

Best Practice

Production Facility Design for Labelmate

Assembly and intra-logistics process design through the use of digital models



Production Facility Design

Company description



Labelmate a Belgian company with its current production facilities in Drogenbos. Labelmate's mission is to make label printing processes easier, faster and more effective by developing smart and durable devices that support their operator before, during or after the printing or application process. Labelmate offers a wide range of products, each developed to be the most easy-to-use, heavy duty and reliable products of their kind on the market. Labelmate products are available in over 70 countries around the world, making them one of world's leading manufacturers of label dispensers, rewinders, unwinders, slitters and core chucks.

Motivation and challenges

Capacity constraints due to the limited space and current organization of production facility in Drogenbos, prevents Labelmate from extending their offering to their customers and stands in the way of further growth of the company. Therefore the decision was made to move the production facility to a new site. Labelmate applied to the SME support programme with the aim of finding ways to optimize the design of their new production environment and evolve towards a more digitized paperless production process.

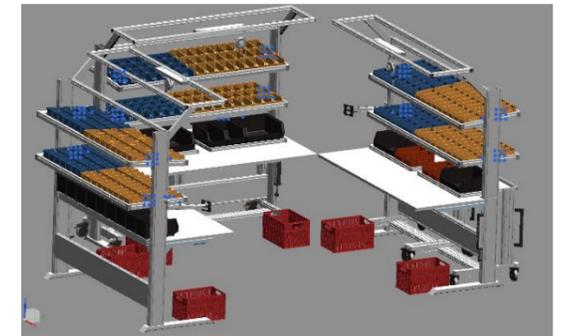


Given the wide range of products, the variation in demand and production time of these products and the different distribution channels, it is challenging to define one single way of working which is efficient for all products in the portfolio of Labelmate. The uncertainty on the success of newly developed products, makes it even harder to develop a production system and its intralogistics processes which meet today's efficiency and flexibility requirements, but are also robust and scalable enough to be future-proof as well. Such a flexible and scalable production environment can only be realized by leveraging the potential of digital and paperless production technologies.

Technical solution

Before starting to digitize the production, a thorough production flow analysis was performed to identify bottlenecks and detect potential flow issues and to establish a new robust and scalable way of working which maximizes the potential impact of digital production technologies. Based on information available in the existing ERP system and an MTM-UAS study, a through capacity analysis was performed. This analysis led to the development of the individual work stations. Subsequently, the overall layout of the production facility has been developed using the SSLP layout planning methodology to minimize the movement of parts throughout the plant.

In the proposed solution, products are subdivided into two categories, each with its own dedicated workflow. The rough layout and workflows have been validated and refined through a simulation study using a digital mock-up of the design in VisualComponents®.

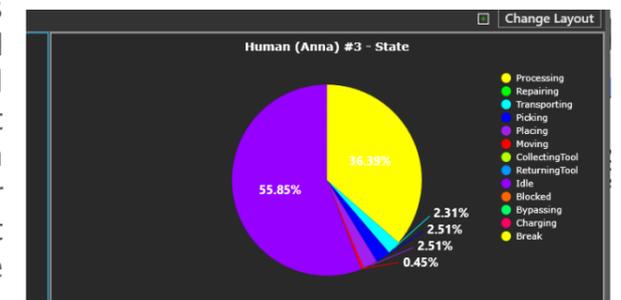


Once the workflows have been validated, a functional requirements analysis has been performed to propose a blueprint MES system architecture and implementation plan to evolve towards a future-proof digitized paperless production environment.

Result

The simulation study shows that the proposed solution increases the capacity of the production environment by over 30%. This allows Labelmate to start the production of the already developed new products directly after moving to the new facility.

By implementing concepts such as division of work and making use of digital support of the operators through digital work instructions, simulation shows that the capacity of the production environment can be increased by a factor 2,5 by increasing the workforce, without the need for a reorganization of the facility layout or information systems.



Interview



How could COTEMACO support you?

Via the SME support programme, COTEMACO engages with SMEs from the automotive and food sectors through field labs. These regional field labs in the Netherlands, the UK, Belgium and Germany are showcasing key production steps in the automotive and food industries, in order to tackle current low sectorial awareness and knowledge gaps. The field labs will exchange knowledge on different manufacturing tasks, such as handling and (un)loading.

Within the COTEMACO programme, Labelmate was supported in the process to future-proof their current production environment by leveraging the potential of digital production technologies. A virtual model of the production environment was developed to validate the proposed solution. Finally, a suitable IT/OT architecture was developed together with an implementation plan to evolve towards a future-proof paperless factory.

What was implemented and what are the benefits?

Within the COTAMACO program a potential design the new Labelmate production environment was developed. The proposed solution was based on state-of-the-art facility design methodologies and validated by making use of the potential of digital models of the proposed solution.

The proposed solution is flexible enough to handle the wide range of products and variability of the customer demand. The new design increases the performance of the production system significantly and is scalable and flexible enough to handle future market requirements.

The simulation study in VisualComponents® made it possible to visualize the new way of working and provided us with useful insights on the scalability, performance and robustness of the proposed solution.



Were your expectations fulfilled - technical implementation and support through COTEMACO?

Tom Geerinck, Sales and Marketing Director & Co-Owner, Labelmate:

“Thanks to the elaborate research and virtual validation study by the team of Flanders Make in the frame of Cotemaco project, we are confident that our new production facility will be able to cope with the increasingly challenging market requirements.

The study performed by the team of Flanders Make provided us with very interesting insights and concepts to future-proof our production activities in Belgium and provided us with useful inputs for the concrete elaboration of our business case.”



What is COTEMACO?

The project, which is an initiative of Interreg North-West Europe, aims to support around 60 SMEs in the automotive and food manufacturing industries with so-called „test environments“ and to encourage them to integrate collaborative robotic systems **and digital technologies into their business. Accordingly, in addition to increasing production flexibility, the relocation of production abroad will be curbed and the number of jobs in manufacturing increased, which will generally lead to an improvement in the competitiveness of the companies involved.**

In the project new technologies are implemented in application examples - the aim is to move from the prototype in the laboratory environment to the **transfer to production, taking into account the legal situation and certifications.**

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You are interested in further Best Practice implementations?

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www.robot-hub.org/cotemaco