

More pioneering spirit!

Creativity, entrepreneurship, innovation: these are the driving forces behind Solar Impulse, Bertrand Piccard's project to fly around the world in a solar-powered plane. Alfred N. Schindler describes it as one of the most inspiring clean-tech projects of our time. A discussion about the will to push back limits, and the world of the future.

René Scheu meets Alfred N. Schindler

Mr. Schindler, you prefer to keep a fairly low public profile. But now you are supporting Bertrand Piccard's "Solar Impulse" project as one of the main partners. Is this a calculated move, or have you just been captivated by the dream of seeing a solar-powered aircraft fly around the world?

You're right on the first point. Our company and its products should be in the spotlight, not me as an individual. Piccard's vision is certainly a fascinating one. However, in terms of our partnership, there are three clear messages that the Solar Impulse project sends that were decisive. First, it is one of the most important and inspiring clean-tech projects today, because it is not only about saving energy but also about conquering new technological ground. Second, Solar Impulse is an excellent example of the kind of entrepreneurial spirit and drive which are so vital to Switzerland and to Europe as a whole, and which are in line with my own personal credo. And third, the project shows what ground-breaking innovation is all about – not primarily money, but brilliant ideas and the will to push the limits. Each one of these messages is worth going into.

We'll come to those. Let's stay with the technology for a moment. It is not immediately obvious to me what aircraft and elevators have in common.

There are certainly parallels between Solar Impulse and Schindler's strategy and products. The question for Bertrand Piccard is the same as for us: how intelligent are we in the way we move people day after day, and what is required to do so? Swissair was carrying 40 million passengers a year in its later years; and Schindler moves a billion people every day. This shows clearly the challenges that Schindler alone has to master. More important than the energy consumption during an elevator's manufacture is the energy it consumes during its subsequent day-to-day operation, especially when one considers the 30- to 50-year service life of these products. This brings us to the first interface with Solar Impulse that is fascinating from an industrial perspective. Piccard wants a plane with zero consumption of fossil fuels. And with this aim in mind he is using targeted innovations that revolutionize the structure of his materials, improve their robustness and massively reduce their weight. We are also profiting here because such innovations can, independently of solar power, lead to a marked and sustainable reduction in energy consumption in our installations.

That's the ideal – the "inspirational" side, so to speak. How close is the collaboration within the partnership?

A second aspect of our partnership is the embedding in the project of engineers from 50 companies from various sectors and countries, including Schindler, thanks to Solar Impulse's scientific collaboration with the Swiss Federal Institute of Technology in Lausanne (EPFL). Here you have highly motivated, brilliant minds from different backgrounds coming together around a shared goal. The result is not only a unique network; it also ensures some intense cross-fertilization that leads to new findings and discoveries, and brings everyone to a higher level.

An interdisciplinary collaboration, then. But what technical innovations have you seen in particular that could be applied to elevators?

Solar Impulse HB-SIA has the wingspan of an Airbus A340 but the power of a moped. It's not about more horsepower; it's about maximizing effectiveness. A single person can lift the fuselage of this aircraft unaided. An aircraft as big and as light as this will have to withstand phenomenal forces when it is in the air. The upper surfaces of the wings are covered with around 12,000 solar cells. All in all, the plane is an amalgam of lightness, robustness and propulsion efficiency. And behind it all are concrete technological advances, not least in the use of new composite materials and their structures.

The innovations range from the aircraft's tubular design – which is a quantum leap in machine engineering – to new honeycomb structures with extremely high torsional stability and the sophisticated solar technology. But this is not the only reason for the partnership between Schindler and Solar Impulse. What is decisive are the aforementioned main messages: the mindset to conquer new ground, the entrepreneurial spirit and the innovation process.

Let's return to this trio of messages, then. Entrepreneurial initiative and innovation are classic requirements for success. "Clean-tech", by contrast, sounds more like a fad or buzzword, which for me arouses instinctive opposition.

