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The importance of data in digital supply chain

The emergence of the data-driven enterprise and its impact on supply chains

A point of view by **Jörg Junghanns**

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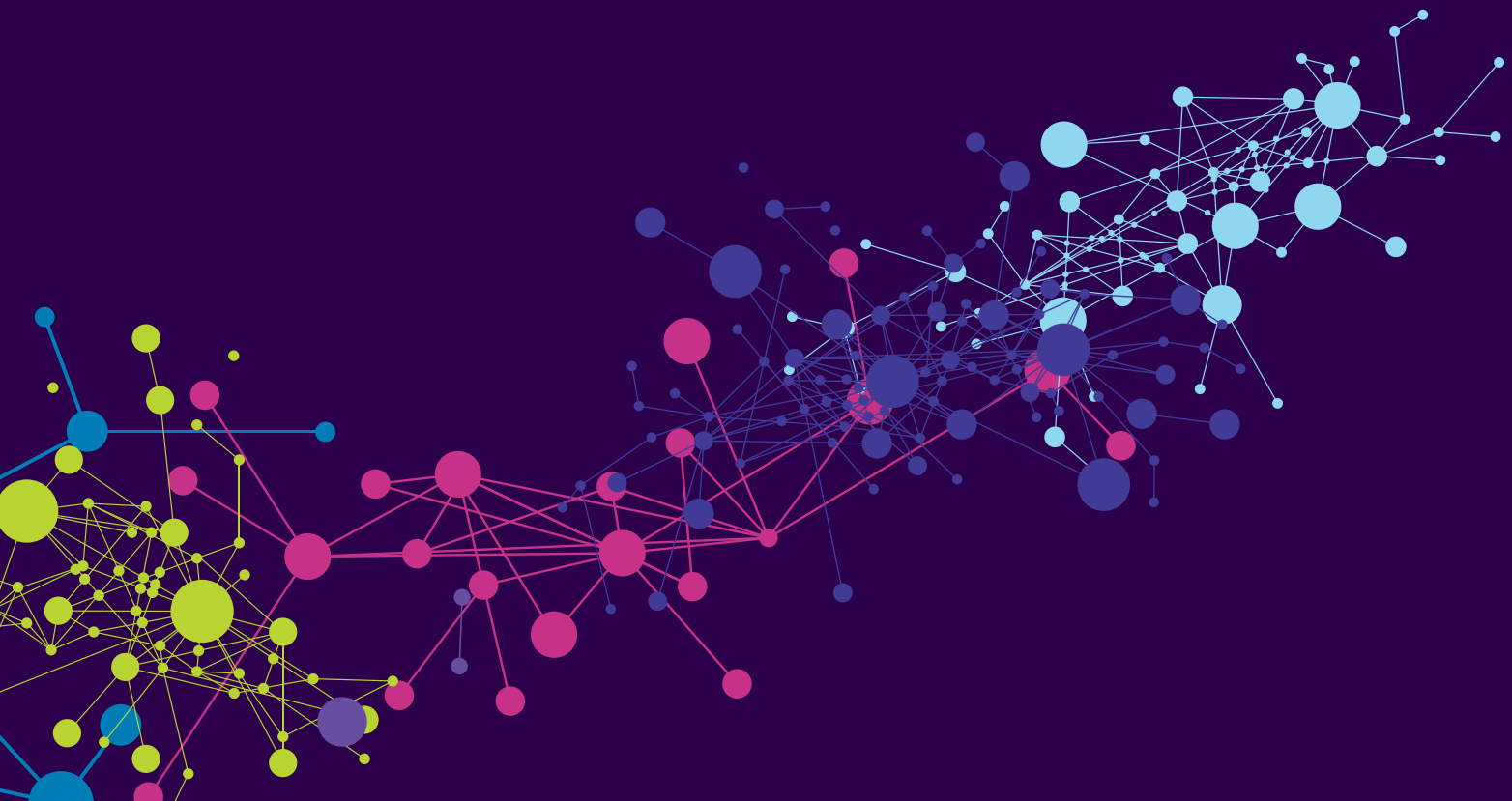
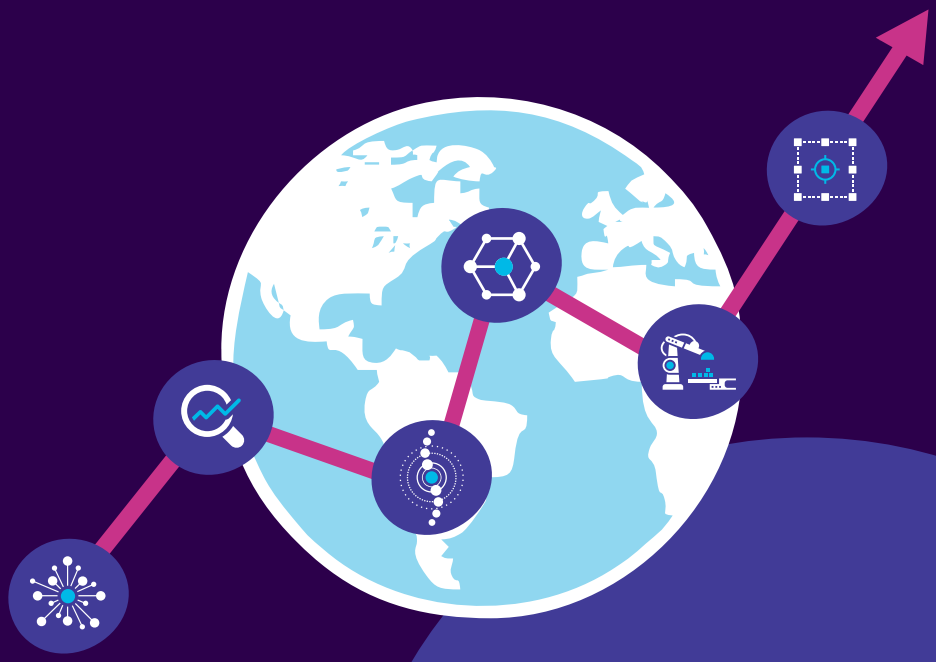


