The Silicon Valley of Robotics

Rolf Bühler, Director Europe, November 21, 2023

Greater Zurich Area
A successful Public-Private-Partnership

Supported by more than 30 companies,
11 local governments and Switzerland's leading
universities including ETH Zurich & University of Zurich.

Get access & grow

Greater Zurich Area Ltd is the official Economic development agency of Zurich and surrounding Swiss Cantons. Together with our governmental, private and academic partners, we help you to expand your business into Switzerland, set up, grow and prosper - all free of charge.

We help you for example with:

Site selection support, site visit tours, comparative data, office space search & setting up shop

Get connected to service providers, recruiters, ecosystem players, technology experts and corporate & university research & development partners

Information about venture capital opportunities, grants & incentives
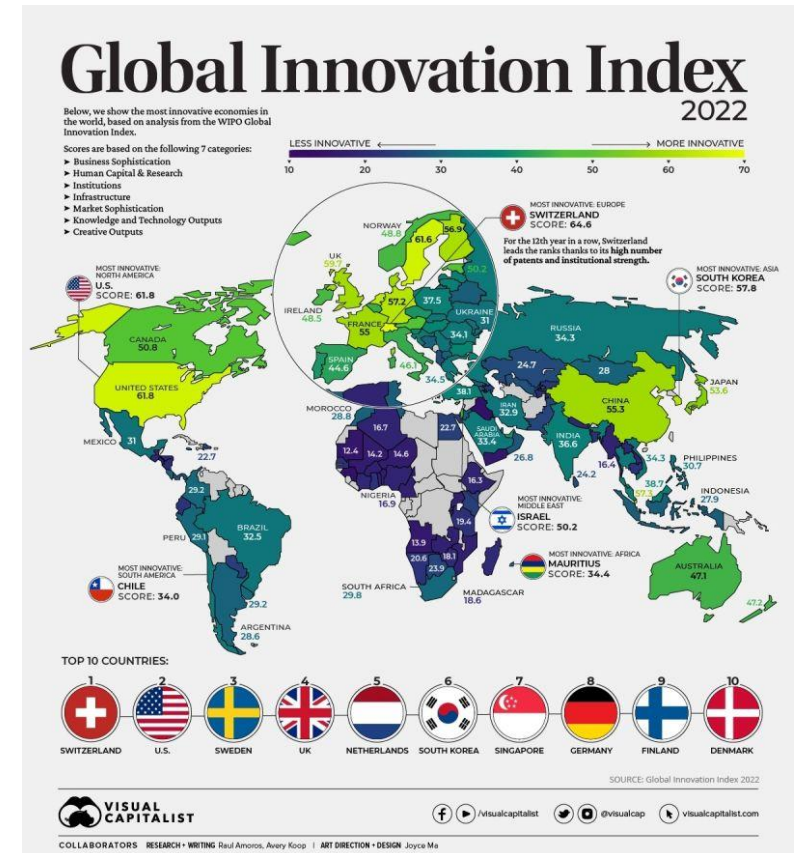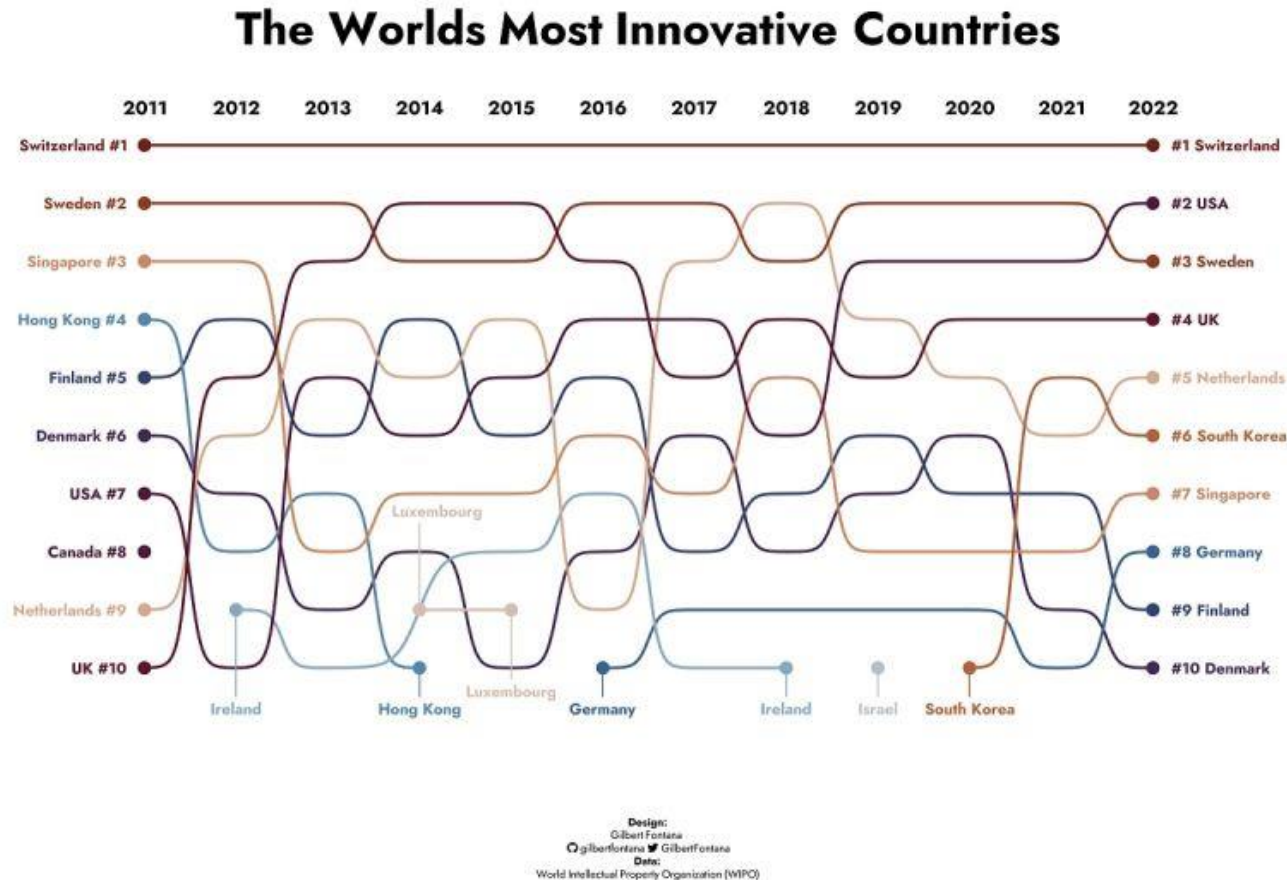
Technology companies GZA recently helped to expand:
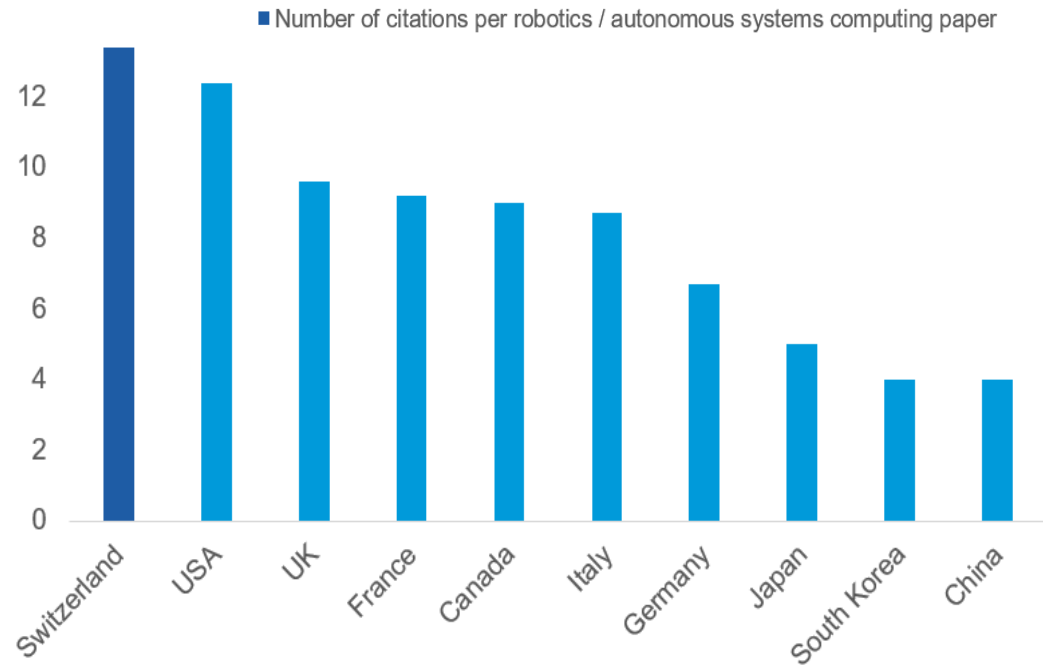
GZA - the Robotics Innovation Hub

