

THE ULTIMATE EVOLUTION

Canyon's lightweight bike helped to announce the German disruptor on the world stage. Almost two decades on, its fifth version has the established order chasing to keep up

When a relatively unknown up-start unveiled its new road bike at one of the world's biggest cycling trade shows back in 2004, it was clear it held lofty ambitions. Titled the Ultimate, the bike was part of a new wave of lightweight carbon fibre machines led by the Scott CR1.

It didn't take long for it to prove it was more than a mere prototype. During the Ultimate's first season at the highest level, Baden Cooke powered one to its debut win on stage 3 of the 2007 Tour Down Under. It has been piloted to multiple Grand Tour and World Championship wins since, and has proven itself in a variety of environments – from André Greipel outsprinting Mark Cavendish at the 2011 Tour de France to Mathieu van der Poel taming the white gravel roads of Strade Bianche a decade later. Today, the German brand and its pro-focused all-rounder are synonymous with success, with the latest generation of the Ultimate securing Grand Tour stage wins before it had even been officially released.

Here's how a model from a direct-to-consumer bike manufacturer based on the banks of the Moselle went from outsider to world leader in less than two decades.

Founding principles

Cast your mind back to the road bikes of the millennium's first decade, and one thing ruled above all else – weight. Cables were exposed, a wheel's rim was multifunctional, and the frame's tube profiles didn't scream aerodynamic. It was what the scales said that mattered above all else.

The first Ultimate was no different in its approach (the 56-size frame was a slim 960g) but looked to set itself apart from the competitors in terms of stiffness to weight. It needed to be light enough for climbers, but it also had to be stiff enough to transfer the power required to turn surges into breakaways. It's a factor that remains at the core of the range today.

text by CHARLIE ALLENBY
photographs by SEAN HARDY

“That was a consistent goal for all the development,” explains the brand’s road-focused junior product manager, Matthias Eurich. He adds that other market demands have influenced the focus of later releases. “We adapted to that with generation four, where the first aerodynamic improvement was made. For gen five, we made a big step with aerodynamics; compliance also took off within the last [few] years.”

The result is a World-Tour-ready race bike that is wind-tunnel tested and is available 500g under the UCI’s 6.8kg weight limit, yet still has room for plush, 32mm tyres and a comfort-focused carbon layup on the seat post and frame.

Professional input

Although these latter points will appeal to some of the bike’s broad customer base, the Ultimate is still designed first and foremost with the professional peloton in mind. “We gave the pros the bike about one year ago with the [standard] seat post in

it and they said, ‘It’s too comfortable, we need it stiffer,’” laughs Eurich. “We developed a second seat post especially for them that is really stiff, and has zero rather than a 20mm setback – there’s a big movement in the pro peloton where riders are sitting over the bottom bracket more and more. This is specced in the CFR version.”

It’s not just the fine-tuning of saddle positioning that the professional teams Canyon supports feed into. Before the designers even start the initial sketches for the next iteration, they collate feedback from those with countless hours of experience of the current model – the riders and their mechanics.

“With this project, they were involved in every R&D stage,” explains Eurich. “It starts with the geometry. Our pros were really in love with the Aeroad geometry and liked the idea of being able to swap between bikes depending on the stage.” The result is that the latest Ultimate has almost

exactly the same proportions and ride position as Canyon’s aero-focused platform.

Their input isn’t always obvious, though. Mechanics need to be able to work at speed, so the highly sophisticated cable routing in the fully integrated cockpit also had to be easy to use. They also don’t have an endless supply of bikes mid-stage, so frames need to be durable. “The biggest failure of the fourth generation in a crash was that the top tube would get destroyed by getting hit by the handlebars,” says Eurich. The new model brings an impact protection unit chip over from the brand’s mountain bike range. Installed underneath the headset, it prevents the handlebars from turning more than 90 degrees and striking the top tube in the process.

The changes had an immediate impact during prototype testing, when one rider from each team was specially selected to put the Ultimate through its paces. “One of them was [Alpecin-Deceuninck’s] Tim

Merlier, as he is well known for destroying every bike he gets his hands on. So far, he hasn’t destroyed his Ultimate. We’re very proud of this,” adds Eurich.

