☩ **SWITZERLAND GLOBAL ENTERPRISE**

KEY FIGURES

1st
place –
Global Innovation
Index (WIPO)

1st
place –
Global Talent
Competitiveness Index
(INSEAD)

1st
place –
impact of AI
publications per country

3rd
place –
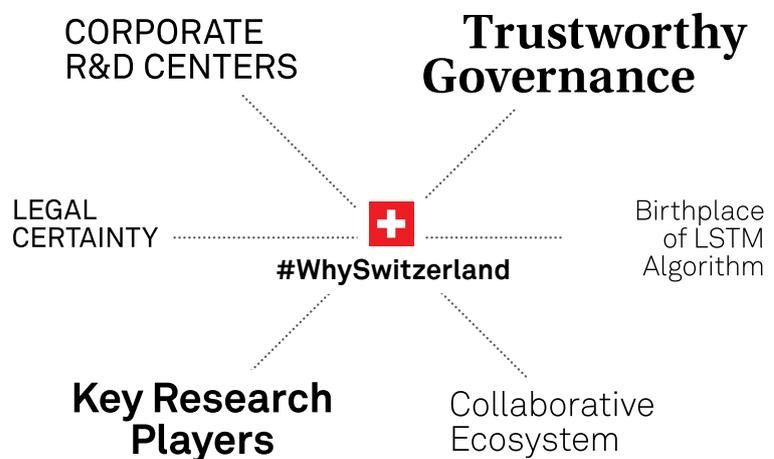top AI patents
per million population

Sources: WIPO, 2020; INSEAD, 2020; Times Higher Education, 2017; SERI, 2019

SWITZERLAND – A TRUSTED HUB FOR ARTIFICIAL INTELLIGENCE (AI)

INTRODUCTION

Switzerland is home to world-renowned universities and research institutes in the area of AI, such as the two federal institutes of technology ETH Zurich and EPFL in Lausanne, IDSIA in Lugano, IDIAP in Martigny, and many cantonal universities. This proximity to cutting-edge research is one important reason why multinational tech leaders such as Google, IBM, and Microsoft conduct their AI research from here. Thanks to its traditional strength in the field of life sciences, Switzerland also drives AI developments in healthcare and pharma. There is a collaborative tech ecosystem in place that fuels partnering opportunities and a high level of innovative output.

Switzerland provides a very stable political and economic environment that offers globally active companies a safe place to host and validate their main assets: data. Trustworthy governance and legal certainty lead to reduced risks for companies, which benefit from an unbureaucratic support from cantons and the government.

CORPORATE
R&D CENTERS

**Trustworthy
Governance**

LEGAL
CERTAINTY

☩

Birthplace
of LSTM
Algorithm

#WhySwitzerland

**Key Research
Players**

Collaborative
Ecosystem

THE ADVANTAGES OF SWITZERLAND

1. Strong Research and Efficient Technology Transfer

Switzerland is home to many **leading AI research institutes** spread out over a manageable geographical area. This closely-knit network and a **pragmatic collaboration between key research institutes and strong industrial players** results in the highly efficient transfer of technology, which brings innovative products to the market quickly.

Why Switzerland:

- The Swiss Federal Institutes of Technology in Zurich and Lausanne (**ETH Zurich** and **EPFL**) rank among **the world's best technological universities**. Their IT departments and established AI labs (**LIS** at EPFL, **ASL** at ETH Zurich, and the newly opened **ETH AI Center**) are renowned research labs for both Swiss and international AI research.

- The Dalle Molle Institute for Artificial Intelligence **(IDSIA),** based in Lugano, Canton of Ticino, was founded in 1988. It has gained international recognition for the invention and development of **long short-term memory (LSTM)** in the 1990s, an algorithm that is now used by Google, Facebook, and Apple for speech recognition. IDSIA is also where the key scientists and technologies of **DeepMind** emanate from, an AI company acquired by Google for 500 million US dollars just four years after its formation.

- The independent **IDIAP Research Institute** in Martigny, Canton of Valais, has been examining AI topics since 1991. It has developed an international reputation for itself, mainly with its Swiss Center for Biometrics Research and Testing.

- The **University of St. Gallen (HSG)** is aiming to become a research hub for AI. It was the first Swiss university to acquire an NVIDIA DGX-2 supercomputer, considered to be the most powerful AI system in the world.

"Here we found a favorable operating environment and a profound pool of talent. We received great support with all administrative procedures, including finding office premises and facilitating introductions to relevant academic and R&D institutions [...]."

ULJAN SHARKA
CEO iGenius, Martigny

- Other AI-relevant research institutes are the Swiss Center for Electronics and Microtechnology (CSEM), the Swiss Academy of Engineering Sciences (SATW), the Lucerne University of Applied Sciences and Arts, Fondation Botnar, the Paul Scherrer Institute (PSI), the Swiss Institute of Bioinformatics (SIB), as well as the Universities of Basel, St. Gallen, Neuchâtel, Geneva, and Zurich.

