

Variable Speed Drives and the Industrial Internet of Things

Understanding the role of Variable Speed Drives

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All for dreams



1

Operational efficiency

This relates to the ability to analyse real-time data and interrogate that information. The end result is improved process control, equipment optimisation, reduced waste and higher productivity.

"Machine issues are often blamed for downtime and lack of productivity, but this would help us see when machines were actually idle and the reasons why"

OEM, UK

What we learned:

OEMs and their suppliers need to figure out how to promote data collection so their customers see that it's in their interest. It's a sensitive subject area as the end users won't see an immediate benefit, and you'll be asking for their raw process data.

How to get ahead:

Building up examples of lifetime value, such as a reduction in waste as a result of improved efficiency, is one way to show the true benefit of the IIoT.

2

Smart machine optimisation

Modern AC drives with embedded PLCs perform local level tasks to self-optimize, saving time in set up and commissioning. Obtaining data in real time makes it easier for OEMs to make recommendations to the end user for machine set up. OEMs can use the data from their machine to influence the design of future equipment.

"We would definitely welcome support and input from suppliers in terms of how to make our machines run more efficiently"

OEM, US

What we learned:

As with operational efficiency (see point 1), the core focus is to show end users the possibilities and explain that there are no additional costs involved.

How to get ahead:

Adding a drive with a built-in PLC means the physical design of your machine doesn't need to change, futureproofing your business.

3

Mass customization

Automation exists in a fragmented market; there are lots of different suppliers with different protocols. This can make it difficult for OEMs selling into factories that have a high degree of equipment variation.

What we learned:

When there's no extra cost involved, OEMs are highly motivated to work with a drive system that makes customization easy. And the more flexible it is, the better. This reduces the cost of development for customized machines.

How to get ahead:

Drives with open protocols give you much more scope to connect with existing equipment without added costs.

4

Quality control

Variances occur even in the most advanced factories. Aspects such as wear and tear or user error can quickly turn highly tuned processes into waste production. This is especially an issue with high tolerance processes.

"Our machines already monitor data like run tensions, roll diameters etc. and these are automatically flagged to the operator if they are not standard. However we don't have this data available post-production so we can't come back to it and analyse it"

OEM, CANADA

What we learned:

While many high end manufacturers already have built-in system monitoring, there is still lots of scope for smaller equipment suppliers to take advantage. In fact, some drives are so advanced that it's possible to introduce quality monitoring to software without buying any additional components.

How to get ahead:

Drives with built-in PLCs not only remove the complexity of additional wiring and stocking costs, but they give you the ability to add programs to monitor quality.



5

Remote diagnostics and monitoring

Already a key service that many OEMs provide to customers, remote diagnostics gives the user the ability to view and review machine and component data. This is an aspect which could be enhanced further through the use of smart devices and data sharing.

*"We currently charge for maintenance services, this is a big revenue stream for us
– the show must go on!"*

OEM, AUSTRIA

What we learned:

As automation becomes more and more complex there is a growing need for experts. The issue is, there are not enough engineers out there with the skills to identify and resolve problems as they come up. In addition, the shortfall of expertise means that engineer's salaries are going up. For businesses to maximize profitability, it makes sense that they turn to OEMs for maintenance support. And for the OEM there's a huge opportunity to build long-term relationships.

At present the services offered by OEMs are typically reactive rather than proactive, and are used to help solve problems rather than prevent them. OEMs rarely use IIoT ready devices to perform continuous monitoring. As globalization drives business growth, the need for remote monitoring becomes more important. In particular, we see the use of bots and self-diagnosis from smart devices as the next step in the technological evolution of autonomous machinery.

How to get ahead:

Remote diagnostics is a great way to begin conversations with your customer around IIoT and how they can reduce downtime. It will begin to open the doors to the next step: predictive maintenance.

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Predictive maintenance

Through the cloud we can log data, collecting performance information over time. This provides technical experts with insights in order to resolve issues before they cause a breakdown. In addition OEM service teams benefit from more accurate predictions to do with fault finding.

*"Aggregate data would allow higher level analysis and a better understanding of
how to predict and prevent issues"*

OEM, AUSTRIA

What we learned:

In some applications, smart components such as drives provide enough information to identify failing components. However, if your organisation makes bespoke products then it may require a collaboration with your customer.

How to get ahead:

Consider how to communicate the full value of predictive maintenance as a service. In our research, many OEMs said their customers are sceptical about using cloud-based data management. Yet, many of those same businesses use online CRM systems where all of their sensitive customer data is stored in a cloud. Pulling together those comparisons may make a compelling argument.

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