

A link between foot-scanning and lasts



Any size, any shape, any colour. Inescop is adamant the footwear industry's acceptance of innovation is allowing it to meet the ever-changing demands of consumers and making customised shoes ever-more affordable.

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Recently retired director of Spanish footwear research and technology centre Inescop, Dr César Orgilés, has said the footwear industry ought to be proud of the readiness with which it embraces new technology and works to incorporate new materials and other innovations into finished products. Examples he gives of shoe manufacturers' use of "some of the most advanced technologies available at the moment" include nanocapsules to generate comfort, antimicrobial functionality and foot health properties to shoes, biotechnology, the treatment of materials (including leather) to make footwear biodegradable, robotisation of production, computer-aided design, automated cutting, and the scanning of feet to improve production and to make it easier for manufacturers and brands to offer personalised shoes.

Footwear research centre Inescop has established a new method for scanning the foot, with the data connecting to an archive of digital lasts to let consumers know which lasts, and therefore which shoes, will provide the closest match to their feet.

"All of these developments have helped reduce design lead-times and have made it much easier for footwear companies to make the changes imposed on them by fashion trends," says Dr Orgilés, whose services Inescop has retained as a consultant. "Footwear manufacturers are using these technologies to make it economically viable for them to make small collections and even personalised shoes. Personalising shoes, using this combination of innovations, is becoming increasingly popular."

DATA MATCHING

In keeping with this, one of the most recent innovations to have come from Inescop's own work is a new system for producing 3D scans of the foot, which can then be matched up to information stored digitally about lasts. A partner company, Alicante-based software developer Red21, has launched a new digital lasting application, Forma3D.

Using existing scans of lasts, the software tool allows users to create new lasts by comparing, combining



Dr César Orgilés, recently retired director of Inescop, is an admirer of a new idea linking foot scans to digital lasts.

and tinkering with the information in the database, adjusting widths, toe-shapes, heel-drop and so on as desired. Manufacturers can then use the new data to produce the physical lasts that they need to make their latest collections of shoes and boots.

FROM DIGITAL TO PHYSICAL

"Automation always brings some challenges," Dr Orgilés explains. "In theory, production processes should become easier when we have a real shoe on a real last and everything takes a physical form. But one difficulty remains: lasts at this stage are physical objects that we make mechanically and it's only natural for there to be small discrepancies between the physical last and the digital one, leading to differences between the size of a shoe and the actual size of the foot it's meant to fit." He points out that the temperature changes and the mechanical stresses that lasts are subject to during the manufacturing process can also cause "variations" in its dimensions, and that this, too, can have consequences. He says you only have to look at a last when it is completely new and then look again when the same last has been through the production process a number of times to see the strains it has to endure

and the wear and tear it will show as a result. "Inescop's suggested solution is our new system that scans each foot in a complete way in just a few seconds," he says.

MEASURE FOR MEASURE

One of the first people to subject her feet to the new 3D scanner, in the summer of this year, was Spanish actress Marta Hazas. Ms Hazas, voted Spain's best shod woman in 2015 (an award that the national footwear museum in Elda presents every year, with the winner usually donating a pair from her own collection), agreed to try the technology out.

The scanner takes 25 separate measurements of each foot, defining its form and structure. Now Marta Hazas will know exactly what her shoe size is, César Orgilés explains. And it works both ways. Inescop says the data the 3D scanner collects can be matched up with lasts and digital lasts that the organisation already has in its library. When Ms Hazas, or any other consumer, makes the comparison between foot-data and lasts in the library, it will be clear which shoes (those made by manufacturers that have used the best-matching lasts) will fit her as closely as possible to perfection. 

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