Chapter Four:
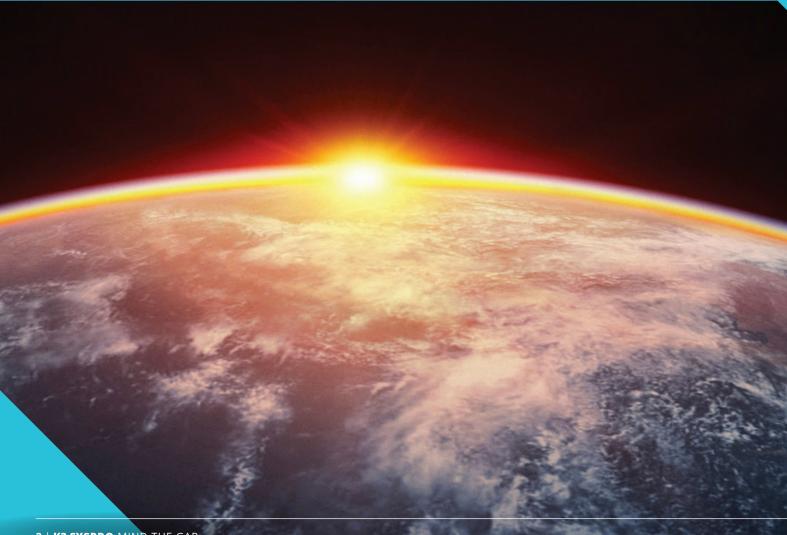# Beyond the Horizon - What's Next

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Beyond the Horizon: What's Next?

The technologies powering Industry 4.0 are already driving manufacturing towards a future dominated by digital supply chains. As the digital infrastructure replaces the traditional, linear supply chain, the term digital supply network could be a better description for the new, interconnected model.

Although many are introducing or at least evaluating digital technologies, for most businesses accustomed to linear supply chain models a shift to digital supply chains or networks will be a huge, transformational step. Benchmarking processes not only help to gauge the gap between current and potential levels of digitisation but they can also indicate where best to start investing in bridging that gap.

For the purposes of discussion, let's break down manufacturing businesses into three broad categories: those that have a negligible level of digitisation – 'Initiates'; those with a part-digitised operation – 'Intermediates'; and those looking to maximise an already digital supply chain – 'Advanced'.

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Initiates

Benchmarking the company position should already have engaged the most capable staff in researching the digital landscape. In taking the first steps towards a DSC they can continue the process by focusing on digital innovation that enhances an existing supply chain operation, yet enables its future network integration.

The idea is not to pursue a wholesale switchover to digital supply chains. Most dynamic organisations have for years invested heavily in their linear supply chain assets, such as warehousing, logistics operations and computer systems, in addition to their manufacturing facilities.

Consequently it is far too expensive and disruptive to think in terms of scrapping existing assets in favour of a new, fully digitised infrastructure.

However, useful ideas may arise from any area of digital technology, whether in cloud computing, Internet of Things, predictive analytics, augmented reality, 3D printing, autonomous control or cognitive computing (self-learning AI). By tapping into the expertise of specialists and example applications in other industries, businesses can potentially identify large numbers of digital applications with relevance to their own operations. With this initial research phase complete it is then easier to prioritise a few options that could, if implemented, deliver significant return on investment and solve existing performance issues.

A high proportion of manufacturers taking the first steps towards a DSC find they can make their strongest business case for introducing mobile technology. Whether used by workers on the shopfloor or in logistics, mobile tools such as tablets provide a rapid data feed to multiple workflow information systems, such as ERP and warehouse management systems. They also generate data for analysis, channel operational information and instructions back to the user. Making the right choice of mobile equipment prepares the system for successful networking with other Industry 4.0 digital technology that may be added in the future.

It is important to not though, that adopting mobile PC technology, though highly beneficial in many situations, may not be the best starting point for every business approaching DSC for the first time. It can pay dividends to talk to others with experience in digital technology across wider industry. For example, guidance including technology selection, or formulating and mapping out a DSC strategy, can be obtained from ERP consultants, IT specialists or business strategists.

Intermediates

Companies that have already undergone substantial organic growth are likely to be operating with legacy technology. They perceive the need to keep pace with the changes taking place and are keen to remain competitive and efficient. For these companies, which could be described as part digitised, there is an enormous advantage in consulting experts in the field, as they can assist in areas such as integrating new technology with their current ERP systems.

