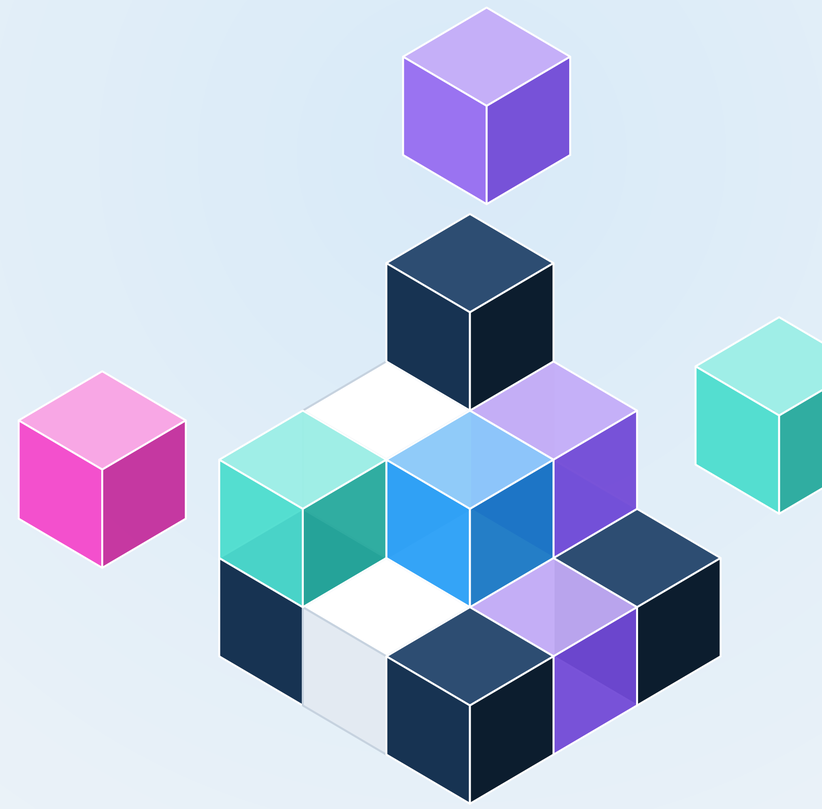
SUPPLY CHAIN & LOGISTICS

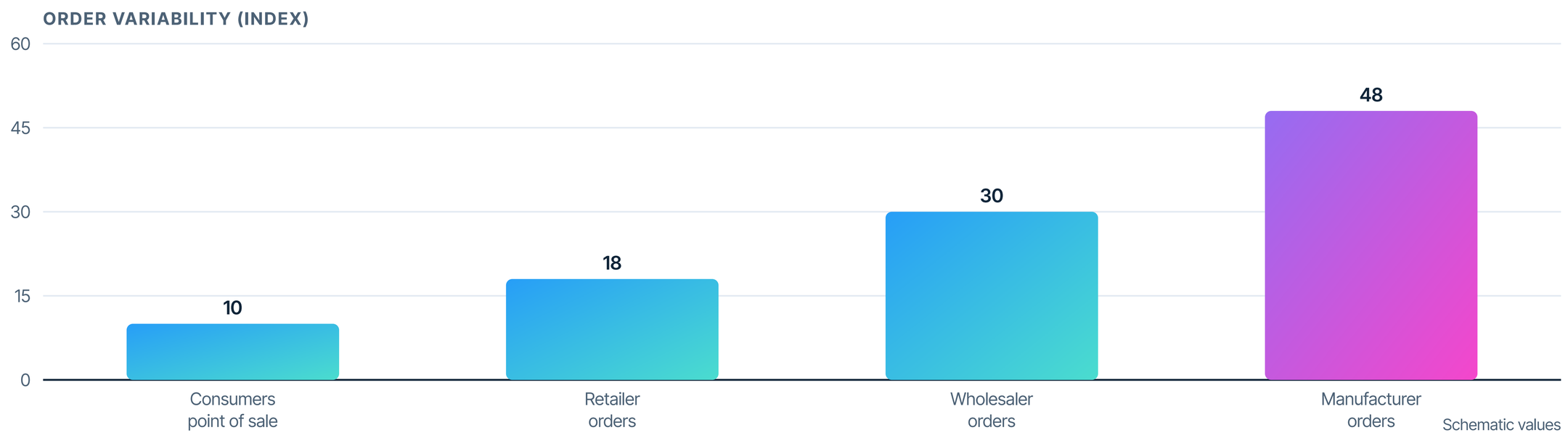
Bullwhip Effect



The bullwhip effect is the amplification of demand variability as orders move upstream: small changes in consumer demand become large swings for suppliers.

01 THE CORE MODEL

FOUR STAGES · VARIABILITY GROWS UPSTREAM



Demand signal

What end customers actually buy, often fairly stable.

Amplification

Each stage orders more variably than it sells.

Main causes

Order batching, forecast updating, promotions and shortage gaming.

02 DAMPING THE WHIP

Sharing real demand upstream is the strongest countermeasure.

AMPLIFIED — DAMPED

CAUSES

- Each stage forecasts from incoming orders
- Large order batches
- Promotions and rationing games

COUNTERMEASURES

+ Share point-of-sale data upstream
+ Smaller, more frequent orders
+ Stable pricing, shorter lead times

03 WORKED EXAMPLE

CONSUMER APPLIANCE CHAIN · ILLUSTRATIVE

RETAIL SALES
Steady
small weekly swings

→

DISTRIBUTOR
Batches orders
monthly, plus a buffer

→

FACTORY
Large swings
overtime, then idle

→

FIX
Shared POS data
weekly replenishment

04 MANAGEMENT TAKEAWAYS

01
Plan on end-customer demand
Use sell-out data, not the orders of the next tier.

02
Cut order batch sizes
Smaller, more frequent orders smooth the signal.

03
Shorten lead times
Less time between signal and supply means less amplification.

05 COMMON MISTAKE

LIMITATION
Blaming the customer
The bullwhip is created mostly inside the chain by ordering rules, not by end demand.