Global Innovation Index
Switzerland has been the global innovation leader for many years

Source: Global Innovation Index 2022

"The Silicon Valley of Robotics & Autonomous Systems" (Forbes 2017)

Global #1: influential research and development

■ Number of citations per robotics / autonomous systems computing paper

(Bar chart: Switzerland ~13, USA ~12.5, UK ~9.5, France ~9, Canada ~9, Italy ~8.5, Germany ~6.5, Japan ~5, South Korea ~4, China ~4)

- Switzerland is one of the first movers when it comes to AI adoption and research.

- Greater Zurich is a global leader in the Artificial Intelligence space

- 20 of the 30 most disruptive Swiss robotics & AI startups are based in Greater Zurich

- Greater Zurich averages the **highest number of AI companies per citizen**.

- #2 most influential metropolitan region in terms of holding world-class patents in automation and robotics

Why? GZA has all the right ingredients

Talent

Business Ecosystem (incl. Funding)

Academic Landscape & Basic Research

Excellent political and economic stability

Stimulating, Business Friendly Infrastructure

Autonomous Systems in Greater Zurich

100+ key players

Autonomous ground companies

MOVbotics · ASCENTO · embotech · FIXPOSITION · GRAVIS ROBOTICS · sevensense · tethys robotics · Trapeze · WAYRAY · IBM · ABB

Technology and components for autonomous systems

9T LABS · 3db · Apple · BOTA Systems · compar · Coppelia Robotics · Disney Research Studios · FEMTO TOOLS · F&P Personal Robotics · Google · MaBi Robotic · MagnebotiX · NOMOKO · NVIDIA · PX4 autopilot · QualySense · rapyuta robotics · SENSIRION The Sensor Company · SONY · Stäubli · u-blox

Universities & Academic Research

Autonomous Systems Lab · Balgrist University Hospital · CRL · Computer Vision and Geometry Lab · ERL Environmental Robotics Laboratory · ETH AI CENTER · ETH zürich · IDSC Institute for Dynamic Systems and Control · IDSIA · IRIS Institute of Robotics and Intelligent Systems · MSRL Multi-Scale Robotics Lab · FHGR Fachhochschule Graubünden University of Applied Sciences · RELAB · Robotics & Perception Group · RSL Robotic Systems Lab · SMS Sensory-Motor Systems Lab · University of Zurich · V4RL Vision for Robotics Lab · Wyss Zurich Translating Science into Life · zhaw

Public organizations, Regulation & Platforms

CYBATHLON ETH Zürich · DIAS Drone Industry Association Switzerland · esa business incubation centre · Schweizerische Eidgenossenschaft Confédération suisse · LINA · robotics Swiss National Centre of Competence in Research · skyguide · swiss transit lab · SWITZERLAND INNOVATION PARK ZURICH · Wyss Zurich Translating Science into Life

Medtech & Rehabilitation

AiEndoscopic · DynamicDevices · Hocoma · INVACARE Yes, you can. · myoswiss · noonee · OR OPHTHO ROBOTICS · REHA TECHNOLOGY · scewo · SKS Rehab · VAMED health. care. vitality. · VARILEG enhanced

Autonomous flying companies
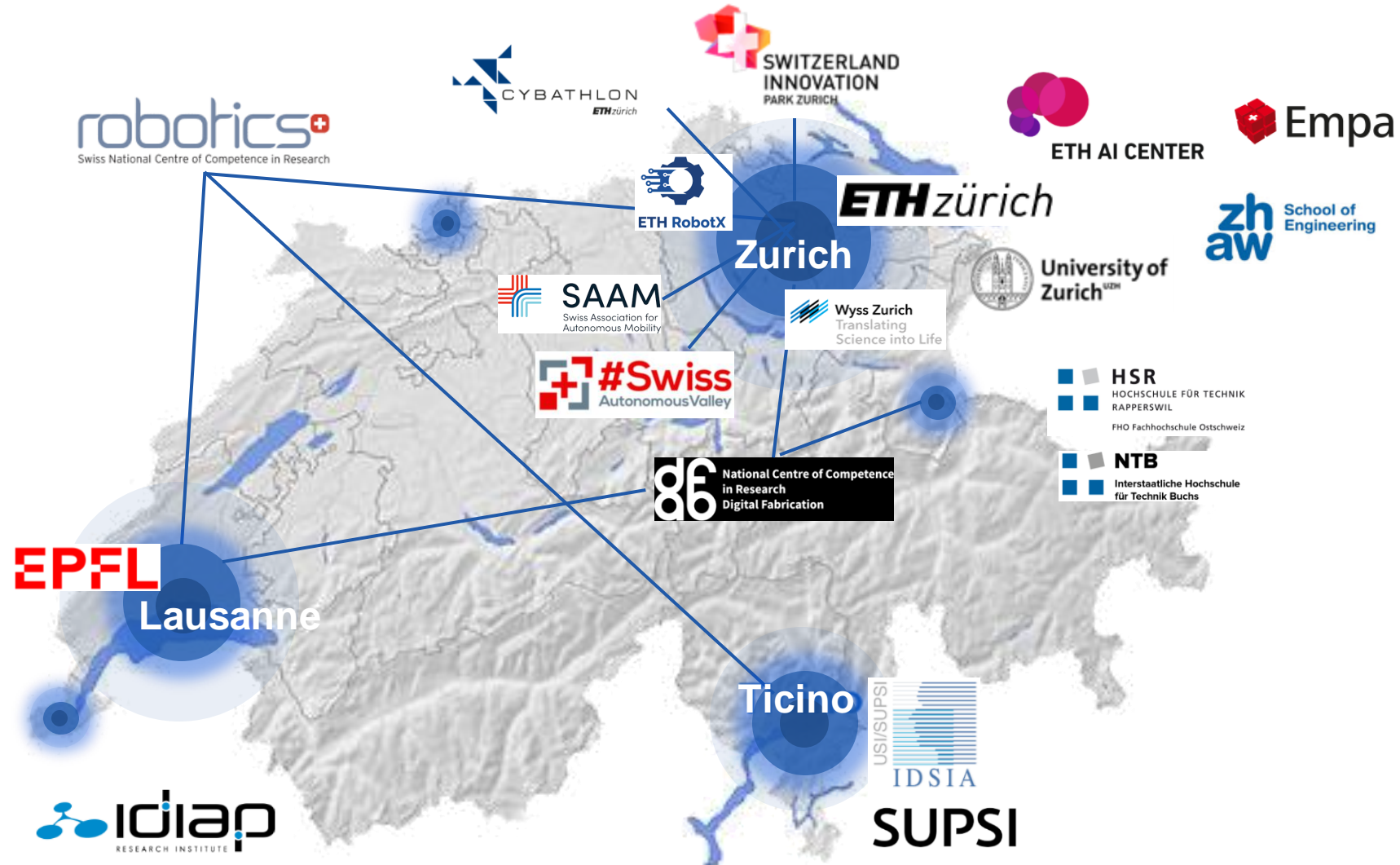
aeroscout · AEROTAIN · AIRMAP Powered by DroneUp · Auterion · AUTOFLIGHT · brainwhere · DAEDALEAN APPLIED INTELLIGENCE · DELDRO · RUAG Aerospace Defence Technology · drone harmony infrastructure digitalization · DUFOUR AEROSPACE · EWATT AeroSpace · FLARM · Fotokite · KLEPSYDRA · MATTERNET · SUIND · SULZER SCHMID · sunflower labs · TINAMU · TWINGTEC WIND ENERGY 2.0 · uaventure · VOLIRO AIRBORNE ROBOTICS · verity · wingtra · YUNEEC ELECTRIC AVIATION

