

A guide to successfully solving operational issues with industrial digital technologies

ERP management systems

Production planning and control scheduling

Simulating events and modelling visualisation

Data capture and reporting

Barcoding and tracking



A recent Made Smarter survey found that operational issues are a key business challenge for 18% of manufacturers. A lot of the time, these problems relate to the fact that things are being done in the same way they have always been done – rather than done in the best way possible.

Makers who opt to use digital technologies are able to overcome more operational challenges, streamline their processes, and do things smarter. Here, Made Smarter Business Adviser Brett Turner discusses what exactly these operational issues are, along with the technology solutions available.

The issues

One core issue is having the infrastructure set up efficiently. So many companies that I've worked with haven't had visibility of their operations, and so don't actually know what's going on across their processes.

All too often, these businesses are only gathering data at some stages of their production line, and it's not even necessarily the right data. Data collection is simply seen as a reporting tool, rather than a means to add value.

But if a business does have the right, complete data, then they have a goldmine at their fingertips. Effective analysis can be carried out, inefficiencies can be highlighted, and bottlenecks observed. It is only then that makers can realise how to improve and find the answers to their challenges. For example, if they suffer from a long lead time, they might discover it's connected to the all-too-common issue of manually walking from one machine to another, which builds up increments of additional time.

This leads us nicely on to how to solve problems – with technology solutions.



The solutions



There are lots of different ways that emerging technologies could be introduced into your business. Some of these are quick wins, whereas others are slightly more advanced. I've given some brief detail on a few of the solutions I speak to makers about:

ERP management systems

By connecting your systems, you'll have oversight of all your operations. For instance, you'll know if every aspect is being effectively managed, and how much it actually costs to make a single unit. It's surprising how many manufacturers don't know this figure, and are therefore unaware of their profit margins – and it's also for this reason that this is often their first step on the journey to digitalisation.

Production planning and control scheduling

Through this technology, you can ensure everything is efficiently scheduled at the right time and can run smoothly. Resources can be allocated, humans assigned, and priorities ordered so that the work is optimised. You'll be able to collect effective data from each point of the process too.

Simulating events

If you opt to use specific software to virtually replicate things such as your factory layout, you can work out how processes can be more efficiently run. Augmented reality can be used to build a replica of your factory or any part of its operations – one that you can tweak without having to disrupt your business. This means that you don't actually have to use up resources to decide whether implementing an operational change is worth it. In turn, you'll save a substantial amount of time and money.

Modelling visualisation

You can also map out the various processes through modelling visualisation. Using 3D virtual models, you could test an update to a machine's settings before actually changing them. In this way, you'll be able to look at how you can improve things, and discover the optimal way of doing so. Visualisation is better for bigger changes, as small or incremental ones are generally fine to action without it.

Data

Most businesses already collate some form of data, but this is part of the problem: you don't want to be collecting data here and there. You want to start from the beginning and then capture information at every point, enabling it to be fed into a wider view of your entire operations for complete tracking of the full production line.

So many companies have what is called a 'production black hole' – they don't know what happens *during* production, only before it or after it. For example, I worked with a business who didn't realise that half their material ended up as waste. As a result, they were spending twice the amount of money for no reason. But if you're aware of this crucial stage of production before taking action, then you can reduce lead time and increase quality – not to mention avoid all that waste.

Barcoding/tracking

This is a very simple, but incredibly valuable, solution that you can quickly implement for certain tools or inventory. Through barcoding, a manager wouldn't need to visit the stockroom to inspect stock levels. Instead, the system would automatically check it, and can also order additional volumes when necessary.

There are non-invasive tracking systems that can help with traceability and accountability too. These are particularly useful in areas such as quality assurance, or for informing the customer throughout the production and delivery process.



The implementation

Ultimately, digital technologies like these will empower you to gain insight into your operations. You'll be able to identify a range of areas for improvement – even something as simple as introducing further technology to relieve the burden of repetitive manual tasks.

One solution won't work for everyone though. A lot of businesses want to integrate those really complex tools that make the headlines, like AI. However, in reality, they may not necessarily have the right infrastructure for this in place. Instead, they should look at their business and how technology solutions can complement what's *already* there.

It's essential to know what your digitalisation requirements are. In this way, tools are not your central point – your needs are. You should focus on these and how you can improve your processes, and *then* how the solution can add value. If you think 'technology first', then you'll potentially waste time and money.

Need help figuring out the right digital tools for your business? Seek the support of Made Smarter. Our expert advisers will assist you in deciding on the most relevant technology, capable of driving real change. Plus, we can offer other forms of support too – such as a [digital transformation workshop](#), a [digital technology intern](#), or funding.

To find out more, [speak to the Made Smarter team today](#). We'll help set you on the path to a successful digital transformation.