Introduction

Across multiple industries, the amount of data and its impact on business is growing exponentially. Companies are becoming more data-driven, with machine sensors and digital sales channels generating increasing amounts of data that is ready to be harnessed and analyzed.

On top of their original, intrinsic, and functional value, many products induce users into generating valuable data that can then be monetized through delivering valuable insights. This, in turn, pushes up the corporate value of a particular product and the organization that produces it, as investors become increasingly interested in the organization's ability to harness valuable data. In fact, data is increasing over-proportionately compared to the attention it is given by supply chain leaders.

It is clear that so much value is yet to be created by properly industrializing the gathering and analysis of data. Even more so, the margin generated by additional value through a product's data and the insights derived from this data will soon surpass the value of the actual product.



> ***"Data-driven companies differentiate themselves from their competition by using structured and unstructured data at the right time to drive decision-making or, better still, automated decision-making."***
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> *Vice President Europe – Digital Supply Chain, Capgemini's Business Services*

The data-driven, the data-conscious, and the laggards

Within the supply chain management space, companies can be clustered based on their ability to generate and act upon insights, use supply chain data excellence to achieve a Frictionless Enterprise, gain a competitive advantage, and deliver superior supply chain services. Across our engagements at Capgemini, three company types stand out:

- **The Laggards (hindsight) –** largely relying on obsolete and often siloed systems, generating no or too few insights. These companies have relied on Excel and standard ERP modules such as SAP Advanced Planner and Optimizer (APO) to carry out analytics and generate forecasts, focusing on structured historical data to draw insights. These companies rely on descriptive analytics to make decisions, which need manual interventions to generate the desired outcomes.

- **The Data-conscious (insight) –** mostly relying on platforms but unable to tap into their full capabilities and to scale, often due to a lack of top-down vision, transformation initiatives, centralized capabilities, and (very expensive) available tech-savvy talent. These companies understand the value of data, have rolled out the basics to stay afloat, and often leverage predictive analytics.

- **The Data-driven (foresight) –** these companies harness data (over time and in real time) and leverage their platforms to capture, analyze, and translate data into actions automatically. These clients develop prescriptive solutions and automate many decisions in real-time, further increasing their agility, enabling them to react swiftly to events and ultimately create a significant competitive advantage with added-value effects spread across the value chain, and the customer at its center.