Computer Vision

Disney Research Studios · Google · HUAWEI · logitech · Magic Leap · Meta · Microsoft Research · NVIDIA · SONY

# Switzerland – A melting pot for robotics technology

Source: NCCR Robotics, wipo, cb insights
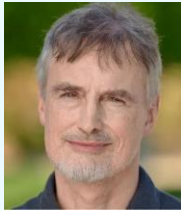
ETH AI Center: Central Hub for artificial Intelligence

As ETH's central hub for artificial intelligence, the AI Center brings together >110 professors, 60 PhDs and researchers of all walks of AI across all ETH departments, fostering interdisciplinary research excellence, industry innovation, and AI entrepreneurship to promote trustworthy, accessible, and inclusive AI systems.
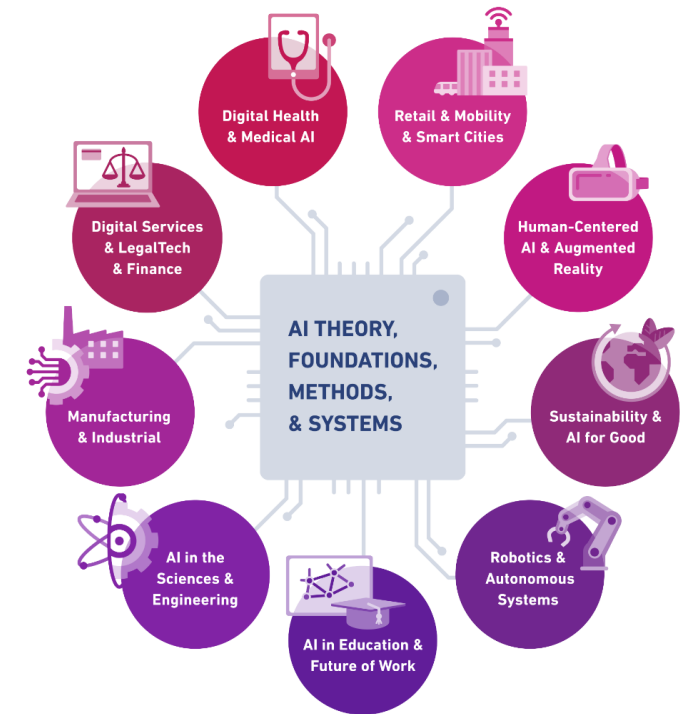
Our mission in seven priorities

1. Create the central AI hub at ETH across all disciplines
2. Collaborate with the best researchers internationally (*e.g.* ELLIS & CLS)
3. Identify & foster AI researchers, transformational leaders & entrepreneurs
4. Provide a stimulating, transdisciplinary, and inclusive environment
5. Address ethical, societal, and policy implications
6. Engage the general public on AI topics
7. Support start-ups & industry collaborations

