

Punching above its weight

Switzerland does not just win awards for its chocolate and ski slopes. As **Katharine Comisso** finds out, it is a world-class innovator as well

THE US is often considered the land of plenty for budding entrepreneurs, eager for a piece of its pie. That was certainly what Sadik Hafizovic thought in 2007 when he decided to move to California. "I was already looking for an apartment," he recalls. Then he heard from a potential business partner in Switzerland. "I blew the America idea and went to Switzerland instead," he says. "Looking back, it was the best decision ever. Switzerland is a place where you can build a company with the least amount of trouble."

Fast forward a few years and Hafizovic's company, Zurich Instruments, is winning awards – as is its homeland. Last year, Switzerland became the most competitive economy in the world, knocking the US off the top spot, according to a report published by

the World Economic Forum. The country held onto the accolade this year.

The report looked at 12 factors linked to a country's long-term prosperity. These included infrastructure, the education of its labour force, government policy, the availability of technology, and innovation.

Switzerland scored highly in each category, showing that it has the policies, technology and human expertise to encourage research. As Dhavalkumar Patel, head of Novartis Institutes for BioMedical Research Europe in Basel, says: "If you ask a Swiss what they see as their most important resources, the response will likely be 'the brain power of our citizens'."

Switzerland's academic institutions, not to mention its large number of life science, technology and pharmaceutical companies, offer great career prospects for scientists, Patel says. "The fact that it is one of the most beautiful and best places in the world to live does not hurt, either."

Patel believes the country's lack of natural resources left it only one option if it was to compete in the global market: innovation. "Switzerland has been forced to build its wealth on the ability to innovate," he says. And innovate it does. The nation tops the European Commission's European Innovation Scoreboard. This means it has everything it needs to develop new products, from the people and financial backing to get ideas rolling, to a willingness to collaborate on new projects, to an impressive ability to secure patents (see bar chart opposite).

For would-be entrepreneurs, the first stop is the Innovation Promotion Agency (CTI), a state-financed organisation that provides practical guidance every step of the way.



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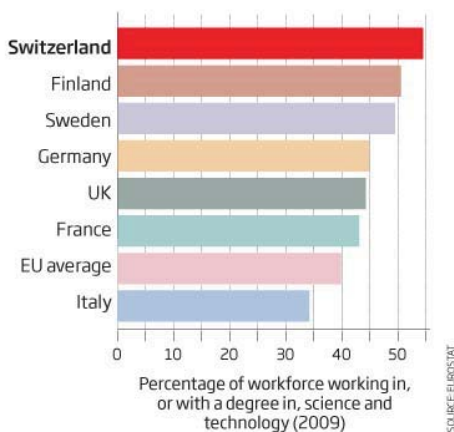
The historic centre of Zurich contrasts with its cutting-edge tech start-ups

This includes educating PhD students in business skills such as marketing, sales, finance and IT, and providing money for research and development. Then CTI Invest takes over, helping start-ups find financial backers. "We do the matchmaking between companies and investors," says Jean-Pierre Vuilleumier, CTI Invest's managing director.

Many businesses are now reaping the benefits of CTI's expertise, says Vuilleumier. One of these is the cultivation of a global outlook. Switzerland is not like the US, where you can get rich without exporting, he says. "You have to be international from day one." This means Swiss start-ups must be ready to

People power ©NewScientist

Over half of Switzerland's population is involved in science and technology





take on the world as they cannot rely on the cosy niche of their home markets.

