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Bulletin

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**"I believe in horses.
Automobiles are only
a passing fad."
Wilhelm II (1859 – 1941)**



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Innovation

Things Turn Out Differently, Because We Think



Are human workers in danger of being replaced by robots? Two researchers at MIT think we're safe.

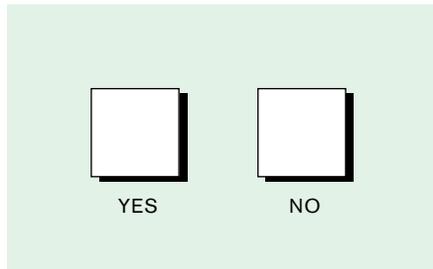
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“It’s about creating something unusual”

Every year, economist Soumitra Dutta publishes a report card on the innovative capacity of countries around the world. He explains why Switzerland has been at the top of the list for the past five years, how Japan differs from China, how Africa’s rise should be interpreted and why it’s a good idea to have children.

Interview: Daniel Ammann, Simon Brunner and Bill Schulz (illustration)

Professor Dutta, how would you define innovation?

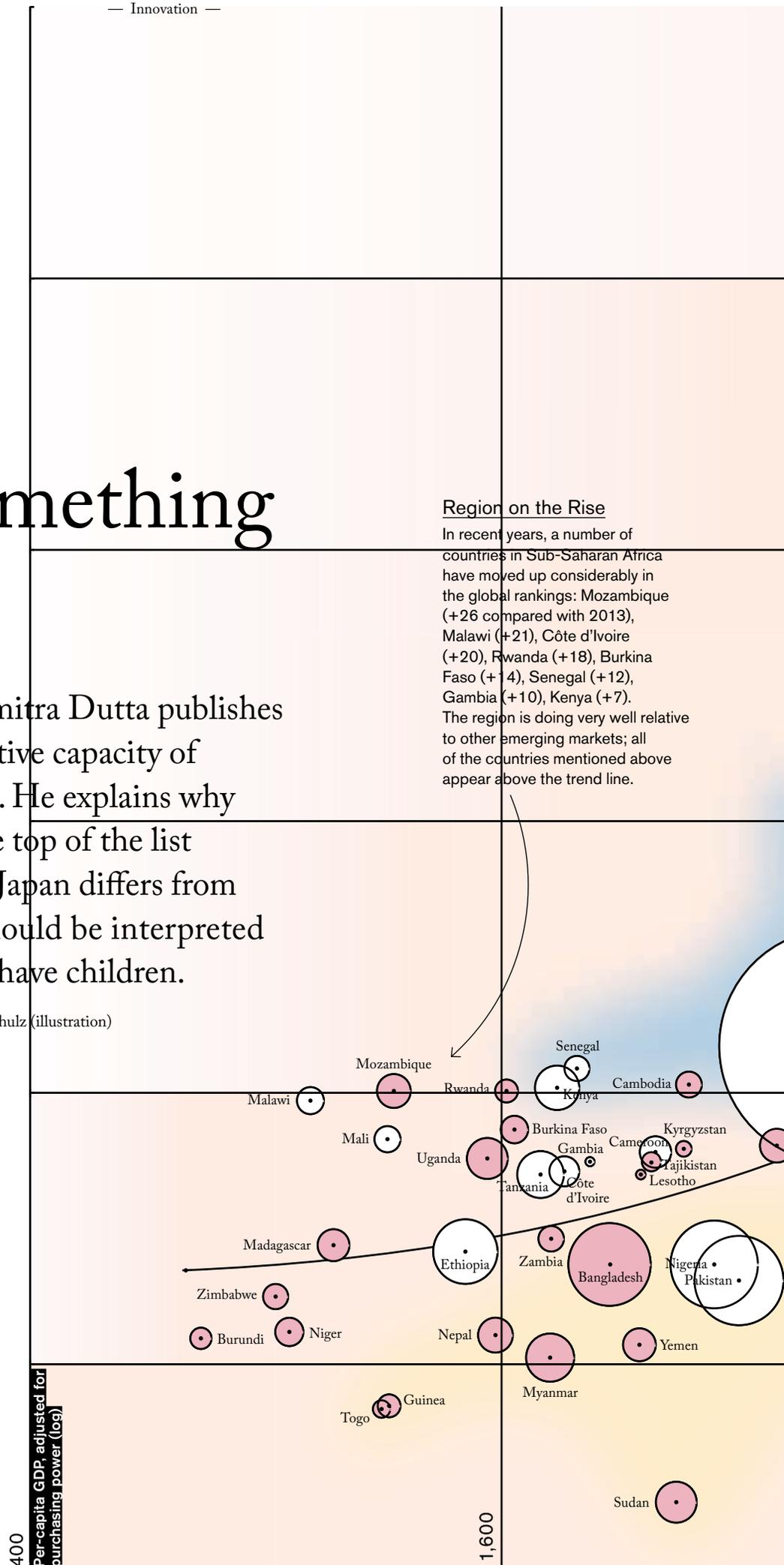
The traditional answer goes something like this: “Innovation is the generation of new products or services that have a market and that people are willing to spend money on.” But this definition is somewhat limited, in my opinion. A broader definition describes innovation more as a mindset; a way of looking at the world. An approach that questions the usual and helps create the unusual.

