

EXECUTIVE SUMMARY

The Digital Transformation of Supply Chain Management

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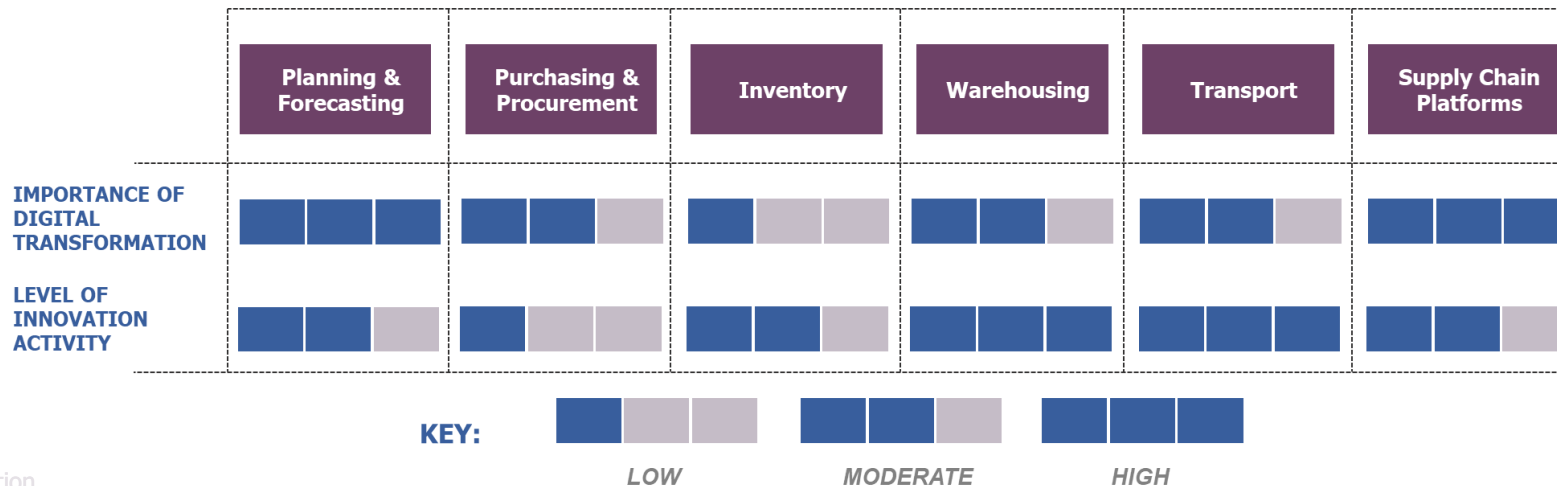
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Executive Summary

Supply chain management is under increasing pressure from both classic and contemporary challenges, such as pressure to increase overall efficiency and manage a more complicated vendor mix, respectively; now, a host of digital innovations offer more opportunity to address these challenges.

This has sparked a flurry of innovation, with hundreds of companies developing digital tools to address aspects of every segment of supply chain management – planning and forecasting, purchasing and procurement, inventory, warehousing, transport, and supply chain platforms.

In our analysis, we find that while warehousing and transport have the most innovation activity, planning and forecasting and platforms have outsized importance, while the move to digital supply chain management will facilitate a highly dynamic process with very different priorities.



Challenges for supply chain management come from all directions

Upstream (of your org.)

Vendor mix: Evaluating vendors can be a challenge, so traditionally, organizations would source from preferred vendors at the expense of efficiency. The shift to having a vendor mix means that choosing the right vendor at the right time is a new challenge.

Sourcing on demand: New vendors are being brought in at rapid speeds, losing the long-term trust of previous vendor relationships.

Internal (within your org.)

Efficiency: With shrinking top-line growth, many organizations are facing increased pressure to reduce costs.

Agility: Increased pressure from areas including shifting customer demands, climate change, and geopolitical change is forcing companies to become more agile in response.

Integrated: The digitalization of adjacent parts of the organization is forcing supply chains to digitize themselves to integrate information and processes.

Downstream (of your org.)

