

Technology & Health

In quest for electric supercars, engineers head to start-ups

Big carmakers focused on mainstream electric models, emissions

FRANKFURT: Rene-Christopher Wollmann, head of Mercedes-AMG's 2.75 million euros Project One supercar program, has moved to a job at Automobili Pininfarina in a sign that innovation in high end electric sports cars is shifting toward small start-ups. Wollmann's move, which has not been made public, comes at a time when big carmakers, like Volkswagen and Mercedes, have been blindsided by stricter and costly emissions tests, forcing them to focus resources on mainstream electric models and on cleaning up their combustion engines.

Meanwhile advances in virtual engineering allow even small teams of engineers to develop roadworthy vehicles using software to design, engineer and test prototypes. This dynamic has already helped Tesla and China's Nio steal a march on much larger rivals in the premium electric sports car segment. "Large companies take time to transform. And I am good at hypercars. I just did Project One, and now this opportunity came," 37-year-old Wollmann told Reuters about his reason for joining Automobili Pininfarina, a Munich-based electric carmaker that launched last year.

Project One, which has a modified Formula One engine, was due to go on sale this year but has been delayed by problems getting road worthiness certification following the introduction of WLTP emissions test standards, according to sources familiar with the matter. Premium or high-performance electric sports cars are equivalent to the Ferraris and Lamborghinis of the conventional auto world. These so-called supercars can cost anything from about \$100,000 up into the millions of dollars and include Tesla's upcoming Roadster Founder Series, which will sell for over \$200,000 and the Rimac Concept Two, priced in the region of \$2 million.

The emerging role of start-ups in the development of the premium electric market harks back to an era over a century ago when talented engineers like Gottlieb Daimler and Ferdinand Porsche were able to launch sports car brands on modest budgets. Players leading the way include the likes of Automobili Pininfarina, Croatia's Rimac, China's Nio and Italian engineering shop Italy's Manifattura Automobili Torino (MAT). But because of the high initial investment needed, with no guarantee of success in a niche market, boutique supercar manufacturers face significant risks if they try to develop more than one vehicle or shift to becoming mainstream carmakers.

New limbs, new life for South Sudan amputees

JUBA: Stephen, 12, romps confidently around the sunlit courtyard, weaving in between wheelchair-bound patients as he plays with the other children, his prosthetic leg barely a hindrance. When he was five years old, the car he and his family were travelling in hit a landmine in South Sudan's northern town of Bentiu. His grandmother was killed. His left leg was shattered and had to be amputated.



JUBA: An amputee walks with the aid of crutches and a prosthetic leg inside the physical rehabilitation centre run by the International Committee of the Red Cross (ICRC). — AFP

Stephen was flown to a physical rehabilitation centre run by the International Committee of the Red Cross (ICRC) in Juba, which serves both as a prosthetics factory and a hospital for patients coming from all around the country to be fitted with new limbs. "It helped me to go to school," Stephen says shyly, pointing to his artificial leg. After receiving his first prosthesis in 2013, war prevented Stephen from being able to return for new fittings every six months as recommended.

When he finally made it to the centre this month, his prosthesis was far too short. South Sudan's five-year-long civil war has left possibly tens of thousands of people without limbs — a toll that may never be accurately established. Approximately 60 percent of the patients who come to the Juba centre — one of three in the country — have gunshot-related injuries and disabilities, according to the ICRC.

But much of the country faces limited access to healthcare, a result of fighting or simply a lack of infrastructure, with roads typically being utterly impassable during the rainy season. Many limbs are amputated for no other reason than lack of treatment. "A simple injury or fracture that could be treated easily in most countries... can result in infections here which result in an amputation because of problems with healthcare," said ICRC prosthetic specialist Regis Tiffeneau. "The large majority of patients are affected by the war in one way or the other."

Others became disabled by polio, rickets — linked to malnutrition — or other diseases that have been eliminated in so many other parts of the world.

