STABILITY & BUFFERS

Why Your Supply Chain Was Designed to Chase Variability, Not Absorb It

Christian Kroschl · 25 March 2025

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Why Do Planners Constantly Override the System?

Every week, a company's advanced planning system (APS) generates new supply plans, optimizing for capacity, demand, and lead times. In theory, execution should follow these plans.

Yet, every morning, planners scramble to adjust them. Some orders no longer fit the production schedule. Others require expedited materials due to late supplier deliveries. Inventory positions have shifted, forcing last-minute allocation changes.

Instead of absorbing variability, planning amplifies it. Tactical plans do not align with operational realities, and execution constantly works around outdated assumptions. The result is a system designed to chase variability, rather than control it.

How Planning Layers Create Variability Instead of Reducing It

Many companies assume variability comes from external factors - demand fluctuations, supplier disruptions, or logistics delays. But much of it is self-inflicted, caused by the way planning operates across different horizons.

Tactical planning (24-36 months) works in time buckets, aggregating demand and rough capacity planning. **Operational planning (weeks to months)** disaggregates those plans into more detailed supply and production schedules. **Scheduling (days to weeks)** operates in time-continuous mode, adjusting detailed work orders. **Execution (real-time, MES, and logistics)** reacts to real-world constraints.

Each layer interprets demand, supply, and lead times differently based on its own assumptions. Instead of synchronizing, they pass variability downstream - forcing constant manual corrections.

Where Variability Comes From: Structural Rigidity That Breaks Execution

Lead Time Distortions Between Planning Layers

Tactical planning assumes static lead times, such as "this product takes six weeks to produce." But in execution, lead times shift constantly due to:

Machine availability, downtime, and maintenance. Workforce constraints, shift schedules, and operator skill levels. Supplier delays and late material arrivals. Changeover times that scheduling systems account for, but tactical planning often ignores.

The result?

If lead times are underestimated, orders do not fit into real production schedules and must be rescheduled. If lead times are overestimated, planners waste capacity or accelerate orders unnecessarily.

Without lead time ranges that allow flexibility, companies operate on false precision - forcing adjustments every time reality deviates from the model.

Master Data and False Precision: The Invisible Bottleneck

Most companies treat master data as fixed, even though it constantly changes in real execution. **Example: SKU Creation Bottlenecks in SAP**

A customer shared that creating a new SKU takes six weeks due to approval cycles, documentation, and system updates. But demand does not wait six weeks - so planners use workarounds, force allocations, and manually adjust BOMs. By the time the SKU is ready, demand has changed again, triggering even more adjustments.

Example: Pharma API and Market Allocation

An API batch is planned months in advance, assuming flexibility across markets. After quality inspection, regulatory restrictions force a last-minute reallocation. BOMs and planning structures are not built for dynamic reassignment, forcing planners to manually rework supply assignments.

If master data does not allow flexibility, companies end up managing their supply chains through spreadsheets and workarounds - adding even more instability.

Artificial Time Horizons and Disjointed Ownership

Companies force planning into rigid cycles based on system limitations or organizational structure. Example: Site-owned scheduling versus supply chain-owned replenishment planning. This creates artificial decision points that do not reflect real-world execution, leading to friction and misalignment.

The result? More re-planning, more rescheduling, and more firefighting.

The Cost of Doing Nothing: The Hidden Waste in Supply Chains

If companies do not fix this, what happens?

Wasted production time as capacity utilization drops due to shifting schedules. More manual work as planners and schedulers spend hours adjusting system-generated plans that never match reality. Higher inventory costs as supply chains carry excess buffer stock due to misalignment. Increased premium freight and expedites as logistics teams scramble to meet last-minute changes.

Instead of planning synchronizing the supply chain, it adds complexity and cost.

How to Stop Planning from Creating Variability

Ensure planning layers are always synchronized. Tactical, operational, and scheduling layers should not operate in isolation. Use continuous feedback loops instead of fixed cycles. **Make master data more flexible.** Use phantom BOMs and configurable materials instead of hard-coded SKUs. Enable late-stage allocation so product assignment happens when constraints are known. **Replace rigid aggregation and disaggregation rules with dynamic adjustments.** Instead of forcing fixed disaggregation rules, planning should adapt based on real execution signals. Use AI or rule-based adjustment ranges rather than hardcoded lead times. **Stop rescheduling for small deviations.** Introduce stability ranges—only adjust supply if demand changes exceed a meaningful threshold. Prevent rescheduling every time a minor shift occurs.

Closing Thought for Supply Chain Leaders

Most companies are not just reacting to variability - they are creating it.

The way planning is structured today forces companies into a cycle of constant re-planning, rescheduling, and manual intervention.

Instead of treating planning as a set of isolated layers, companies need a synchronized approach that prevents misalignment between tactical planning, scheduling, and execution.

If planning was designed to absorb variability instead of chasing it, supply chains would not need as much manual intervention just to stay on track.

But why do APS tools and planning systems struggle to solve this?

Next, we will explore why today's APS solutions - built on outdated optimization logic - fail to fix this problem, and what companies need to rethink when designing their planning environments.