Who's disrupting whom?

Executive Summary

In the words of Global Futurologist David A. Smith, *"What data we hold and how we use it will be the life or death of our companies."*

The exponential growth of data, together with the disruption which digitalisation will bring to industry, presents enormous challenges for manufacturers. However like all challenges these are also opportunities: at least for those businesses which are well-informed and well-prepared.

Data scientists predict[1] that in just two years' time an additional 1.7MB of data will be produced every second, for every human on Earth. What scale of disruption will that cause?

Knowing how to cope with and capitalise on data will be as essential for a manufacturing business as knowing how to manufacture. As will knowing how to protect that data against loss and criminal threats.

And when consumers, realising the value of their data, create data bank accounts, new manufacturing models will be required. So the people who are currently only buying your products will in future effectively be disrupting and dictating how they are manufactured.

Yet any business, with the right information and preparation, could find itself in a position to be the one causing the disruption, to its own advantage. As this paper shows, it could disrupt the market and challenge its competitors as substantially and effectively as the forthcoming changes are disrupting and challenging businesses.

Being in a position to see digital disruption as an opportunity for digital transformation will be what separates the challengers from the challenged.

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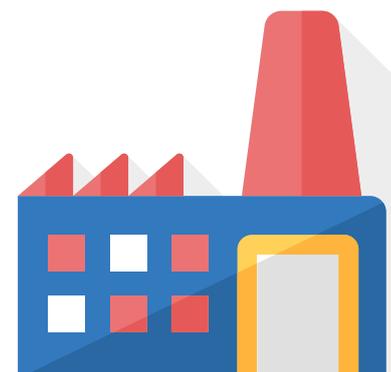
Too much of a good thing?

Data ownership and data overload

GE began life as General Electric around a century and a quarter ago, making lightbulbs before moving into heavy industry. Yet in 2016, the company was described by the New York Times as a *"124-year-old software start-up."*

The reason was, the business has now declared itself to be a software company, focusing not on manufacturing turbines, jet engines and locomotives, but on data and the Internet of Things. GE's Chief Executive has realised that the data generated by, for example, the sensors built-in to the jet engines it has been producing, could one day be as valuable as the machinery itself. Or even more so.

The sheer quantity of data which will be generated by human and mechanical interaction with the digital world is almost too vast to comprehend.

By 2020, just two years away at the time of writing, an additional 1.7MB of data will be produced every second, for every human being on Earth[1]. By 2025, when there could be as many as 152,000 devices being connected to the network every minute[2], how much more data will then be produced?

60% of this burgeoning data is forecast to be generated by business[3]. Meanwhile, manufacturing is set to account for over 25% of the total IoT market[4]. But who will own the data generated by all this activity and connectivity?

Around 60% of manufacturers claim their customers have already begun to monetise their data[5] – and a customer's monetisation is a manufacturer's cost.

Also, manufacturers and their customers are not the only ones wanting to capitalise on the availability and value of data.

More data, more devices, more problems

Cybersecurity in an interconnected world

Increasing interconnectivity between manufacturers, suppliers and customers means increasing opportunities for hackers and other cybercriminals to illegally access data. Every IoT connection is a potential network access point – whether authorised or not.

GDPR legislation should focus the minds of businesses on the potential financial and reputational repercussions of data loss or theft. It also highlights the fine line between data as a competitive advantage and as a potential liability. Around 65% of current enterprise data is estimated to be "digital debris"[6] which has no value to the business but still presents a risk and therefore a potential cost.

The problems of data ownership, including GDPR, alongside more general cybersecurity, are often cited as barriers to successful Industry 4.0 implementation[7]. That's hardly surprising, when around a third of U.S. manufacturers admit that they have no cyber-risk assessment of their connected industrial devices[8].

But security should never be a reactive issue. That would be locking the stable door after the horse has been stolen.

