

MODULE 1 — OVERVIEW

UNDERSTANDING THE BUSINESS PROBLEM (RETAIL SUPPLY CHAIN ANALYTICS)

In Module 1, we establish the business, operational, and organizational foundation for the Retail Supply Chain Analytics project. Before engaging with data, models, or dashboards, we align on how the retail business operates in practice, how value is created and lost across the supply chain, and what decisions analytics is expected to support inside a real omnichannel organization.

Retail supply chains are complex, adaptive systems. They are shaped by uncertainty in demand, variability in lead times, human decision-making, legacy processes, and structural constraints. These constraints cannot be removed through better tools alone. Analytics does not eliminate complexity; its role is to make complexity visible, measurable, and actionable.

1. STARTING WITH BUSINESS CONTEXT

Retail organizations generate large volumes of operational data. Inventory movements are recorded in ERP systems, transactions are captured at the point of sale, and logistics platforms track shipments, lead times, and fulfillment exceptions. Despite this data richness, many retail organizations struggle to translate information into consistent operational and financial improvements.

A common failure mode in analytics initiatives is starting with data structures rather than decision structures. Metrics are defined before decision-making processes are fully understood. Dashboards are built before incentives and trade-offs are made explicit. As a result, analytics outputs exist, but their relevance and credibility are constantly questioned.

In supply chain environments, this issue is amplified. Availability, service level, inventory turnover, and forecast accuracy are interpreted differently depending on organizational role. Without shared context, analytics becomes fragmented, reactive, and focused on explaining past outcomes rather than shaping future decisions.

2. COMPANY CONTEXT: NORDMARK RETAIL GROUP

Nordmark Retail Group is a mid-sized European omnichannel retailer operating across physical stores and a growing e-commerce channel. The company serves a broad consumer market with an assortment that includes home goods, lifestyle products, and seasonal merchandise.

For much of its history, Nordmark operated as a store-first retailer. Inventory was purchased centrally, distributed to stores, and sold primarily through physical locations. Planning cycles were predictable, lead times were stable, and performance was evaluated largely at the store level.

As customer behavior evolved, online demand increased and expectations around availability and delivery speed changed. In response, Nordmark expanded into e-commerce and

omnichannel fulfillment. This expansion created new revenue opportunities but also introduced operational complexity that the organization continues to manage.

3. VALUE CREATION AND VALUE LEAKAGE IN RETAIL

Retail value creation depends on aligning demand, inventory, and fulfillment across time and location. When these elements are aligned, customers experience reliable availability, operations remain stable, and capital invested in inventory generates predictable returns.

Value leakage occurs when misalignment emerges. Stockouts lead to lost sales and reduced customer trust. Excess inventory ties up working capital and increases markdown risk. Operational instability increases cost through expedited shipments, overtime labor, and reactive decision-making.

These dynamics are interconnected. Improvements in one area often create pressure in another. Analytics must therefore focus on understanding trade-offs rather than optimizing individual metrics in isolation.

4. THE OMNICHANNEL SUPPLY CHAIN OPERATING MODEL

Nordmark's supply chain is a multi-node network that includes suppliers, inbound logistics, distribution centers, retail stores, and online fulfillment operations. Inventory flows through this network based on planning assumptions that are never perfectly accurate.

Demand varies by product, location, channel, season, and external factors. Forecasts are updated regularly, but uncertainty remains. Lead times fluctuate due to supplier performance, transportation constraints, capacity limitations, and execution variability.

In an omnichannel environment, inventory is no longer dedicated to a single channel. A unit held in a store may serve walk-in customers, online orders, or emergency reallocations. This flexibility improves service but significantly increases analytical complexity.

5. DECISION-MAKING ACROSS TIME HORIZONS

Supply chain decisions occur across strategic, tactical, and operational horizons. Each horizon operates on different assumptions, timeframes, and risk tolerances.

Strategic decisions include network design, assortment breadth, supplier selection, and long-term capacity investments. Tactical decisions include forecasting processes, replenishment policies, and safety stock definitions. Operational decisions include daily order releases, exception handling, and fulfillment prioritization.

Misalignment across these horizons is a common source of instability. Analytics must help surface these misalignments and quantify their downstream effects.

6. ORGANIZATIONAL STRUCTURE AND INCENTIVES

Different teams interact with the supply chain through different lenses. Merchandising teams prioritize assortment and sell-through. Operations teams focus on availability and execution stability. Logistics teams emphasize lead times and cost efficiency.

E-commerce teams focus on online availability and delivery promises. Finance teams monitor inventory value, margin, and working capital. Executive leadership balances these perspectives while maintaining growth and profitability.

Without shared definitions and aligned metrics, these incentives often pull the organization in different directions, reinforcing local optimization and reactive behavior.

7. CORE SUPPLY CHAIN CHALLENGES

Nordmark's supply chain challenges are not isolated operational issues. They are systemic outcomes of how demand uncertainty, inventory positioning, planning processes, and organizational incentives interact over time.

Stockouts are most visible at the customer interface. They occur when demand materializes in locations or channels where inventory is insufficient, even though total inventory across the network may appear adequate. This disconnect reflects weaknesses in forecasting, allocation, and replenishment logic.

At the same time, excess inventory accumulates elsewhere in the network. Products with declining demand or overestimated forecasts remain in stores or distribution centers, tying up working capital and increasing the likelihood of markdowns.

Forecast accuracy metrics are typically reviewed retrospectively. Errors are observed after outcomes are realized, but feedback loops into planning decisions are weak. As a result, forecasting becomes descriptive rather than corrective.

These issues reinforce each other. Poor forecasts lead to poor inventory positioning. Poor positioning drives firefighting. Firefighting increases variability and reduces trust in plans, further degrading forecast performance.

Analytics must make these causal chains explicit, enabling the organization to address root causes rather than symptoms.

8. AMBITIONS AND SUCCESS CRITERIA

Nordmark's ambitions reflect a transition from reactive execution toward disciplined, data-informed planning.

In the short term, success is defined by operational stability. This includes fewer emergency reallocations, reduced stockout frequency, and more predictable replenishment cycles.

In the medium term, the organization seeks to improve forecast reliability, inventory efficiency, and cross-channel coordination. Inventory should be positioned intentionally rather than defensively, and trade-offs between service and cost should be explicit.

In the long term, Nordmark aims to build a resilient supply chain capable of absorbing demand shocks, supporting growth, and adapting planning processes as the business evolves.

Success is measured through a balanced scorecard including service level, inventory turns, working capital efficiency, operational stability, and decision confidence.

9. ANALYTICS AS DECISION INFRASTRUCTURE

Within Nordmark, analytics functions as decision infrastructure. Its purpose is to support recurring planning and execution decisions rather than produce static reports.

Analytics establishes shared definitions and trusted metrics, allowing teams to operate from a common factual baseline. It surfaces trade-offs explicitly, making the consequences of decisions visible.

Effective analytics does not promise certainty. Instead, it improves judgment by clarifying uncertainty and enabling informed choices.

10. TRANSITION TO DATA REALITY

With the business context established, the project transitions into data reality. The next phase examines source systems, data structures, and limitations that shape what analytics can support.

Operational data reflects how the business runs, not how analysts wish it were structured. Understanding these constraints is critical to building credible analytical models.

All technical work in subsequent modules should remain grounded in the business understanding established here.