Lack of access

In the factory, plaster is slapped on models of legs whirring on machines as workers shape them and then slather them in dark brown plastic. Workshop manager Emmanuel Loubari said that the prosthesis can be made

400 km/hour

Wollmann was hired because he also helped develop an electric version of the AMG SLS for AMG Mercedes, a skill that will help Automobili Pininfarina, owned by India's Mahindra & Mahindra Ltd, develop its own zero-emissions vehicle. "I did the first electric hypercar for AMG so this was the perfect fit," he said.

Since its 2018 launch, Automobili Pininfarina has hired a raft of top-flight German engineers. Christian Jung, Porsche's chief engineer of E-Mobility systems, and Peter Tutzer, a former technical director at supercar brand Bugatti, are part of the team. They are designing the "Battista", an electric supercar with a top speed of at least 300 km an hour and acceleration from 0 to 100 in under two seconds. Around 150 will be built, costing 2 million pounds each, the company said.

"Rene Wollmann came to us because he said it was difficult to realise projects like these at a large company," Michael Perschke, Automobili Pininfarina's Chief Executive told Reuters. Another start-up electric carmaker, Rimac, will provide the Battista's electric motor and battery pack. Rimac has built up expertise in high-performance electric vehicle powertrain and battery systems. It already has 500 developers in Croatia and made an electric sports car capable of speeds of 400 km an hour.

Its expertise led Porsche to take a 10 percent stake in the carmaker last year. "Powertrains with 700 kilowatts of capacity are a niche product. Porsche focuses on the high volume stuff. They don't have the capacity to deal with every niche," 31-year-old company founder Mate Rimac told Reuters.

'Not all in'

There are two ways to make battery-driven vehicles: to use a clean-sheet design like Tesla, or to take a conventional vehicle platform that can also accommodate an electric version. For now, Daimler and VW have taken the latter approach, building electric cars on the same assembly line as their conventional vehicles, allowing them to scale up production without having to build dedicated electric car factories.

VW has however started development of a fully dedicated electric car, the ID, which is due to hit showrooms next year. Daimler engineers say the trend towards multi-powertrain platforms is likely to persist thanks to improve-

ments in battery technology which allow even multi-powertrain designs to spawn electric cars with an operating range of over 400 km.

But critics counter that combustion-engine cars have less space for large batteries, resulting in vehicles with a compromised design that have a shorter operating range than cars designed as electric cars from the ground up. "Eight years later and Tesla still has the better car than the Audi E-Tron, or the Mercedes EQC," Rimac said. "It is not because the Germans are stupid. It is because they are not 'all-in'. They work from the basis of the combustion engine toward electrification. I started electric only."

Start-up carmakers are better able to compete with large established players thanks to advances in virtual engineering and the prevalence of consulting firms that specialize in software and IT systems, like Germany's Ferchau Engineering and Italy's Danisi Engineering.

Following a meeting with European Parliament President Antonio Tajani, Thunberg urged voters to use the opportunity to "influence the decisions" on climate taken by elected and appointed officials. "We still have an open window that is not going to be open for long in which we can act," she said. "So we need to take that opportunity to do something and they (politicians) should do something."

During a visit to Brussels in February, Thunberg urged the EU to double its ambition for greenhouse gas cuts, upping its target from 40 percent to 80 percent by 2030. Under the 2015 Paris deal to limit global warming to well below 2 degrees Celsius, the 28-nation EU has pledged to cut greenhouse gas emissions by at least 40 percent by 2030, compared to 1990. EU officials are now talking of increasing the figure to 45 percent.

The UN's Intergovernmental Panel for Climate Change (IPCC) has said warming is on track toward an unlivable 3C or 4C rise, and avoiding global chaos will require a major transformation. Thunberg, who is due to speak to a parliamentary committee in the afternoon, has inspired tens of thousands of children worldwide to boycott classes to draw attention to climate change. A demonstration calling attention to climate change is due to take place later Tuesday in Strasbourg before the parliament. — AFP

For those who have used a prosthesis before, like Stephen, it takes only two or three days before they are ready to go home. But for new patients it can take a few weeks. Other patients at the centre currently include a young man with severe scoliosis — a curved spine — who was being taken to school in a wheelchair until he was brought in to get a customized wheelchair.

Another was bitten by a snake and was not treated for almost two weeks, so his leg had to be amputated. "We have a lot of children coming in," said physiotherapist Oketta Robert Kanyara. "We have five children in the centre, shot in different styles... We have children shot while tied to their mothers' backs."