There are legacy issues to deal with, but with the possibility of over 20 billion IoT devices being deployed globally by 2020 – many within manufacturing and production lines – there are plenty of live issues to address too. For effective security, an holistic strategy is required to deal with the increased vulnerabilities arising from increased device deployment.

However, this is not a problem which can be solved with technology alone. New strategic partnerships, new forms of collaboration, and new operating models and internal structures will all be required to mitigate risks and enhance opportunities.

Panic or preparation?

Transforming digital disruption

The difference between digital disruption and digital transformation is essentially a state of mind. Businesses which are well-prepared for the changes which digitisation will bring will find it delivers enormous benefits. On the other hand, businesses which are ill-prepared will find themselves panicking as digitisation disrupts their operations and causes chaos.

It would be logical to assume – given the publicity which digital disruption has received – that most businesses will fall into the former category. Unfortunately, the opposite is true.

According to an MIT Sloan Management Review[9], although almost 90% of executives anticipate digital disruption within their industry, only 44% feel their organisation is adequately prepared. That's not to imply that they don't realise the importance of readiness. Another survey[10] showed 80% of executives citing digital transformation as a priority, even though not even half that number – just 35% – had a clearly defined strategy.

At best, this suggests piecemeal, reactive adaptation to changing circumstances. At worst, it suggests lip service to the idea of transformation.

So does this mean that a significant number of businesses are simply throwing in the towel in the face of the overwhelming impact of digital disruption? Not necessarily. Rather, it suggests that they are hoping they can remain competitive by making minor tweaks. But what this fails to recognise is the far-reaching effects of disruption compared with the often localised results produced by small actions, which fail to ripple across the organisation.

It may seem counter-intuitive, but SAP suggests that this kind of half-hearted change may actually be worse than no change at all. When "transformation" becomes basically the substitution of technology for old analogue processes, there will be only localised benefits at best. For any wider benefits, the processes themselves have to be adapted to make the optimal use of the new technology. Failure to do so effectively bypasses an opportunity for deeper innovation.

It's also likely to produce a lower-than-forecast ROI, and lead to antagonism towards the half-hearted solution, from managers and workers, as they struggle to work with ill-fitting technology.

This pick-and-mix, piecemeal and poorly thought-out approach to digital transformation is frighteningly well-illustrated by some recent statistics.

By 2020, 84% of manufacturers plan to introduce or increase the use of Virtual Reality for customer service. 90% plan to offer purpose-built apps. Yet 40% struggle to deal with the customer data they already have, and don't know how to use it to offer better customer service[11].

Banking on change

Manufacturing and the data bank account

The realisation by manufacturers of the value of data – as demonstrated by GE – is being paralleled by the realisation of consumers of their own data's worth. To help consumers to capitalise on this, and prevent its unfettered exploitation, the World Economic Forum has proposed the concept of a data bank account: somewhere a person's data can reside "where it would be controlled, managed, exchanged and accounted for."[12]

One of the consequences would be to make many current data-based manufacturing models ineffective.

Instead, manufacturers and marketers must find new models, such as direct-to-customer capabilities. The percentage of manufacturers selling directly to consumers is expected to grow 71% over the coming year alone: to more than 40% of all manufacturers. However, this will require far greater integration within each organisation, potentially including a shared data architecture.

Disruptive thinking

- Are your data practices future-proof?
- Are you ready to lead consumer engagement across a range of new technologies?
- How will engagement change your business model?
- Are you ready to redesign your organisation's internal structures?

Conclusions

The pace of data growth and the spread of digitalisation within manufacturing is not slowing down for anyone. Whether your business benefits from it or is broken by it is partly down to your perception of the issues.

Do you see a connected network or a security colander? An Internet of Things or an Internet of Threats? Disruption or transformation?

Are you prepared to make the kind of leap that GE made, or will you wait until you're pushed?

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11. Source: Computer Weekly, 2017 http://www.computerweekly.com/news/450410484/Most-manufacturers-will-use-customer-facing-VR-by-2020

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