PEOPLE & MASTER DATA

Why Master Data Is the Sexiest, and Most Misunderstood Part of the Supply Chain

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1. Master Data: The Most Underrated Power in the Supply Chain

Most organisations still believe they can “fix” their supply chain with an APS upgrade, a new AI layer, or another datalake initiative. But before touching tools, one question matters:

What structural logic are these systems actually running on?

Because here’s the uncomfortable truth: **None of these systems can perform when the structural logic of the business - the master data - is wrong.**

Master data is not IT. It’s not a hygiene task. It’s not something you outsource and hope for the best. **Master data is your operating model - in digital form.**

It defines how your supply chain thinks, decides, prioritises, sequences, produces, replenishes, and escalates. It is the formalisation of rules, boundaries, segmentation, sourcing policies, and organisational structures.

If you want a stable, adaptive, and intelligent supply chain, you start here.

2. What Master Data Really Is - in Scientific Terms

Academic definitions (Otto, Hüner, DAMA, Loshin) are consistent:

Master data are the structural, cross-organisational business objects with long-term validity that define how processes and systems operate.

Their key characteristics connect directly to how an enterprise operates:

Low volatility High semantic stability Relevance across all functions Mandatory for every end-to-end process Foundation of rules and decision logic

In more scientific terms: **Master data are “process-defining data” and the digital representation of organisational structure.**

Translated into reality: **If you change master data, you change behaviour. If you change behaviour without changing master data, nothing sticks.**

3. Master Data vs. Transactional Data - The Crucial Difference

Supply Chains confuse the two all the time. This confusion comes from a simple fact: companies often see data as one undifferentiated mass, rather than a hierarchy of rules, behaviour, and signals.

Master data = **rules. Transactional data** = **behaviour.**

Lead Time (MD) ≠ Transport Duration (TD) MOQ (MD) ≠ Order Pattern (TD) Routing (MD) ≠ Actual Flow (TD) Service Level (MD) ≠ OTIF (TD) Sourcing Policy (MD) ≠ Supplier Performance (TD)

A datalake can capture behaviour endlessly. It cannot infer or correct rules on its own. That’s the blind spot of modern SC digitalisation.

Datalakes make reality visible. Master data makes reality manageable. Intelligence emerges only when both are connected in a closed loop.

Transactional data can absolutely validate and improve master data - but only if there is an operating model that defines how rules are updated, owned, and reconciled.

Without that, it's just noise, dashboards, and post-fact reporting.

4. Where Unstructured Data Fits - and Where It Doesn't

There is a growing narrative in the market that "unstructured data" - external signals, sensor logs, social trends, qualitative inputs - will transform supply chains. Outside-in visibility absolutely matters. But unstructured data is often misunderstood and frequently misapplied.

Here is a simple answer: **Unstructured data informs. It does not govern.** Unstructured data can enhance:

Demand sensing and short-term forecasting Contextual awareness (weather, events, macro movements) Machine and logistics performance insights Early disruption detection

But unstructured data cannot define: Lead Times MOQ Routings Sourcing Logic Service Levels Calendars Product Hierarchies Capacity Models These are **rules**, not signals - and rules live in master data. This is the fundamental distinction:

Unstructured data = signals (outside-in awareness) Transactional data = behaviour (how the system actually runs) Master data = rules (how the system is designed to run)

Unstructured data becomes powerful only when it is integrated into a governed structure - not as raw volume, but as signal-driven refinement of how the system behaves into a closed - loop operating model:

Signals (unstructured) inform behaviour (transactions) Behaviour validates and adjusts rules (master data) Without that loop, unstructured data adds volume, not value.

5. The Datalake Trap - Why More Data Doesn't Help

Many organisations genuinely believe: "Let's dump everything into the datalake - and the truth will surface." It won't.

If the structural truth (master data) is wrong, the datalake simply makes the wrong model transparent. You don't get intelligence - you get high-resolution dysfunction.

AI doesn't fix bad master data. AI scales bad master data. Same with APS:

Static lead times → firefighting Wrong routings → capacity chaos Fragmented hierarchies → zero visibility Inconsistent policies → constant overrides

Garbage in → faster, more elegant garbage out.

5. Why Master Data Fails - Mandates, Not Technology

End-to-end supply chain is the only truly horizontal capability in the company, but organisations are vertical by design. Master data is end-to-end by nature, because it cuts across: Commercial Procurement Manufacturing Quality Logistics Finance Supply Chain And this creates the system conflict:

Everyone uses master data. No one owns master data.

This is why it remains fragmented, political, inconsistent, and why every APS, AI, and planning initiative ends up compensating for structural issues that should have been fixed in the master data layer.

5.1 When Master Data Goes Wrong - Overgrowth and Fatigue

Not all master-data failures come from a lack of governance. Many come from the opposite problem: **too many fields, too many exceptions, too many workarounds.**

A few patterns show up everywhere:

Silos create "local truths" - every function adds its own attributes and flags. **Finance overloads**

the model - reporting logic crowds out flow logic. **ERP/APS gaps trigger custom fields** - Z-attributes, Boolean hacks, special-case tables. **Processes aren't fixed - data is bent instead** - fake lead times, dummy suppliers, shadow products.

