Manufacturers and Industry 4.0: Let's Address the Basics

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If you are a manager of a manufacturing business, you will know that Industry 4.0 has already had a massive impact on manufacturing. The ability for sensors to monitor and collect data from every element of the production process is increasing all the time.

Even so, having more data doesn't necessarily produce positive results. In fact, it could make internal processes worse! A lack of "joined-up" data can lead to frustrating errors and delays: the classic "left-hand doesn't know what the right hand is doing" scenario.

As new and improved sensors collect more and more data, many businesses end up drowning in data! With information building up in silos, the same data gets entered into spreadsheets and databases multiple times, errors creep in, and blind spots occur.

To be able to function day by day, managers do the only thing they can: they control their own piece of the business by spreadsheet.

As a result, more and more meetings are required just to exchange and update information which already exists in the business but can't easily be shared.

If production planning changes – perhaps with a view to increased production – then the picture gets altogether worse.

At the same time, manufacturers have very particular needs when it comes to information. Unless the sales pipeline; quotation systems; stock management and production planning all work seamlessly together, the business loses traction and ultimately profits.

Even small manufacturing companies are employing some stand-alone data capture as part of their production processes, often via apps, as the opportunities of Industry 4.0 devices becomes better understood.
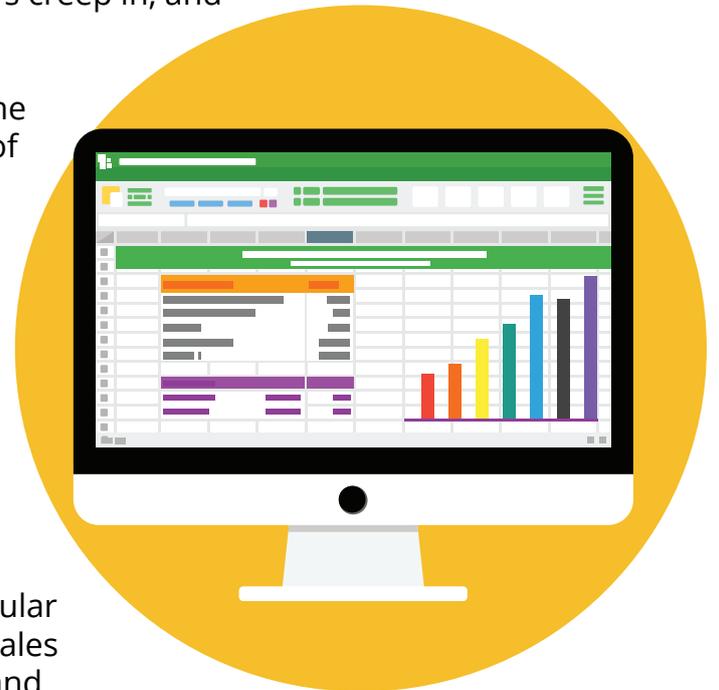
However, unless all this data is linked together, its true value cannot be realised. Consequently, vital, reliable information isn't available across the business to everyone who needs it when they need it.

As a result, inefficiencies build-up, which means higher costs and lost profits.

However, creating a strategy to take advantage of Industry 4.0 initiatives and opportunities is only part of the story. All of this data – new and old – has to be joined up and made available to everyone in the business that needs it.

This is all well and good: however, few manufacturers are in a position to discard their existing legacy systems and start again!

So, are there some practical and cost-effective steps which manufacturers can take to maximise the benefits of data collection within Industry 4.0? Can these steps be made without losing management time and focus?

For the average manufacturer, there are potentially three broad pools of data to be considered:

- Accounting and financial;

- Existing workflow; production; stock and warehouse systems such as MRP

    (Management Resource Planning systems; and

- Spreadsheets for everything else with no other digital home!

Manufacturing businesses often wrongly assume that, if they invest in a more advanced or sophisticated accounting package or even an MRP, their data problems will be over.

The simple fact is that, whether the business uses the simplest accounting system or full MRP, it is unlikely that a single system will be flexible enough to link to every data source.

This is largely due to the fact that the main focus of MRP and ERP (Enterprise Resource Planning) systems, as well as straightforward accounting packages, is the efficient management of day to day transactions within the business. Generally, they are not designed to provide managers with detailed reporting across the company on a daily basis.

In most cases, even with a sophisticated MRP in place, the bulk of management information and decision making will rely on spreadsheets. However, spreadsheets absorb hours of time every week, they are highly error-prone, and they can't be shared digitally.
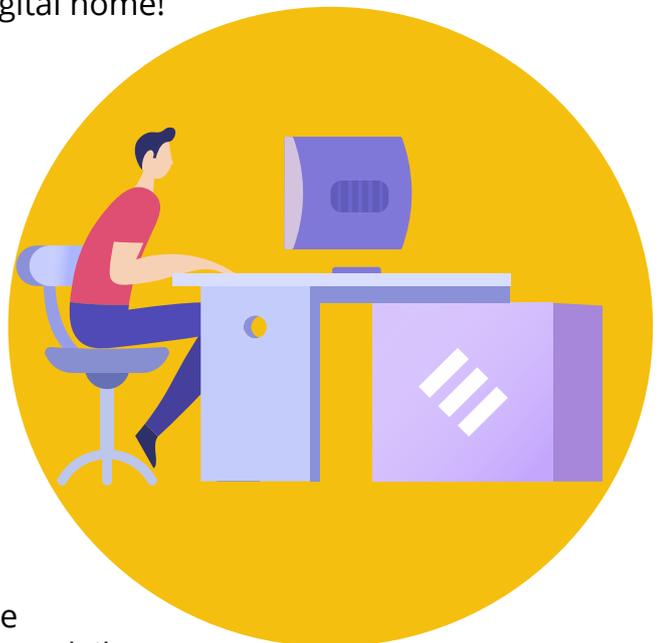
Business reporting software – often referred to as business intelligence software - completely removes the need for spreadsheets. In simple terms, this software connects to every data source within a business (including spreadsheets) and then automatically transfers it into a single database, once or multiple times a day. Then, by utilising clever maths, the relevant bits of data are cross-referred to give users an immediate answer to questions which previously took hours of painstaking work.