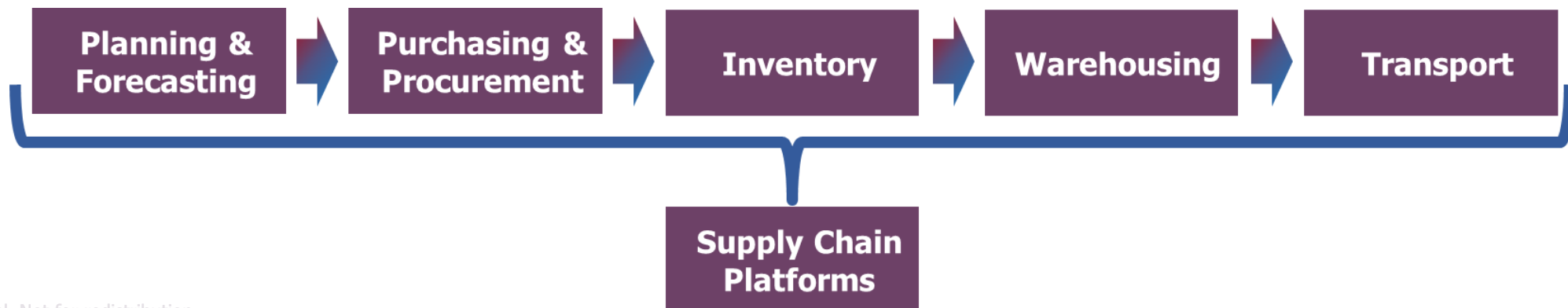
Customer expectations: With increasing competition and improving customer experience for both B2B and B2C organizations, customers now expect increased visibility into what they are buying and how and when they receive it.

Customer processes: As customers become more digitally mature, they require an improved and integrated experience from their vendors.

Report methodology and scope

In this report, we divide supply chain management into six segments – planning and forecasting, purchasing and procurement, inventory, warehousing, transport, and supply chain platforms. While each of these segments is well-defined, in practice, the solutions addressing supply chain management are less well-defined, and many tools impact multiple segments. We attribute innovations to the areas where they will have the most impact. In addition, the full report is divided into subsections, focusing on each of these six segments with a similar structure, consisting of:

- A definition of the segment, challenges within the segment, and how digital tools address those challenges
- A deep dive into the key digital technologies being applied, key players, and a Lux Take on the application of emerging digital technologies to that segment
- A case study that highlights real-world application of emerging digital technologies to address challenges within that segment



SUPPLY CHAIN MANAGEMENT

Planning and Forecasting

WHAT IT IS

Ensuring consistent component demand fluctuations and supply chain risks is a constant challenge. In addition, companies have usually done longer-term forecasting (three months to 12 months), which can come at the expense of near-term accuracy.

WHAT IT ACHIEVES

Uncover Invisible Insights	Upskill Humans
Predict the Future	Make Information Accessible
Optimize	Automate

IMPORTANCE OF DIGITAL TRANSFORMATION



HIGH

LEVEL OF INNOVATION ACTIVITY



MODERATE

HOW DIGITAL HELPS

With supply chains being increasingly complex and interconnected, managing and identifying risks is becoming increasingly challenging. In addition, with these risks, more products to manage, and more rapidly shifting market demands, digital tools are required to maintain desired inventory levels.

SUPPLY CHAIN MANAGEMENT

Planning and Forecasting

KEY USE CASES

Innovators are using digital tools to gain further insight upstream and downstream through more sophisticated understanding and prediction of supply chain disruptors, such as weather, or being able to better anticipate component needs through more accurate and real-time demand insight.

KEY INNOVATIONS

- Planning and forecasting is being driven by layering different levels of AI sophistication on top of disparate, relevant data sources (like weather data and supply chain manufacturing sites)
- Some solutions also incorporate computer vision to directly analyze supplier products

KEY PLAYERS



LUX TAKE

There are both general solutions and ones that focus on industries with particular supply chain risk – agriculture on the supply side and CPG and retail on the demand side. This is a critical component; expect more industry-specific solutions to emerge and digital tools to allow efficiency and insight not available with manual approaches.



SUPPLY CHAIN MANAGEMENT

Purchasing and procurement

WHAT IT IS

The drive to acquire quality components at the lowest possible price through an expanding vendor mix challenges organizations to manage the selection and acquisition process from less familiar and more diverse sources.

WHAT IT ACHIEVES

Uncover Invisible Insights	Upskill Humans
Predict the Future	Make Information Accessible
Optimize	Automate

IMPORTANCE OF DIGITAL TRANSFORMATION



LEVEL OF INNOVATION ACTIVITY



HOW DIGITAL HELPS

Digital helps organizations get greater insight into their vendors, their vendors' products, and how their vendors compare to competitors, which is particularly important with the sourcing on demand trend, reducing trust based on long-standing relationships.

