

Demand Planning: Identifying Requirements Early, Steering Procurement Purposefully

Demand planning refers to the systematic determination, quantification and scheduling of a company's future requirements for materials and services. It forms the link between sales, production and procurement and ensures that materials, components and services are available at the right time in the right quantity. In industrial practice, the quality of demand planning is a decisive factor in inventory levels, the ability to supply and procurement costs. This glossary article explains the methods, KPIs and organisation of demand planning from a buyer's perspective.

Key facts

- Demand planning determines the type, quantity and timing of future material and service requirements and is the foundation of all procurement.
- It covers strategic, tactical and operational time horizons – from annual requirements down to day-precise call-offs.
- Common methods are consumption-based planning, system-supported disposition, the reorder point procedure and demand derivation from customer orders.
- Accurate demand planning typically reduces inventory in practice, avoids urgent orders and improves the ability to supply.
- It is closely interlinked with Sales and Operations Planning, delivery schedules, call-off orders and demand analysis.
- Typical sources of error are unreliable master data, a lack of coordination with user departments and hidden reserves in quantities.

Definition: demand planning

Demand planning is the process by which a company determines which materials, components, services and capacities are needed, in what quantities and at what points in time. It provides the data basis for disposition, the order system and contract planning in procurement.

Distinction from demand analysis

Demand analysis examines why a requirement arises, what alternatives exist and whether the requirement is economically sensible – for example through make-or-buy considerations or clean sheet costing. Demand planning then quantifies and schedules this requirement on an ongoing basis. The two steps interlock: without a clean demand analysis, procurement may plan a requirement that, on critical review, should be met differently or not at all.

Strategic, tactical and operational level

At strategic level, the focus is on annual requirements, framework agreements and supplier selection. The tactical level translates this into demand forecasts spanning several months to a year, capacity and budget planning, often coordinated via Sales and Operations Planning. At operational level, concrete

demand notifications, disposition data sets and call-off orders are generated, which secure the ongoing material flow.

Functions involved

Demand planning is a cross-functional task: sales provides sales forecasts, design and engineering provide change and project requirements, production provides manufacturing programmes, and the warehouse provides stock and consumption data. Procurement aggregates these signals and secures supply. Successful companies organise this exchange via clearly defined interfaces and regular coordination rounds, for example as part of structured stakeholder management.

Methods and approach of demand planning

Depending on the repeat character of demand, different methods are used. In practice, a combination of retrospective planning and forward-looking forecasting is common.

Consumption-based and forecast-based planning

For C-parts and standard materials, demand is often derived from historical consumption figures. Stock issue analysis shows which items are consumed in what quantities and forms the basis for forecasting methods such as moving averages or seasonal models. These methods are simple and stable, but respond sluggishly to demand changes – which is why regular plausibility checks by disposition are necessary.

Demand derivation from orders and bills of materials

In manufacturing-oriented companies, demand is derived from customer orders, production programmes and bills of materials. Material requirements planning breaks the primary demand programme into secondary requirements and schedules them backwards from the start of production. In addition, delivery schedules within call-off orders define quantity and date frameworks within which suppliers deliver flexibly.

Reorder point procedure and safety stocks

For stock-kept items, the reorder point procedure is widespread: once stock falls to the reorder point, an order quantity is automatically triggered. The parameters are typically derived from demand speed, replenishment lead time and the desired service level, and are reviewed periodically. Overly generous safety stocks tie up capital; overly tight ones lead to shortages – calibration is an ongoing task.

Consolidation and bundling

Individual requirements from several plants or departments are aggregated to exploit leverage in procurement. Demand aggregation and the bundling of items in tender management processes or volume discount negotiations yield better terms from larger, plannable volumes. A prerequisite is a uniform item and material master interface across locations.

Organisation and process of demand planning

A functioning demand planning process follows a clear rhythm with defined roles, data sources and escalation paths.

Process flow and frequencies

Typically, planning runs in cycles: monthly cadence for tactical planning, daily or weekly disposition of operational demand. Each requirement passes through the steps of capture (demand notification), review, approval and conversion into order proposals. Clear approval authorities prevent unvalidated requirements from user departments flowing directly into procurement activities.

Role of disposition and procurement

Disposition bears primary responsibility for quantity and date, procurement for the procurement route, supplier and price. In the event of structural shortages or deviations between plan and reality, both work together on solutions such as alternative sourcing, adjustment of call-offs or negotiation of delivery contingents. Short lines of communication between disposition and procurement are a key success factor.

IT support

ERP systems form the foundation with master data, disposition parameters and requirement figures. In addition, forecasting and supply chain analytics tools are used that evaluate stock and consumption metrics and visualise variances. The degree of automation of demand determination should be tiered by requirement relevance: automation for standard parts, individual review for critical or high-value items.

Key KPIs of demand planning

Without KPIs, planning quality cannot be managed. Core KPIs measure forecast quality, supply level and inventory impact.

Forecast and planning quality

Forecast accuracy compares planned and actual demand, frequently measured as forecast error or hit rate. Typically, values between 70 and 95 per cent are aimed for depending on item class. Crucial is the systematic evaluation of variances: where and why does the plan deviate, and which item class is affected?

Supply and inventory metrics

Delivery reliability and the share of late orders show whether planning secures supply. Inventory metrics such as inventory coverage and inventory turnover reveal whether capital is being tied up through safety stocks. The share of unplanned demand in the total quantity signals how well short-notice notifications are avoided.

