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According to the 4th annual *State of Manufacturing Technology Report*, the use of analytics and data is expected to grow over the next five years. As the level of connectivity and digitalization continues to grow during the fourth industrial revolution, manufacturers will be able to connect and integrate all pieces of their business: from materials planning and logistics to shop floor output and training. The obvious byproduct is the generation of more and more data. However, simply hoarding data is not only ineffective, it's *expensive*. Manufacturers need to make that data earn its keep!

Applying Data in an Inventive Way

Among the numerous ways data can be used, three stand out in particular.

No. 1 – Improving Inventory Management

One of the most beneficial ways data can be leveraged is to optimize inventory management by predicting and managing demand. According to the Institute of Supply Management, in February 2019, customer inventories were considered too low for 29 consecutive months, reaching "their lowest level since December 2010" and indicating that the industry is struggling to understand and keep up with incoming demand.

Katie Kean, a global consumer industry CTO, argues that in order to "meet the needs of the consumer even before they know they want it, technology is needed to combine multiple types of data—from both inside and outside of the organization to uncover new, actionable insights." Effectively managing inventory will affect your bottom line, preventing wasted resources with too much inventory and poor customer experiences with too little inventory.

Manufacturers can also gain a competitive advantage with smarter inventory strategies guided by data. For example, by tracking your current assets and collecting information about the types of products available, average number of days on the floor and where products are shipped you can establish patterns to project customer demand. It is a lot simpler – and more profitable – to base shipping decisions on data rather than gut feeling.

No. 2 – Engaging your Employees

A recent report from Deloitte revealed that the number of unfilled jobs in the manufacturing industry may grow to as many as 2.4 million in the next decade, leading to a possible $2.5 trillion loss for the industry.

Given this shortfall, it's incumbent on manufacturers to use data to increase employee engagement, productivity, and recognition. Organizations often believe that simply offering rewards for better performance will keep employees satisfied but blindly applying feedback mechanisms without an understanding of your employees and how they work has proven ineffective, says Michael Wu, chief scientist at Lithium Technologies. However, with access to vast oceans of data, you can analyze which areas of the business need improvement and how to drive a workforce's intrinsic competitive nature to drive efficiency and productivity across the floor.

For example, with data as simple as shop floor output, you can analyze who the top performers are and who is coming up short. By leveraging the results, you can hold a training session where the top performer can provide guidance as to where improvements can be made. This simultaneously increases efficiency on the floor and, just as importantly, provides recognition to someone who has done well.

No. 3 – Ensuring Safety on the Manufacturing Floor

More than 100,000 manufacturing workers are injured on the job every year; the most common accidents include coming into contact with machinery or falling down. While not all injuries can be prevented, you can empower staff to take safety into their own hands with data. Data offers manufacturers the opportunity to help their workforces understand best practices around safety by finding patterns in the history of past incidents and accounting for that in training material.

When organizations need to cut costs, many of the changes made affect workers' safety. Accidents result not only in direct costs, such as medical expenses and indemnity pay, but also indirect costs, such as plant floor interruptions, which can account for anywhere between three to ten times an accident's direct costs. Taking the time to enforce best practices regarding safety improves profits, increases productivity and creates a better workplace. Better data allows you to do just that.

Manufacturers have a huge opportunity to benefit from data-based insights. Those that are able to analyze and leverage data will be able to make better decisions that propel their organizations to success in a highly competitive climate.

Investing in Data-Driven Initiatives

Only 18 percent of respondents in a recent PwC survey rated their data analytics capabilities as "advanced," which means there's still a long way to go before the majority of the manufacturing industry can use data analytics effectively. It's important to note that data-based innovations must be deployed in a collaborative process across departments if business processes are to be transformed. New tools and analytics may be useful b