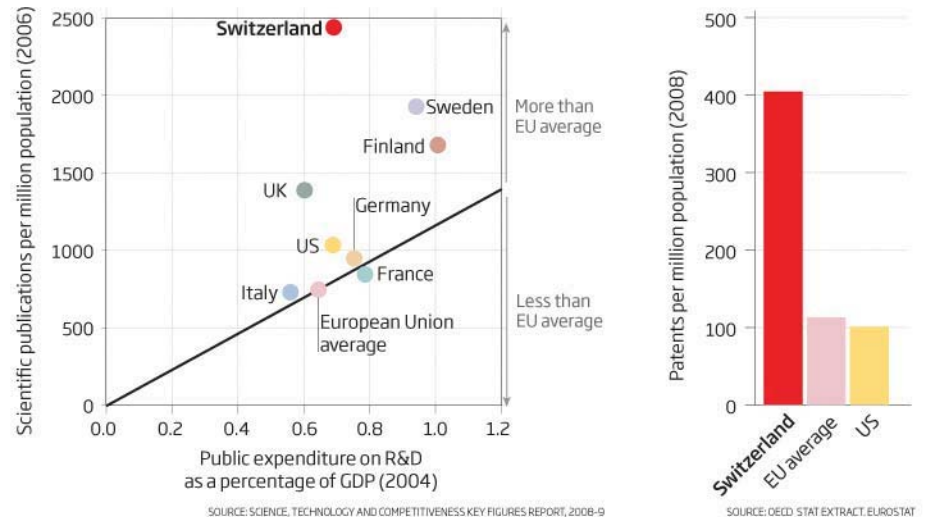
So what else can Switzerland offer young scientists? Better funding than elsewhere? "I wouldn't say that there is more money in Switzerland," says Hafizovic, who took advantage of CTI's coaching and is now exploiting opportunities outside Switzerland. "But it is smarter money." Instead of writing long proposals for grants, you have to pitch your idea to one of two types of jury – one interested in whether your idea will generate high-tech jobs and one concerned with the potential profit. "You get the money, if your case is right, with less bureaucracy."

Hafizovic says another reason for the nation's success is the ethos at two of its top universities, the Swiss Federal Institutes of

Publications + patents = innovation

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With a high scientific publication rate and an impressive track record for securing patents, it's not surprising Switzerland is winning innovation awards



Technology in Zurich (ETHZ) and Lausanne (EPFL). "At these places, it is almost fashionable to start a company," he says. "If you have an idea you absolutely have to do it." Technology transfer is taken so seriously it is listed as the third mission of the universities, alongside excellence in education and research.

"In Switzerland some of the best things we have are science, technology and research"

In some places, such entrepreneurial spirit might be stifled by red tape and bureaucracy. Not in Switzerland. "Things are streamlined to a degree I have not seen in any other country. Setting up a company is absolutely straightforward," says Hafizovic.

That is something Grégoire Ribordy would agree with. As a founder and CEO of ID Quantique, which applies quantum physics to network encryption and random-number generation, Ribordy sometimes has to export products that could have a military as well as a general use. The special authorisation to do that could take weeks to procure in some places, but in Switzerland things are simpler. "We have direct contact with government people in Bern who make the decisions on this and we get the answer in a few days. It is a very constructive relationship."

It's not just business that Switzerland excels in. The nation beats the rest of Europe, as well as the US, when it comes to the number of scientific publications it produces in relation

to government money spent on R&D – a common measure of a nation's scientific status (see graph, above left). Figures from a European Commission report on science, technology and competitiveness show that, in general, the more spent on R&D as a proportion of GDP, the higher the number of publications per million people, as you might expect. But in Switzerland the number of publications is far higher than you would expect given the level of public spending. In other words, it punches above its weight.

To some extent, Switzerland has always been associated with scientific precision and excellence. It boasts more Nobel prizes per million people than any other rich nation; it has two home-grown pharmaceutical giants, Roche and Novartis; and it is home to the world's biggest science experiment at CERN. All this lends kudos to new ventures. Matteo Leonardi, who founded Sensimed, a medical diagnostics company, says: "Swiss-made is really well perceived – everywhere. It is a quality mark."

Sensimed is developing contact lenses that can help diagnose glaucoma, and Leonardi is hoping to trade on Switzerland's reputation to help his company expand in the US and the rest of Europe. As well as being a beneficiary of the country's past triumphs, Leonardi is aware that he has a part to play in its future. "In Switzerland some of the best things we have are research, technology and science," he says. "We have to keep pushing for those." □

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