Is the Internet of Things
Revolutionizing the Manufacturing Sector?

Recent market research reveals that smart devices like machine sensors, RFID readers and video cameras - connected to the Internet and the Cloud and communicating in real-time - are having a massive impact on the factory floor production and distribution process. The recent launch of Windows 10 with its Internet of Things (IoT) functionality has also intensified attention on the proliferation of IoT.

The change is being driven by challenging economic conditions and the necessary technology now existing to realise much needed lower operating costs, increased efficiency and faster response times.

Technology is changing how manufacturing is done by converging factory floor processes with information technologies which in turn is moving quickly forward with the Internet of Things to cause a seismic shift in manufacturing.

Industry analysts Gartner say the IoT has major potential, but it presents challenges that manufacturers must address as they develop their IoT strategies. Connectivity, cloud storage, automation, and data analysis are factors in the equation that must be mastered before the overarching IoT strategy can be implemented. The IoT is really a combination of many tactics.

Some, such as predictive maintenance, are already in place in many manufacturing plants. It is the connectivity - inside and outside of the plant - and the application of data collected that creates a difference. This is the cornerstone of IoT and the technology that will change the future of manufacturing.

According to Kevin Dherman, SYPSRO's Product Owner - Emerging Technologies, "We have seen radical shifts in the production process as linked devices communicate with each other. While manufacturers have been generating Big Data for a few years now, it's their ability to effectively use the data for analysis and real-time problem solving that is becoming the game changer."
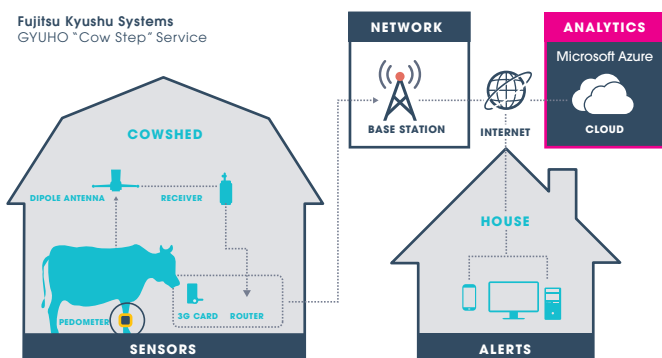
"It's not about innovating for innovations' sake but using the latest convergence of technology to transform your business, lowering the cost of storage and production by anticipating both customer demand and any maintenance issues, ahead of time."

"The Internet of Things is plugging into ERP processes in vending machines for example; where sensors, indicating whether the machine is fully stocked or not, means re-provisioning can become more cost effective and efficient; and the machine in effect becomes a mini-warehouse. Restocking can be tracked and the supply and demand cycle charted to predict what provisions are most popular at each location or are seasonal e.g. stocking soup in winter."

Dherman says, "Another way the Internet of Things is assisting in maximizing production is in Japanese agriculture where valuable dairy cows have a pedometer attached to their legs that enables farmers to choose the optimal breeding time for the cows. Artificially inseminating the cows during oestrus boosts milk production by an impressive 70 percent. They discovered that the cow does a little dance when in oestrus and so the pedometer monitors this and sends a signal to a base station and ultimately the internet and a Microsoft Azure Cloud Center. The signal and data is then analyzed and sends a message back to the farmer's mobile phone so he knows the best time to inseminate the cow for maximum dairy production."

The Internet of Things is responsible for the next Industrial Revolution, Industry 4.0. Based on the technological concepts of cyber-physical systems and including the Internet of Things, Industry 4.0 ties together the recent significant advances in information, computing and communication systems, and machinery, and the mechanization of production. This so-called 'fourth industrial revolution' is quickly turning the fantasy of truly Smart Factories into a productive reality.

Fujitsu Kyushu Systems
GYUHO "Cow Step" Service

According to Clifton Scully, Director of WCF and a SYSPRO client, robotics is also changing the face of manufacturing, "Our local dark warehouse is a condensed environment that takes triple the stock as a result of robotics, and an expanded warehouse storage design. There is less space requirement in the new condensed warehouse for forklifts. By using a rail and pallet stacking system and a robotic arm we are now able to stack stock much higher because we are not limited to the reach of traditional forklifts and normal warehouse ceiling height."

Scully says. "The integration of SYSPRO with the automation solution has streamlined the way in which orders are processed in the bulk warehouse and has simplified WCF's operational model."

Global population growth of over 8 billion and millions of people moving into the middle class means there is an increasing demand for manufactured goods and services. This population growth is tipped to also cause the construction sector to start booming around 2018. This means there will be a need for skilled construction workers, to work faster and longer.

One company has devised an unpowered mechanical exoskeleton that uses gravity, weight and design to make heavy power tools almost weightless in operators' hands.

Combining robotic innovations like this with the Internet of Things will create construction team shifts that are trackable, and more than ready to handle the approaching construction boom. Clearly the Internet of Things is not, "the future", it is already happening.

Kevin Dherman concludes that with the Internet of Things enabling the integration of the factory floor to ERP and Business Intelligence, and connecting supplier, customer and end user into the value chain; the manufacturing sector will benefit best by boarding the IoT train as soon as possible or risk being left behind.

About SYSPRO

SYSPRO has earned the trust of thousands of companies in over 60 countries for its suite of visionary software that enhances the competitive thrust of small/mid-sized manufacturers and distributors. The company's adherence to developing technology, based on the needs of customers, is among the reasons why SYSPRO enjoys one of the highest customer retention rates in the industry.

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