- Home to top global pharmaceutical players such as Roche and Novartis, Basel's thriving ecosystem of big pharma and life sciences is driving global AI developments in healthcare forward. Basel has also been the host city of **"Intelligent Health AI,"** the world's leading AI in medicine summit series, for two years in a row.

- Switzerland has a **high level of innovation output**; in proportion to its population, Switzerland boasts the **third highest number of AI patents** in an international comparison. Thanks to its traditional strength in the life sciences industry, Switzerland scores particularly well with AI patents in the healthcare sector.

- For the past ten years, Switzerland has ranked at the **top of the Global Innovation Index** (WIPO). According to the corresponding report, the country is **most effective in transforming innovation investment into results**. In addition to substantial investment in research and development, Switzerland's consistently strong position is due to the high quality of local universities and extensive human resources. In an in-depth data analysis of Times Higher Education, which looked at the impact of AI publications by country (from 2011-2015), Switzerland comes out on top.

A PREFERRED R&D LOCATION FOR GLOBAL TECH COMPANIES

The proximity to cutting-edge research has prompted a substantial number of global tech companies to conduct their AI research from Switzerland.

- **Google** has its biggest research operation outside of the United States in Zurich and tackles AI solutions through the "Google Brain" team that is based here.

- In 2019, **Hewlett Packard Enterprise** opened a new IoT Innovation Lab in Geneva to help customers capitalize on the vast amounts of data generated by devices, machines, assets, and sensors at the edge.

- The **IBM** Research Lab in the Canton of Zurich works intensively on AI. It was founded in 1956 as the IT company's first lab outside of the United States and is now one of twelve global research labs.

- In 2019, the Basel-based pharmaceutical company Novartis established the **Novartis AI Innovation Lab** with Microsoft as a strategic partner. The lab will be located at the Novartis campus in Switzerland, the United States, and the United Kingdom.

- Other multinational companies that conduct extensive AI research from Switzerland include Apple, Disney, Facebook, Huawei, Magic Leap, and Microsoft.

2. Data Safety in a Reliable Environment

Switzerland is a location of contrasts, standing for emerging technology as well as traditional values such as **trust and safety.** Its stable political and economic environment offers globally active companies a **safe place to host and validate their data.** The combination of high data security and data quality, political stability, and legal certainty leads to **reduced risks** for companies.
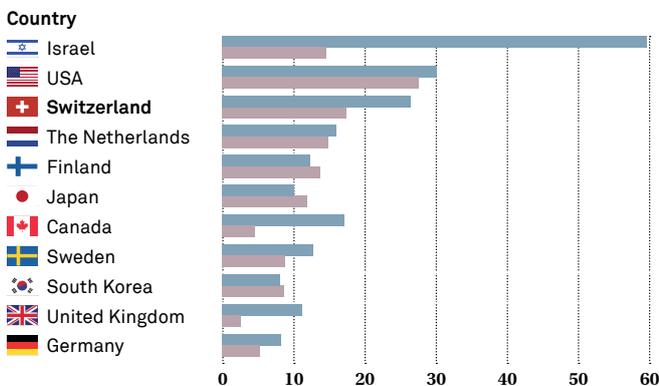
Why Switzerland:

- Switzerland provides a regulatory framework that is innovation-friendly and progressive. Authorities are pragmatic and approachable, including on a cantonal level. Contrary to many other countries, Swiss laws are formulated in a technology-neutral way. Regulations are clear and transparent, which provides a regulatory environment that allows AI companies to operate within **high legal certainty**.

- The Swiss legal system, being both stable and liberal, offers both **significant protection for intellectual property** and a high degree of investment security for R&D activities.

- Switzerland has turned itself into a **center for the storage of sensitive data**. It provides a large number of data centers with excellent server infrastructure, rapid internet connections, and a stable and cost-effective power supply, as well as highly qualified technicians to operate them.

- Geneva has become a recognized center of excellence in the field of internet governance and has taken on **a leading role in shaping an ethical and globally accepted standardization framework for AI.** It is here, for example, that the AI for Good Global Summit takes place, a United Nations platform, organized by the Geneva-based International Telecommunication Union (ITU), that aims to use AI in order to tackle global challenges.
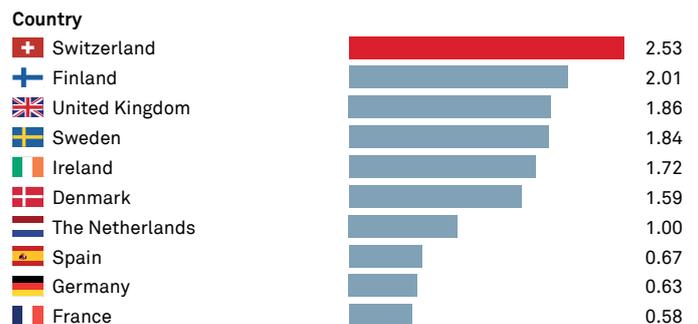
3. A Collaborative Tech Ecosystem

Switzerland has a flourishing **technology ecosystem** that comprises established companies, startups, leading research, an experienced talent pool and a pragmatic regulatory framework. The high density of international headquarters and NGOs helps AI companies to find clients and collaboration partners easily.

