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A man from Ticino to link Europe and Africa

In Spain and Morocco, people are dreaming of a railway tunnel under the Straits of Gibraltar. Giovanni Lombardi, an engineer from Ticino, is heading up the international consortium carrying out a feasibility study for the project. His verdict: despite the short distance between Africa and Europe, we have a long way to go to achieve our goal. And the shortest route is not always the best. By René Lenzi

"We have to accept that we live in an unpredictable world where the unexpected can always happen." These were the words of Giovanni Lombardi when his engineering company celebrated its 50th anniversary in October 2005. This observation applies twice as much to his latest project. The 82-year-old from Ticino is planning nothing short of a transport link between Spain and Morocco, running underground or, more accurately, under the seabed. Not only are there huge geological imponderables involved, but political ones as well. Plans for a railway tunnel between the two continents are generating excitement and dreams, but there is also opposition on both sides of the Straits of Gibraltar.

It is therefore anything but a certainty that trains will one day travel between Africa and Europe. But even if the tunnel does not go ahead for geological, financial or political reasons, it is still by far the most spectacular project in Giovanni Lombardi's long engineering career. And that is saying something. This well-travelled engineer from Ticino, who speaks five languages, has after all worked on major projects in more than 60 countries. His most famous constructions include the 220-metre-high dam wall in the Verzasca Valley and the 17-kilometre road tunnel through the Gotthard. He won this contract because he chose the best route rather than the most direct. His tunnel follows the clefts of the valley in the mountains, which made access easier and required fewer deep ventilation shafts.

The fact that the shortest route is not necessarily the best can also be seen with the Gibraltar project. At the narrowest point, at 14 kilometres, the Straits are up to 900 metres deep. That would result in gradients in the tunnel which are not feasible for the railway. Lombardi has therefore chosen a route a little further west where the water depth is "only" 300 metres. This will extend the length

of the tunnel to almost 40 kilometres, but the gradients will be restricted to three percent, which is viable for trains.

More difficult than the Eurotunnel

However, the tunnel is still going to be around 475 metres below sea level in a geological area renowned for being problematic. This is where the plates of Europe and Africa rub against one another, causing tremors time and again. It is also unclear exactly what materials make up the seabed. Soundings are therefore needed, which would cost at least EUR 20 to 30 million. The water pressure of 500 tonnes per square metre is forcing the engineers to make plans to build the tunnel almost 200 metres below the seabed. Yet, according to Lombardi, this would still not guarantee that propulsion would be problematic.

A crossing above or beneath the Straits of Gibraltar is an age-old dream. A suspension bridge plan failed because of the strong currents between the Atlantic and the Mediterranean, and a car tunnel project was scrapped due to ventilation problems.

Now it is a two-tube railway tunnel with safety galleries that is under consideration, which can best be compared to the 50-kilometre Eurotunnel that joins France and the UK. However, the water depth in the English Channel is only 50 to 60 metres, and it was possible to build the tunnel between 45 and 75 metres below the seabed thanks to more favourable ge-



Giovanni Lombardi, an engineer from Ticino, is planning a tunnel below the seabed between Spain and Morocco.

ological conditions. Giovanni Lombardi says that, in comparison to the Gibraltar tunnel, "the Eurotunnel was like a game of Lego".

A boost for business or a poor investment?

Lombardi will present his project in July or August this year and recommend sound-

ings in the seabed. Spain and Morocco will then have to decide on implementation and financing. Lombardi's company hopes initial decisions might be made in October. The engineer will not venture an exact estimation of how much the tunnel would cost. Perhaps eight billion euros, perhaps ten, perhaps even more is all he will say. Without funding from a third party – such as the European Union – it will be virtu-

ally impossible to raise this amount of capital. Whether the project is a worthwhile venture is a controversial issue. Proponents predict a boost in trade. The freight containers that arrive in the developing port of Tangiers could get to Europe more quickly through

would pay off. The Eurotunnel, which was built without government assistance, cost 15 billion. Its operation is now profitable, but the operating company still has enormous levels of debt at EUR 9 billion.

Lombardi estimates that the construction machinery could move in by 2015 if

opposition can be overcome and all issues resolved. He believes the project would take between 15 and 20 years to complete. However, these are optimistic assumptions. It might take until 2050 before the first trains make the 30-minute journey between the two continents. In any case, Giovanni Lombardi is not counting on still being around to see the opening of his most spectacular project.

AN ENGINEER BORN IN TICINO WHO MOVED ABROAD

Born at the end of May 1926 in Lugano, Giovanni Lombardi grew up in France, to where his father had emigrated. Some of his primary school years were spent in Lugano. He later attended the "Institut auf dem Rosenberg" in St. Gallen and obtained his Swiss school-leaving qualifications in Basel – with the best average grade nationwide. He went on to study civil engineering at the Federal Institute of Technology in Zurich. He established his own engineering company in 1955. The company today employs around 100 staff at its head office in Minusio as well as at other branch offices. Lombardi built mainly dams first of all, but later specialised in the construction of tunnels. Over the past twenty years, he has mainly worked as an expert and consultant, including for the World Bank. Giovanni Lombardi, who lives in Monaco, describes himself as a man from Ticino and a citizen of the world. He is married with three grown-up children. His son Filippo has represented the Canton of Ticino in the Council of States since 1999.

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