



Georg Riva

Four-part blog series: four steps to the Smart Factory – Example 4: individualized mass production

In my [first](#), [second](#) and [third](#) blog in our four-part series from June 15, August 17 and September 14, 2021, I introduced you to three Muller Martini customers on the topics of fully networked volume production, production cell manager and Smart Factory. The last episode is now about a company that – as a globally unique solution with this configuration – has a Smart Factory with individualized volume production. Its goal is the industrial production of run-1 products in a free production sequence – with the option to also produce runs of 20.

A production environment that organizes itself? Bookbinderies whose production processes are completely automated – from transport to in-house logistics and material flow? A digital book production system that produces 100 individualized book-of-ones almost as quickly as 100 copies of a single title? And without human intervention in the production process?

The magic word to answer these questions, which until a good decade ago seemed almost utopian, is Smart Factory. In the wake of Industry 4.0, the Smart Factory is now a reality in the graphic arts industry. This is because only the networking of embedded production systems and dynamic business processes makes it possible to manufacture products profitably, even with individual customer requirements.

With its development strategy Finishing 4.0, which is based on Industry 4.0, Muller Martini is a leader in the implementation of networked production processes. The biggest drivers of

this are new business models. Keywords here are Variable Data Printing (VDP), personalized print products, photo books, Web2Print and Print-on-Demand.

The customer

The customer in this blog has – as a worldwide unique solution with this configuration – a Smart Factory with individualized mass production. His goal is industrial production of run-1 products in free production sequence – with the option to also produce runs of 20.

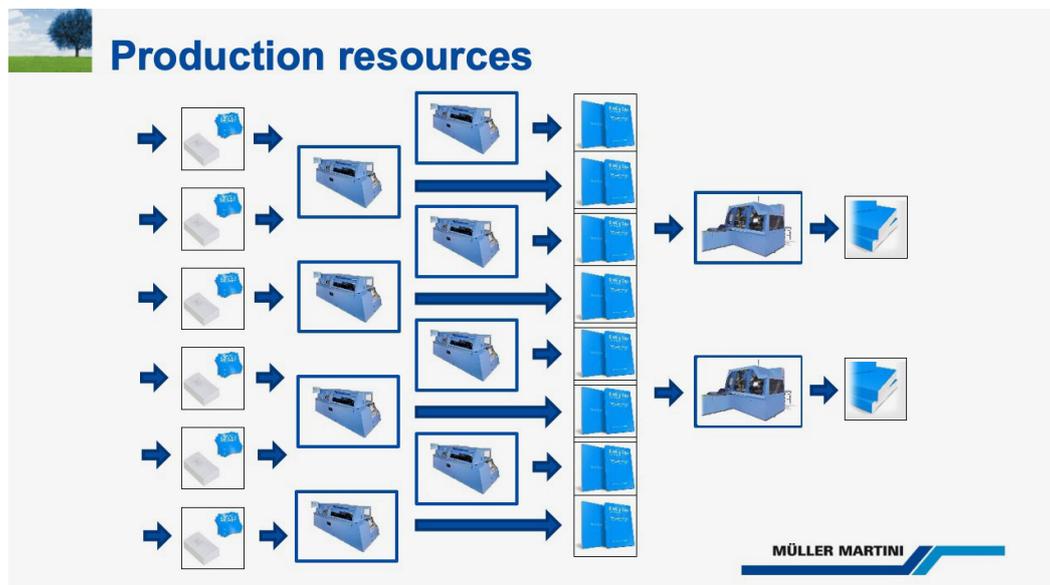
Step 1: understanding digitization

Due to the highly standardized production, workflow control is carried out entirely via format templates stored on the machines and barcodes on the products. All machines supply production data and status information to [Connex.Info](#). This information is used to optimize production and as a basis for efficient plant maintenance.

Step 2: clarify business needs

The customer focuses exclusively on softcover production (mainly product-of-1) and fully on digital web printing.

Step 3: gain process expertise



Eight [Vareo perfect binders](#) „feed“ two [InfiniTrim three-knife trimmers](#).

(Note: There are also other possible Vareo/InfiniTrim applications: A maximum of four Vareo can be linked to one InfiniTrim. 3/1 and 2/1 solutions are also possible).

This (inline) solution with the highest degree of automation brings the customer great advantages in several respects. He has highly variable production cells at his disposal, controlled by barcodes. All dimensions can change from product to product – with seamless integration into any production flow. Cover matching is guaranteed, as is the measurement of each product as it is produced.

Step 4: design digital transformation

Monitoring and single product tracking happen via Connex.Info. Production sequencing is defined by order entry and is not production or logistics optimized. Production logistics is done via intelligent conveyor control. Production is fully Web2Print optimized (online ordering via Internet). Thanks to the high level of automation, the production throughput time from printing to delivery is less than eight hours.

The top 5 benefits of this customer example and your advantages at a glance

- **Benefit 1:** All Muller Martini machines – eight Vareo and two InfiniTrim – supply production data and status information to Connex.Info. This provides a transparent overview of the ongoing production process. This is entirely in line with Muller Martini's Finishing 4.0 philosophy. – **Your advantage:** This information not only serves you to optimize production, but also as a basis for efficient system maintenance.
- **Benefit 2:** The highly variable production cells are controlled via barcodes. – **Your advantage:** The production cells act autonomously and are purely controlled by the product flow. In short: They have minimum complexity for maximum productivity.
- **Benefit 3:** All dimensions can change from product to product – consistently throughout the production cell. – **Your advantage:** You can process your orders efficiently and without manual intervention – largely independent of the production sequence.
- **Benefit 4:** Integrated quality assurance functions such as automatic monitoring of the end sheet type and cover-to-book block matching reduce production errors. – **Your advantage:** You save on personnel costs because you only need a trained shift supervisor for such cells.
- **Benefit 5:** The production sequence is defined by the incoming order and is not optimized for production or logistics. – **Your advantage:** Single-copy production in its purest form enables genuine Web2Print applications. This enables you to achieve customer order turnaround times of just a few hours.

A valuable white paper to download

Would you like to have all four Smart Factory blogs as a compact whitepaper? No problem, we will provide you with this free of charge.

Your

Georg Riva

VP Global Sales Muller Martini