Why Switzerland:

- Companies in Switzerland can draw on a large and diverse pool of **highly qualified personnel** with an affinity for new technologies. Not only do the country's top AI research institutes offer a steady stream of new talent, but its high quality of life and excellent working conditions also make it very attractive in terms of gaining and retaining international talent.

- With its high density of leading AI research institutes, Switzerland has attracted many global tech companies which have decided to conduct their AI research from here. Their presence nurtures a dynamic AI cluster with strong innovative output and an experienced talent pool.

- Switzerland has very **strong industry clusters in pharma, finance, and health tech**, which are fueling the AI ecosystem significantly.

- Switzerland borders large markets like France, Germany, and Italy, which gives companies easy access to **reach potential customers**.

Leading European AI Nations
By population

Country

🇨🇭 Switzerland		2.53
🇫🇮 Finland		2.01
🇬🇧 United Kingdom		1.86
🇸🇪 Sweden		1.84
🇮🇪 Ireland		1.72
🇩🇰 Denmark		1.59
🇳🇱 The Netherlands		1.00
🇪🇸 Spain		0.67
🇩🇪 Germany		0.63
🇫🇷 France		0.58

Source: Asgard – Human Venture Capital for Artificial Intelligence, 2017

AI R&D in International Comparison
Number of world-class AI patents in 2018 (per million population)

■ by R&D location ■ by location of headquarters

Country

🇮🇱 Israel
🇺🇸 USA
🇨🇭 **Switzerland**
🇳🇱 The Netherlands
🇫🇮 Finland
🇯🇵 Japan
🇨🇦 Canada
🇸🇪 Sweden
🇰🇷 South Korea
🇬🇧 United Kingdom
🇩🇪 Germany

0 10 20 30 40 50 60

Source: State Secretariat for Education, Research and Innovation SERI (2019):
AI – Interdepartmental Report to the Federal Council

Case Studies

- IT company **Acronis** is a global leader in AI-based back-up software and recovery. In 2008, it established its headquarters in Schaffhausen to benefit from access to the European market, the presence of global tech and business centers nearby, and political and economic stability.

- The startup **Sophia Genetics**, based in the Canton of Vaud, was founded in 2011 as an EPFL spin-off. Through its AI platform it established the world's largest data-driven medicine community network and now serves more than 1,000 hospitals in 82 countries.

- Founded in 2014 and based in Switzerland and the United States, **NNAISENSE** is one of the leading research teams worldwide in the field of AI. The Company leverages a 25-year proven track record in AI to build large-scale neural network solutions for superhuman perception and intelligent automation. Over the last five years, it has successfully partnered with major players in diverse industries.

- **recapp**, an IDIAP spin-off, has the potential to become a leading provider in the area of multilingual automated speech recognition. The Swiss technology is based on AI and permits the development of efficient and adaptable automated speech recognition systems that adapt quickly to new dialects, languages and speakers.

- The **Mindfire Foundation** was founded in Switzerland in 2017 with the goal of developing a powerful, human-centric form of AI to address the complex global challenges. It builds on Switzerland's proven track record as a hub for groundbreaking science, technology, and philanthropy, reflecting the country's values of responsibility and trust.

- In 2017, Switzerland-based **ABB** entered a strategic partnership with **IBM** to develop industrial AI solutions. The partnership brings together ABB's digital offering, ABB Ability, and IBM's supercomputer **Watson,** in a bid to develop solutions in industry, transport, infrastructure, and utilities.

- Founded in the United States in 2016, **4th-IR** is now based in Switzerland and develops state-of-the-art products that make AI accessible for everyone. The company has its headquarters in Lucerne, with offices in New York and Vancouver.

CONTACTS AND FURTHER INFORMATION

Authorities and Regulators
State Secretariat for Education,
Research and Innovation SERI
sbfi.admin.ch

Innosuisse –
Swiss Innovation Agency
innosuisse.ch

Associations and Networks
aiforgood.itu.int
c4dt.org
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Swisscom AI Startups Map

S-GE Resources
Tech Location Switzerland
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Handbook for Investors
s-ge.com/handbookforinvestors

More factsheets on
Switzerland as a business location
s-ge.com/factsheets