



How artificial intelligence contributes to competitiveness and workforce planning

AI & Competitiveness

Business Case #5

Company: Heuille et fils

Company profile

Year of foundation: 1997

Headquarters: Saint-Amand-Les-Eaux, France

Size: 20 employees

Sector: Industrial Mechanical Engineering, Machining

Heuille et Fils is a 20-person industrial SME based in the Valenciennes area, specialising in precision machining for high-demand sectors: aerospace, defence, nuclear and rail. EN9100 certified, the company generates €3M in annual revenue through the manufacture of critical components in small and medium batch sizes, operated across a fleet of 30 CNC machines.

Interviewee



Xavier Heuille

Telecom Engineer and Company Owner

Xavier Heuille is a Telecom Engineer with 10 years of consulting experience in IT services with major international companies as clients. For the past 20 years until the present day, Xavier is head of the family created and owned company (Heuille et Fils).

HEUILLE ET FILS



What are your AI use cases?

One year ago, I did not understand how AI could be applied in my company. I was following the rapid developments in the news, but I could not see their relevance to my work. Although, I learned about AI during my Engineering studies 30 years ago, those methods required large machines, strict hard-coding, and had very narrow applications. For these reasons, I never used them professionally.

Last year, I launched an internal project to consolidate the many Excel-based quality-management tools I had built over time. Excel was no longer suitable for collaboration, as our different quality-management tools were not connected, sometimes causing inconsistencies. My initial plan was to build an internal system. However, after having learnt more about **Software as a Service (SaaS)**, I realised that a generalisable platform could also be commercially viable. Thus, I defined the requirements and recruited a company, which withdrew after two months, admitting the project was more complex than anticipated. With an audit approaching, I suddenly found myself with no system, no structured approach, and I was losing valuable time.

Over the course of a weekend, I explored no-code platforms and built a prototype that met many of my initial objectives. However, given my intention to commercialise the product, it was essential to obtain **stronger guarantees in terms of architecture and security**, which is why I hired a subcontractor with expertise in AI-assisted code generation. The first version - MBS - was developed within two months, which is significantly faster than the timeframe for previous IT projects I had worked on. This experience highlighted the significant advancements in development efficiency and cost-effectiveness that are currently available. At Heuille et Fils, the system is currently being used internally, with pilots being run with selected customers. A 2026 launch is being prepared.

The platform is built around an **integrated data model linking strategic planning, operational planning, and related actions**. Our model differs from traditional approaches by enabling continuous alignment, which is achieved by connecting budgeting directly to strategic objectives. In contrast, traditional approaches typically review strategy only once a year. While the initial release is a conventional application, it was designed from the start to function seamlessly with AI, via a graphical interface, voice, or agents that can read and write data. It facilitates process management through its built-in workflows and offers companies to design their own workflows. The operational element is based on the Plan-Do-Check-Act (PDCA) cycle and includes a module for collecting and analysing indicators from diverse sources, including customer feedback and/or market reports. AI can summarise these inputs, highlight patterns, and surface insights that users might miss.

Moving forward, we are planning to **expand the role of AI**. It will support (but not replace) tasks such as risk analysis, brainstorming, training design, and creating quizzes. When starting new activities, users will be able to request AI-generated drafts based on best practices. This project is currently our main AI initiative and through it, I have realised just how broad the possibilities are that AI offers. New developments are appearing almost weekly, making it challenging for anyone to keep up.

“The rhythm of changes is almost unbearable for human beings.”

We are also applying generative AI in many areas, ranging from simple to highly sophisticated use cases (see below for examples).

Area	AI use case
Predictive Maintenance	AI is useful for predictive maintenance, enabling the automation of repetitive or data-intensive tasks. This approach serves to streamline processes, enhancing the appeal of roles within the company.
Procurement	AI helps develop supplier-selection criteria and highlights potential supply risks by analysing factors such as delivery performance and quality issues. The final assessment remains the employer's responsibility, but AI can identify any issues that may have been missed. Similarly, we can ask when it is most advantageous to purchase a material. For instance, AI indicated that buying in August is typically more cost-efficient, which allowed me to reduce costs.
Production	We have built small internal applications with AI assistance. For instance, we are using AI to segment the components we manufacture based on defined criteria. This allows us to efficiently group production orders by machine, thereby minimising the need for tool changes. Since changing tools is part of an internal process with no value for the customer, reducing them saves time, lowers employees' workload, and makes the work less monotonous.
Risk analysis	In our industry, errors can have fatal consequences, which creates stress and huge responsibilities for employees. AI can support risk assessment by identifying early signals of potential problems. The purpose is not to assign blame, but to intervene early and prevent incidents.
Sales	I recently wanted to approach a new type of customer. I asked an AI tool to act as a senior buyer from that company and to outline the criteria typically used to select new contractors. Afterward, I requested an assessment of how my company performs against those criteria, including strengths and gaps. The AI did not replace my work but significantly improved my preparation and helped me identify potential weaknesses.
Training	AI helps to create training plans that incorporate national, international, and industry-specific standards. After employees complete a survey, AI suggests how to address individual skill gaps. This makes personalised training possible - something previously too costly to deliver at scale. By combining group training with tailored AI-supported one-to-one training, we can raise overall competence more effectively.

How did you introduce AI into the workplace?