As executives look at tapping into the potential of data and analytics, data-driven companies differentiate themselves from their competition by using structured and unstructured data at the right time to drive decision-making or, better still, automated decision-making.

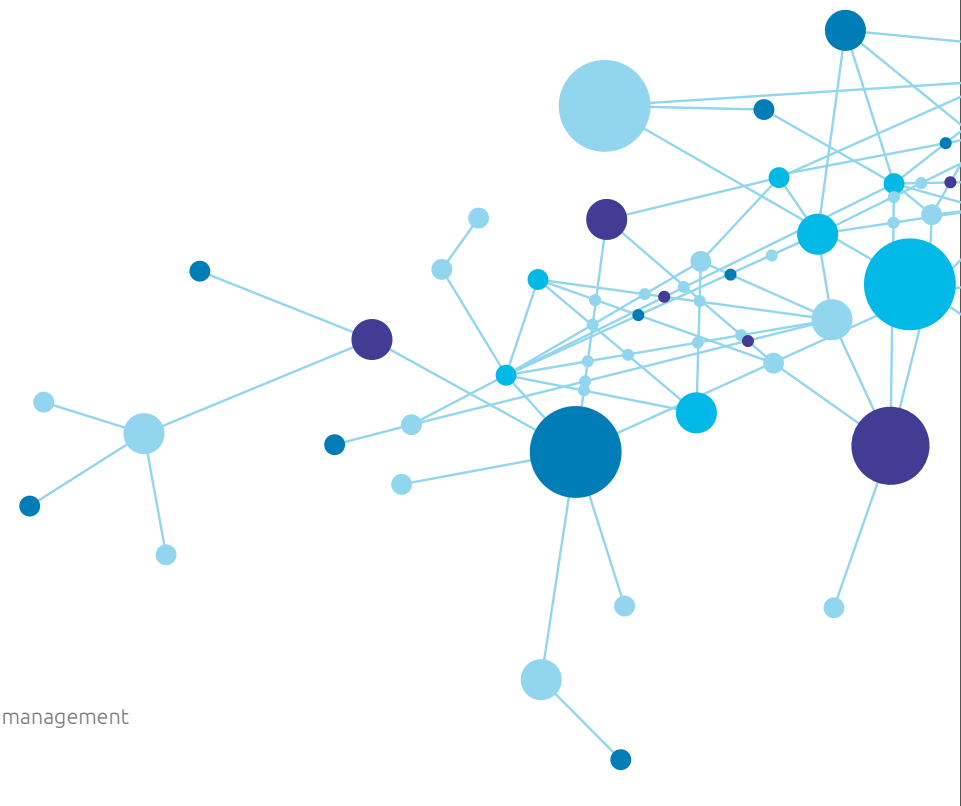
But why is data such a key driver, with the ability to transform supply chains and their ecosystems?

The Frictionless Enterprise

The Frictionless Enterprise seamlessly connects processes and people, intelligently, as and when needed. It dynamically adapts to your organization's circumstances to address each and every point of friction in your business operations.

At Capgemini, we have applied the Frictionless Enterprise to enhance cohesion across our entire suite of products and services. This enables us to respond rapidly to your changing requirements and deliver your specific business outcomes in a value-focused way.

We implement ways to detect, prevent, and overcome frictions – leveraging our latest thinking, organizational design, and intelligent solutions to achieve our goal of effortless operations.



> ***Not only do supply chain data structures affect the overall quality of data, but they also directly influence other processes and functions down the line, making data all the more important to companies' overall supply chain strategies."***

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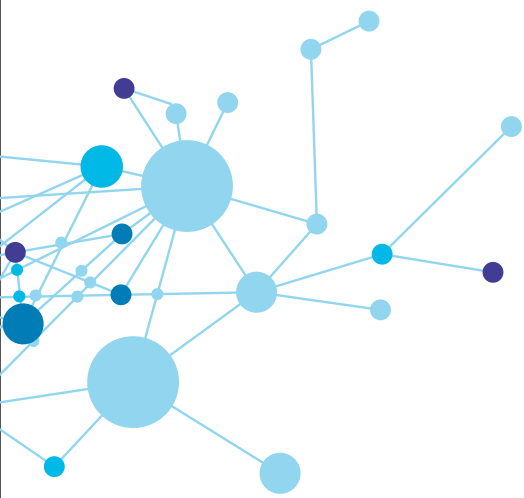
Vice President Europe – Digital Supply Chain, Capgemini's Business Services

Tapping into the potential of data and analytics



No one really doubts the competitive advantage that data can bring, especially when it comes to its use in front-end customer-facing applications, such as targeted marketing or sentiment analysis. However, when it comes to supply chain use cases, things get blurred and are often relegated to prioritizing aspects that are perceived as having a higher potential to create actionable insights.

