

rethinking CONSTRUCTION

Berd is a revolutionary company and an international reference in the supply of modular bridges.

Pedro Pacheco
PRESIDENT & CEO,
BERD



Can you elaborate on the inception, evolution, and main highlights achieved by your company?

Our company specializes in bridges and was established to bring to the market a new technology inspired by the human muscle. During my MSc, I studied natural structures such as shells, spider nets, and so on and identified the muscle as an incredible structural element. In my PhD thesis, I was focused in the muscle as a structural element and developed a system that reproduces the muscles to use in heavy construction. With my PhD thesis, I have won prizes in the field of structural engineering, attributed by FIB in Berlin in 2001. In that year, there were two best theses worldwide, one from Japan and mine. The research group celebrated an agreement with the industry and then conducted a pilot project. It was an incredible experience—it was the first time in the world that a heavy structure was dependent on software. There are jacks, which are the artificial muscles, there are cables, which are tendons, there are sensors which are the nerves and there is also a programmable logic controller (PLC), which is the brain. When there is a deformation, it “feels” the deformation and gives information to the PLC, and the jacks work, stressing the cables. That is how we created BERD, a small elite team of incredible engineers with great values and a can-do attitude. We had many investors, with interest perhaps six or seven times greater than the available shares. We immediately expanded to Spain and then to Czech Republic, Slovakia, Brazil, and so forth. Now, we have projects on five continents and five patents, one of which is

recognized in over 60 countries. We have expanded our operations and we have clients/projects in the US, Germany, France, Belgium, Slovakia, Czechia, Brazil, Venezuela, Mexico, and Turkey.

Can you shed more light on your division that supplies modular bridges?

In 2016, we decided to invest in a new business area: modular steel bridges, which are bridges that can be assembled in one week or 10 days, and some in 2 or 3 weeks. It was a major success, especially in Peru. We also developed interesting projects in Mozambique and in Canada where we had recently another order. This concept of modular bridges was developed by a British engineer in World War II, and they have incredible design for the time and moment. All the pieces are the same type, like with Lego. Considering the present knowledge, we understood that they were a little large, with too much weight, because they were made to be assembled by people hand-force with almost no training. Our analysis of this is that it makes sense not to make all the pieces the same size and shape but optimize them and make value-added engineering. In Peru, we offered 2,000 tons less than the initial project and helped the government not only save USD5 million, but also minimized several hundreds of tons of CO2 emissions.

What are your key priorities for this year?

We started working on an innovative software that can calculate all the costs related to the construction of a bridge. We are on our way to bring to market a software as a service to serve the bridge

engineering worldwide community. We have made some calculations and come to the conclusion that this is a “jackpot” and will be much bigger than BERD. We are investing heavily on this, and for the last nine months we have been preparing the engineering knowledge. We already have people working on the software and closed an investment by a VC last year to accelerate this. The valuation of bridge intelligence—which is a sector with no activity and nothing sold so far—is predicted to be much bigger than the entire business of BERD. ✖

BIO

Pedro Pacheco is professor of bridges of the civil engineering department at the faculty of engineering of the University of Porto (FEUP). He graduated from FEUP in civil engineering, structures and did his master's and PhD there as well. Among several national and international awards, his PhD thesis, “Organic Pre-Stressing – an example of an effector system,” was recognized by Fédération Internationale du Béton in 2001. He is an author of dozens of scientific publications and is presently chairman of IABSE Commission 4 on bridge construction methods. He has been responsible for projects of more than 500,000sqm. He is President & CEO of BERD, a company he created in 2006. In 2016, he created BERD's modular bridge solutions division, which has already supplied about 200 bridges.