Risks and controls in demand planning

Planning errors have a direct impact on procurement costs and the ability to supply. Proven controls limit typical risks.

Typical sources of error

Common problems are outdated bills of materials, padded demand notifications with hidden reserves, a lack of coordination on design changes and insufficient consideration of supplier risks. Uncritical adoption of sales forecasts without plausibility checks also regularly leads to excess stock. What matters is a culture in which demand notifications are questioned rather than simply waved through.

Controls and escalation

Effective controls include regular parameter reviews, critical review of requirements below threshold values, ABC/XYZ analyses for classification and coordination rounds within Sales and Operations Planning. For imminent shortages, defined escalation levels apply, up to and including alternative sourcing. On the supplier side, supplier risk assessments and sanctions screening of suppliers provide additional safeguards, for example in the context of export control requirements – the specific implementation should be legally reviewed on a case-by-case basis.

Contractual safeguards

Planning certainty can be partly addressed contractually: framework agreements with call-off orders, defined delivery schedules and clear rules on quantity flexibility and lead times. Master Service Agreements (MSAs) and clear supplier quality objectives complement operational planning. When concluding and drafting such clauses, legal review is advisable on a case-by-case basis.

Current developments: digitalisation and volatility

Demand planning is changing noticeably due to data availability, AI methods and a volatile procurement market situation.

AI-supported forecasting

Modern forecasting methods use machine learning to identify patterns in consumption and market data that classical statistical models overlook. In practice, this typically improves forecast quality for complex item portfolios, while simple parts continue to be managed by rule-based disposition. What remains important: models are decision support, not a substitute for professional judgement.

Integrated planning and real-time data

Sales and Operations Planning connects demand and supply planning across functions; the trend is towards integrated business planning cycles with supplier signals included. Real-time data from production and logistics systems shortens response times to deviations. Transparency across supply chains – supported by supply chain analytics – is becoming a competitive factor.

Resilience alongside efficiency

Since the disruptions of recent years, many companies no longer plan only for minimum stock but deliberately for resilience: multi-sourcing strategies, strategic buffers for critical parts and contractual flexibility. Procurement marketing and systematic supplier segmentation help allocate critical requirements early to suitable suppliers. The balance between tied-up capital and supply security remains a management decision.

Typical metrics

Forecast accuracy: typically 70–95%

depending on item class; high for standard parts, lower for seasonal items

Delivery reliability: > 95%

common target level for supply-critical items

Share of urgent orders: < 5%

share of unplanned demand in total order volume

Inventory coverage: item-dependent, frequently 20–90 days

benchmark depending on replenishment lead time and criticality

Practical example

A medium-sized mechanical engineering company with around 15,000 actively procured items had recurring problems with urgent orders and a high C-parts inventory. Through a structured overhaul of demand planning, reorder point parameters were calibrated, ABC/XYZ analyses introduced, and monthly coordination between sales, production and procurement established. For critical long-running items, framework agreements with delivery schedules and call-off orders were concluded. Within one year, the share of unplanned urgent orders fell significantly, while the ability to supply was stabilised.

- Calibration of all reorder point and safety stock parameters based on stock issue analysis
- Introduction of monthly S&OP-style coordination rounds between sales, production and procurement
- Consolidation of individual requirements from several plants for targeted volume negotiations
- Establishment of a delivery schedule and call-off process with key suppliers for critical components

Conclusion

Demand planning is the foundation of efficient procurement: it translates sales and production plans into reliable procurement signals and thereby determines inventory, costs and the ability to supply. Good planning combines reliable data, clear roles and regular coordination among all parties involved. Digital tools increase speed and forecast quality, but do not replace professional judgement in critical demand cases. Companies that understand demand planning as a continuous process rather than a one-off task respond more robustly to market fluctuations. The typical starting point is inventory and forecast metrics plus the calibration of disposition parameters.

Frequently asked questions

What is demand planning in simple terms?

Demand planning is the systematic determination of which materials, parts and services a company requires, and when and in what quantities. It connects sales, production and procurement and provides the data basis for stock disposition and purchase orders. The goal is to ensure supply while avoiding unnecessary inventory.

What methods of demand planning are there?

Common methods are historical consumption-based planning, demand derivation from orders and bills of materials, and the reorder point procedure for stock-kept items. In addition, safety stocks, ABC/XYZ analyses and consolidated demand bundling are used. In practice, companies combine several methods depending on the item class.

What objectives does demand planning pursue in procurement?

The main objectives are ensuring the ability to supply, reducing inventory and tied-up capital, avoiding expensive urgent orders, and improving negotiating leverage through plannable volumes. It also creates transparency about future demand and enables early supplier selection and framework agreements.

What is the difference between demand planning and stock disposition?

Demand planning determines and quantifies future demand at strategic, tactical and operational level.

Stock disposition then converts this into concrete order proposals with quantity and date, among other things via the reorder point procedure. The two interlock, with disposition being more operationally oriented.

How can the quality of demand planning be measured?

Key indicators are forecast accuracy, delivery reliability, the share of unplanned urgent orders, inventory coverage and inventory turnover. Regular variance analyses show where planning effort has the greatest leverage. Benchmark values vary considerably by industry and item class.

What role does demand planning play in the S&OP process?

Within Sales and Operations Planning, demand planning and sales or production planning are aligned monthly. This creates consensus plans between sales, production and procurement and bottlenecks are identified early. Demand planning thereby provides the demand side of the reconciliation.