Meet Bertrand Piccard, zero-emissions globe-trotter

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Clara Young [00:00:04] Welcome to OECD podcasts, where policy meets people. I'm Clara Young and I'm here in the studio with Bertrand Piccard. Bertrand is an explorer in the old-fashioned sense of the word. He's circumnavigated the globe twice, once in 1999 on a hot air balloon, and again in 2016, when he and co-pilot André Borschberg flew around the world in a solar-fueled airplane. Bertrand calls that flight Act One in his long-term vision of things. Act Two is the Solar Impulse Foundation. Named after the airplane, the foundation brings together established companies, civil society organisations, governmental agencies, and start-ups, and the goal to get energy-efficient, low-carbon innovations into production and onto the global market. So thanks for coming in, Bertrand.

Bertrand Piccard [00:00:54] It's a pleasure. Thank you for the invitation.

Clara Young [00:00:56] Exploring is a family trait for you. Your grandfather and your father both pulled off exploits as impressive as yours.

Bertrand Piccard [00:01:06] Up and down. My grandfather was the first man in the stratosphere, actually, the first one who saw the curvature of the earth with his own eyes, inventing the pressurised cabin that is now used for all modern aviation. And his goal was to prove that it was possible to fly above the bad weather, in thinner air where the fuel consumption would be lower. So his concern was already environmental. And then my father made the deepest dive ever in the Mariana Trench with his bathyscaphe submarine. And the goal was to see if there was life on the bottom of the oceans in the period—it was 1960, not so far away—where governments were crazy enough to believe they could use the deepest trenches in the oceans to dump the radioactive and toxic waste. So when my father and his colleague Don Walsh saw there was a fish down there, it proved that there was life, that there was [were] currents from the surface to the bottom, bringing oxygen and, of course, counter currents, bringing back everything that would be on the bottom to the surface. So it was a big milestone for the protection of the environment.

Clara Young [00:02:13] And that stopped a radioactive dumping of—

Bertrand Piccard [00:02:18] Yes. From that moment on, it was prohibited to dump toxic waste in the oceans.

Clara Young [00:02:23] And then we come to you, who flew around the world without using a drop of fuel. You had to develop quite a lot of cutting-edge technology for Solar Impulse Two. What was the trickiest?

Bertrand Piccard [00:02:36] The trickiest was to have an airplane that was efficient enough in terms of energy to cope with the amount of energy we could receive from the sun. So for this, we needed an airplane that had the wingspan of a jumbo jet, even more, and [that was as] light as a family car. So that was very, very difficult to build. And it was so funny to see that the world of aviation thought it was impossible—they refused to build the plane. And finally, it's a shipyard who built all the big pieces of the plane. Because they did not know it was impossible, and they could do it. So it really shows that very often innovation comes [from] outside of the system.

Clara Young [00:03:11] Aviation right now produces about 1.5% of total carbon emissions. But we're expecting the number of people who take planes to basically double in the next 10 to 20 years, so carbon emissions is [are] going to go up. Will we be seeing Solar Impulse's design and technology in brand new airplanes?

Bertrand Piccard [00:03:35] In seven years and four months, to be precise, you will have electric airplanes transporting 50 passengers on short haul. And I can be so precise because two years and eight months ago I said in 10 years. So the countdown has started. And I tell you it will happen. All the people who were laughing at me when I initiated the Solar Impulse project are now actively working on electric airplane programmes. So, it's a good sign and you will have small, big airplanes, you will have flying taxis, transporting four people and vertical takeoff and landing in the cities, but all electric and zero emission.

Clara Young [00:04:10] Because of the problem before that people were bringing up was that, oh, you flew alone, but it couldn't carry the weight of more people. So you are solving that. Engineers are finding a way around it.

Bertrand Piccard [00:04:22] You know, Charles Lindbergh, he crossed the Atlantic in 1927—solo. He was alone in the cockpit. The Wright brothers, although they were two, they were flying each alone in 1903. So, you have to start with something. You have to show what is feasible. And after the era of the pioneers and the explorers, then you have the air of the industry who takes it over, develops it, commercialises it, and brings it to the public.

Clara Young [00:04:49] What was it like to fly in an airplane that didn't need fuel? You flew day and night as well. What was that experience?

Bertrand Piccard [00:04:57] You know, it's the first airplane ever who theoretically had perpetual endurance. The plane could stay in the air as many cycles, day and night, as we wanted. It was only the pilot who was the weak point. So when you fly several days and several nights in a row, when you have no fuel, when you have no pollution and no noise, at the beginning, you think, wow, I'm in the future. And actually it's wrong. You're not in the future. You're in the present, with what the current technologies allow you to do. And at this point, you understand how much the rest of the world is in the past. It's the rest of the world that is in the past with very old, inefficient, dirty, polluting systems, devices, infrastructures, sources of energy.

Bertrand Piccard [00:05:42] And this has to change.

Clara Young [00:05:44] And noisy as well. Because you also talked about how quiet it was.

Bertrand Piccard [00:05:48] Yeah, absolutely. But, you have to understand that most of the pollution, most of the CO2, most of the depletion of natural resources, is made by inefficient systems that we still use today. Half of the energy, half of the resources are lost just because of the inefficiency. When you see

a thermal engine in a car, it's 27% efficiency. An electric engine has 97% efficiency. It's the same for the LED. It's the same for heat pumps compared to electric radiators or fuel heating systems. All our world today is inefficient. We are losing energy, wasting natural resources. And this is really crazy and stupid because solutions exist. We could save already today half of the energy.