With due respect to your reservations, there's no avoiding clean-tech. Solar Impulse is not an end in itself; it symbolizes something much bigger on a world stage. That stage has many facets. At the moment, the spotlights are pointing very much at the financial and debt crises and their consequences. The disaster at Fukushima broke loudly into that, with all the accompanying fears and suspicions about nuclear energy. The Arab Spring has been another persistent story thread. 2011 has been a year of major misfortunes. In the background, and less well illuminated, are other no less fateful scenarios. Natural resources –fossil fuels in particular – are in short supply and are running out. We are becoming interdependent. The world population is exploding. Urbanization means almost 70 per cent of people will soon be living in cities. The need for mobility is rising. This spiral is spinning faster and faster. We can't face developments like these with an energy-saving appeal. But we have to master the challenges they pose.

In politics a new rhetoric has taken hold: the rhetoric of "new moderation". Where do you stand on this?

If one looks at the sheer force and the inevitability of these global trends, the response has to come primarily from technology. Just tightening our belts and improving on what we've done in the past will not be enough. We can't just work harder on solving these problems; we need to be smarter, too. We are still stuck in the old western belief that it will all turn out well if we just deny ourselves some of the pleasures of life and live more frugally. But it would be fatal to assume that the planet's biggest problems can be solved by a culture of restraint, and therefore to idealize such behavior. Of course we need to exercise restraint and rein in our excesses, but that alone will not make the problems magically disappear. We must use our resources more intelligently and selectively, and we must develop entirely new approaches to solving our problems.

New approaches as opposed to changing our behavior: that's abstract. Getting right to the point: How is a symbolic round-the-world flight by a solar-powered plane going to solve our problems?

The flight won't; it's the mentality behind it. By new problem-solving approaches, I mean genuine advances that are more than improvements on what is there. Take communications technology. It couldn't be radically improved by making the telex faster and the punch tape longer. Those rattling monster machines of my youth gave way to the fax, which allowed not only words but also graphics to be transmitted in real time. Today the fax is obsolete. Pocket-sized electronic devices make possible applications that would have been unimaginable just a few years ago. Now we have come full circle. For his earlier pioneering non-stop balloon flight around the world, Bertrand Piccard needed four tons of kerosene. As he got out of the balloon, he had the idea of flying around the world with no fuel at all. From four tons to zero: just imagine! If Piccard had decided to give up on the more pioneering challenges and simply tried to reduce fuel consumption, we would still be pretty much where we were back then. But he chose to tackle the fundamental problem in a completely different way. Piccard's plane doesn't only use no kerosene during the day; it gathers and stores enough solar energy during daylight so that it can use this to fly through the night. And not just on paper, but in reality.

You're in no doubt that the need for technology, and therefore also for energy, is going to increase rather than fall. It's reassuring to hear such a clear statement, but what makes you so sure?

One has to look at the big picture. The world population is growing and will inevitably consume more energy. We cannot seriously believe that the Brazilians are going to limit their mobility because of what we say, or that the Indians will accept less than a nationwide telecommunications network. What gives us the right to expect such things? And why should they accept any less than we would? More mobility is indispensable. The question is whether we can radically improve its efficiency. And communications technologies are essential to the success of any thriving economy. Laying cables

throughout India would put a huge strain on the world's copper reserves. But with the shift from classic telephony to mobile phones, we don't have to. And this brings us back to the proposition that it's not enough to improve on the status quo: linear improvements alone won't take us much further. What is needed are the fundamentally new approaches that I mentioned before, approaches which overcome the perceived limits.

Tackling things from a radically new perspective demands entrepreneurial thinking and action. You mentioned this as the second reason for Schindler's involvement with Solar Impulse. Could you be a little more concrete?

Wherever you are in the world and whatever business you are in, genuine entrepreneurship is inextricably linked with a few decisive attributes: creativity, boldness and vision coupled with discipline, ability, perseverance, and a willingness to take risks and turn dreams into reality. Bertrand Piccard, André Borschberg and the entire team at Solar Impulse embody all these characteristics in an exemplary way. I've spent a lot of time with them, I have looked behind the scenes, and I was impressed. Solar Impulse is more than an aircraft; it's an example of classic entrepreneurship. Piccard started with an idea and a business plan but without financing or staff. To raise money, he had to convince investors...