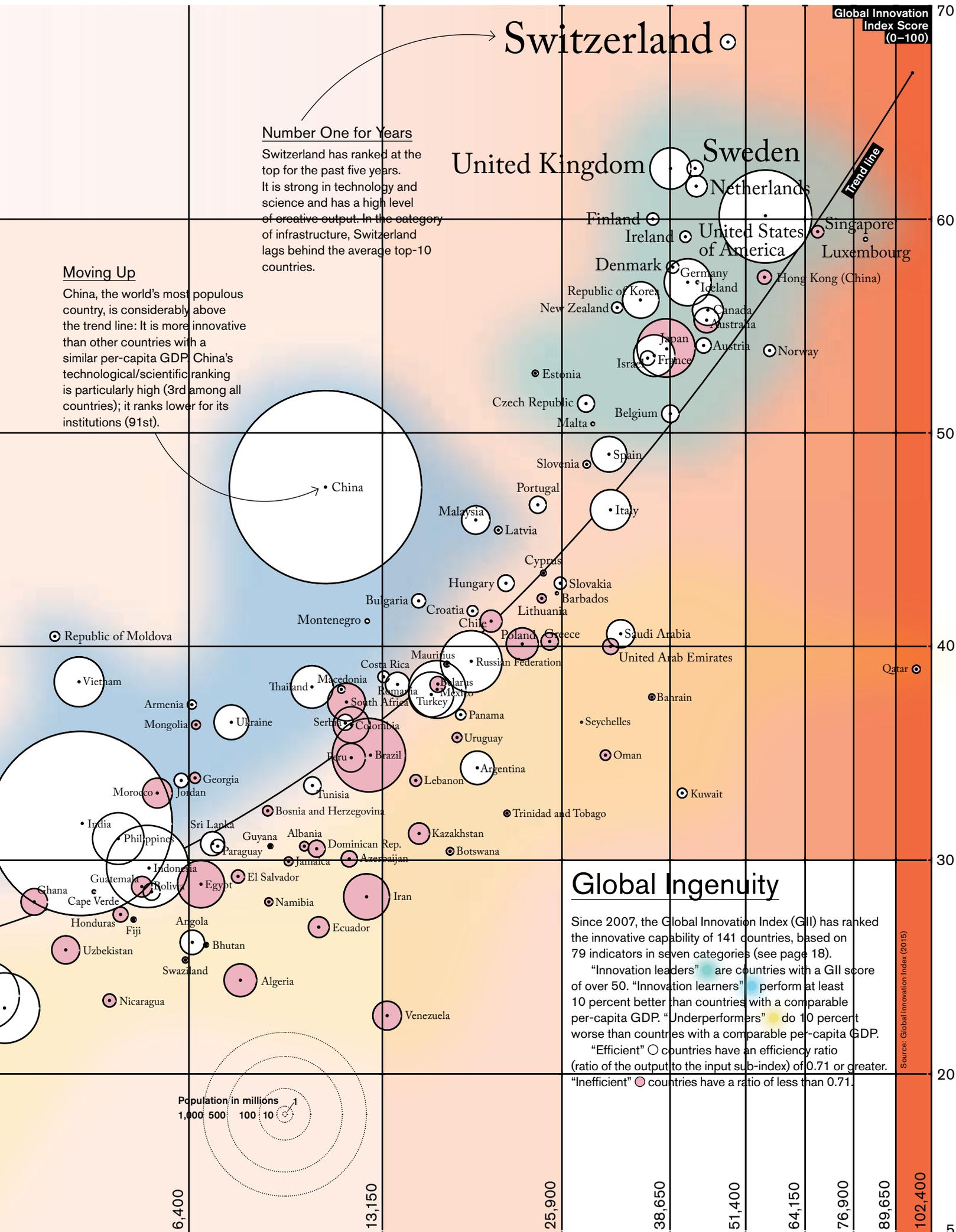
Your Global Innovation Index (GII) publishes an annual report card on the innovative capability of 141 countries. How do you measure that capability?