It is these untapped areas I would like to focus on here.

The use of data in the supply chain encompasses the full end-to-end scope of processes and activities of the ecosystem – from planning and procurement, to consumer fulfillment, including warehousing and transportation. Within these elements, we find specific vertical use cases of data analytics such as real-time re-routing, demand/supply planning, and sensing and horizontal use cases that are more connected to the rest of the ecosystem, such as *master data management* (MDM) or intelligent automation. In addition to the benefits already covered, a *touchless and autonomous supply chain* can only be achieved with *consistent and fully integrated supply chain data that drives intelligence and machine learning*.

Data quality is the cornerstone of supply chain excellence. Inaccurate, outdated, and inflexible (difficult and tedious to update) data adversely affects operations by making insights irrelevant and/or outdated, and requires considerable manual effort to simply run standard supply chain operations. Conversely, high data quality, accuracy, and flexibility not only saves a tremendous amount of time and manual effort, as well as sustained and standardized operations, but it also enables companies to generate more insights and gain a significant competitive advantage – including time to market and rapid adjustment to changing regulations.

It also enables organizations to unleash the full potential of their supply chain platforms. All too often, companies get bogged down after making significant investments in costly best-in-class platforms without troubleshooting their data issues, leaving them unable to reduce their cost-to-serve and gain the insights they were hoping for.

But supply chain data structures can be incredibly complex – especially when years of accumulated data in various formats has clogged up non-integrated legacy systems and left companies unable to reap the efficiency benefits from their data strategy they were hoping for. Not only do supply chain data structures affect the overall quality of data, but they also directly influence other processes and functions down the line, making data all the more important to companies' overall supply chain strategies.

> *"The automation of data creation and cleansing, as well as regular data quality checks and maintenance, is paramount in improving a company's entire supply chain ecosystem."*

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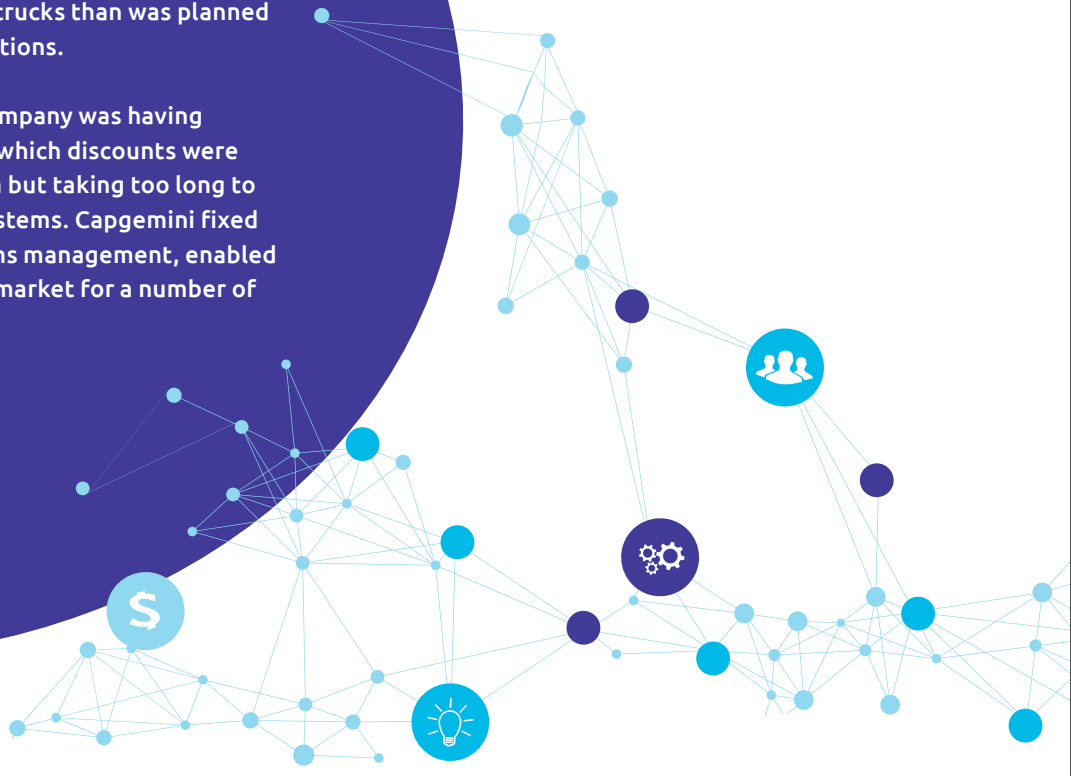
Once this complexity is understood and managed, supply chain data needs to be automated to reduce and ideally eliminate human interaction. As error-prone manual tasks are removed from the day-to-day operations, the supply chain becomes near touchless, and far more efficient and effective. Automation in supply chain data management is not only important for obvious productivity reasons, but also for quality, consistency, and integration aspects.

