

How Manufacturing Analytics drive efficiency for modern industries

Depending on the maturity level of your data, manufacturing analytics allows you to quickly achieve significant savings by starting with simple functionalities, then work over time to continuously improve, step by step, your performance.

For some time now, the significant changes manufacturing and production systems are undergoing due to the emergence of new technologies, smart and connected factories, optimized production processes, and analytics have been major topics of discussion. We are convinced that manufacturing analytics enable organizations to gain timely insights and make comprehensive decisions they previously have not considered. Why? Because the data wasn't available or volumes were just too huge to be exploited.

To keep pace with new technologies and increase the positive impact that experts can have on production efficiency, organizations must embrace new analytical solutions.

Data is defining a new manufacturing paradigm

A few years ago, data was gathered from sensors and workers dedicated to individual machines, and analytics could not be used for future decisions. Today, organizations can identify insights and take immediate action. The ability to analyse data on a real-time basis gives organizations a competitive edge they didn't have before.

On the shop floor, there have been attempts to improve manufacturing processes and introduce predictive maintenance tools since the beginning of the industrial era. But these organizations have become locked into their legacy architecture of sensors, actuators, controllers, PLC, and HMI devices. The simple fact is that data remains in silo and disconnected from the rest of the business. With new technologies, we are now able to extract data from these devices. By merging with contextual data, we can provide new services and leverage the operational process and maintenance activities. We call this Manufacturing Analytics or Maintenance Analytics as opposed to traditional predictive maintenance.

“Manufacturers are fully aware that if they want to remain competitive, they must work faster and stay agile. Today, data exploration can help manufacturers rapidly achieve flexibility and efficiency.”

François Calvignac,
Manufacturing Analytics Solutions
Manager



Manufacturers are fully aware that if they want to remain competitive, they must work faster and stay agile. Today, data exploration can help manufacturers rapidly achieve flexibility and efficiency. Manufacturing Analytics are the key to gaining that significant value.

Manufacturers must harness data streaming from their overall environment (equipment, machines, systems, raw materials, human resources...). That leads, in turn, to better product quality, smarter manufacturing trends, more efficient operations, higher profits, new business opportunities, and increased customer satisfaction.

Manufacturing and plant intelligence

Prior to any significant impact induced by these new technologies, we establish business objectives in order to identify the best choice of parameters, provide the relevant data, target the right people, and supply them accordingly. It goes without saying that the collected data needs to be high quality and well managed before it can be reliably analysed.

Data constantly flows from devices—hence the name Big Data. As a result, it is wise to establish step-by-step and repeatable processes of data connectivity to improve and maintain effective data quality. Our best practices show that connectivity (extracting the right data from devices and standardizing it) is the first milestone, and also the most difficult to implement in your Manufacturing Analytics solutions.

Once we know that the provided data is reliable, data analysts can generate predictions and master data management can be established to manage data streams and keep an eye on insights.



Even if a data history isn't available—which is the situation in most cases—it is always possible to use an algorithm dedicated to time series and based on small deviations from normal behaviour. This approach is a good step before moving towards more powerful algorithms and full analytics maintenance with failure prediction."

Maximize efficiency with manufacturing intelligence

Manufacturing intelligence analytics can enable shop floor operators to focus on process optimization, product quality, and maximizing production line output. The final results of the production line and the quality of products are the targets of manufacturing intelligence. This means looking to optimize the production time cycle, decrease scraps, and rationalize energy costs.

Minimize downtime with predictive maintenance

Predictive maintenance uses the same kind of data as manufacturing intelligence, but is more focused on the warning signs of machine breakdowns. It uses statistical algorithms and machine-learning techniques to identify the probability of future outcomes and provide an assessment of what will happen. This makes organizations feel more confident that they're making the best possible business decision with minimal loss of production time.

Efficiency and continuous improvement applied to the industrial world

Every day, most manufacturers face many operational challenges: machine repair costs, machine replacement costs, aging equipment, operator safety, and so on. By expanding the ability of machines to produce reliable data and the capacity of the solution to draw insights from this data, Manufacturing Analytics open the door to new services.

With Manufacturing Analytics in place, shop floor operators can take pre-emptive action to reduce scrap, drive efficiency, and cut costs. Ultimately, Manufacturing Analytics help industrial teams get information value from their equipment that they have not noticed before to improve their own performance.

Manufacturers already understand the benefits of Manufacturing Analytics, this is why they put a high priority on implementing it into their business strategy.