There are several ways to measure innovation, but I think we have made

Region on the Rise

In recent years, a number of countries in Sub-Saharan Africa have moved up considerably in the global rankings: Mozambique (+26 compared with 2013), Malawi (+21), Côte d'Ivoire (+20), Rwanda (+18), Burkina Faso (+14), Senegal (+12), Gambia (+10), Kenya (+7). The region is doing very well relative to other emerging markets; all of the countries mentioned above appear above the trend line.





our model very robust over the last eight years. We record 79 indicators that we pool in five input and two output categories [see table on p. 18]. We therefore measure both the factors that enable innovation and the actual outputs of innovation. Input and output are equally weighted, which ultimately results in an overall innovation score.

That sounds abstract. Could you give some specific examples of what innovation means to you?

Product innovations are, of course, the obvious answer. The steam engine revolutionized the economy and society. And on a smaller scale, so, too, does a lighter-weight cell phone, a faster car, a more efficient airplane. But that is only a small part. A 100-year-old company can reorganize itself dramatically – this is innovation in the organizational form. There can be innovation in a business model itself, for example, when a product like a computer program is offered as a new service. There is innovation in creative industries; just look at Peru. The country has become the center of South American haute cuisine, thanks to a handful of top chefs – or, more specifically, a married couple named Gaston Acurio and Astrid Gutsche. They not only launched a new restaurant concept, but also revived the national pride of Peruvians [editor's note: see Bulletin No. 2/15]. The same could be said of the telenovelas in Latin America or Bollywood in India. Online blogs have also created a form of creativity that did not exist previously, albeit often without a direct economic goal.

Creativity is not the same as innovation.

Correct! You need not only creativity, but also the drive to implement it. Nevertheless, creativity is not weighted enough in the traditional literature on innovation metrics. Our Innovation Index also has a sub-category called “Online Creativity” in the second output column. This also allows us to document the creativity of a country's citizens, independently from the government or the economy, as in the blogs I mentioned.

The short answer:
Innovation increases productivity and helps create greater wealth and prosperity in a country.

If we might ask a rather mundane question: Why is innovation important?

The short answer is that innovation increases productivity and helps create greater wealth and prosperity in a country.

That sounds like a fortune-cookie message for economists. But is it really true?