Design time

Once the engineers have finalised the geometry, it’s over to Lars Wagner. The lead designer for the last three generations of the Ultimate, he’s the person responsible for taking the unrefined, round-tubed configuration that Cadel Evans rode to victory at the 2009 World Championships, and evolving it into the sleek, three-time Grand Tour-winning build that has redefined what an all-round race bike should be.

“I started to work for Canyon 12 years ago and the second-generation Ultimate was the bike I wanted to have,” says Wagner. He was given the unenviable job of improving his ‘dream bike’, but there were some clear tweaks he could make without altering its spirit.

None of the frame’s tube joins had really been shaped,

so he set about smoothing out the transitions, shaving material and therefore weight in the process.

He also introduced the bike’s now iconic wide seat stays, which blended seamlessly with the top tube rather than stopping at the seat tube. It wasn’t just for aesthetics, either. “Head tube stiffness is the main thing you want to have. If you have good head tube stiffness, you [automatically] have a good bottom bracket stiffness,” he explains. “A bigger [seat stay] width means more structural stiffness. If you add structural stiffness, you can use less material to get your head tube stiffness.” Finishing touches included integrating the braking and shifting cables into the frame for the first time.

“It was already a dream for me to build the next generation of my dream bike, and then it wins the Giro d’Italia,” adds Wagner, with Nairo Quintana claiming his and the Ultimate’s first Grand Tour win in 2014.

“I could have stopped working at this point.”

Going aero

Just as Canyon was finalising the third-generation Ultimate, there was a growing consensus that aerodynamic efficiency shouldn’t be limited to aero or time-trial bikes. “It was too late,” admits Wagner. “We said, ‘Stiffness to weight is the only thing we have to fulfil.’”

That brief soon changed when he started working on version four: “It was clear it had to be aero and we had to go to the wind tunnel.” Previously told by engineers that hard edges weren’t good for carbon and added weight, he now had the possibility to design tubes that were D-shaped rather than oval, reducing drag by altering the downstream shape from spherical to flat. The fork and cockpit were also refined, while integration went even further, bringing the seat post’s bolt into the frame and removing the need for an external clamp. The 2015 release



ended up being lighter than the previous version and reduced drag by 14 per cent without sacrificing any of that all-important stiffness.

The bike's palmarès speak for themselves. A second Grand Tour win at the Vuelta a España for Nairo Quintana in 2016 was followed by a rainbow jersey victory for Alejandro Valverde at the 2018 World Championships, while 2019 saw Kasia Niewiadoma storm to victory at Amstel Gold and Richard Carapaz add another Giro d'Italia to the Ultimate's growing list of successes.

Responding to trends

The adoption of aerodynamics isn't the only way that the Ultimate has evolved in recent years. Despite its seven-year shelf life, the fourth generation went through a number of iterations as the pro peloton and overall customer base reacted to shifts and improvements in componentry – most notably the introduction of disc brakes and the trickle down of electronic gearing.

The former led to adaptations on the forks and rear triangle, where dropouts designed for a quick-release system were altered to secure a thru axle, and tweaks were also made to mount disc brake calipers.

When the time finally came to start designing the fifth generation three years ago, what had been niche inclusions as recently as 2015 had become industry standards found on even mid-tier bikes. "I was thinking about this evolution story and what is the logical next step," explains Wagner. "We had integrated the cables a little bit more, but how big could the next step be?"

He set about working on the goal that everything was completely inside, aided by the fact that the majority of new bikes – from mid-range to WorldTour-worthy – had disc brakes and electronic shifting. The chainstay is a prime example. Previously, a mechanical shifting cable had to be routed below the bottom bracket and travel along the chainstay before it was connected to the

rear derailleur. "For electronic shifting, I don't have to do this," explains Wagner. "We were free to place the chainstay where we wanted, so we lifted it up." This enabled the tube connecting the bottom bracket to the thru axle to be shorter and completely straight, reducing weight and surface area in the process.

Other changes included using the same cockpit from the Aeroad to allow braking hoses to be fully integrated, rather than relying on covers. Tube profiles were refined even further to improve aerodynamics. The result is a bike that not only looks cutting edge, but has managed to shave an extra five watts of drag at 45kph.