The metal, engineering and technology industries are already highly automated, and employees are accustomed to such tools. Automating planning processes, for example, is not only widely accepted but also welcomed, particularly by those who previously performed these tasks manually. These processes were time-consuming and required constant updates. Therefore, AI now relieves employees from repetitive work while allowing them to retain full control in case of emergencies. As a result, they can focus on higher-value activities.

As an experienced employer, I believe progress is often slow because there is a **fear of complexity**. For example, the first version of a new production-planning algorithm took me around two hours to produce. The overall design of the application cost approximately €15,000 and involved only two people. When considering the time and cost involved, this is negligible, and the work itself is not difficult.

“In my view, the main reason AI is underused is simply that many people have not tried it.”

Once people are trying to use AI tools, some initial guidance may be needed. However, after starting to use it, new ideas emerge quickly, whether for defining customer requirements, conducting risk analyses, or structuring next steps. Within a very short time, often only in a few weeks, this approach becomes second nature. It is highly efficient, provides impressive results, and is currently inexpensive, as providers are focused on customer acquisition at this stage.

AI can provide substantial support across many processes – including brainstorming, data collection, automation, and risk analysis. However, **using AI within existing frameworks** remains essential. For example, in the Metal, Engineering and Technology-based (MET) Industries, fully automated risk analysis or self-correcting AI-controlled processes are prohibited: a human must remain in the loop. Moreover, the outcomes must be deterministic and traceable. Systems that cannot guarantee predictable results are considered unsafe. Similar restrictions also exist at European level.

Has AI affected the valuation of skills in your company?

Two years ago, the prevailing message was that everyone needed to learn how to code. Today, the critical skill is mastering one's own language. The ability to express ideas clearly, precisely, and in detail has become essential. This represents a significant shift. Language specialists, once largely limited to teaching roles, are becoming highly valuable resources, while the demand for traditional coding expertise is decreasing. This change is already visible.

Importantly, AI tools are accessible to nearly everyone. They can be used through natural language rather than advanced technical skills. With AI-assisted learning, even employees with limited initial qualifications can develop new competencies.

**“It's not either AI or human being -
it has to be a combination.”**

Currently, if you want AI to do everything, it will not work or you will obtain bad results - it is not an option at the moment. You need to have both - human control and AI assistance - to create synergies. I think that most people enjoy working this way because everybody can have their own assistant. That is a major change. They have something, someone to help them.

What benefits have you derived from using AI?

Sustainable productivity gains come from working smarter, not harder, such as by allowing employees to focus on decision-making and value-creating activities while **eliminating tasks that offer no customer value**. For instance, one of the objectives is to enhance the planning process so that employees are not required to spend their time making repeated adjustments between forecasts. This should result in a reduction in the time spent on monotonous tasks and a consequent improvement in overall efficiency.

This approach is comparable to principles in **lean manufacturing**, which focus on eliminating non-value-adding activities while improving working conditions. Rather than increasing workload, such methods reduce effort, risk, and complexity, making tasks easier to perform and control. This is also what applies to AI tools, which are removing unnecessary tasks and providing appropriate solutions; productivity can thus increase while making work more engaging and manageable.

The transition to AI does not mean there is less work overall. On the contrary, **we work faster, produce more and significantly increase productivity**. This allows prices to decrease, benefiting customers, while also improving competitiveness, as one individual can now generate substantial value.

To cite another example, we clean components but drying them afterward remains a challenge despite its apparent simplicity. Several approaches have been tested, and the current solution relies on manual intervention, which we aim to improve to reduce risk. Thus, we used AI to identify operational risks, mitigation measures, adequate equipment, and appropriate procedures. For example, the AI tool has proposed drying solutions that we had not previously considered, including technologies adapted from other industries, such as medical equipment. These solutions are affordable to test and offer a promising way to reduce or eventually eliminate a repetitive, low-value task. AI can therefore assist in many areas.

Concluding remarks

In some cases, the capabilities of artificial intelligence are overestimated. In industry workshops, a considerable proportion of business cases aspire to attain fully automated, end-to-end solutions. For instance, using AI to analyse customer drawings, define manufacturing methods, estimate lead times, and automate quotations. While appealing, this scope is currently too ambitious. A more pragmatic approach would be to **apply AI selectively**.

For example, AI can interpret customer drawings, extract requirements, and support internal risk analysis and mitigation. Then, automation can be introduced gradually, starting with simple parts and supported by sufficient training data. Rather than pursuing full automation, **AI should be implemented incrementally where it is fast and reliable, while complex tasks remain manual**. As capabilities improve over time, the possibility arises to automate further steps.

Crucially, our company does not use AI to make decisions: it is a tool for brainstorming and analysis. In that sense, the current debate on AI decision-making is somewhat misplaced. We should not overly focus on understanding how an AI system arrives at a specific output, just like we trust human reasoning without having direct access to the cognitive processes behind it. **The key consideration is the ability to evaluate and control the output.**

Finally, with the advent of AI, we must adapt to a **pace of change** that is unprecedented. Our application, how we will use AI, will change. It may change from one day to the next. This is a risk that is highly relevant for human beings. Most people are averse to change, and those who are not, will find this change very rapid. A potential risk is that, at some point, we will not be able to follow the speed of change imposed by AI anymore. Therefore, it is essential to keep track of and control new developments.



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