Over time, this leads to **master-data fatigue**: too many fields, too many interpretations, no owners, no shared truth. **Master data doesn't fail because it's missing - it fails because it becomes a work-around cemetery.**

6. Why E2E Supply Chain Needs to Sit on the CEO Agenda

It sounds extreme - but it's the only level where end-to-end supply chain can actually be governed.

A. No one below the CEO owns all structural rules

Lead Times? Procurement. Routings? Engineering & Manufacturing. Service Levels? Commercial. Inventory? Finance. S&OE? Supply Chain. Execution? Logistics, CMO, 4PL.

Only the CEO owns all mandates simultaneously. And because each mandate sits in a different functional silo, only the CEO can reconcile them into one coherent operating model.

B. E2E supply chain is not an operational topic - it's the Operating Model

It defines:

How demand triggers supply How buffers are set How policies are enforced How parameters adapt dynamically How scenarios are chosen How cross-functional governance works

That is enterprise design — not SC firefighting.

C. Without CEO mandate, no one agrees on shared rules

Segmented service levels, sourcing logic, dynamic parameters, capacity models, escalation playbooks — all require cross-functional alignment.

Only a CEO can force that alignment. **End-to-end supply chain can only be governed where all functional borders dissolve: the CEO's desk.**

7. Additional More Scientific Foundations

To strengthen the grounding of this narrative, two short but powerful components can be added: a structured definition table (Rules vs. Behaviour vs. Signals) and the scientific rationale for why AI cannot infer or govern constraints.

7.1 Structured Definition Table - Master Data vs. Transaction Data vs. Unstructured Data vs. Parameters

See Figure 1 · page 5

This table formalises the distinction used throughout the article and aligns it with MDM, BPM, analytics and SC literature.

7.2 Why AI Cannot Infer or Govern Constraints

Modern AI models are powerful pattern recognisers, but constraints, rules, and operating-model logic cannot be learned reliably from raw data.

AI learns correlations, not structural truth. It can see that demand spikes correlate with weather, but it cannot derive a sourcing policy, MOQ, regulated routing, GMP constraint, or production calendar. **Constraints are normative, not descriptive.** They are *designed* by the organisation, not discovered in data. Routing rules, lead time assumptions, and S&OE playbooks exist because the business *decided* so, not because data implied it. **AI cannot detect missing or wrong rules.** If lead time master data is wrong, AI will learn the wrong distribution and reinforce it. **AI cannot resolve conflicting organisational mandates.** It cannot decide between Procurement's policy, Quality's policy, and Manufacturing's policy, this is governance, not analytics. **AI cannot govern.** Governance is a human and organisational construct. Without defined owners, thresholds, rules, and escalation paths, AI sits on top of chaos.

The consensus is clear: **AI can improve sensing. AI can improve prediction. But AI cannot define or enforce the operating model.**

8. The Punchline: Why Master Data Is Actually Sexy

Master data is power. It determines how the entire system works, and where it breaks. Master data is sexy because it does two things simultaneously, it creates alignment and it enables autonomy:

It forces alignment. It creates flow. It reduces chaos. It enables autonomy. It synchronises the organisation. It connects every function to the same rules. It defines the brain of the supply chain. It governs the decisions that shape behaviour.

Master data is the only part of the supply chain that truly runs end-to-end. Everything else stops at functional borders. That's why it's hard. And that's why it's sexy.

8. The Call to Action

Sounds crazy? Not at all. **Master data is the digital twin of the company** - the structural representation of how the enterprise is designed to operate. It mirrors the rules, relationships, capacities, hierarchies, constraints, and decisions that shape real-world behaviour.

If CEOs want resilience, agility, and stability, they must treat master data as a strategic asset, not a clean-up exercise. If organisations want real E2E flow, they need an operating model that unifies:

Structural rules (master data) Actual behaviour (transactions) Adaptive planning (dynamic parameters) Real-time correction (S&OE)

The rest is cosmetic. Master data is where true transformation begins.

Figure 1

CONCEPT	WHAT IT REPRESENTS	ROLE IN THE SUPPLY CHAIN	WHY IT MATTERS
MASTER DATA (RULES)	Structural truth; organisational design in digital form	Defines how planning, execution, and decisions *should* run	It governs flow, stability, segmentation, sourcing, and all SC policies
TRANSACTIONAL DATA (BEHAVIOUR)	Records of events and process execution	Shows how processes *actually* ran	Validates rules, exposes variability, enables dynamic parameters
UNSTRUCTURED DATA (SIGNALS)	External or semi-structured signals (weather, events, IoT logs, market indicators)	Enhances awareness and short-term sensing	Adds context but cannot define constraints or core rules
PLANNING PARAMETERS	Derived or set values used by APS/IBP (lead times, safety stocks, MOQ, capacities)	Operationalises master data into planning behaviours	Must be maintained dynamically using transactional insights

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