Whether or not companies leverage the available tools on the market or proprietary solutions and scripts to handle pre and post validation supply chain data, the automation of data creation and cleansing, as well as regular data quality checks and maintenance, is paramount in improving a company's entire supply chain ecosystem.

Data management is often seen as a tech issue and, as such, does not get the attention it deserves. Indeed, supply chain data evolves dynamically in a broad ecosystem of processes, governance, people, and intelligent or platform automation. It is only by looking at supply chain data performance holistically that companies can hope to yield tangible sustainable benefits.

Capgemini helped a client lower unexpectedly high shipping costs by conducting a supply chain data check and correcting product box dimensions, which led to more efficient shipping through mobilizing fewer trucks than was planned and avoiding tedious manual corrections.

In another instance, a major CPG company was having troubles with distributor claims, in which discounts were being entered in our client's system but taking too long to be reflected in distributors' own systems. Capgemini fixed delays in payments, simplified claims management, enabled discounts, and sped up the time to market for a number of other promotions.



The backbone of a proper data strategy

> ***"Supply chain data is the backbone of a proper data strategy, and any move to a more data-driven enterprise model needs to include some level of quality improvement initiatives."***

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Vice President Europe – Digital Supply Chain, Capgemini's Business Services

There several are data-related pain points across the supply chain, some of which are related to technology and processes, with many others due to subpar data management. From planning to fulfillment and beyond, data plays a crucial role across all main supply chain processes. Without proper management, additional structured and unstructured data inputs cannot be properly and effectively handled.

Supply chain data is the backbone of a proper data strategy, and any move to a more data-driven enterprise model needs to include some level of quality improvement initiatives. Companies often focus on what they perceive to be core supply chain processes and leave out invaluable data benefits. In many of our projects, we work with clients trying to overcome the challenges of maintaining safety stocks and time, which can often lead to excess ordering, increased surplus stock, and slow-moving and obsolete (SLOB) inventory.