SUPPLY CHAIN MANAGEMENT

Purchasing and procurement

KEY USE CASES

Digital is used in two key ways: 1) understanding the quality of product received and whether the product is genuine (not counterfeit or labeled – like organic or non-GMO – correctly), and 2) lowering transaction costs through increased pricing visibility, vendor identification and comparison, vendor RFPs or auctions, smart contracts, contract management, or incorporating AI into procurement dashboards.

KEY INNOVATIONS

- Many companies are applying varying levels of AI to vendor data
- Blockchain is being deployed to track product quality from origin through purchase
- Sensor or computer vision data is also being used in product assessment

KEY PLAYERS



SUPPLYSHIFT

LUX TAKE

There are many solutions targeting one aspect or process in purchasing and procurement, whether it be around lowering cost or vendor understanding, but the value of these solutions will become significantly higher when they consolidate into more unified solutions.

SUPPLY CHAIN MANAGEMENT

Purchasing and procurement – Case Study

INTRODUCTION

Maintaining organizational social commitments is challenging for companies downstream, as they must track and monitor all of the inputs into their products. The origin, environmental impact, authenticity, and mode of production can be hard to measure once received, so platforms to track inputs through the supply chain are being introduced.

USE CASE

American apparel company Wrangler used [SupplyShift's](#) platform to consolidate its supplier tracking to track the environmental impact and employee conditions from >100 facilities globally.

KEY PLAYERS



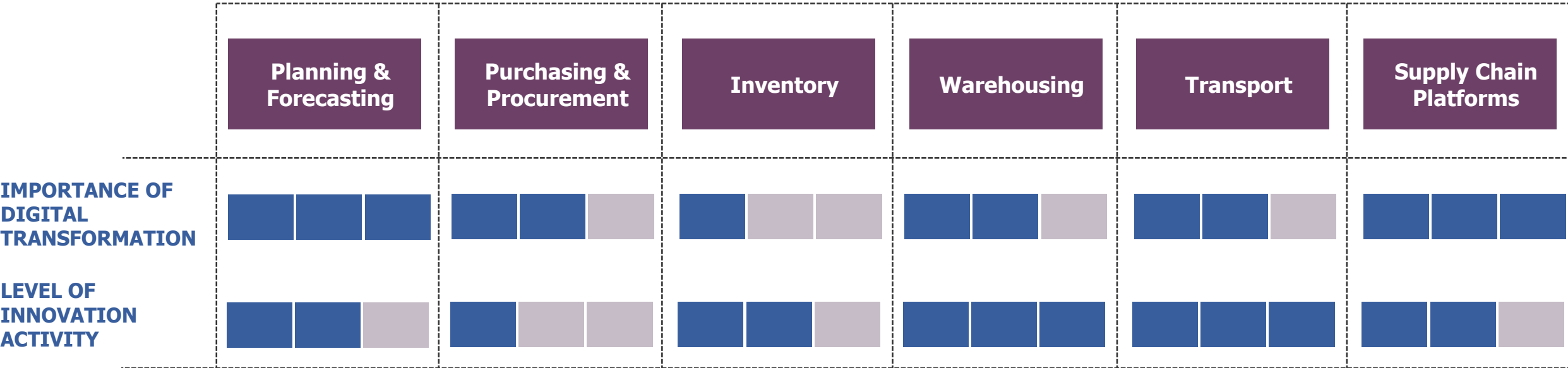
INDUSTRIES AFFECTED

Clean labeling is being driven by CPG companies, but the impact is going up the supply chain to link value to products beyond what can be directly measured.

LUX TAKE

This trend of layering on additional information and context to physical products will continue to be an important part of supply chains; expect these early examples to continue to proliferate. This will make the data layer on top of physical products a key part of product value.

While warehousing and transport have the most activity, planning and forecasting and platforms have outsized importance



KEY:



Outlook

1

The march toward integration and autonomy

Current solutions go either deep or wide, but not both; look for solutions to begin to integrate previously siloed portions of supply chain management, increasing value along the way, leading to a more optimized and autonomous supply chain

2

Costing becomes more dynamic

As more data around vendors and their products becomes available, component supply will start to look more like a futures market; instead of just paying for the component, supplier risk, lead time, variability, etc. will all create a dynamic pricing market

3

From a physical to a virtual supply chain

As companies look to move toward zero-inventory manufacturing, the “Death of Supply Chain Management” will be extreme, but the role of supply chain management will change dramatically, with supervision of the digital assets complementing supervision of the physical ones



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