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Big Data Drives Manufacturing Efficiencies



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Whenever people talk about big data, the discussion usually veers toward issues like website clickstream analysis or sentiment measurements pulled from social media messages. Manufacturers, however, have other big data interests.

For years, data routinely collected during manufacturing operations has been left unused. Now, as tough economic conditions force companies to work smarter and faster, potentially insightful manufacturing data is finally beginning to be put to good use, boosting companies' efforts to automate, re-engineer, and generally enhance their operations.

Putting data to work

Manufacturers have long generated and captured massive amounts of data in the form of equipment events, product genealogy, traceability, regulatory conformance, and so on. A CPG company that produces a personal care product, for example, might generate up to 5,000 data samples every 30 or 40 milliseconds. Executives and managers now want to be able to use this big data to improve agility and risk mitigation.

An IDC study issued last year showed that all kinds of US manufacturers have significant interest in using big data. In fact, 52.7 percent reported that they view big data tools as being important or very important to their supply chains.

Manufacturers can put big data to work in an almost unlimited number of ways. A manufacturing supervisor, for example, may wish to examine the impact of humidity changes on product quality as materials pass through through different production lines at different rates. A beverage bottler, meanwhile, might want to scrutinize several years of data to detect anomalies and variations in drink ingredients in an effort to better understand product quality disparities and to use predictive analysis to prevent the creation of future bad batches.

In these and many other cases, advanced analytics can be used to quickly pore through years, perhaps even decades, of historical data to pinpoint patterns and trends that can be used for real-time decision support. Big data-generated insights can then be used to drive decisions affecting key manufacturing in areas such as product quality and lost production time, as well to find ways of improving efficiency and cutting costs.

Big data has the potential to revolutionize manufacturing by taking the guesswork out of many basic tasks and operations. Analytics can be used to maximize yields, monitor equipment performance, predict equipment failures, ensure product quality to a customer or business partner, provide accurate models for expansion plans, enhance capacity management, and streamline supply chains. Big data

analytics can also be used to provide fast, accurate, and detailed compliance evidence to regulators.

Final point

Manufacturers are just getting started with big data, so the field will likely remain in learning mode for some time. Meanwhile, new adopters will need to focus on creating test projects, finding suitable IT partners and hiring people with the imagination and ability to apply big data analytics to an almost endless array of manufacturing processes.

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