Clara Young [00:06:36] One of the things that your foundation does is to single out green start-ups. And you're looking for technology just like you spoke of that is energy efficient and that is clean, that helps protect the environment, and that is profitable for investors, too. And you're helping them get off the ground, am I right?

Bertrand Piccard [00:06:54] Yes, it has to be profitable.

Bertrand Piccard [00:06:56] You know, when you want to protect the environment, you have to speak the language of the world of politics, economics, industry, finance. Otherwise, they will just not do it. So if you come and you say, I want to protect the environment, the people will say, yes, of course, but we don't know how. If you come with solutions that create jobs, make money, sustain growth, but clean growth, you protect the environment and at the same time you make money, then everybody will agree. And this is what we are doing now. I launched the challenge of identifying and selecting 1,000 of these solutions. And you cannot imagine the creativity of corporations and start-ups. You have small start-ups who have really cutting-edge technologies ready to come on the market. And why are they not yet successful? Because the legal framework is too complacent. It's laid back. The legal framework allows today to pollute. There is no price on carbon. There is no obligation to be efficient. So all these cutting-edge technologies, they remain in start-ups or research labs, instead of creating jobs and coming on the market.

Clara Young [00:08:06] So governments should help by making our regulations stricter about pollution and about carbon emissions. Is that what you're saying?

Bertrand Piccard [00:08:15] Yes and no. We don't need more regulation. We need modern regulations. We need standards that are adapted to the technologies of today, not standards that are matching with the technologies of 10 years ago and the cost of 10 years ago. You know, so many people today don't know, they just are not informed, that in half of the world, solar energy produces electricity three times cheaper than gas and coal. Three times cheaper. So all this has to be known. All the efficiency—how to make energy-neutral buildings, electric mobility, LED lamps, heat pumps, smart grid, new industrial processes, new ways to produce energy. All this is ready. And it will bring growth. It will bring money. It will bring jobs.

Clara Young [00:09:00] You're looking for a thousand solutions. And that's the hashtag of the foundation. What number are you at right now?

Bertrand Piccard [00:09:07] So now we have more than 1500 companies who are members of the World Alliance for Efficient Solutions that I've created, and they submitting solutions. 600 solutions are in the pipeline to be assessed, and 75 are already assessed with the label. Our experts, or experts we work with, have assessed the solutions and the angle of the technical feasibility, the positive impact for the environment and the profitability. And there's the label—Solar Impulse Efficient Solution label—the first

label that proves the profitability of environmental actions or products. And we're very proud of it because this can really help people to take more clever decisions.

Clara Young [00:09:50] What is one of the projects that you're quite excited about that you can tell us about here?

Bertrand Piccard [00:09:55] I love the system called ANTISMOG, which is a little box that you can install on every thermal engine in a car, and it reduces 80 percent of the particles emitted, and it reduces 20% of the fuel. So this can really help to have much more ambitious standards for efficiency of cars and car pollution. Another system that is so interesting, you can make energy with waves. You install some floats with pistons on the piers, on the walls that are alongside the ocean or the sea. And the waves just move the piston and create energy. And it's very profitable and extremely efficient.

Clara Young [00:10:37] Have these gone on the market?

Bertrand Piccard [00:10:40] So they are now at the stage where they are ready, and they are starting to come on the market. Some are just installed here and there. And our goal is to make them known. Their goal is to use the label to be credible. And we have to bring this portfolio of a thousand solutions to heads of states, to governments, to big corporations, and show them, what is the reality of today. Because these people, usually, they are still completely in the past. They don't know what exists today.

Clara Young [00:11:10] Which countries or states or areas, regions have you been in that are very supportive and helpful with legislation and with supporting these kinds of initiatives?

Bertrand Piccard [00:11:20] Scandinavia. You know, Sweden has a carbon tax that is 135 euros per tonne of carbon. And this is really interesting because in the beginning, people thought it would kill the industry. And actually, it obliged the Swedish industry to be more efficient. And now the Swedish industry is more competitive even for export. So it really shows that CO2 is not just a factor of pollution, it's a factor of losses and inefficiency. And you lose money if you produce more CO2.

Clara Young [00:11:51] People might not know that besides being an explorer, you're also a doctor and a psychiatrist. And when I hear about climate change, I have to be honest and say that sometimes, I block it off, because there's a certain amount of despair. And I'm wondering, what psychological insights do you have in getting people to deal with climate change and to do something about it and work together?

Bertrand Piccard [00:12:12] I try to change the paradigm. Climate change is not a very expensive problem, because otherwise nobody will have the courage to solve it. You have to present climate change or fighting climate change as an enthusiastic, profitable opportunity. Because this will create more jobs, more money, more profits, clean growth. It will re-enact the industrial spirit, you know, to bring to the society and to the world a new type of product. And today, you can fight climate change, and at the same time improve the quality of life of the people. You can help developing countries—the poorest countries—to fight poverty, to have local development, to create more wealth, if they are able to produce their own energy, to have microgrids, solar panels, batteries, pumps, plugs for mobile phones, you create local

economy, local developments, and people can be empowered. So fighting climate change today is a way to have the world being in a much better shape.

Clara Young [00:13:25] Well, thank you very much, Bertrand. And thank you, everybody, for listening to the OECD podcast. I'm Clara Young. To find out more about the Solar Impulse Foundation, go to solarimpulse.com and to listen to other podcasts. Find us on iTunes, Spotify, Google Podcast and soundcloud.com/OECD.