

EUROShoE update:

Is mass customisation for footwear a reality?

Sergio Dulio

The mass customisation of footwear has often been referred to as one of the possible 'paths to salvation' for an industry such as footwear manufacturing, faced with an ever-increasing challenge from the Far East in terms of volumes of production, low prices and, more recently, of steadily increasing quality. It was thought that it would provide consumers with a degree of added value that would make a difference. It would induce them to 'buy European' regardless of the cost by opting for the additional features like greater comfort, better fit and more possibilities to satisfy their personal preferences, rather than mere cost.

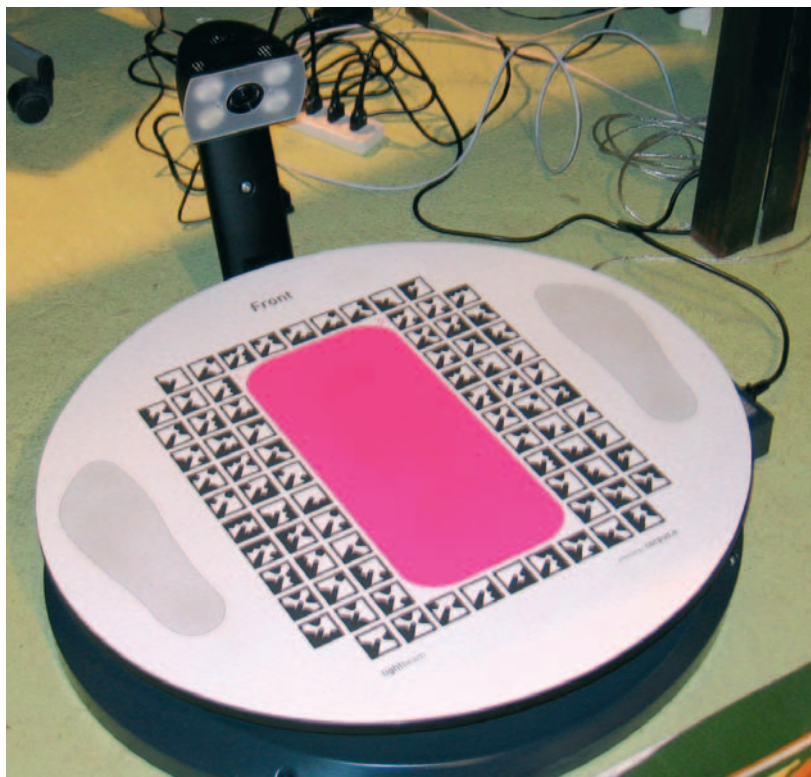
Five years ago a group of partners, drawn from industrial, research and academic backgrounds, got together to launch a research project with the aim of exploring the novel concept of mass customisation as applied to footwear and, where necessary, to develop the relevant enabling technologies. This was the EUROShoE project that in 2000 obtained the financial support of the European Commission which co-financed the initiative by covering 50% of the costs of the total research work and supported it during its almost four-year duration.

Results of the project

The project started in March 2001 and officially finished in September 2004, with almost 40 months of intense development work. The main goals of the project and its various research lines have been the subject of previous articles in *World Footwear*. We believe that now, more than one year on from its conclusion, it is important to attempt some final assessment of the work carried out and the technical results achieved.

Practicalities

One of the project's merits was that it clearly demonstrated that the process of designing, selling, producing and delivering several hundred pairs of shoes with various degrees of customisation was technically possible. In the first months of 2004 a fully-equipped pilot factory took shape, in a specifically dedicated location in Vigevano, Italy, using a building that had once been home to one of the most famous factories in the



Foot measurement by Corpus.e scanner. By courtesy of the author

golden age of footwear manufacture in the town.

The plant featured a design office, with the most modern hardware and software technologies most of which were purpose-developed for the project. These covered CAD design of the shoe; adaptation of the design to fit the features of each customer's feet, CAM programming of the robotic equipment installed on the shop floor, and the receipt, processing and production planning of the orders collected at the points of sale.

Once processed and scheduled, the production orders were dispatched to the shop floor. Here, they passed through the various steps of the manufacturing process (cutting, stitching, making and finishing) under the control of shop floor management software. This was in turn supported by an integrated logistic system that handled incoming supplies, work in progress and components to be delivered to various parts of the making line at the appropriate point in time. The actual making line itself featured the highest possible level of automation and used a high proportion of automatic machines with two integrated robot cells (for roughing and cementing, and for finishing). It required only four workers to run it at full capacity. ➤

WORLD FOOTWEAR



Finishing robot. By courtesy of Josef Stephan Institute, Lubyana

Finding customers

It would of course not have been possible to make any shoes had customers not already placed orders. One of the problems the project had to solve was therefore how to 'recruit' customers to volunteer for the experiment. It was eventually found that one of the most effective ways to engage a large enough number of ordinary people in the exercise of having their feet measured, and their customised shoes selected and made was to promise free shoes. This was, in fact, the only manner by which shoes could have been offered to private consumers under an EU-funded research project.

An advertisement was placed in the local newspaper in which the whole process was described and the conditions under which anyone could obtain his or her pair of shoes were specified. This proved to be successful beyond the most optimistic expectations and, every day, dozens of potential customers crowded into the 'model shoe shop' that was installed at the pilot plant. As a result, over 400 men and women had their feet measured and selected their shoes using the software tools used in the project, had them made in the pilot plant and returned to collect them and offer feedback.