Yes. There are essentially three ways for a country to become competitive. One, it has natural resources, like the oil-rich countries in the Middle East. Second, it specializes in transforming raw materials into products and services that are in demand. China is a good example of this. Third, it innovates, it generates new ideas and successfully launches them on the market. In this third category, creativity and knowledge drive competitiveness, which is what most European economies excel at. Innovation is the best way for them to maintain their high level of competitiveness.

Innovation is not only important for the national economy...

... That's right, it also has social significance. Innovation creates jobs. This is particularly important nowadays – especially in Europe, where youth unemployment is high. Traditionally, it was the government and large companies that created new jobs. But many Western countries simply don't

Soumitra Dutta, 52,

is dean of the Samuel Curtis Johnson Graduate School of Management at Cornell University. Born in India, he is the co-author and co-editor, respectively, of two influential reports on innovation, the Global Innovation Index (in cooperation with the World Intellectual Property Organization) and the Global Information Technology Report (in cooperation with the World Economic Forum). Soumitra Dutta is a member of the Davos Circle, an association of long-time participants in the annual Davos meeting of the World Economic Forum. He is married to Lourdes Casanova, a Spanish-born lecturer at the Samuel Curtis Johnson Graduate School of Management, and they have one child.



Topping the List

The top-10 lists show the countries that perform particularly well relative to other countries with a similar income level. Income is measured in terms of per-capita GDP. The Global Innovation Index score is given in parentheses.

Income: low	lower middle	upper middle	high
1 Cambodia (30.35)	1 Moldova, Republic of (40.53)	1 China (47.47)	1 Switzerland (68.30)
2 Kenya (30.19)	2 Vietnam (38.35)	2 Malaysia (45.98)	2 United Kingdom (62.42)
3 Rwanda (30.09)	3 Armenia (37.31)	3 Hungary (43.00)	3 Sweden (62.40)
4 Mozambique (30.07)	4 Ukraine (36.45)	4 Bulgaria (42.16)	4 Netherlands (61.58)
5 Malawi (29.71)	5 Mongolia (36.41)	5 Montenegro (41.23)	5 USA (60.10)
6 Burkina Faso (28.68)	6 Georgia (33.83)	6 Mauritius (39.23)	6 Finland (59.97)
7 Mali (28.37)	7 Morocco (33.19)	7 Costa Rica (38.59)	7 Singapore (59.36)
8 Uganda (27.65)	8 India (31.74)	8 Belarus (38.23)	8 Ireland (59.13)
9 Gambia (27.49)	9 Philippines (31.05)	9 Romania (38.20)	9 Luxembourg (59.02)
10 Tajikistan (27.46)	10 Senegal (30.95)	10 Thailand (38.10)	10 Denmark (57.70)

have the money to create jobs because tax revenues have gone down, and companies are under pressure to reduce costs and become more competitive. What can be done? The best solution is to make it possible for young people to create their own jobs. An entrepreneurial spirit and the opportunity to create small companies and help them grow quickly are extremely important and should be supported.

You have lived and worked in many places: India, Japan, France, the US. Do you think there are cultural differences when it comes to ingenuity?

Innovation requires a certain kind of mindset, you have to question existing systems and structures and think about whether you could try a different approach. The biggest difference that I've experienced is the difference in the drive to want to shift these limitations: Who is "hungry" and who isn't? I am most familiar with the United States and Europe because I have lived, studied and worked there, and headed up various university institutions.

Let us guess: The Americans are hungry and the Europeans are satisfied? The old cliché.

This is not just a cliché, it is really true. I don't think young Europeans are less smart than their US peers. But people in the US always want to try something new, emulate role models, take risks, and even – pardon the expression – fall on their faces. It is very difficult to imitate this culture. Of course, Europe is no monolithic block, but in many places young people

are less willing to take risks. They are too satisfied. Life is good there and people are happy with what they have.

Do you see these differences elsewhere?