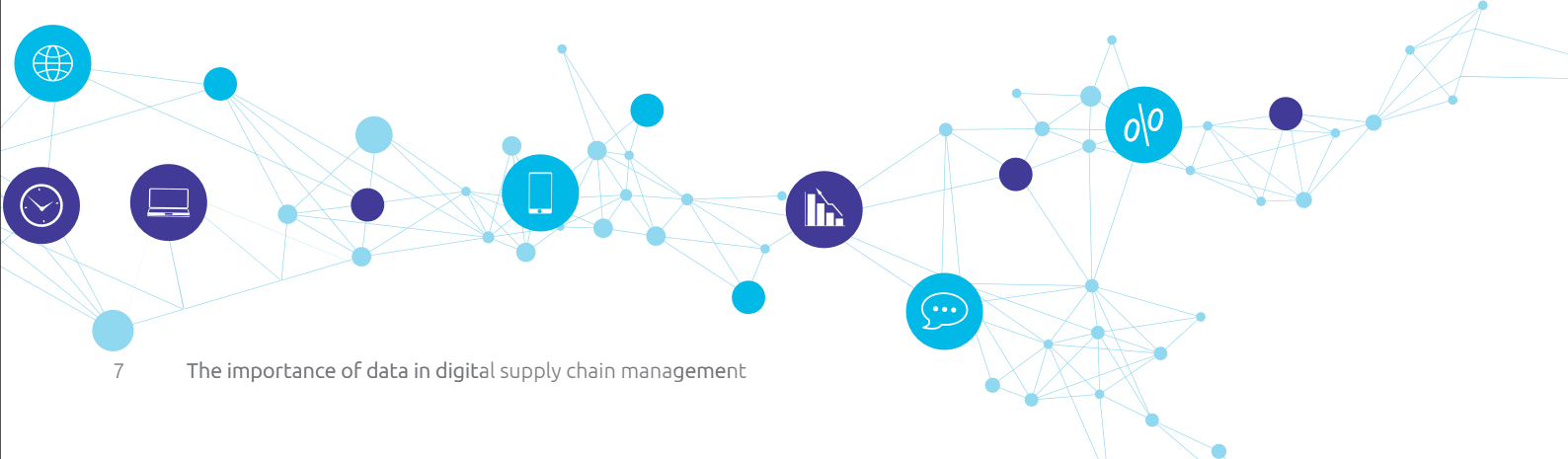
To create a successful and agile supply chain, companies need solid data initiatives that deliver accurate, complete, and consistent master data. However, they are often hampered by two factors:

- **Lack of visibility and methodology inconsistency –** the common lack of an MDM-dedicated process often results in a lack of visibility, as data initiatives and guidelines are heavily fragmented and rarely considered as a whole. This is especially true when a master data item has been created for a while and has undergone inconsistent or illogical updates

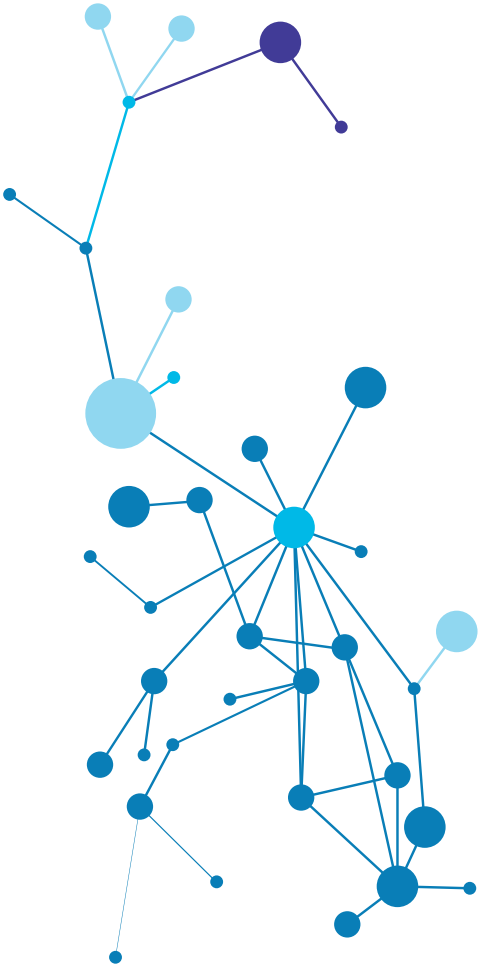
- **Missing data governance –** as data management is commonly not seen as a separate process and thus not given the required resources and attention, it often lacks centralization and data definition varies from one group to the other. This can lead to inconsistency and duplicates that become harder and harder to tackle and negatively influence the entire supply chain.

There are number of proven approaches organizations can leverage to address these data issues:

- Create an integrated solution with dedicated governance and guidelines
- Conduct an end-to-end assessment of your current operating model to assess people, process, and technology, and set realistic objectives that can be achieved in a given timeline
- Achieve clarity in roles and responsibilities
- Establish standards
- Create data quality and process controls to validate change requests
- Establish duplication checks, define SLAs and KPIs for data quality and accuracy, and measure business impact.



Supply chain data integrity as the foundation of touchless planning



The creation of any kind of autonomy within the supply chain is totally reliant on the integrity, quality, and consistency of the data it is based on. More specifically within the planning space, a constant supply of perfect supply chain data can have a massive impact on the results delivered by an organization's planning function. On top of this, the majority of planning requirements now call for shorter, daily cycles that are no longer able to be handled manually and need to be automated – again, the data needs to be perfect.