Our mindset

- Co-evolve AI foundations & impact areas
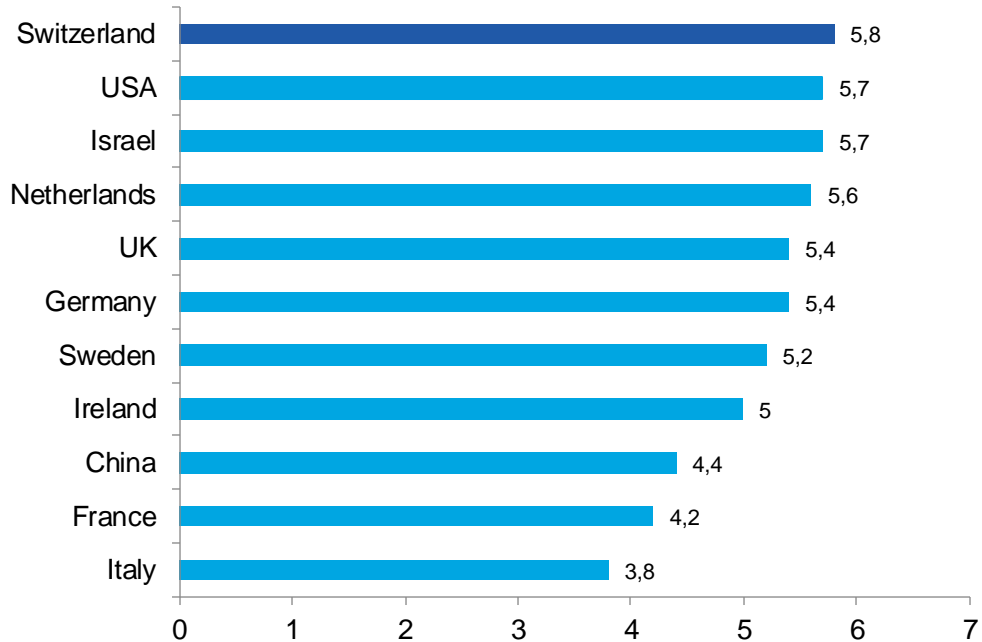- Co-locate all disciplines
- From research to industry & start-ups

Facts & figures

- Building on decades of AI research at ETH
- 96 Professors
- >40 new positions
- 980m^2 physical center
- >50 AI ETH spin-offs

	Company size	Partnership fee p.a.
Small companies	<100 employees	10k CHF
Medium companies	100 – 1 000 employees	25k CHF
Large companies	>1 000 employees	50k CHF

Industry-University collaboration - nowhere better than in Switzerland

University-Industry Collaboration Index

Country	Score
Switzerland	5,8
USA	5,7
Israel	5,7
Netherlands	5,6
UK	5,4
Germany	5,4
Sweden	5,2
Ireland	5
China	4,4
France	4,2
Italy	3,8

Source: WEF Global Competitiveness Report 2019
Graph shows scores of selected countries, complete set: Switzerland #1

Established Industry Collaborations of ETH Zurich

Microsoft · aws · Ringier · IBM
Google · SONY · magic leap · ABB
BOSCH · FRANKE · SIEMENS · HUAWEI
intel · QUALCOMM · 60+ INDUSTRY PARTNERS

Greater Zurich Area Ltd. facilitates industry / university partner evaluations and helps to find the right academic match for international companies.

Leading technology companies tap into the strong ecosystem

Disney Research Zurich
- Est.1992, ETH collaboration since 2010
- Directed by ETH Prof. Markus Gross
- 13 joint PhD students with ETH, >60 ICT specialists
- ~200 joint papers, >100 patents
- Focus: computer graphics, 3D animation and face modelling, video of the future

Facebook/ETH Labs
- Project Santa Cruz: 2018 expansion of R&D teams and offices
- Joint development of next generation Oculus core technology
- Acquisition of ETH/Wyss Center's "Zurich Eye" spin-off
- >200 developers, and rapid growth
- Focus: virtual und mixed reality

Oracle Labs Zurich
- Largest engineering hub outside the US in Zurich
- Focus machine learning, AI, IoT, sensing, computer vision, machine learning.

Sony AI Zurich
- Focus sensing, computer vision, machine learning

Sony Advanced Visual Sensing
- Artificial vision systems

- IBM Research Zurich
- One of IBM's 12 global research labs. In Zurich since 1956 (first European branch of IBM Research)
- Zurich: > 2000 employees, $73.62 billion in sales
- Focus Zurich Lab: cutting-edge research in Quantum technology, AI and cognitive computing technologies, blockchain

Google Research Labs Zurich
- Biggest engineering and R&D hub outside the US, est. 2016
- Multiple research projects with div. universities
- 2018: expansion to Europaallee
- 5'000 empl. from 75 countries
- Focus: AI, machine learning and perception, algorithms

Huawei Zurich Research Center (ZRC)
- focused on fundamental research in the area of future computing systems (innovation on hardware, software and algorithmic design).

