

AI in manufacturing: hype or a driver of progress?

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From experimentation to impact with a targeted AI roadmap

AI can write text, analyse images, and recognise patterns in large volumes of data. The possibilities seem endless. Flemish manufacturing companies are also showing considerable interest and experimenting extensively. Yet applications embedded in day-to-day operations remain rare. Initiatives often emerge informally, driven by a handful of enthusiastic employees. A clear strategy, a dedicated budget and sufficient in-house expertise are usually still lacking. As a result, there is a considerable gap between an experiment or convincing demonstration and an application that reliably delivers value every day.

Meanwhile, AI is evolving rapidly and its capabilities continue to expand. That is precisely why it is important to get the foundations right and make deliberate choices about where the technology can genuinely add value. So where are the real opportunities to boost productivity and competitiveness? Bart Verlinden, Manager 4.0 Made Real at Sirris, explains what is already achievable today and how an AI roadmap can help companies move from initial interest to tangible impact.

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The first gains lie beyond the production line

AI in manufacturing quickly brings to mind self-driving robots, predictive maintenance, or machines that autonomously adjust their settings. In practice, however, the first applications usually emerge in supporting processes. AI can, for example, extract information from documents, make technical knowledge more accessible, or reduce repetitive administrative work.
Such applications generally require less integration with machines and production systems. The risks are easier to manage, and results become visible sooner.

That does not make them any less relevant. Time no longer spent searching for information or handling administrative tasks can be redirected towards engineering, production preparation, customer contact, and process improvement. A relatively simple application can therefore deliver value more quickly than an ambitious project on the shop floor.

“The hype starts when we focus on everything AI appears capable of doing. The technology becomes a driver of progress when we start with a problem that currently costs time, compromises quality or takes up capacity. That problem may be on the shop floor, but it could just as easily be in administration, engineering or production preparation.

The best first choice is therefore not necessarily the most spectacular one. It is where the potential added value can be clearly defined and the outcome assessed objectively. A modest application with a measurable result is often more valuable than a technically impressive project whose impact remains uncertain.”

The bar is higher on the shop floor

There is also a wide range of opportunities in engineering and production. AI can process information from technical drawings and support production preparation. On the shop floor, the

technology can help predict maintenance needs, identify quality deviations, and guide operators towards relevant information more quickly when problems arise.

Once AI provides analyses or recommendations to adjust the production process, the requirements become more demanding. The application must not only work technically but also rely on reliable, up-to-date data. The information required varies from one application to another.

To predict product quality in advance, a model needs sufficient, reliable process and quality data. Predictive maintenance requires historical information about machine condition, breakdowns, and maintenance interventions. A production assistant must not only formulate a convincing answer but also demonstrably use the correct, up-to-date company information.

This reliability is particularly important because the consequences of an error are greater than with a general office application. An employee can still check an inaccurate summary. Incorrect advice about a process setting, quality decision, or maintenance intervention can directly disrupt production, especially in a High-Mix Low-Volume environment.

That is why ambitions must develop in line with the company's technical and organisational maturity. AI can initially perform analyses and support decision-making while an employee makes the final decision. As the data, model and process prove more reliable, the company can entrust more decisions to the system.

From experiment to practical application

Reliable data is only one prerequisite. An AI experiment becomes a practical application only when it solves a clearly defined problem and its expected economic impact can be assessed. Technical feasibility and practical added value must therefore be examined together.

This requires both AI expertise and an understanding of the production process. Process experts know where time is lost, errors occur or decision-making becomes difficult. AI experts understand the capabilities of models and data but are not necessarily familiar with every variation and exception on the shop floor. Not every company has this combination of expertise in-house. By bringing process and AI experts together from the outset, a company can define the problem correctly, choose a suitable approach and measure the impact.

“There is no need to spend years collecting every possible type of data first. The application determines which information is genuinely needed. Sometimes, the analysis reveals that data is scattered, incomplete or insufficiently reliable. In that case, the first worthwhile step is to improve the flow of information, even before building an AI model.

A clearly scoped trial then shows not only whether the technology works, but also whether it delivers enough value in practice to justify further investment. That is why an initial project needs clear success criteria from the outset. How much time is actually saved? Is a deviation detected earlier? Can the user make a better decision? And how much human oversight is still required?

Such a test can answer these questions more quickly than a large-scale rollout. It reveals where data falls short, how employees interact with the solution and whether the expected benefits actually materialise. In this way, a proof of concept also becomes a proof of value.”

An AI roadmap brings focus

Individual tests provide experience, but they do not automatically lead to a coherent approach to AI. To take a broader approach, a company must also determine how these applications relate to other initiatives and strategic priorities.

An AI roadmap brings existing experiments and new opportunities together in a single overview. By comparing potential applications based on their expected impact and contribution to business objectives, companies establish a shared basis for setting priorities and allocating people and resources effectively.

“An AI roadmap is not a list of technologies that a company needs to introduce as quickly as possible. It helps determine which application should come first and what steps are needed to make it happen. A promising idea is not automatically ready for a pilot project. Sometimes, we need to start by strengthening processes, information flows or internal capabilities.

This creates a balance between applications that can deliver results in the short term and ambitions that first require a solid digital foundation. It avoids two extremes: waiting until all uncertainty has disappeared or launching several experiments at once without any clear connection between them. The roadmap also shows how an initial application can subsequently be integrated or scaled up.”

The approach makes the difference

AI is not an end in itself. The relevant question is not how advanced an application is, but where it can genuinely help the company move forward. By carefully weighing opportunities and linking every step to a clear business priority, companies can turn AI from an isolated experiment into a targeted driver of productivity and competitiveness.



Does your company already have an AI strategy? Do you know which applications could deliver the most value? And do you have the data and capabilities needed to turn an experiment into a reliable application? Download the Smart Manufacturing Barometer and compare your approach with that of other Flemish manufacturing companies. Discover where AI is already being explored, which drivers and barriers influence adoption and what foundations are needed to achieve lasting impact.

Download the Smart Manufacturing Barometer

Turn your AI opportunities into a realistic roadmap

You want to use AI effectively, but where should you start? Sirris helps you identify promising applications, set priorities and develop a realistic AI roadmap. Discuss your challenges with Bart Verlinden, an expert at Sirris, and discover which steps can help your company move forward.

Contact our expert

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