Sophisticated security layers maintain confidentiality by ensuring that each employee is only able to access the information they need to complete the job at hand.

By adopting business reporting software, a manufacturer's data becomes one of its greatest assets, shining a light onto areas with the highest potential for growth.

For team managers, dashboards can provide crucial information on a daily basis. This data can help to address key issues and to set team-targets and forecasts for their particular division.

For general managers, dashboards are unlikely to tell enough of the story– they tell you what has happened but not why. Tabular reports (which give the ability to drill down to underlying details) provide full visibility over the whole business.

Generally, a mix of both tabular and dashboard reporting gives the best results.
Examples of the benefits of "joined-up" data include:
The production team always being in the picture on sales lead times;

Stock holding can be continuously reviewed against quoted orders and sales in;

Labour costs on every job card are entirely and accurately accounted for;

The cost of reworks, customer returns and scrappage, is completely transparent so that calculating gross margin per job is accurate and reliable.

Push reporting emails can also be highly effective at heading off problems in this fast-moving environment.
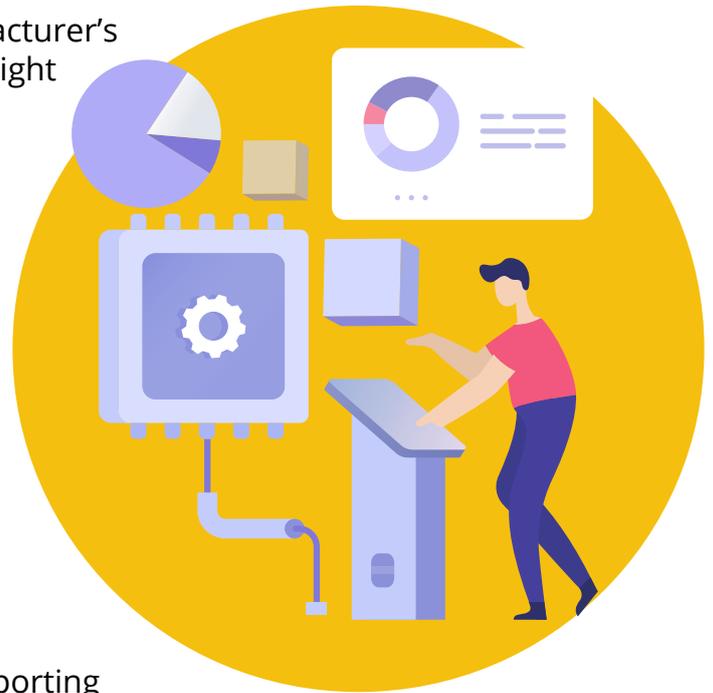
When something starts to slip, automatic emails can be set up to go out to managers, as well as employees in charge of matters "on the ground". Examples of this include:

- If a customer placed "on stop" pays up, the accounts and warehouse teams have the same information and the customer's order deliveries can be released immediately;

- Orders accepted at below standard gross margin can be queried before processing begins;

- Errors on routine paperwork, such as intrastat reports, are flagged in good time.

No more waiting until after an event to find out something has slipped!

Useful, accurate data that is available every day allows for better and deeper insights into KPIs, such as machine utilisation, delivery performance rates and production non-compliances.

Similarly, by accessing an analysis of all of the buying patterns of customers, past and present, real insights begin to emerge that can inform decisions about the future focus of the business.

Because business reporting software can simultaneously scan across multiple systems and look back over past data, it can be used to spot patterns. So, for example, if a customer's buying pattern changes, it becomes possible to identify this immediately, allowing the sales team to open up a conversation with the client and take action accordingly.

Equally, full visibility allows managers to spot when the unexpected is just an anomaly – meaning the risk of over-reaction is drastically reduced.

All of these reports and push emails can be set to meet the specific needs of the business, and the whole approach should be progressive and iterative. As the business grows and becomes more aware of the power to be gained from visibility across the whole of the business dataset, reports can be expanded to provide even greater insights.

Most business intelligence software is costly to implement, as it is made to meet the needs of the individual client and takes weeks or months to design and install. Consequently, even sizeable SMEs are unable to justify the cost of business intelligence software.

By contrast, Octelas business reporting software is designed to meet all of the data management challenges – including Industry 4.0 - of SMEs at an affordable price. Its smart design means that no bespoke coding is needed to produce completely customised reports that meet the precise needs of your manufacturing business.

Users only need the most basic familiarity with internet-based devices to use Octelas. The reporting is truly self-service and available on any web-enabled device, including phones, tablets or PCs.

illuminis team of software developers and data analysts have used their deep knowledge of the data needs of SMEs to develop the 'Octelas' brand business reporting software. Since the first installation in 2012, Octelas has helped many SMEs gain full access to and manage their business data.

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