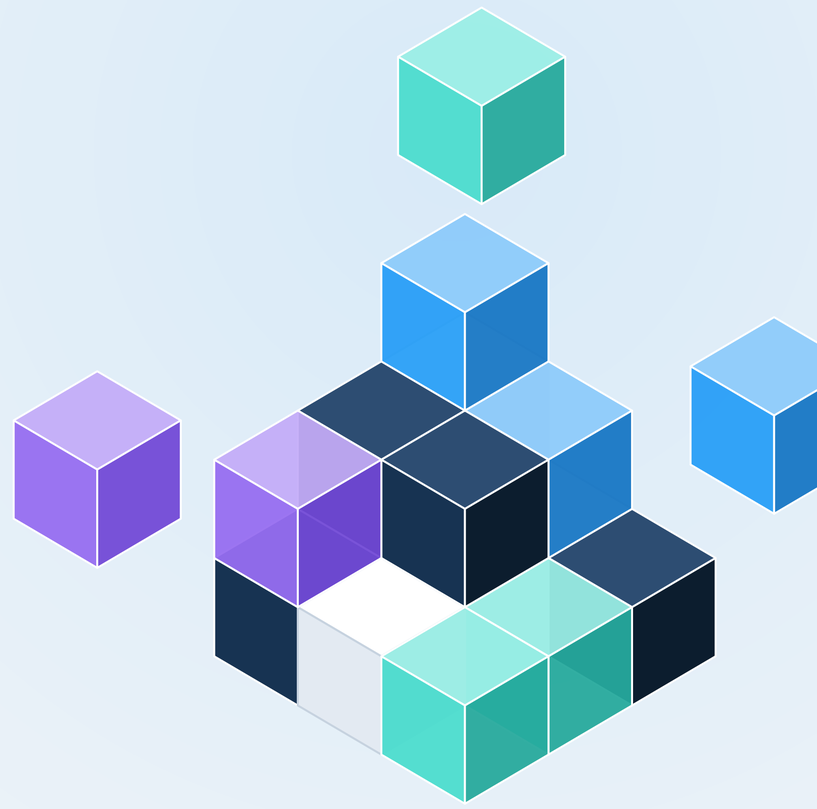
PRODUCTION & MANUFACTURING

Production Planning Hierarchy



Production planning works in levels: each level plans a shorter horizon in more detail, from sales and operations planning down to the job sequence on the shop floor.

01 THE CORE MODEL

PLANNING PYRAMID · HORIZON SHRINKS, DETAIL GROWS

MONTHS-YEARS — **S&OP** — Demand and capacity by product family

WEEKS-MONTHS — **Master schedule** — Which end items, when, how many

DAYS-WEEKS — **MRP** — Dated component and purchase orders

HOURS-DAYS — **Shop-floor dispatch** — Job sequence on each resource

S&OP

Monthly process that balances demand and supply at product family level.

Master schedule (MPS)

Commitment of end items by period; the main input to MRP.

MRP

Explodes the MPS through the bill of materials into dated orders.

02 LINKING THE LEVELS

Each level must respect the limits set by the level above.

DISCONNECTED — ALIGNED

LEVELS DISCONNECTED

- MPS ignores capacity agreed in S&OP
- Constant rescheduling on the shop floor
- Planners override MRP in spreadsheets

LEVELS ALIGNED

+ Frozen zones protect short-term plans
+ Capacity checked at every level
+ Exceptions escalated, not hidden

03 WORKED EXAMPLE

PUMP PLANT · ONE PRODUCT FAMILY THROUGH THE HIERARCHY

S&OP **Family volume** — agreed monthly → MPS **Weekly build plan** — by pump variant → MRP **Dated orders** — castings, seals, motors → DISPATCH **Job sequence** — per cell, per shift

04 MANAGEMENT TAKEAWAYS

01 — Freeze the near term

A firm zone stops daily changes from rippling through MRP.

02 — Check capacity at each level

Rough-cut at master schedule level, detailed at dispatch.

03 — Keep master data clean

MRP is only as good as BOMs, lead times and stock records.

05 COMMON MISTAKE

LIMITATION

Planning with infinite capacity

MRP assumes capacity is available. Without checks, schedules look feasible but cannot be built.