Magic Leap
- Competence Center for AI and deep learning
- 2017 acquisition of ETH AR Spin-off Dacuda
- >100 employees
- Focus: R&D in computer vision and deep learning solutions, with multiple partnerships with academic institutes such as ETH Zurich.

Microsoft Research Zurich
- Multiple research projects with ETH since 2008, first joint research center est. in 2013
- New Mixed Reality & AI Lab, est. 2019, headed by ETH Prof. Marc Pollefeys
- > 20 researchers and growing
- Focus: Computer vision (HoloLens), AI, data security

Apple Inc.
- Acquisition of Facehhift (2015) and Fashwell (2019) ETH spin-offs
- Since then, continuation of close collaboration with ETH
- Focus: perception, machine vision & deep learning

ANYbotics

The ETH spin-off ANYbotics sets new standards with its mobile quadrupetal robot ANYmal which manages to operate autonomously in highly challenging terrain and interacts safely with the environment. ANYmal conducts for example autonomous inspections in the Brazilian mining industry or at global giant BASF chemical plants.

Also, ANYmal proofed his superiority in DARPA's latest highly anticipated SubT final challenge where it stood its ground against competitors, including the renowned creations by Boston Dynamics and was ranked #1.

Source: Anybotics, www.anybotics.com

Sevensense Robotics

Sevensense Robotics develops computer vision and AI solutions for the next generation of mobile robots. Their technology enables robots to navigate safely and autonomously in dynamic environments, both indoors and outdoors.
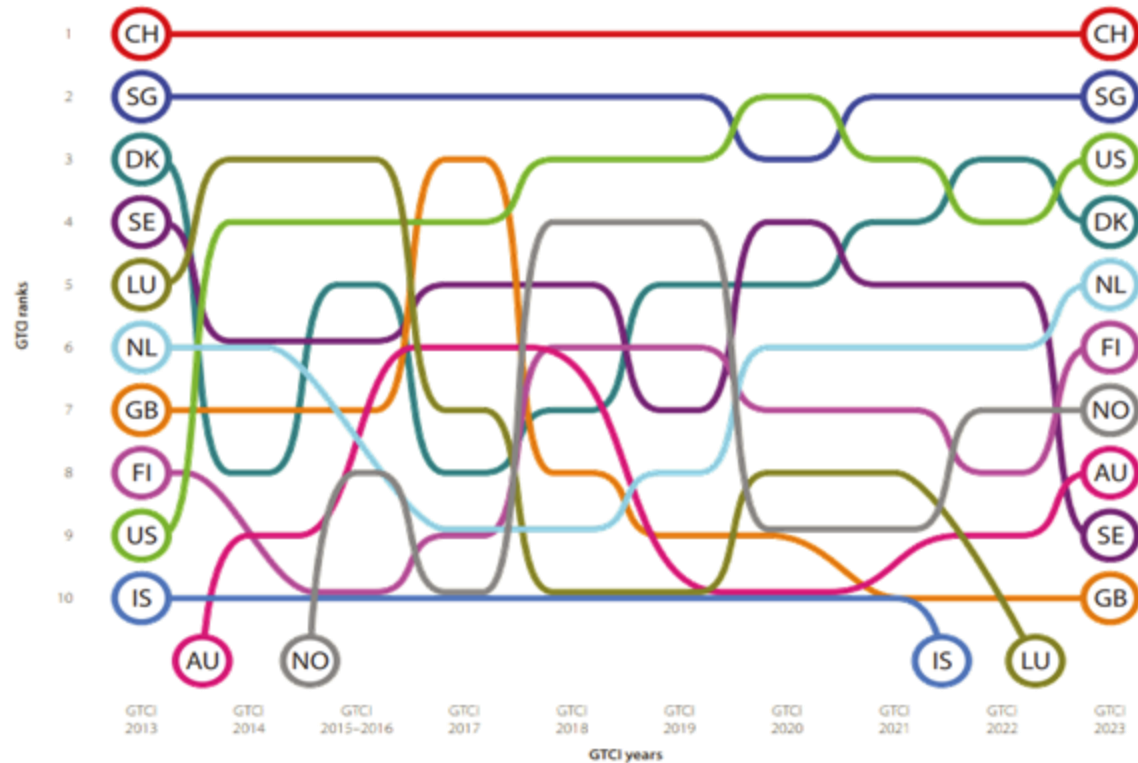
With over 15 years of research at ETH Zurich Sevensense sets the standard for service robotics and successfully supplies logistics and cleaning companies

