

# Nordmeccanica Creates the First Packaging Machine Guided by AI



The first flexible packaging machine entirely guided by artificial intelligence is Italian. It was created by **Nordmeccanica**, a Piacenza-based company with customers all over the world, requiring total investment of over two million Euros. Vincenzo Cerciello, Technical & Technology Director and Vice President of Nordmeccanica, tells us how the idea of creating the **first packaging machine guided by AI** came about.

“The benefits provided by using AI in the management of production and logistics processes have been known for some time,” Cerciello explains. “For us, it was

natural to think about applying these benefits to the management of production tuning of an individual machine which could be extended to groups of machines in the same production sites and even to networks of systems for multinationals. Our package is called **AI Job Pre-set**, which already tells you everything: : **AI assisted worksetting.**”



### **The Nordmeccanica system at work**

*Vincenzo Cerciello, Technical & Technology Director and Vice President of Nordmeccanica*

In greater detail, the name of the new machine is “**Triplex SL One Shot AI**”. Its job is to produce laminated solvent-free packaging films which are 100% recyclable. So it is fully compliant with the European packaging directive.

**Thanks to AI**, the machine is able to analyse over 100 parameters relating to materials, processes and working conditions, defining the operational settings and adapting them **autonomously** as the materials used or operating conditions change. Its learning abilities are key.

All the data gathered by the machine can be viewed and analysed on the integrated computer’s touchscreen. The same data can be shared on the company network or via cloud, in order to integrate or clone the production processes to networks of connected machines, even if they are located in other parts of the world.

The new system also provides a significant contribution to companies' **sustainability and energy efficiency** goals.

"The reduction in time to fine tune and start up a new job will result in greater overall efficiency of the system, and a significant **reduction in waste** for starting up the job and that linked to imperfect process settings. Naturally, better productivity and reduced waste provides significant energy savings in terms of process consumption."

### **From AI to Machine Learning**

Thanks to its technological features, the new system meets some specific industrial requirements. First and foremost, the issue of the skill gap.

"One of the most pressing problems in our sector, which is a high-tech sector, remains the identification and training of specialised personnel," Cerciello notes. "A coating and lamination machine requires the operator to manage dozens of variables. The machine settings. On the basis of the production process and the materials used, the operator must determine between 20 and 40 settings, depending on the complexity of the machine: temperature, pressures, speeds, grammage, mixing ratios of chemical components etc."

Artificial intelligence is the answer. "Training personnel is a process which requires shadowing by an expert operator. Closing the loop with the use of AI, a function which can play a key role in managing the lamination process for flexible films or applying high-tech coatings, is definitively the solution.

To be precise, it is machine learning which makes the difference here. "The company database (the previously used work recipes) represents the history of a converting company, and becomes the key initial input. Continuous storage of the process data feeds the machine learning function, on the other hand. Combined, the two functions complete the procedure which allows the machine settings (those 20-40 variables we mentioned above) to be generated completely automatically, on the one hand simplifying the operator's task and allowing an ever-more complex and accurate set of company data to be generated."



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## **The Market Prospects**

With the new Triplex SL One Shot AI, Nordmeccanica is putting artificial intelligence at the service of each and every customer. “All the industrial sectors we serve with our products will benefit,” Cerciello assures us. “The new AI Job Pre-set technology helps simplify the set-up and fine tuning of a complex machine. The final benefits will be significant for each of the sectors we serve.”

Looking more closely, the benefits are directly proportional to the complexity of a system.

“As the complexity of a system increases, the benefits of using a technology which quickly automates and digitises a process that is normally performed in “analogue” fashion by an operator also increase. The end benefit will be evident in the uniform quality of the end product and improved productivity in general.”

Moreover, AI promises concrete benefits to the packaging processes themselves. When a production process, like in our case, requires the management of dozens of variables, the margin for inaccuracies in the operator's decisions is wide. This leads to potential lack of uniformity in the end product and in general, depending on the operator to whom the task is assigned.”

“Considering that the new technology helps reduce the margin of error due to the decisions of the machine operator, and that the use of the database of recipes and other data and the AI-managed machine learning allows for an extreme level of refinement in the process variables setting precision, the benefits are clear to see: improved quality of the end product in general, greater production efficiency, reduced waste, and energy savings, to name just a few.”

## How Work is

## Operators' Changing



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The Triplex SL One Shot AI system guarantees sustainability, digitalisation and safety, both for production and for people. These are three pillars which also respond to changes in the world of work.

“AI Job Pre-set will assist the operators in the most delicate phase of fine tuning a new job,” Cerciello comments. “AI will play a key role in the most technological part of the job. This will allow the process of training new operators to be sped up, and will help align the settings.”

Moreover, the introduction of new technical content will bring added value to people's work.

“Therefore, operators’ roles will be more focused on aspects of the work process which are equally important, such as monitoring production, managing feeding of raw materials, and no less important, maintenance and cleaning of the system.”

“Like for all highly digitalised applications, the goal is simplification of the tasks assigned to the operator. The necessary skills are no different from those required when hiring sector personnel before AI. The new technology will assist and simplify these tasks. We are talking about total elimination of the 'physical' control of the process; with AI Job Pre-set, I believe we are almost there.”

### **Nordmeccanica's Upcoming Initiatives**

On the strength of these characteristics, the system is receiving an excellent response from the market. “We presented this new technology in June at the most important sector trade fair, Drupa, which is held in Germany every four years. The commercial response was impressive: our AI Job Pre-set was undoubtedly the technology which drew the most interest and the attention of the greatest number of our customers on an international scale.”

In this regard, Nordmeccanica has scheduled a range of initiatives to publicise its system within Italy. “In Italy we will be setting up initiatives involving our customers and providing practical demonstrations of the operation and benefits provided by this new technology. These initiatives will commence soon, with a demo system at our R&D centre in Piacenza.”