



Automation is such an important part of The Lighthouse set-up—a robot cut the ribbon when the facility opened in mid-2016.

CREDIT: UNDER ARMOUR

To The Lighthouse

Athletic brand Under Armour stands to gain if a much-trumpeted (during the 2016 presidential election campaign) new emphasis on making products in the US comes to pass. The company has said it does intend to increase the volume of product it makes in the US, but only as part of a strategy aimed at producing locally for local consumers in all parts of the world. To make this possible, the Baltimore-based company opened a new fast-prototyping and design centre called The Lighthouse in its home city last June, equipping it with advanced knitting, cutting, sewing, 3D printing and footwear construction technology, collected in an open-plan setting under one roof with lots of natural lighting. Using this facility to test new design ideas and to make and refine product prototypes using advanced manufacturing equipment and processes is allowing the company to save costs, create new products and to shorten the time required to take them from concept to store shelf.

Lighthouse director Adam Bayer says that, typically, it previously took 12 months for the company to bring a product from concept to shelf and that this has now come down to four months (in some very specific cases), with design ideas still going through as many iterations as before. In footwear, the company is using 3D printing technology in the rapid development of midsole prototypes at a fraction of the cost of traditional methods using factory partners. Among

Under Armour opens the doors of its new fast-prototyping and design centre in Baltimore to World Footwear.

the 3D printed materials on show to visitors are athletic shoe soles, with printed treads, all the result of development work that design teams, mostly based at the main Under Armour campus a couple of kilometres away, are constantly carrying out. The benefit, once again, is that these designers now get to see from one day to the next (the printing mostly happens overnight) what their ideas will look like, see how practical they are. Even in the very recent past, Under Armour and everyone else would have waited a long time to have the physical object in their hands. "Everything was an ocean and-a-half away," Adam Bayer says.

Vision for the future

Mr Bayer says Under Armour's vision for the future is to use The Lighthouse, which has pilot lines for footwear and for apparel, to perfect the design, material choices and production flow for new products and then to send detailed information about how each product must be made to outsource manufacturing partners around the world.



Under Armour founder Kevin Plank at the opening of The Lighthouse fast-prototyping and design centre in Baltimore.
CREDIT: UNDER ARMOUR

However, he makes it clear that it wants these manufacturing partners to operate in the various markets where Under Armour sells its clothes and shoes. "We call this approach 'Local for Local,'" he explains. "And it's not just about making product in the US. We want to do that, but we also want to make product in Brazil for Brazil, in Europe for Europe, and so on." There will only be one Lighthouse, but it will light up the path ahead for the whole of Under Armour as well as for its partners.

Roll-call

Without a strong commitment to partnership, the brand may never have got The Lighthouse project off the ground. A total of more than 20 technology providers and other partners have a presence at the facility, which is located in an old bus garage near the Hanover Street Bridge over the Patapsco River in South Baltimore. Among the names on the list are several that are familiar to *World Footwear* readers, including footwear automation provider Desma, material science company Dow and materials provider Huntsman. Adam Bayer describes the technology providers who have a presence there as friends as well as partners. "We wouldn't be able to do what we are doing here without them," Mr Bayer continues. "We expect to benefit our partners by recommending their technology to our contract manufacturers and adding it into the process we've helped create the blueprint for at The Lighthouse." Equipment from less well known technology providers also catches the eye inside the facility; an automated footwear priming and cementing line from Tuscany-based Robot System Automation is a good example.

There has to be a better way

Adam Bayer points to the Robot System machinery and explains it is fulfilling a function that is more typically carried out by teams of people, perhaps 70-strong, in factories in Asia. In well run factories, people wear masks and gloves and use brushes, but they still spend hours upon hours every day applying glue. "One of the benefits The Lighthouse will bring is that the automation we will encourage in our partners' factories will free those people up to carry out better jobs," he explains. "Another is that it will help us eliminate variation." He goes on to say that The Lighthouse had been in the works for at least two years before it opened. "Really, it's the result of our teams visiting the factories that make our products in Asia," he insists, "and seeing people, using toothbrushes to apply primer and cement to shoe uppers and soles. Our senior people said to themselves that there has to be a better way. And there is a better way. This is it."



Desma technology at The Lighthouse. The automated footwear machinery provider believes the use of advanced technology in shoe manufacturing can open doors to new producers, companies that have never made shoes before but are used to running highly automated production set-ups.
CREDIT: DESMA/UNDER ARMOUR

Plug-and-play

Ambitious outsource manufacturing partners who are willing to invest and implement the workflows and production practices Under Armour is developing have an opportunity to grow close to the sports brand and build a rewarding, long-term business partnership. It's hard to imagine anything other than a relatively small group of manufacturers who have the capital to invest in the technology and the knowledge to turn Under Armour's prototypes into for-sale products. The vision may be for it to be 'plug-and-play', but possibly only a few in a privileged position will have what it takes to do the plugging and the playing.

Reversing a move away from technology

The view of one Lighthouse partner, Desma, is that Under Armour may find it easier than rival sports brands to take a different approach to footwear production because it's newer than others to the world of shoes. In fact, Under Armour unveiled its first shoes at the end of 2008, but it's true that this happened more than ten years after the company was founded. Desma's joint managing director Klaus Freese points out that a 'Local for Local' policy is not where the innovation will come in. "If we turn back time by 30 years or so, all the big sports shoe brands had factories, each producing 10,000 pairs per day, in different industrial countries," he says, "including Germany, Japan, the US, France, the UK, Italy, Brazil and so on. 'Local for Local' was very much the case in those days too." But then production moved to low-labour countries that had what Mr Freese refers to as "much simpler technology". This was a move away from technology and automation, partly because it was difficult and expensive to move the existing technology to those new production locations. Even more than before, shoe production became very much cost-driven, he explains, and committing capital to investing in high-end technology was a priority for only a few producers. "Maybe this led to big brands losing a part of their own production competence," Klaus Freese continues, "and some of their know-how." Today, however, he sees things turning back, with major brands expressing the desire to be closer to production again, lot-sizes becoming smaller, the number of design options increasing, time to market becoming shorter and so on. In his opinion, this opens new doors for manufacturing companies as well as for brands.

Footwear's new players

"This is just a personal observation," he emphasises, "but, while existing footwear manufacturers in Europe, for example, may have a welcome opportunity here [as part of the Under Armour plan] to enlarge their businesses (and most of the factories that I know are certainly not 100% occupied at the moment), other companies, companies that are not involved in footwear at the moment, could also become part of the picture." His explanation is that there are manufacturing companies in other sectors that are finding it hard to achieve growth in what have, traditionally, been their core business areas. "The ones I am thinking of, such as Oechsler, which at the moment makes locking systems for cars, medical devices and touch-control systems for refrigerators, already have the capability to run a highly automated production set-up. They are already close to Industry 4.0 and they could jump into the footwear picture.



Automating parts of the shoe production process such as cementing improves the factory environment and reduces labour and cost.

CREDIT: ROBOT SYSTEM AUTOMATION/UNDER ARMOUR



Robot System Automation's automated footwear priming and cementing technology is in place at the facility.

CREDIT: ROBOT SYSTEM AUTOMATION/UNDER ARMOUR

A mix of existing shoe manufacturers with deep knowledge of shoemaking and other companies with knowledge of automated production processes could be the answer."

Those who make the grade could be in a position to set up 'Local for Local' production centres wherever Under Armour needs them. In our rapidly changing world, established footwear firms may not be the only ones applying for the role. New rivals may be attracted by the beam of The Lighthouse. 📡