Five-year-old Laytol was probably bitten by a snake. Her mother comes from the Murle people, and the doctors have difficulty understanding the language. But they believe her leg "could probably have been saved" if she had got help in time. Laytol is trying out her new leg for the first time, balancing herself calmly between two metal bars. Kanyara, the physiotherapist, said training children requires using games, as they do not understand the idea of shifting their weight and struggle to follow instructions.

But progress can be made. When the physiotherapist started work with Stephen, the boy who lost his leg in a landmine in 2013, the challenges were many. "It was very, very difficult," Kanyara said. "You tell him to do weight bearing, but he starts crying, so you have to go slowly." Little Laytol took to her new leg more quickly. "She is very good," Kanyara said. "She is fitted today, and she is not crying. She is walking." — AFP

On Saturn's moon Titan, plentiful lakeside views, but with liquid methane

WASHINGTON: Scientists on Monday provided the most comprehensive look to date at one of the solar system's most exotic features: prime lakeside property in the northern polar region of Saturn's moon Titan - if you like lakes made of stuff like liquid methane. Using data obtained by NASA's Cassini spacecraft before that mission ended in 2017 with a deliberate plunge into Saturn, the scientists found that some of frigid Titan's lakes of liquid hydrocarbons in this region are surprisingly deep while others may be shallow and seasonal.



SHANGHAI: A model stands beside an Icona Nucleus self-driving electric vehicle concept on the opening day of the Shanghai Auto Show. — AFP

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Europe voters urged to mobilize behind child climate activists

STRASBOURG: Sweden's teenage activist Greta Thunberg yesterday urged Europeans to vote in next month's elections on behalf of young people like her who cannot yet cast ballots but demand decisive action against climate change. During a visit to the European Parliament in the French city of Strasbourg, Thunberg, 16, told a press conference that time is running out to stop the ravages of global warming.

"I think it is essential to vote in the European Union election," Thunberg said when asked about the May 23-26 elections for a new European Parliament. "I'm not going to vote in the European election because I can't," she said, because she is too young to vote in Sweden. "Therefore it's especially important for those who actually can vote to give us that in order to speak on behalf of people like me who are going to be affected very much by this crisis," Thunberg said in fluent but halting English.



LONDON: Activists dressed in costume stand atop a bus shelter on Waterloo Bridge as they demonstrate on the second day of an environmental protest by the Extinction Rebellion group. — AFP

Titan and Earth are the solar system's two places with standing bodies of liquid on the surface. Titan boasts lakes, rivers and seas of hydrocarbons: compounds of hydrogen and carbon like those that are the main components of petroleum and natural gas. The researchers described landforms akin to mesas towering above the nearby landscape, topped with liquid lakes more than 300 feet deep comprised mainly of methane. The scientists suspect the lakes formed when surrounding bedrock chemically dissolved and collapsed, a process that occurs with a certain type of lake on Earth.

The scientists also described "phantom lakes" that during wintertime appeared to be wide but shallow ponds - perhaps only a few inches (cm) deep - but evaporated or drained into the surface by springtime, a process taking seven years on Titan. The findings represented further evidence about Titan's hydrological cycle, with liquid hydrocarbons raining down from clouds, flowing across its surface and evaporat-

ing back into the sky. This is comparable to Earth's water cycle.

Because of Titan's complex chemistry and distinctive environments, scientists suspect it potentially could harbor life, in particular in its subsurface ocean of water, but possibly in the surface bodies of liquid hydrocarbons. "Titan is a very fascinating object in the solar system, and every time we look carefully at the data we find out something new," California Institute of Technology planetary scientist Marco Mastrogioseppe said.

Titan, with a diameter of 3,200 miles (5,150 km), is the solar system's second largest moon, behind only Jupiter's Ganymede. It is bigger than the planet Mercury. "Titan is the most Earth-like body in the solar system. It has lakes, canyons, rivers, dune fields of organic sand particles about the same size as silica sand grains on Earth," Johns Hopkins University Applied Physics Laboratory planetary scientist Shannon MacKenzie said. — Reuters