This is Robomatic Marvin equipped with **Alphasense Autonomy**

Source: Sevensense, www.sevensense.ai
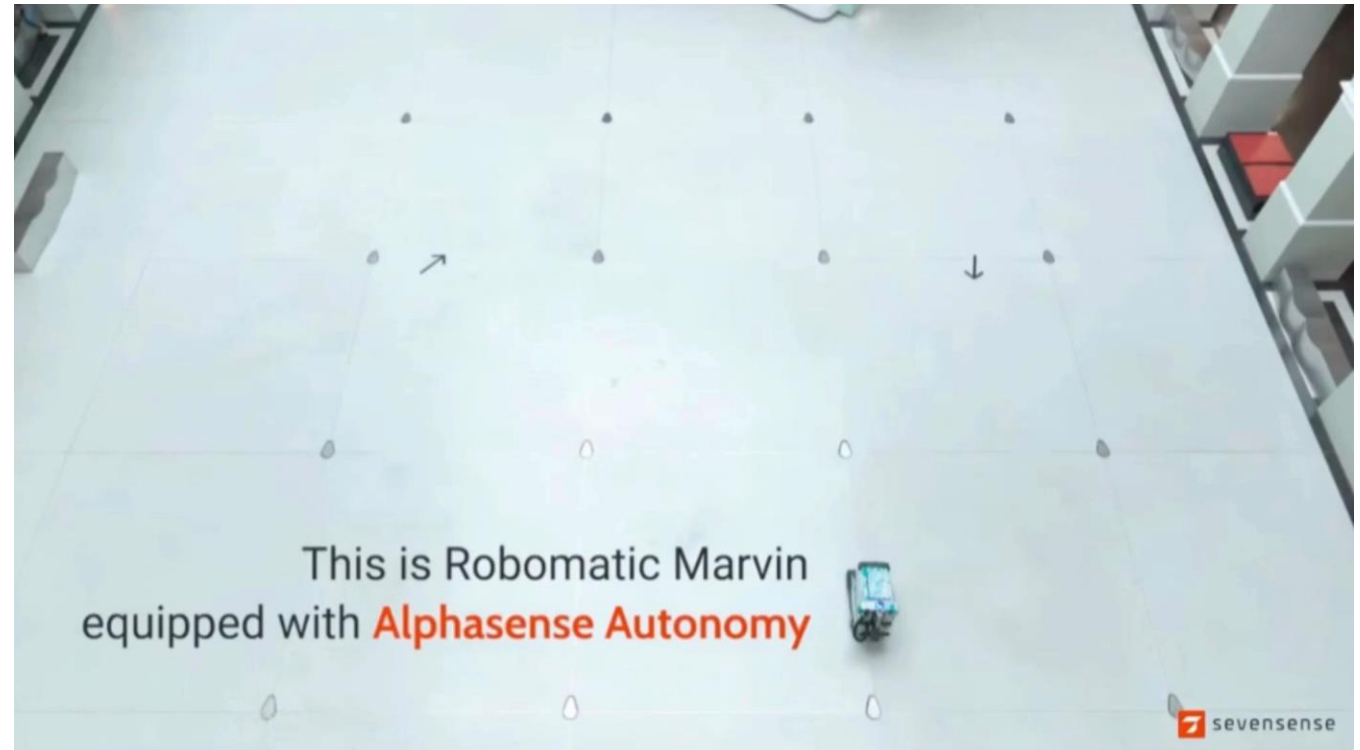
Unique Talent Pool

