

Footwear industry in Europe is one of the most important sectors in terms of the number of people employed. However the trend shows a clear decline on business figures; low cost countries are becoming an obvious threat for the future of the sector. There are several measures that can contribute to tackle this threat:

- To remain the world leader in fashion, design, creativity and trend-setting.
- To focus on shoes with high added value.
- To optimize the production process to allow higher quality products at competitive prices.

Fashion Footwear production is currently mainly **handcrafted**. Some manufacturing processes (for footwear and its components) are assisted by specialized machinery (last manufacture, cementing, and cutting) and there exist highly automated lines in mass production of technical shoes (i.e. safety footwear). But most production is still handmade, being especially true in the case of **high added value shoes** production, where Europe maintains its leadership.

The introduction of intelligent **robotics will contribute to overcome the complexity in the automation of the processes of this industry** that accounts for some of the shortest production runs to be found (eight pairs of shoes is the average order size). The main difficulties to achieve this goal are:

- The high number of products **variants** due to different models, sizes, materials and colours.
- **Complex manufacturing** process.
- **Complex assembly** process.
- **Extensive labour** demand on quality and packaging operations.

Currently, opposite to other manufacturing sectors like automotive, food or metal processing, **robots are still out of Footwear industry** ; only technical shoe producers have introduced robots to assist in the injection moulding process but there are not other relevant applications in use. The described difficulties in shoe manufacturing ask for the use of state of the art robotic technology to reach the required degree

of flexibility, autonomy and dexterity in order to make the robot a valuable resource for footwear companies.

Although some companies tried in the past to incorporate robotic solutions in this sector, they did not succeed in the objective (except for specific operations related to the injection process, as stated before) probably because it was too early and the technology available and its cost were not adequate for the Footwear Industry. **ROBOFOOT will demonstrate that it is feasible nowadays.**