New digital technologies frequently interconnect with legacy systems, rendering them more flexible and introducing more employees to a more unified system. This also avoids awkward workaround situations that can develop when standalone technologies are introduced. In terms of the long term goal of end-to-end supply chain visibility, this approach contributes to a single version of 'the truth', with the result that decision making and business performance are greatly improved.

In adding a new digital technology, it should be remembered that this can have serious implications for the skill sets that are required. In planning production demand, for example, the forecasting tools that utilise all the supply chain data require routine adjustment to sustain high performance, which demands advanced knowledge of analytical algorithms and statistical methods. New systems are also likely to affect company structure, through centralisation of some activities and decentralisation of others.

Some of the questions that companies might ask at this stage can be divided into four areas:

1. Structures

How far has our current supply chain moved from silo architecture to a high visibility network?

Where are we on the supply chain spectrum from supply driven to demand driven?

2. Personnel

What specialist skills do we already posses in relation to digital technology?

Are we predominantly focused on operatinoal tasks and firefighting?

What proportion of effort is dedicated to data analysis supply chain coordination?

3. Operational Processes

Where can we benefit from further automation?

Are we primarily occupied with routine supply chain operations and orders, or in dealing with exceptions?

4. Information Systems

Do we operate isolated, monolithic systems or will they readily integrate with others?

Do we have accurate real time data and good supply network visibility?

Answering these questions assists in defining an overall strategy and in shaping the DSC road map. Having identified a new technological direction companies can then design pilot projects to test out ideas. Although industry leaders often introduce pilots in key operational areas, they may be restricted to peripheral projects, carrying less risk but preparing the ground for implementation in other areas.

Advanced

Companies at an advanced stage of digitisation are, in effect, championing the DSC movement and although they may have invested in their own digital systems development and expertise, they are still encountering new possibilities in Industry 4.0 technology. In looking for best-fit technologies, senior management teams can reach out for consultancy input but should ensure this carries genuine pedigree and experience at the cutting edge of digitisation.

In this respect, K3 Syspro is an ideally-placed ally, firmly embedded in emerging digital technology and supply chain innovation on a global scale. The company traces its history from 1982, when SYSPRO ERP technology was first introduced to the UK. Today, SYSPRO ERP software suite encompasses interlinking module sets comprising more than 60 individual modules. Among the many functions covered are finance, manufacturing management, sales and distribution, reporting, mobile technology and human resources. The modules use information from platforms such as machine robotics, warehouse picking systems, manufacturing data communications and networking, arcoding and mobile user interfaces, such as tablets and smartphones.

In addition, the company is part of the K3 Business Technology Group (K3 BTG). The group combines expertise in the processes employed by retail, manufacturing and distribution industries, utilising SYSPRO, Microsoft business solution software, Sage and other world-class software to deliver ERP and CRM, cloud hosting and highly specialised IT solutions.

In summary

Rapid advancements in digitisation and the confluence of new technologies, particularly as they are now heavily influencing manufacturing processes, means that the concept of a digital supply chain, or network, is now becoming a reality. Also, the availability of Big Data and the reducing cost of obtaining and storing it is enabling in-depth analysis for competitive advantage. The ability to capitalise on this data is accelerating disruptive change towards digitally integrated supply chain elements.

The gap between companies who adopt DSC technology and competitors who delay is likely to become a gulf, the difference between success and failure becoming apparent over the next 10 years. However, the good news is that UK companies have already embarked on the journey to full DSC operation, to a greater or lesser extent.

In fact, the complexity of supply chain structures is such that no single organisation has yet succeeded in constructing a complete, 'true' DSC. Nonetheless, companies are busily focusing on getting the supply chain right. The combination of a strong, customer centric supply chain model with empowering technology produces flexibility, the adaptability to seize new opportunities and resilience to threatening market change.

But throwing out expensive assets and inducing radical change at a stroke is unnecessary. For instance, existing ERP systems continue to enable strong supply chain models to function by linking the business operations within them. Businesses are therefore advised to progress in small steps towards Industry 4.0 and smart factory technologies, beginning with a thorough assessment of current position through benchmarking exercises.

Although justifiable in terms of return on investment and competitive edge, some of these digital technologies are very disruptive to conventional structures and systems, requiring real imagination and new skill sets from management. Yet, through access to ERP consultancies and other specialists immersed in the new digital technologies, business managers are far from isolated in finding their best route to DSC technology.

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MIND THE GAP: THE STEP FROM DIGITAL SUPPLY CHAIN TO DIGITAL SUPPLY NETWORK

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