Sensors, Analytics, and the Smart Factory

Recently, we published a [blog post](#) that highlighted the rise of IoT leading to a continuous generation of massive volumes of human-generated and machine-generated data. The volumes of streaming data along with the advent of intelligent sensor technology, improvements in RFID tagging, and the availability of advanced technologies such as AI, machine learning, and cognitive analytics have led to the rise of Industry 4.0.

What is Industry 4.0?

The term "Industrie 4.0" was first coined more than a decade ago by the German government regarding a strategic initiative promoting the computerization of manufacturing. Interest in Industrie 4.0 started [taking off](#) at the end of 2012 when the Industrie 4.0 Working Group presented recommendations to the German Federal Government for implementing advanced manufacturing solutions based on Industrie 4.0 design principles.

Today, [Industry 4.0](#) refers to a "fourth industrial revolution" where IoT, cyber-physical systems, cognitive computing, and other advanced technologies enable the creation of "smart factories." The smart factory represents an automated system that is flexible and fully connected. It leverages massive volumes of streaming data from many disparate sources. It's a system that goes far beyond traditional automation.

You Can't Have a Smart Factory Without Sensors

The smart factory requires a network of connected devices, sensor-enabled equipment, and inter-connected systems. Two of the most crucial building blocks of a smart factory are sensors and [RFID](#) tags. Sensors continuously generate data for every aspect of the manufacturing process — data that can be collected and analyzed in real time. The manufacturing operations manager can then take this data and make real-time decisions, provided you have a real-time Digital Platform for visualization, rules, and alerts in place.

Many different industries use RFID tags, and these tags can be attached to a variety of objects such as clothing, cars, and machines. RFID tags can even be implanted in pets and people. The tags are used to automatically identify and track the object. For example, a product with an RFID tag can be tracked by the manufacturer in real time so that the manufacturer knows precisely when the product left the factory. The transportation service can then use the tag to hone in on the product's exact location throughout its shipping journey until it arrives at the specified destination.

Analytics Plays a Key Role

While you can't have a smart factory without sensors, you also can't have a smart factory without technologies that can collect, store, and analyze the data generated from those sensors. The smart factory needs technologies that can collect, store, and analyze data from other sources such as factory management systems, CRMs, and ERPs. For a factory to truly be smart, it needs a digital platform like [iVEDiX](#) that can access the data collected from all these disparate systems and apply cognitive analytics to lead to actionable insights from that data. The digital platform is Cognitive Analytics, Personalized Workflow, Low-Code Applications, Location Intelligence, and AI, to name a few of its features.

Transforming Manufacturing

Industry 4.0 is already transforming the manufacturing industry and will continue to do so because of the potential benefits for manufacturers such as reduced downtime, improved operational efficiency, and lower operational costs.

[Get in touch](#) today to learn more about how iVEDiX can help manufacturers build smart factories.