... which must have been fairly difficult in the present climate.

Not if the underlying idea is good. The harder task is to choose the right people and to inspire them, because the best are a rare commodity. Solar Impulse won't make anyone rich. It's not about quick profits; it calls for patience and total dedication. But if one is part of the progress, one will also learn how discipline, ability and strength can combine to turn a bold vision into reality, one step at a time. These are strong attractions.

Needless to say, skill and ability are an integral part of entrepreneurship, irrespective of whether it's the technological flair of Steve Jobs or the artistic ability of J.K. Rowling, the creator of Harry Potter. The key thing here is that the resulting product or performance needs to be outstanding, and far above the average. And it's no good just wanting to be better; you have to go out and do it, too. The sports world is an excellent example of this. But it's not only on the tennis courts and the ski slopes that we need outstanding figures who, like Roger Federer and Didier Cuche, can move mountains. The entrepreneurial world also needs torchbearers "made in Switzerland" like Bertrand Piccard, who can inspire the next generation.

Next generation? What do you mean: is entrepreneurial thinking something that can be taught?

Do you know what they say about mountaineers and entrepreneurs? Bad mountaineers and poor entrepreneurs are the same: they never reach the top. But good mountaineers and good entrepreneurs are different. A good mountaineer will get to the top; but a successful entrepreneur will never reach the summit, however good they are and however hard they try, because with every success the mountain grows higher. The summit moves continually upwards, the demands always get harder. At some point, the task becomes too great and the entrepreneur is too exhausted to carry on. That's why we need new offspring, a type of "nursery", a reservoir, in which tomorrow's entrepreneurs can grow. People like Piccard prepare the ground, because they inspire not only with their ideas but also with their successes.

There's a lot of passion in what you say. What's your own personal entrepreneurial credo?

Look: Switzerland, as a small and open democracy with very few natural resources, is heavily dependent on its export industry. This is where we need to be successful – despite the strong Swiss franc, despite the global competition and despite the high costs that our living standards demand. In this kind of environment, it's absolutely essential that we maintain a thriving entrepreneurial culture, and that we have enough entrepreneurs who embody the attributes I have mentioned. Only when creativity and audacity, ambition and discipline, talent and tenacity come together – only when there are entrepreneurs who are not content with the status quo, and who work not just harder but also more smartly – only then can Switzerland defend its position.

Your third reason for the collaboration with Solar Impulse is innovation. Innovation needs money, lots of money. And yet you say that money is not what is needed first; it's the spirit and the determination, so to speak.

Yes: the desire and the determination to push against the limits that one is confronted with. And the sheer belief that this can be done. Innovation comes from inside, and from an attitude that primarily greets unimagined possibilities with a “yes” rather than a “no”. Naturally, money plays an important part; but an entrepreneur will get money if his plan is convincing and his approach is professional. At the start, there is the new and the exciting – in other words, the human and not the financial side. We could reduce our energy consumption by flying less. But the basic transport problem would remain unsolved. Fossil fuels could also be saved by gradually optimizing engine performance and efficiency. But that won’t be enough. What is needed are totally new approaches that are more than just linear progress and advances. In management jargon, one speaks of “disruptive versus incremental innovation”. To return to the previous example of communications, email is in no sense an optimized telex tape; it’s a fundamentally new technology. And Solar Impulse in flight does not use less fossil energy than other aircraft; it uses none at all. This is a matter of not accepting the old limits as limits, but seeking solutions beyond them. Innovation is primarily a disrespect of existing norms. One must never stop questioning everything in order to be better; otherwise one never comes up with truly ground-breaking ideas. That is the powerful message that Solar Impulse sends us.

Solar Impulse is doubtless creating a lot of optimism. How are you using this message in your company in concrete form?