THE GLOBAL TALENT COMPETITIVENESS INDEX (GTCI) 2023
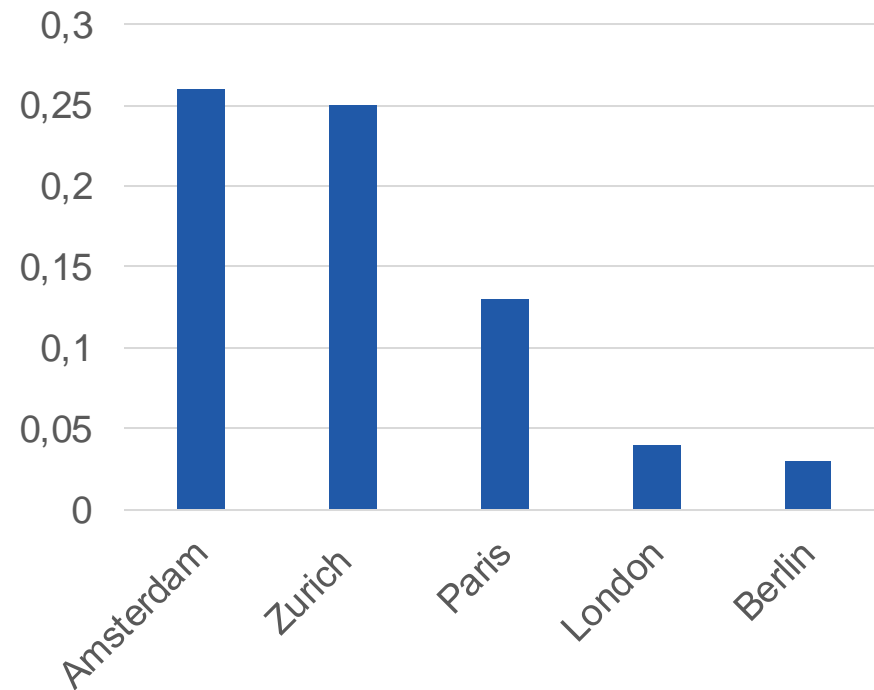**DECADE OF TOP 10**

Zurich stands out as a diverse city with the highest percentage of the labor force with tertiary education and strong private sector investment in training.
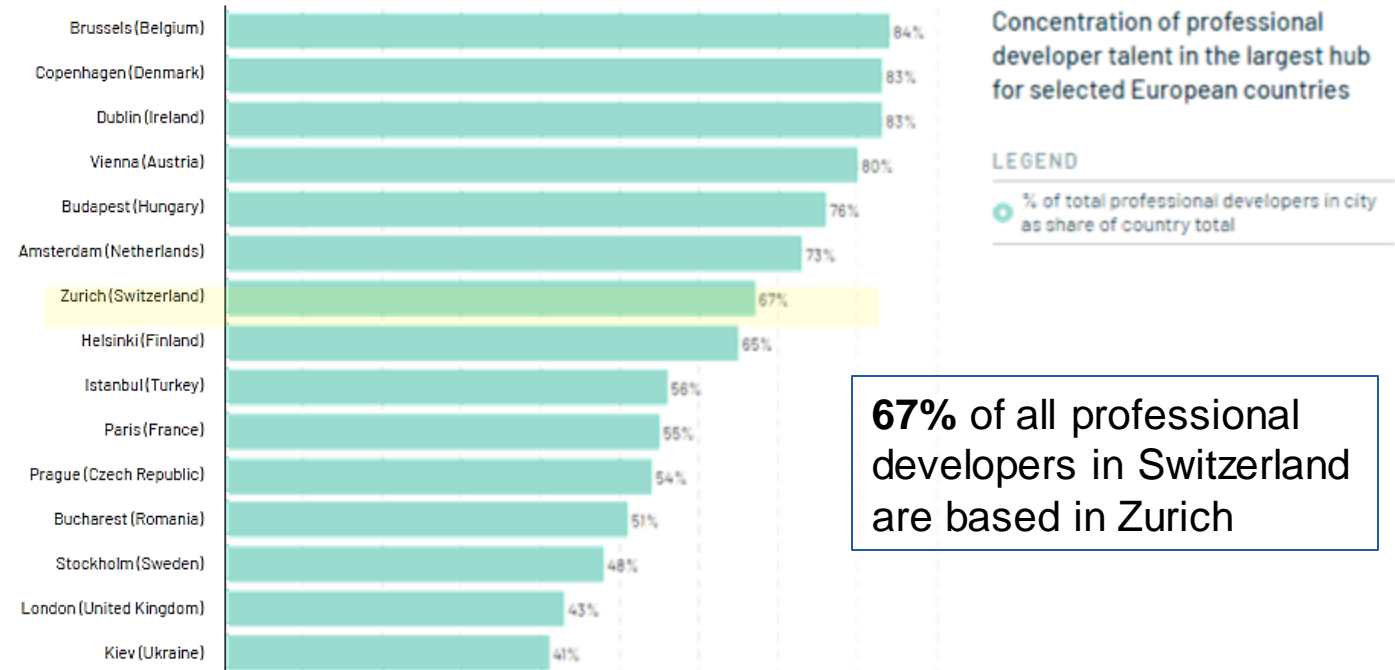
IT Talent: Professional Developers: City Comparison

Greater Zurich is one of Europe's top technology and IT hubs and Switzerlands IT "talent factory" with a high density of software developers available in that region. With over 4700 IT students/PhDs and roughly 1600 graduates per year, Zurich fosters over 70% of Switzerland's IT offspring and is home to over 60% if all IT professionals in Switzerland.

Software developers per capita

Distribution within each country

Concentration of professional developer talent in the largest hub for selected European countries

LEGEND

% of total professional developers in city as share of country total

67% of all professional developers in Switzerland are based in Zurich

Source: https://2018.stateofeuropeantech.com, 2019 / Wikipedia for city populations

… and the Robotics-Hub is going to grow bigger …

Switzerland Innovation Park Zurich is a visionary project offering 71 hectares of developed and undeveloped land, testing sites, drone cages, labs, office space and joint technology platforms for R&D and the performance of join innovation projects between corporations and academia (ETH Zurich, University of Zurich and Universities of Applied Science). Robotics and autonomous systems will be a central vertical of the Innovation Parc Zurich.

ETH in the Innovation Park – Robotics and Mobility

Visualization of hangar 3, where ETH Zurich will soon move in as anchor tenant...
The first focus will be robotics and mobility

Source: www.switzerland-innovation.com/zurich

Your Contact

Let's talk!

Rolf Bühler
Director Europe

+41 44 254 59 12
rolf.buehler@greaterzuricharea.com

@GreaterZurich   linkedin.com/company/greater-zurich-area

Greater Zurich Area: Where Tech Meets