

Data and the IIoT. While data is black and white, interpretation can lead you into the gray.

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This paper discusses some of the current pitfalls of production data collection and the opportunities with emerging IIoT-enabled technologies to help drive packaging line improvements.



With the Industrial Internet of Things (IIoT) we are now experiencing the change from a lack of data to a proliferation of data, but having data alone isn't enough to drive improvements.

The data compromise

For those lacking an easy and straightforward approach to data collection and analysis, pursuing Lean improvement initiatives often means compromising on how data is gathered and to what extent it is able to be analyzed, both in the immediate and the long term. Data collection and evaluation then becomes an exercise of what you have access to and how much is minimally required to provide insight for isolating the problem at hand.

Misinterpreted data can lead down the wrong path

With manual data collection, failing to understand which data to capture and how to interpret that data can be a costly pitfall. For example, when manually measured, a time variation may incorrectly be attributed to a process when it should be attributed to the reaction time of the person performing the measurement. In this instance, if a manufacturer builds in a “buffer” to accommodate the perceived variation in the process, the “buffer” will fail to address the issue. And no matter how well intentioned, the “buffer” is unproductive, costing both time and money. With advances in equipment/software that automate data collection, you can have better assurances that the captured variances are actually process variances, and not something else.



Obstacles for gathering and measuring data

- It is difficult to define something or parameters not known up-front, so you have to guess as to what is important
- There is no assurance of accuracy or consistency with data collection (missing, partial, untrustworthy)
- You need a resource (person or equipment) to measure data
- Data must be secured and archived after it is collected
- Expertise is required to pull the data (manually or by automation) and analyze for trends

So now what?

With innovations using the IIoT, the cloud, and emerging equipment/software technologies, it is possible for complex data to be gathered and stored. Having mountains of data is not the same as generating meaningful insight. What kind of expertise is required to gain value from this new technology?

Data comes easy, but without interpretation, its value is diminished

Removing the labor intensity and error associated with manual data collection, advances in equipment/software combined with the IIoT now make it possible to capture and store endless production line data in the cloud. Far more frequently than ever before, data can be captured on a constant basis. Nevertheless, while gathering data has been made easier, many don't know what to do with it when they have it. Unfortunately, while data can offer information, it fails to provide insight without thoughtful interpretation.

Lacking the right tools and expertise, data collection and interpretation is no easy task

Without a simplified template to work from, and automated data collection made possible by the IIoT, manufacturers are left to figure out what they can access and which tools are available to help them with the “art” of distilling their data. It can become a matter of much-needed expertise to formulate what data should be captured and then determining what to do with it. It is important to distinguish that while sometimes daunting, drilling down into existing data isn't nearly as challenging as identifying what it is that needs to be gathered beyond what is readily available. The difference becomes a matter of science (using statistics and math to create and evaluate trend lines, control charts, etc., with collected data) versus the “art” of determining how to get data when it is hard to pinpoint; especially when the answer and solution will be as unique as each facility. So not only is equipment/software that can automate the collection of data important, but also required is a well thought out plan (and tool) for gleaning meaningful insights from that data.

A new day, a new data challenge

While advances in equipment/software technologies can now bridge the gap between not having data and having it, the challenge moves to a lack of expertise in data organization and interpretation. Both are needed to make good use of this new unlimited data source made possible by the IIoT.

Not knowing how to conceptually structure data or shape it into something meaningful can be a stumbling block for those who can likely benefit from it the most.

Logically, collected data lacks value without an expert who understands how to sort and structure it (which is required before it can be analyzed). Opportunities for improvement, both immediately on the line and over the long term, are missed when expertise for mining and manipulating the data is lacking.

Complex data, over-complicated solutions

While there are large scale systems available for helping to weed through complex production data, these systems usually require capital investment and months to implement. Moreover, they can be over-engineered and over-scaled for the day-to-day needs of mid-tier manufacturers. For cost and scalability reasons, adoption of these tools that can help manufacturers manage their data is slow, and understandably so. Without in-house experts who understand how to work the tool as well as know how to manipulate the data quickly and efficiently, the benefit for short and long term improvements can be quickly lost. For a lack of a better solution, manufacturers make do with what they have, but with emerging technologies the status quo is changing.

How the IIoT and emerging technologies are helping to drive packaging line improvements

For many manufacturers, having a dedicated resource to refine and interpret data towards improving production processes is a luxury, and for a lack of tangible ROI, not necessarily seen as a priority. But with emerging solutions that are cost-effective and easy to implement, using data to improve your packaging line production no longer has to compete with other priorities.

