

Mercurial Boot

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The Mercurial story demonstrates how design thinking, material science, engineering, and user-centred research all come together in real-world product development. Using examples like this can help students see the direct connection between the skills they practise in school from prototyping, testing, iterating and refining and the challenges faced by professional designers. It's a tangible way to inspire learners to think critically, solve problems creatively, and understand how design impacts performance.

How do you deliver the lightest and thinnest football boot that's fit for Mbappé, and make sure it's ready for the Olympics?

It starts with a bold challenge and an even bolder team. As a designer, you're sometimes tasked with updating a previous design or asked to bring a fresh idea to the table and create something entirely new. For the Mercurial, it was the latter, meaning we had to approach the design development with fresh eyes.

Building Around Innovation

From the start we knew this boot would be different as it was going to include a responsive, three-quarter-length Zoom Airbag to provide additional support and foot flexibility. The pressured air system was designed to absorb impact and promote fast movement. Our task was to create a holistic boot design that built on this technology to maximise speed and increase boot-to-ball sensation.

Listening to the Athlete

When starting a project of this nature, it's essential to listen to the user or in our case, the voice of the athlete. Footballers often stress how important it is for their boot to feel like a natural extension of their foot, and how they perform at their best when the boot moves with them and not against them.

"Being a Mercurial athlete, I'm always thinking about speed. I want to be faster than my opponent", says French national team star Kylian Mbappé, who wears the Nike Air Zoom Mercurial.

"What excites me most is that this technology is revolutionary. Air is what's really going to put the Mercurial athletes in the best conditions to perform."



Nike Football,
Kylian Mbappé
tinyurl.com/5mb6fa4f



Nike Material Choice
and Trims
tinyurl.com/2s35p2fz



Nike Circularity
tinyurl.com/evv69t4d



Behind the Design
Choices at Nike
tinyurl.com/493yfkew

Precision Through Prototyping

To make this a reality, we had to evaluate each component of the shoe. Testing in the Nike Sports Research Lab created a lockdown map that showed all areas of the foot that need to be supported, giving insight into how different zones of the boot were used and allowing us to tune the performance of the materials on the upper to ensure we were putting the correct mix of materials exactly where they needed to be. As we were utilising flat knit technology, a zero-waste method of make, we could engineer stitch by stitch at a pixel level how our material needed to function.

Placing Nike's proprietary grip yarn just where it needed to be to improve strike accuracy in the forefoot, while reducing weight in other zones of the boot by combining lightweight, ultra-strong yarns with new post-processing techniques to reduce the thickness of the Flyknit upper from five layers of material to three layers, or by nearly 30 percent, making it more moldable to the foot and creating the lightest, thinnest full Flyknit upper ever for Nike Football.

The Power of Iteration

A key element of delivering successful innovation is iteration. As a team we used physical hands-on prototyping right from the start of the project, getting a sense of the scale, shape, and proportions of the boot allowed us to make edits and further refine our ideas in 3D. Through programming knitted upper pullovers and testing the performance of the materials and components throughout the development process we were able to fail fast and move through different revisions to land at a design we were all happy with. Being able to touch and hold prototypes in your hands from hand-built rough models to more refined 3D prints is invaluable to troubleshoot ideas and get a sense of how the parts will work together as a system.

Teamwork at the Core

This leads us to the next key factor of successful innovation... strong team collaboration. It's easy to think there's a singular designer behind bold concepts like this; however, the opposite is usually true. It takes a village of highly skilled and diverse people to bring a shoe to market. The range of different roles involved in a product like this are vast and that's what makes it special. When working on the Mercurial we had a team built from innovation, computational design, footwear design, engineering, colour and materials, polymer science, sports science, knit design and programming and our factory production partners.

Being able to leverage the range of experience and skills across this group allowed us to successfully come up with new ideas and bring them to market as a manufacturable design, gaining two patents along the way for both the upper knit construction and the tooling design.

Storytelling Through Design

Lastly, storytelling... Nike is renowned for its ability to connect sport and culture and tell engaging stories that excite the consumer. This boot was no different, knowing your design will be worn during the biggest moments in sport, the Paris Olympics and the European Championships, brings another layer of pressure. However, being able to take inspiration from an athlete like Mbappé is such a privilege.

In this case the team took time to learn more about him as a man and player, diving deep into his five previous player boots to create unique graphics and custom embroidery to call out special moments in his career. In the words of the man himself: *"Without risk, there is no victory."* Nothing could ring more true when it comes to designing for innovation.