Looking to the future

The latest Ultimate broke cover at the 2022 Critérium du Dauphiné and didn't take long to add more victories to its already impressive collection. Alpecin-Deceuninck's Australian mountain specialist Jay Vine soloed to his and the fifth generation's first WorldTour stage win on one of the biggest stages

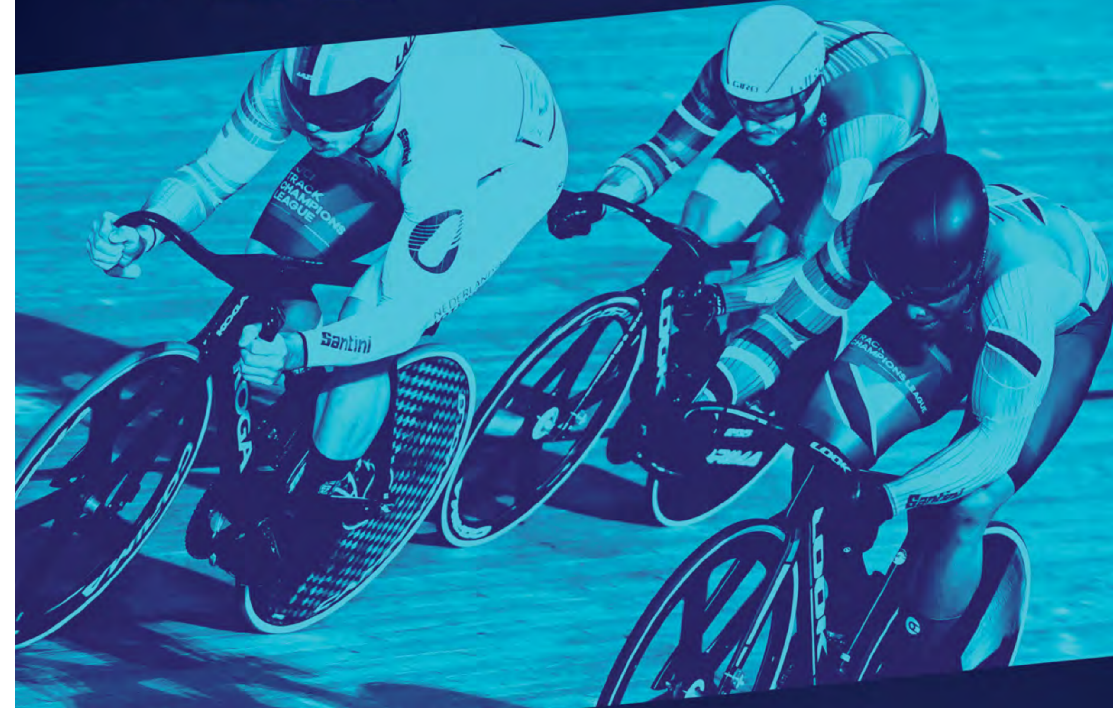
of them all – the Vuelta – before backing it up two days later with an even more commanding performance from bike and rider. The Ultimate finished on the podium in the general classification beneath Enric Mas, proving its all-rounder status.

Canyon expects the latest generation to have the same staying power as the previous version. "It's fair to say that we are looking at a design classic at the moment that doesn't have to be reworked every three years," concludes Eurich. "I don't see the classic road market developing in any region that we can't cover with this bike."

Wagner adds that the increased electronic integration of features such as bike trackers and crash warnings and more forms of handlebars might be on the horizon in years to come, but that these are minor updates compared to the changes he's witnessed in the road market over the last decade: "I really cannot imagine working on the next generation. This is the perfect Ultimate." ●



UCI
TRACK
CHAMPIONS
LEAGUE



EVERY. RACE. MATTERS.

Don't miss two incredible evenings of track racing action where the 2022 series champions will be crowned.

Round 4 Friday 2 December
Round 5 Saturday 3 December

TICKETS SELLING FAST
LIMITED AVAILABILITY

BUY TICKETS

ticketmaster.co.uk/track-champions-league

