Project title:	MICROFACTORY - Development of a digital workflow and production environment for on-demand garment manufacturing
Partner:	Smake IT GmbH Sol Sports Ind: e Com. Ltda
Duration:	10/2021 – 09/2023
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Mission Statement

The global production of clothing per year has doubled between 2010 and 2015 as a result of fast fashion and e-commerce. The consequences for the environment are enormous. Clothing is the fourth largest source of pollution in the EU after living, mobility and food. The labour-intensive production of the classic garment industry takes place 62% "offshore". High capital lock-up due to full warehouses and long logistics chains are the result. Short-term trends and local effects can only be anticipated by producers to a limited extent. The challenges on the process side are confronted with the demands of customers who want tailored and increasingly individualised fashion at an attractive price. In order to survive in the market, medium-sized fashion and textile companies, which lack the financial resources for a globally vertically integrated production, have to re-invent themselves. One way of responding to the process and customer challenges described above is the so-called "on demand" production, i.e. after completion of an order process. Fashion on demand is in contrast to classic tailoring, which is done in manufactories and studios by highly specialised professionals at very high unit costs. Instead, "microfactories" allow the cost-efficient production of customer-specific small series. The shift to "on demand" is achieved by shifting production towards nearshoring and allowing same-day production and next-day delivery. Costly overproduction is eliminated while supply chain transparency is increased.

Approach

The aim of the project is to develop a digital workflow and a production environment for the on-demand assembly of clothing. Within the project, the

complete production chain from order to the delivery to the customer is controlled digitally by the Smake IT workflow for the first time. Until now, the digital flow of information was interrupted after cutting. In addition to the transfer of the relevant process parameters in real time, operators receive adapted work instructions that are derived directly from the product design. With the help of flexible machine systems and automation solutions, solutions are developed that enable versatile and future-proof production. The validation of the project results takes place at SOL Sports Ind. E Com. Ltda. in Brazil as on-demand production of individualised sportswear.

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