Planning without automation has now become unthinkable. Organizations must adapt their processes and systems to enable continuous and frequent updates, constant testing of plan validity, and, when necessary, automatic re-planning. We call this capability touchless planning – a self-governing, self-optimizing process that leverages intelligent automation applications – such as artificial intelligence (AI) and machine learning (ML) – and big data to increase the speed at which plans are created, reviewed, and adapted in response to real-time changes in demand and supply. These capabilities enable shorter planning cycles as well as the ability to respond more quickly when necessary to demand and supply dynamics.

To realize the vision of an autonomous planning capability and self-driving supply-value network, organizations must focus on establishing the following foundations within the business:

- **Data integrity –** the creation and standardization of robust data collection and analysis capabilities that inform the planning system
- **Digital operations –** as part of this process, some organization have already started to digitize operations, equipping the entirety of the supplier ecosystem with sensors that provide near real-time feedback to the planning systems on various issues, such as production capacity and material availability
- **Concurrent planning –** the organization will need to enable concurrent planning systems, linking demand and supply systems into a single view, and bringing these functions together within the organization. The rule set will need to be defined and mapped into these systems, thus automating recurring or routine tasks according to program settings and scenario planning.

The combined effects of better forecast accuracy and synchronization of supply with demand drives increased planning effectiveness, improved process and organizational efficiency, and a more stable supply chain, which leads to additional benefits in cost, cash, and service. This all goes back to where we started – supply chain data management excellence.

The pages that follow showcase how Capgemini helped two of our clients overcome in their transformation journey to becoming data-driven champions.

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Increased productivity from intelligent automation for a UK-based CPG company

A UK-based consumer packaged goods (CPG) company had initiated an order management operating model transformation project. This aimed at creating more integrated touchless processes that would lead to end-to-end supply chain excellence, and included the rollout of a distributor management system.

Our client experienced several challenges during the pilot phase and implemented Capgemini's structured assessment approach to identify two main root causes:

- Retailers and distributors were not able to locate the correct item code while placing an order, leading to low customer satisfaction and slow speed to market
- Inconsistent promotions were applied across the same product family, leading to direct top-line impact.

The root cause of these challenges was found to be inconsistent, inaccurate, and not well-maintained data. More specifically, the material master data was not being maintained consistently and centrally, meaning there was no standard definition for data or business rules for material attributes, which was leading to inconsistent data and a loss of sales.

Successful implementation of our assessment and a new supply chain data operating model led to:

- **Reduce time-to-market** for new products **from 80 days to 17 days**
- Over **99% increase** in **supply chain data quality**
- **50% increase** in efficiency and **cost optimization**
- Global centralized data management ways of working.

Capgemini's standardization effort enabled our clients to deploy more intelligent automation tools and benefit from increased productivity in their customer fulfillment.

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Improved data accuracy and reduced stock-outs for a global CPG company

One of the world's leading CPG companies was operating with a high minimum order quantity (MOQ) in their master data that was greater than the demand generated by their planning optimization engine. This was leading to excess inventory. In addition, keeping both safety stocks and time parameters during the planning parameters resulted in excess ordering in material requirement planning. This, in turn, increased excess stock levels.

Further analysis revealed the lead-time between the contract and the material master data was not in sync, which created a difference in material planning vs. execution. In some cases, this led to excess inventory, and in others there were shortages. Overall, these data issues cost the business over €4 million in excessive stock for a single mid-sized market alone.

Capgemini undertook a vigorous data cleansing process to correct unclean data, further enhancing data quality through a data quality tool developed specifically for our client. This led to:

- **90% improvement** in **first time right**
- **95% improvement** in **data accuracy to 95%**
- **Reduced stock outs** and **distribution replenishment failures**
- **Synchronized master data availability** across all target systems
- **Elimination** of **process failures** arising through MDM.

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Conclusion

Data is central to any successful supply chain, especially for companies that wish to survive in an increasingly competitive environment. There are many use cases where quick wins can be achieved and the results measured. Companies struggle because they don't have the right skills or structured methodology and processes that can holistically evaluate the data potential of their supply chain.

