



The Future of ChatGPT in Manufacturing

BY LUIGI DE BERNARDINI | TUE JUN 27 2023

In my last two posts on ChatGPT, I wrote about [exploring how ChatGPT](#) could help manufacturers and system integrators and what benefits it could bring to [manufacturing execution systems](#) (MES). Following the documentation of my experience with ChatGPT in those columns, I now want to provide an overview of my thoughts on this new technology.

First, some background. ChatGPT is part of the GPT (Generative Pre-trained Transformer) series developed by OpenAI. It was launched in November 2022 and by January 2023 it had reached 100 million monthly users. It's the fastest-growing consumer application in history. It's based on deep learning models to predict the likelihood of a word or phrase given its context in a sentence. This enables the model to generate coherent and contextually relevant responses. It is essential to understand that when you provide a prompt to the system, it tries to create an answer appropriate to the input. It follows the patterns and styles it learned during training

without access to information beyond its training data.

The disruptiveness of ChatGPT is not just the sophistication of its algorithm but the vastness of the database it has access to. This makes it a unique tool that can help solve a wide variety of problems with a highly natural interface.

The question is: Will it be effective and bring value when used to complement a manufacturing execution system in an industrial environment?

My opinion is that it will not help much. At least not at its current stage of development. It's an up-and-coming technology, but it still needs to evolve to provide value to manufacturing operations.

There are two main reasons for my opinion:

1. The shop floor is a continuously changing environment, especially in some industry verticals. Therefore, an AI tool needs to rely on near real-time data to provide information or suggestions. I'm not saying there couldn't be benefits in using ChatGPT to support operators and managers with generic activities, but I don't see the possibility of using it for process management yet.
2. The knowledge required to operate a manufacturing plant is vertical and extremely context related. It is based on the specific environment, the installed machines, the setup of the production lines, and the processes and rules that define each factory. ChatGPT's value is based on its horizontal knowledge. Leveraging global information without plant context could pollute the existing knowledge with interferences introduced in an uncontrolled way from the outside.

Having said that, we need to remember that ChatGPT was made available in November 2022— less than one year ago. Many changes have already happened, and release 4 of the platform enabled the use of third-party plugins to boost the growth of the platform's capabilities and allow scenarios that are still difficult to imagine. For example, if plugins can make it possible to access vertical knowledge bases and limit access to the generic information, I can see many use cases that would be of extreme interest for manufacturing.

The other issue with ChatGPT that needs to be solved is privacy. A lot of IP-relevant information is used daily in any manufacturing process. Even if they're not patented, the organizational processes of a company are critical competitive factors and need to be protected. Any platform dealing with this information needs to have some protection mechanism to guarantee that the information shared in prompts or questions will not be used in any

way by anyone else.

Another aspect that is even more challenging is the proprietary information that ChatGPT or any other AI platform could generate to support the manufacturing processes. Who will own that information and could it be protected if it will cause a competitive advantage?

I believe that ChatGPT and the other generative AI models that will soon be available have exciting potential and will impact the MES world. It will take more time—as with any technological innovation launched with a consumer-oriented approach—for it to be adapted to industrial use. Therefore, I will continue to investigate and test the technology because the very short innovation cycles we are seeing behind the fast expansion of ChatGPT capabilities require continued attention to assess its possibilities for the industry.

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