Digitizing production makes supply chains more efficient.

Jan Mattmüller of QualiVision AG explains how advanced machine vision systems can make supply chains more efficient.

Mr. Mattmüller, QualiVision is known for advanced machine vision systems. What role does your technology play today in the global value chain?

Our systems act as the eyes of modern production. They monitor, control, and document processes around the globe—24 hours a day. What matters to us is that reliability and flexibility go hand in hand. What many underestimate is that these advantages are not only crucial in manufacturing itself, but also create real, measurable added value in logistics and supply chain management.

A key concept in this context is "WhiteLine Production." How does this solution concretely simplify the supply chain?

There is enormous potential here for reducing complexity. Take, for example, a medical product in a blister pack that is sealed with medical-grade paper. Information such as batch numbers and expiration dates is printed on it. Country-specific regulations often mean that companies have to keep countless pre-printed rolls in stock. We had one customer who stored as many as 40 different rolls, each differing in their pre-print.

What happens if something goes wrong in this chain?

That's exactly where the risk lies. If a specific roll encounters a supply chain issue, the product cannot be sold in the target country. Alternatively, the roll may have to be discarded if the pre-print needs to change—whether due to new marketing requirements or updated regulations. With "WhiteLine Production," we use only blank paper and print everything—including static content—directly during the process. Instead of 40 rolls, only five formats need to be stored. That's a radical simplification.

But if everything is printed "live," doesn't that increase the need for control? How do you ensure that every product or label is perfect?

This is where our proven machine vision systems come into play. All data sent to the printer is simultaneously transmitted to our camera system for verification. While standard solutions often check only individual critical areas, we perform full-area inspection: the entire text, required blank spaces, images, and codes. This is a major lever for supply chain security—one that many smaller companies are not yet fully aware of.

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How deeply is this technology digitally integrated? Many solutions still seem quite rigid when it comes to “training” camera systems.

That’s a key differentiator. Conventional systems often require physical “training”: you print a sample, take an image, and use it as a reference. The problem is that every layout change requires starting over. We, on the other hand, read the data directly from the label management system in digital form. After central approval and release, we can automatically inspect from the very first print—on all printers, at all locations—without any manual intermediate step.

What kind of support do you provide during implementation? After all, ERP and control systems must work together seamlessly.

We support our customers very closely. A major advantage of our solution is that it is designed to be highly flexible. Whether ERP, label management, or production control systems—we connect these applications to our system via interfaces. We then conduct test runs and validations: does the system detect exactly the errors it is supposed to detect? We also provide complete documentation, which significantly improves process stability and internal transparency.

Speaking of “detecting errors”: how do you train the system to recognize defective output?

We work with controlled modifications. We deliberately run faulty products through the system and verify that they are reliably detected. We also recommend that companies build an image database of good and defective labels or products. When a new type of error appears, this ensures that all errors are detected—without increasing the rate of unnecessary rejects.

In which industries do you currently see the greatest demand?

Primarily in the pharmaceutical and medtech sectors, due to the extensive documentation requirements. But also in the food industry, where the transition to 2D codes will increasingly require inline printing in the near future—making our approach extremely valuable.

Jan Mattmüller has many years of experience in MedTech and machine vision. He leads QualiVision, which has been providing solutions for quality assurance and digitalization in the pharmaceutical and medtech industries for over 20 years.

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