

TECHNOLOGY IN ACTION



Cutting down on wastage through AI-enhanced quality control



Orgalim's Technology in Action series showcases how the technology industries we represent are shaping a future that's good for Europe's economy and society – and how the right policy framework can help them do even more.

Challenge

Usually, when a production process is automated, people still perform product quality control at the end of the line. This means that a faulty part can run through several processes, wasting materials, energy and time, only to get rejected at the very end when the fault is spotted.

Say it's furniture board running at around 30 parts per minute. Typically, operators will check when the full pallet comes out and, if the top parts have any visual defects, they have to stop the line, go through the whole pallet, and possibly scrap most of the parts. But if the defect is missed, it might go all the way to the final customer before it gets noticed, triggering a customer claim and potentially a whole batch of furniture that gets scrapped.

Automating the quality control process is the obvious answer but how to do it, especially when the surface of the parts being checked is complex and irregular, like wood, with all its textures, grain, knots and varying shades of colour?

Solution

Quality 4.0 is the application of advanced digital technologies to enhance traditional best practices in quality management.

Lithuanian company Elinta Robotics has developed an automated visual quality control system called SmartPeek™ that operates in customers' production lines, right after the manufacturing process where the defects can happen, explains CEO Aurelijus Beleckis. The NOK, or 'not okay', parts are rejected immediately, which saves a lot of materials, energy, workforce and money, he says.



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Aurelijus Beleckis, CEO, Elinta Robotics



Cameras monitor both faces and all edges of the board

At its simplest, automated visual quality control can be mathematical: a plain, light-coloured part should have a dark drill hole of a specific dimension at precise coordinates, and if it doesn't, because maybe the drill bit broke, it is easily detected.

In more complex scenarios, such as when the part is wood, with all its textures, it is almost impossible to define all the possible defects. So Elinta Robotics uses AI algorithms to 'teach' the system what is a good product and what is a defect. Over time, the system can identify defects which have never been seen before.

Automating the quality control process also means that packaging can be automated as you don't have to have a break in the production line for someone to inspect the parts before packaging can begin.

And what about the workers who were doing the quality control manually before? Usually, in Elinta

Robotics' experience, customers retrain their personnel to use the new system so that, instead of manually and repetitively checking parts, they are checking data on a screen, and often able to maintain a few lines at a time. Often the savings in materials and time enables manufacturers to expand capacity. "None of our clients has ever fired anyone because of robotics," insists Mr Beleckis.

Policy implications

What does Elinta Robotics see as the main barriers facing its business and what policies would help?

The company has invested heavily over several years in its quality control and robotics technologies, and Mr Beleckis acknowledges that more funding would certainly have helped.

But he sees the skills shortage as the biggest problem looming for businesses like his. "We should be investing much more in Europe in education and engineering and science because otherwise, in a decade or two, Asia will take over and we will be working for them," he warns.

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About Elinta Robotics



Elinta Robotics belongs to the Elinta company group. The Elinta group was founded in 1991, focusing on designing high-tech, disruptive electronics and automated control systems technology created by its team of engineers.

Its core technologies range from production of automation systems, electronic components and cutting-edge image processing tools to electric mobility. Later Elinta started growing start-ups such as Rubbee, Elinta Motors, and Elinta Charge. Elinta Robotics started as Elinta's engineering department, which grew very rapidly and in 2019 became a separate company. Elinta's name encodes two words - electronics and intelligence. Elinta Robotics specialises in automation and robotics. The company is headquartered in Kaunas Free Economic Zone, Lithuania.

elintarobotics.com

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