rest of the world very easily. Other benefits of the location are political and economic neutrality and stability, the support for education and the sciences and the presence of so many international technology and business centers."

JOHN ZANNI
President Acronis
www.acronis.ch

CURRENT DEVELOPMENTS

• Due to its political neutrality and its top position as a high-tech location, Switzerland is in an ideal starting location to create new "digital trust". For this reason, the EPFL announced the establishment of a "Center for Digital Trust" at the end of 2017. Together with partners from politics and business, the center intends to become a platform of excellence in matters of cybersecurity, data protection and privacy. In this framework, two new chairs were also founded at EPFL by 2018.

• To counteract the global threat of cyberattacks, the World Economic Forum (WEF) announced in early 2018 that it would open a global center for cybersecurity in Geneva with around 40 full-time jobs. Headquartered in Switzerland, the new center is an independent institution led by the WEF; it aims to help establish a secure global cyberspace and enhance collaboration between individuals and governments worldwide. In addition, an association was created to help fintech companies and data aggregators to improve their cybersecurity.

CONTACTS AND FURTHER INFORMATION

Authorities and regulators
Federal IT Steering Unit (FITSU)
www.isb.admin.ch

MELANI, Reporting and Analysis
Centre for Information Assurance
www.melani.admin.ch

FDFA, Federal Department of
Foreign Affairs, Division for Security
Policy (DSP)
www.eda.admin.ch

DDPS, The Federal Department of
Defense, Civil Protection and Sport
(DDPS)
www.vbs.admin.ch

FINMA, Swiss Federal Financial
Market Supervisory Authority
www.finma.ch/en

Innovation and startup support
www.ifj.ch
www.innosuisse.ch
www.kickstart-accelerator.com
www.risingstaraccelerator.ch
www.startupticker.ch
www.zisc.ethz.ch

Associations and networks
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www.digitalswitzerland.com
www.diplomacy.edu
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Publications
Swiss Venture Capital Report 2018
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S-GE Resources
Fact Sheet Data Centers
in Switzerland
www.s-ge.com/data-centers

Handbook for Investors
www.s-ge.com/
handbookforinvestors

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