This was possibly the most extensive exercise so far performed where all the different processes (foot scanning, last selection, shoe configuration, order processing and planning, production and final delivery to the customer) were tested and demonstrated in an environment that closely resembled that of a 'real' footwear business.

Customer reactions

The test campaign also demonstrated two key factors:

- Customers—despite some initial scepticism that in some cases was closer to fear than to anything else—turned out to love the approach, its potential for their comfort and health and were keen to have further pairs made the same way even if they had to pay for them.
- The tools developed within the project were such that in most cases, it was possible to deliver the right shoes to

customers at the first try and with only a small number of cases where they had to be rebuilt or modified.

Implications of the project

From a research point of view, one might have been tempted to say that although many of the technologies developed were not yet fully commercial and certainly required additional effort and investment for their widespread adoption in the market, mass customisation of footwear was close to becoming a reality. Yet, looking back at the past twelve months—from a more industry-centred perspective—that really does not appear to be the case. Mass customisation of footwear is still not a reality and, so far, we have not seen any volume of customised shoes invading European markets.

Some technology needs further development

Among the project's partners, some of the technology suppliers have continued along their development path and have further commercialised their products. Some of those now ready for the market include Corpus-e with its foot scanners, CSM3D with a range of software modules dedicated to the design and selection of customised shoes, and LIREL with its line of automated logistic systems. Others are rethinking the technologies developed in the project in order to achieve a higher level of performance or a greater degree of robustness than was shown in the trials, when they failed to reach the minimum level of reliability that would make them suitable for full industrial use.

Shoemakers face a different problem

The six shoe companies involved in the project have found themselves in a more critical situation. Market conditions during the four years of the project underwent some radical changes that have forced them to revise or, in most cases, downsize their expansion plans for the future. Nonetheless, a few are taking advantage of the lessons learnt, the systems that were developed and the final results, to follow their own paths in introducing families of customised shoes as part of their normal product offer.

If we look at the market in general, things have changed at a much lower rhythm than was expected when the project was



Foot reconstruction by Torielli infoot scanner. By courtesy of the author

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launched in 2001. A limited number of pioneers are still pursuing the concept with an ever more consolidated technical approach and with market fortunes that are finally taking their cost versus revenue balances to a more positive side.

Among these are Otabo in the United States, which was the subject of a profile in *World Footwear* in 2004 and LeftFoot in Europe. More recently, the VORUM Corporation—a Canadian producer of foot scanners for orthopaedic applications—has started a manufacturing venture under the brand name Viavor for customised men's shoes. Selve from Munich, Germany, is still the only company to be actively tackling the more challenging segment of customised ladies' fashion shoes. Adidas meanwhile, is continuing to win growing volumes with its line of personalised running shoes under the Miadidas name.

All the companies mentioned are, with the exception of Adidas, start-ups—even though some may be a few years old—which have gone to market with the idea of only offering customised footwear. However, there are indications that there are also some traditional shoe producers with particularly open minds and a willingness to explore more modern business models that are moving in the same direction. The Slovenian manufacturer Alpina is a good example. Its approach is somewhat simpler and very much targeted on fit, comfort and style customisation centred on semi-bespoke rather than fully bespoke (tailor made) shoes. Nevertheless, its actions will help to promote concept and culture of product personalisation in footwear among consumers.

Conclusions

In view of all these factors, we must therefore begin to wonder what kind of future there is for a widespread acceptance of the idea of customisation among both producers and consumers. From the signals that we can gather so far there could be two separate paths.

One will probably put more emphasis on the customisation side of MC (mass customisation). This will find followers among new or traditional suppliers of bespoke shoes (typically for men) who want to modernise their hand-made approach by using the most modern equipment and systems, computers and ICT (Information and Communication Technologies) that are available. Their products will then become an 'affordable luxury' as the slogan of Selve expresses extremely well. They will lower the high prices that the traditional purchaser of bespoke shoes has been ready to pay and make them available to a wider section of consumers. It will never be a volume business however.

The second implementation looks more at the greater mass of consumers and is more suited to traditional shoe producers. It relies on standard, established manufacturing facilities and really aims at capturing a much wider range of consumers—that have never experienced customisation—with a personalised product at a price that is only a little more than the one they would normally pay.

Therefore, even though we cannot say mass customisation is a reality at present, there are signs that indicate the effort and resources invested in the EUROShoE project was not in vain. The day when European consumers will be given the possibility of going into shops in their cities to buy shoes 'made for their feet' is not so very far away. 



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France: 4 rue Hermann Frenkel
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ctclyon@ctcgroupe.com

Germany - Portugal - Spain

AMERICA
USA: 10 Water Street
Enfield, CT 06082
Tel.: +1 (860) 763 6445
Fax: +1 (860) 749 7533
ctcusa@ctcgroupe.com

ASIA
China: 4F Annex Dragon Pearl Plaza
2123 Pudong Avenue,
Shanghai 200135
Tel.: +86 21 68 55 50 32
Fax: +86 21 68 55 50 33
ctcshanghai@ctcgroupe.com

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