

How can smaller manufacturers make the most of Industry 4.0?



Industry 4.0 is set to revolutionize the manufacturing industry and the way manufacturing businesses operate. Fully integrated factories will generate massive amounts of data. This data will be constantly analyzed, allowing manufacturing processes to learn and adapt to new demands.

To remain competitive, existing businesses must embrace technological advancements and the changes required to maximize their benefits. These technologies will allow processes to run with less manual intervention, improving efficiencies and helping to resolve complex business problems.

So what's in it for your small manufacturing business?

Scalability with Industry 4.0

The cloud is an integral part of Industry 4.0 and offers small businesses the opportunity to scale their operations by focusing on their core competencies, rather than focusing on IT systems. Because many small businesses do not have sufficient IT resources, they have to strategically manage the utilization of resources, especially people.

The cloud levels the playing field by giving a small business access to the latest software without having to strategically manage it. This frees up staff from having to monitor and manage the infrastructure needed to run the software. Staff can be reassigned to more value-adding functions.

Customization

Customization and personalization of products require shorter production runs and more frequent switching out of production lines. To minimize downtime and waste, businesses must be able to quickly and efficiently adapt their manufacturing processes.

Interconnected machines, processes, materials, and products allow for more efficient resource planning. It is possible to reduce manufacturing batch sizes to one part, meaning a bespoke part

can be produced at the same cost and within the framework of the existing business, and within the existing production processes.

Smart factories can auto-adjust schedules and automatically adjust material and process flows. Factory uptime is maximized, and downtime minimized.

Optimized inventory levels

The person receiving the order in a small business must have overall visibility of the production process and material availability. Without this visibility it is difficult to determine if the requirements of an urgent customer order can be met.

The only way quick manufacturing of products can be accommodated is by carrying excess inventory. If this is not done, the business will always be at risk of not being able to produce the customer's demand. However, carrying excess inventory will have a negative impact on cash flow and the business's balance sheet. Industry 4.0 provides in-depth supply chain visibility, leading to more predictable and lower inventory levels.

Control and visibility

Transparency provides greater visibility, ensuring that a small business can make more informed decisions. This visibility across assets and processes allows for greater flexibility, productivity, and the ability to adapt more quickly to customer demand changes, leading to greater customer satisfaction.

Integration into the value chain

Implementing Industry 4.0 in a small business may at first seem unnecessary. Although large companies are driving the concept, small companies form an integral part of their supply chain. It is inevitable that this industrial revolution will affect small companies.

Supply chain visibility means that large companies will want to link smaller companies' production systems to their supply chain. Knowing the status of production and location of materials is critical for larger companies to fully implement and meet their own Industry 4.0 targets. Failure to implement Industry 4.0 may result in a loss of a major customer.

Improved quality control

With more and more businesses implementing Industry 4.0, it will become more difficult to differentiate your business from its competitors. One way of achieving this is through improved product quality.

Predictive maintenance proactively monitors tool and machine performance within set tolerances. When deviations from nominal settings are identified, tools can be replaced, and machines recalibrated to maintain product quality.

Advances in measuring and evaluation systems mean that measuring technology can be integrated more thoroughly in the production process. This provides accurate measurements in real time to not only provide transparency into the production process but also allow for communication between integrated systems.

Conclusion

With the suite of Autodesk manufacturing software it is possible to fully integrate the various operations of your small manufacturing business. Project management, design, additive and subtractive manufacturing, and quality control can be seamlessly managed from the cloud.

In the long run, the small manufacturing business will appear more professional and have greater insight into its own operations. It will be able to more effectively manage its inventory and provide greater levels of customer satisfaction by minimizing stock-out conditions.