I love Japan, I began my career there. But in Japan today, you meet many young people who lack the necessary drive. People are satisfied with what they have. Even though Japan's economy has been struggling for some years, the quality of life is still very high. China, on the other hand, has a hunger to move up, gain recognition, wealth. Perhaps because the country was underdeveloped for so long? In my country India, there is also this hunger, even if it is a bit less pronounced than in China.

How can we nurture this drive, especially in wealthy countries?

Role models are needed more than anything. In the US, India and China, there is a generation of entrepreneurs who are emulated by young people. They want to imitate them and surpass their successes. Now, after decades, India once again has a government that is openly business-friendly. This certainly also helps.

And yet European countries take the top four spots in the innovation ranking.

The countries you are so enthusiastic about are much farther down the list:

The US is ranked 5th, China 29th and India is way down in 81st place.

There is a major legacy effect. The legacy and the development work

of past generations play an important role. Wealthy countries, such as Switzerland, the UK and Sweden, did many things right in the past and can build on what they have already achieved. For other countries, this means that they have to work hard to catch up.

What are the most effective measures to take for a country to move forward?

A country's greatest potential is represented in the first two columns: institutions and human capital. Countries have to invest in their citizens if they want to achieve something; this should come as no surprise. The institutional aspect is more interesting. By that, we mean political, regulatory and economic factors. Institutions are the heart of a country and determine everything else. If a country performs poorly in this area, it is at a major disadvantage. Factors like legal certainty, political and social stability, level of taxation or how efficient public administrative offices are, for example, how fast a person can set up a business or conclude a contract, all affect a country's success in innovation.

Switzerland has led the innovation ranking for five years – what makes it better than all the other countries?

Switzerland is impressive because it ranks well in all categories of the Global Innovation Index. I am fairly familiar with the country, so we do not have to discuss the quality of its institutions. After all, Switzerland is one of the most stable

countries and one that is most trusted. But I also repeatedly find that its investment in human capital is very high. Its schools are incredibly good, not only the Swiss Federal Institute of Technology (ETH), École Polytechnique Fédérale de Lausanne (EPFL) and the International Institute for Management Development (IMD) business school. It also has a fantastic infrastructure, its trains are on time, more so than in Germany, for example.

Those were the first three input columns. The next ones look similar. Some of the most innovative companies in the world are in Switzerland. Perhaps not as visible and trendy as Facebook and Google, but Switzerland is at the top when it comes to the world of finance, the pharmaceutical and food industries. I once spoke with the CEO of Nestlé. He told me that while 98 percent of the company's revenue comes from overseas, more than a third of its research and development (R&D) takes place in Switzerland. He didn't mention it because of national pride, but rather to illustrate that Switzerland is one of the most interesting countries in the world for R&D. The country is unbelievably attractive for foreign talent. In certain areas, the proportion of skilled foreign workers is well over 50 percent.

After so much praise – what do we need to do in order to maintain our position?

It's obvious: If you are number one, you can only consolidate or fall back. But let

me reassure you: Even if Switzerland were to drop to third or fourth place, it would not be a tragedy. It's not so important what ranking a country achieves; rather, the important thing is to be among the most innovative nations globally.

To put it another way: What are Switzerland's weaknesses?

I still see a great deal of potential in branding the country. Switzerland is not seen as an innovation champion. The global Switzerland brand does not focus enough on innovation. It could and should do more in this area. Wherever I go, people are surprised that Switzerland is at the top of our rankings list and not the US, as an example, even though the countries have some similar strengths.

What is Switzerland's image?

People think that this small country isolates itself and is not very open to immigration. They are surprised when they hear that there are more skilled foreigners living and working in Switzerland than in almost any other industrialized country. Also, the Swiss are rather low-key. They are reserved, do not want to stand out or appear better than they are. And when they are the best, they do not want to discuss that fact. But the world has become a noisy place and one has to be heard!

What would you do?