Implementing the right talent, tech knowledge, and end-to-end supply chain process expertise at a competitive cost to maximize results can help your organization unlock the potential of its data and data strategy.

*I would like to thank **Abhishek Bikram Singh** for his invaluable contribution to the thinking that has gone into this paper.*

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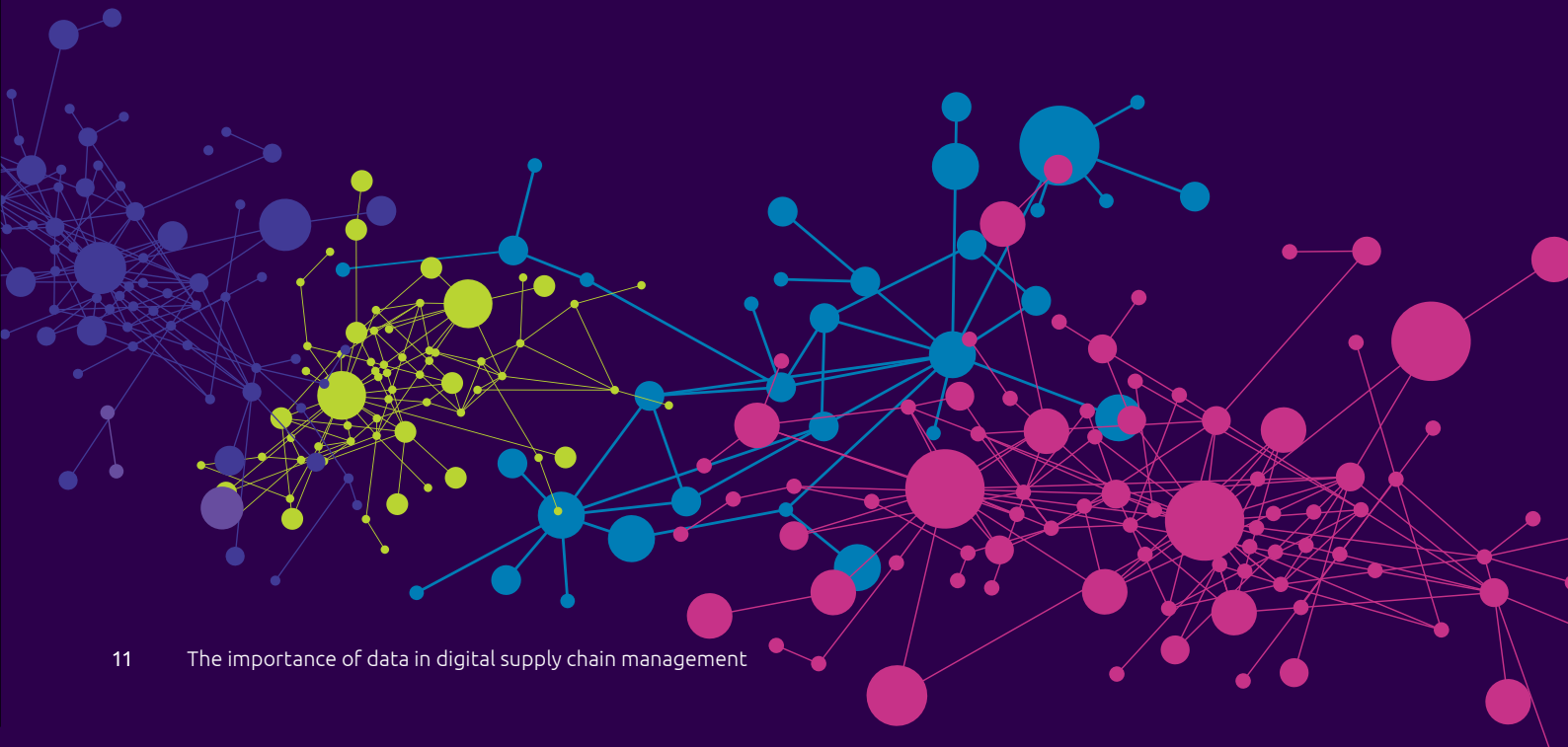

About the author

Jörg Junghanns leverages innovation and a strategic and service mindset to help clients transform their supply chain operations into a growth enabler.

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