

Chapter 1: What is a Digital Supply Chain?

What is a Digital Supply Chain?

The general conception of the term digital supply chain (DSC) has shifted in recent years. It was originally coined to describe systems by which physical goods, such as music recordings and books, had become deliverable in digital form, in particular, over the internet. In essence this only described the diversification of products and services from 'analogue' to digital.

But this technology disrupted the conventional marketplace so much - by stripping out time, distance and cost in bringing products to market - that DSC quickly became a buzzword, obscured by hype and vulnerable to inconsistent interpretation. Even now there is disagreement - whether DSC describes where we are today with supply chain technology, or whether it should be reserved for supply chains we are yet to construct.

It is generally accepted though, that DSC applies to a broader range of supply chain models, including B2B production and distribution of products and services. The fact that companies are already using

digital technology to their advantage in managing supply chain activities suggests that modern supply chains warrant the description DSC.

A digital supply chain is the key to the successful operation of every company that manufactures or distributes products. For many companies the supply chain constitutes the business itself. It links business management with the chain participants - the suppliers of raw materials and parts, the production process itself, storage providers and distributors of finished products, and finally the customer.

There is another factor lending support to the definition of modern supply chains as DSCs. A combination of converging technologies and customer pressure is giving rise to a very different, new wave supply chain requiring a new terminology - the supply network. In a fully digitised ecosystem, these third generation networks will be intrinsically digital, rendering the digital description redundant.



Managing the Digital Supply Chain

The Council of Supply Chain Management Professionals defines supply chain management (SCM) as follows:

“Supply Chain Management encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers. In essence, supply chain management integrates supply and demand management within and across companies. Supply Chain Management is an integrating function with primary responsibility for linking major business functions and business processes within and across companies into a cohesive and high-performing business model. It includes all of the logistics management activities noted above, as well as manufacturing operations, and it drives coordination of processes and activities with and across marketing, sales, product design, finance and information technology.”

The fundamentals of supply chain management (SCM) lie in managing the interrelationship of all business elements in the chain. Key business processes are integrated in a way that adds value for customers and other stakeholders in terms of products, services and information. With a strong supply chain framework in place there is a sharing of data both upstream (with suppliers) and downstream (with customers) delivering benefits that include:

- Improving time to market for products
- Cost reductions across different business functions
- Allowing all parties in the supply chain to better manage resources
- Better planning for future needs
- A better customer retention record

It is evident why it is so important for companies to get digital supply chain right: when a strong supply chain model is supported by the best technology it renders companies resilient to change in the supply chain.

This contributes to overall organisational resilience, which is vital in uncertain economic conditions, such as those we are currently facing. It also enables companies to be flexible and adaptable to respond to different market conditions, supporting growth potential and opportunities for manufacturers and the supply chain as a whole.

ERP systems enable strong supply chain models to function. Trends towards servitization, where businesses add value to their product offering through additional services, such as aftercare, were made possible by linking the necessary business functions within the chain.

More recent trends - including the circular economy which focused on regeneration and recyclability of materials, components and products - are similarly enhanced by efficient data sharing throughout the supply chain network.

The advent of Industry 4.0, Smart and Connected factories, supported by the Internet of Things, now emphasises the need to take a fully integrated approach to the supply chain, using ever more powerful technology.



Eight Key Business Processes

Looking at some of the component business processes within a supply chain, we can see how best-of-breed ERP systems offer a platform for digital supply chain integration:

1. Customer relationship management:

creates a structure for developing and maintaining relationships with customers. Individual customers or groups are identified, based on their value over time, and their loyalty can be enhanced by providing tailored products and services. Cross-functional customer teams develop Product and Service Agreements (PSAs) to meet the needs of key accounts and for segments of other customers. They also work with key customers to improve processes and eliminate demand variability and non-value added activities. Performance reports are designed to measure the profitability of individual customers as well as the financial impact on the customer.

Software solutions enable companies to collect, maintain and manipulate a rich, customer-related database to promote increasing revenue and profitability. Sales, distribution and reporting solutions also support the CRM process.

2. Supplier relationship management:

defines how a company interacts with its suppliers. As in the case of customer relationship management, a company will form close relationships with some of its suppliers, while others are less closely cultivated. Good

supplier relationship management involves devising the right PSAs and managing them well, so that the company and its suppliers continue to benefit from the most favourable trading arrangements.

3. Customer service management:

operates at the customer interface. It provides the key point of contact for administering the PSA and can give the customer information on orders, shipping dates and product availability. Manufacturing and logistics ERP modules supply the data required by customer service management.

4. Demand management:

allows a company to be proactive in matching supply to demand. The process includes forecasting and synchronisation of supply and demand, in order to increase flexibility and reduce demand variability. The process should employ customer intelligence, historical sales information and planned marketing efforts to forecast and influence demand.



5. The order fulfilment:

process involves more than just filling orders. It encompasses all activities deemed necessary to define customer requirement and to design a process that allows a company to meet customer requests, while minimising the total delivered cost. This is not just the logistics function, but instead needs to be implemented cross-functionally and with the coordination of key suppliers and customers. The objective is to develop a seamless process from the supplier to the organisation and to its various customer segments

6. Manufacturing flow management:

includes all the activities necessary to move goods through production and to obtain, implement and manage manufacturing flexibility in the supply chain. Manufacturing flexibility reflects the ability to make a wide variety of products at an appropriate rate and at lowest possible cost. To achieve the desired level of manufacturing flexibility, planning and execution must extend beyond the production site to encompass the entire supply chain.

Managing manufacturing flow clearly requires an element of manpower planning and, as such, some software providers have developed human resources modules which integrate with the ERP system to facilitate this planning.

7. Product development and commercialisation:

provides the structure for developing and bringing products to market in unison with customers and suppliers. The product development and commercialisation process team must coordinate with customer relationship management to identify customer articulated and unarticulated needs; select materials and suppliers in conjunction with the supplier relationship management process; and develop production technology that integrates seamlessly into the end to end supply chain.

8. Returns management:

is the SCM process by which activities associated with product returns, reverse logistics, gatekeeping and avoidance are managed within the company/business and across key members of the supply chain. The correct implementation of this process enables management not only to manage the reverse product flow efficiently, but also to identify opportunities to reduce unwanted returns and to control reusable assets such as containers. Effective returns management is an important link between marketing and logistics, offering an opportunity to gain competitive advantage.





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

Chapter one	What is a Digital Supply Chain	27th October
	What do we actually mean when we talk about Digital Supply Chain? How is this going to change business process in the manufacturing and engineering sectors?	
Chapter Two	Navigating the Technology Landscape	2nd November
	Important terms and phrases and technologies you need to understand if your company is to be ready for Digital Supply Chain Networks.	
Chapter Three	Are You Ready? Benchmarking Your Current Position	8th November
	How to know if you are ready to take the next step to become Digital Supply Chain ready. It is not only the OEMs and Tier 1s who should be benchmarking their progress.	
Chapter Four	Beyond the Horizon: What's Next?	14th November
	What is next for manufacturing companies working on Digital Supply Chain Networks? How will the industry change as manufacturers start to truly embrace Industry 4.0 and the Digital Supply Chain?	

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