Let me try to explain by way of an anecdote. Many years ago, I went through pass-

port control in Switzerland. The border official asked me: "Are you a software programmer?" I had to smile. His question came as no surprise, given the stereotype of India as a high-tech, software-programming country.

So what would you do?

We all know that India does much more than just software programming. The country has thousands of other things to offer and many other problems. Yet the outside world sees us as a software nation. Why? Nasscom [editor's note: National Association of Software and Services Companies], an organization made up of the major Indian computer corporations, has invested a great deal in positioning the country as an IT stronghold. In other sectors, too, India has invested heavily in its own brand – in fact, our brand reputation is often better than the reality. The India Brand Equity Foundation, a semi-public institution that promotes Indian products and services around the world, has made a substantial contribution in this regard. I remember how, a few years ago, it flooded Zurich's Kloten airport with advertising for India when India was the main topic at the World Economic Forum (WEF). This makes brand India really stand out.

What does all this mean for Switzerland?

This example shows that it is possible to position a country. All the players have to work as a team: the government, private entrepreneurs, major global companies.

What is innovation?

The Global Innovation Index records 79 indicators that are divided into seven categories, each with three sub-categories. Five of those categories are on the input side, two on the output side. Input and output are weighted equally when calculating the final innovation score, which ranges from 1 to 100.

Input					Output	
Institutions	Human capital and research	Infrastructure	Market development level	Economic development level	Technology/science performance	Creative achievement
Political environment	General education	IT and communication technologies	Credit	Knowledge workers	Knowledge creation	Intangible assets
Regulatory environment	Higher education	General infrastructure	Investment	Innovation environment	Knowledge impact	Creative goods and services
Economic environment	Research and development	Environmental sustainability	Trade and competition	Knowledge imports	Knowledge dissemination	Online creativity

It's not so important what ranking a country achieves; rather, the important thing is to be among the most innovative nations globally.

That's how you create a positive image. Switzerland is the global center of innovation and should be perceived as such.

From a global perspective, what interesting things are happening in the innovation landscape?

In the current report, we asked precisely this question. Which countries stand out in their reference group? If you look at the level of development, the following countries stand out in their respective groups: Armenia, China, Georgia, India, Jordan, Kenya, Malaysia, Moldova, Mongolia, Uganda and Vietnam.

What is striking is that an above-average number of African countries have improved: Malawi, Rwanda, Burkina Faso, Kenya, Uganda.

The good news is that Africa is making progress, there is no doubt about that. But the gap is still considerable. In some countries, government leaders have improved and there is a certain awareness that innovation is essential if you want to be more competitive. In many African countries, technology has become a major driver in development, making it possible simply to skip some development steps.

Technology, digitalization, globalization – are they creating equal opportunities when it comes to competitiveness?

Twenty-five years ago, computers, the internet, cell phones and other technologies were luxuries for the wealthy. Today, these things have become more affordable and more democratic. Last year, I helped a minister in Colombia address innovation questions. I was impressed by the fact that they offer courses of study for app programming even in remote areas. Even from there, you can reach the entire world at very little expense. Developers can load the app to the App store, and it is immediately available to a global market. This is good for the people!

But competition is intense, especially in the digital world. Successfully launching an app requires huge marketing efforts.

That's true. Yet being connected to the world allows people to dream, it provides

inspiration and hope. For a long time, these countries were isolated and there was no incentive to do anything at all.

You mention Colombia as a positive example, yet compared with Africa, South America is doing rather poorly.

Many South American countries are not doing enough. Some of the reasons are well known: poor political leadership. Little focus on innovation. Look at Brazil. It had ten wonderful years during which it fully savored its raw materials boom. But now, with the low prices in the global markets, the country is suffering. One reason for this is that it did not invest enough in sustainable development when things were going well.

On a final note: What was the best idea you ever had?

It was having a child. But you don't realize it until after the fact. But that was the high point.

Was it your idea?

(Laughs) Difficult to say.

But I recommend it to everyone. □