When partnered with new equipment/software technologies, advances in the IIoT are changing what is possible for process improvement initiatives. There are affordable options that are easy to implement and allow manufacturers to not only capture more data than ever before, but also to fast-forward through the challenges of honing data to help them address their unique needs. Dedicated expertise is no longer needed to help structure and interpret data. Data can therefore be more easily sliced and diced with varying views to investigate specific areas of a process, even down to one second intervals on the production line if need be, helping to drive root-cause analysis and track improvement initiatives both day-to-day and over the long term.

Summary

The IIoT is changing the landscape of business. With emerging technologies in equipment/software, such as the VideojetConnect™ Packaging Line and Productivity Suite, manufacturers have access to more data than ever. New technologies are providing affordable and easy-to-implement solutions for gathering, storing and interpreting valuable data in a way that hasn't been previously possible. Moreover, sophisticated data expertise will no longer be a requirement for line managers to make use of packaging line data, real-time data that can drive improvements both immediately on the line and over the long term.



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VideojetConnect™ Packaging Line and Productivity Suite

Inspired by and using the power of the IIoT, the VideojetConnect™ Packaging Line and Productivity Suite allows manufacturers to leverage the Videojet equipment already on their line, and the cloud to gain transparency into their packaging line production. Driven by real-time and historical data, simple tools and reporting empowers users to maximize their production throughput and reduce operating costs. Providing immediate visibility to how

their packaging line production is performing at any point during a shift, users can make adjustments to make sure they hit their targets. And by taking the guesswork, labor-intensiveness and error of manual data collection out of the process, stumbling blocks to securing clean and meaningful data are all but removed. Moreover, performance metric tracking, including OEE data, helps remove the barriers of data paralysis and analysis.

Are you ready to flip the switch and start turning data into action?

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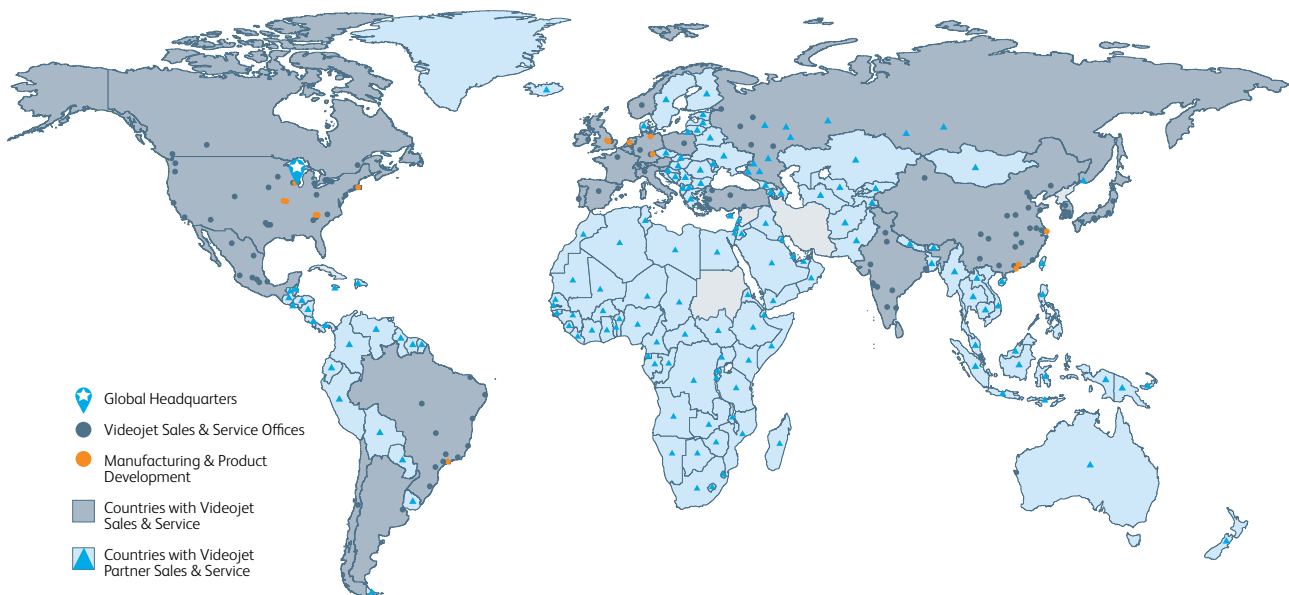
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