The message of Solar Impulse is not only an external one; it’s being heard inside our company, too. We can learn a lot from the behavior of a team with such infectious enthusiasm. And also from their belief in innovation. In short, from their “can-do” attitude. We can associate ourselves with this spirit. Signing up to these values and attitudes motivates internally, and motivation and emotion are what sets energy free. Through this, we are perceived as an attractive employer by young people. That is important, because it’s been a long time since we, as employers, could choose who works for us. Young people choose us, and it is a decision that is often made within a matter of minutes. Here, the image of the company – the way it is perceived in the market, the *employer branding* – is decisive. If our image shows that we believe in innovation and that we need motivated people for that purpose, that is our chance. The partnership with Solar Impulse helps us to be seen in this way. Apple or Red Bull stand out to young people. With us, the connection with innovation is less evident.

You speak of branding as some kind of wonder drug, and of Solar Impulse as a vehicle for transmitting shared values. But aren’t these types of promotional activities generally overestimated?

Not at all. The external message is just as important as the internal one. Solar Impulse helps to strengthen the global branding of Schindler as a clean-tech pioneer. Attention is a rare commodity. This futuristic aircraft is a very vivid communication vehicle, and immediately conveys the values in question. These are the same values that Schindler stands for, and this congruence is what makes our partnership credible – not only in Rio, Berlin or New York, where Schindler is already well known, but also in Asia.

You’re being modest. Wherever in the world one enters an elevator, the chances are that one will see a Schindler plate. In Asia, too.

That’s only partly right. Our brand in Asia is not yet as well known as it is in Europe, in Latin America or in the USA. The west is largely built; Asia, by contrast, is growing. Seventy per cent of the new installation market in our industry is located within the Mumbai-Seoul-Hong Kong triangle. If Solar Impulse lands there, it will carry our logo straight into this market, very prominently, and in a context that clearly associates us with a pioneering clean-tech achievement. In this way, the partnership with Solar Impulse also becomes a “transmission belt” for our achievements and messages. And not just anywhere, but where it matters most, namely in the markets with the greatest potential. So the round-the-world Solar Impulse flight is a tremendous communications opportunity for us, too.

You argue in a strictly success-oriented way. Bertrand Piccard is, in his way, doubtless a pioneer. At the same time, I have always also seen him as an adventurer, challenging fate and fortune.

That’s not my impression. He is certainly someone who pushes to the limits and beyond. But he is not a gambler. The aviator sunglasses and the photogenic smile might suggest an adventurer at first glance. But I know him as extremely disciplined, precise and hard-working, and as an entrepreneur who takes his responsibilities very seriously.

Solar Impulse remains a bet on the future, though. The round-the-world flight has not yet been achieved. What if it fails?

It is in the nature of innovation and entrepreneurship that plans fail. One must be prepared to take this risk. But I don't believe that this team will fail. The work is absolutely professional, the people are extraordinarily persistent, the network is of a high caliber and the interim achievements have been convincing. The 24-hour flight was a success. The energy gathered and stored during daylight carried the plane and its pilots through the night without a drop of fuel being needed. That is no longer just a claim; it is now a proven fact. Even if the round-the-world flight is not fully achieved (which, as I said, I do not believe will happen), the decisive messages will still have clearly come across. Thirty very hard years as an entrepreneur have taught me that innovation has a chance if one works at it with stamina and heart and soul. That's why I remain positive and believe in this team.

So: innovation, innovation, innovation. Joseph Schumpeter saw in innovation the essence of economic activity and spoke of a process of "creative destruction" from the "inside out". Last question: do you see yourself as an innovator?

As I told you at the beginning, Schindler's products should be in the spotlight and not me as an individual. But what I can tell you is that innovation is the answer to changes at all levels. The geographical footprint of the markets that are relevant to us is changing, and so are the scale and the definitions of the products. Today, what is wanted are not simple finished installations but comprehensive solutions for urban mobility that give equal weight to energy efficiency. Schindler recognized this very early. As a result, we were able to fundamentally change the elevator industry. For example, with the invention of the hall-call destination system. With individual access and traffic management. With the machine-roomless elevator. With low-abrasion drive mechanisms that ultimately made it possible for motors to be miniaturized. And now with solar technology. For a long time it was clear: a lift had a steel cable, the buttons were inside the cabin and it was an isolated, stand-alone installation. To move from there to complex interlinked horizontal and vertical transit management systems needs bright ideas, the will to question tradition and the courage to think in new dimensions.