

Scheduling: on-time delivery as a steering metric in industrial procurement

Scheduling refers to the systematic definition, coordination and monitoring of dates along the procurement and manufacturing chain. In industrial procurement, it covers the planning of order, delivery, inspection and provisioning dates through to the timely provision of material in production. Functioning scheduling links procurement planning, materials management and supplier management and is therefore a central prerequisite for a stable material flow and the ability to deliver.

Key facts

- Scheduling coordinates order, delivery and provisioning dates along the entire value chain.
- In practice, the basis is often framework agreements, call-off schedules and backorder reports from suppliers.
- The key metric is on-time delivery, typically with target values above 95 to 98 per cent.
- Delivery dates are binding contractual content; deviations should be safeguarded contractually and procedurally.
- Digitalisation and predictive analytics enhance early-warning capability in the event of imminent schedule deviations.
- Scheduling is closely interlinked with sales and operations planning and procurement planning.

Definition: scheduling

Scheduling is the systematic definition of dates and time buffers for all procurement-relevant processes, from demand determination through order placement to goods receipt and production provisioning. It answers the questions of what must be available when and in what quantity, and which upstream steps must be initiated accordingly. In a B2B context, it is a core component of operational supply chain management.

Distinction from procurement planning

Procurement planning defines quantities, requirement periods and procurement strategies, while scheduling differentiates the time dimension: order date, confirmation date, delivery date, goods receipt date and provisioning date. The two disciplines interact: without sound demand planning, realistic scheduling is impossible, and without schedule monitoring, procurement planning remains a paper exercise.

- Procurement planning: what, how much, on what terms
- Scheduling: when, with which buffers, in which sequence

Position within the supply chain

Scheduling sits at the interface between customer demand, production control and the supplier base. It draws on sales and operations planning, the master production schedule and the materials

management data of ERP systems. For suppliers in DACH industry, binding call-off and schedule notifications are often a prerequisite for capacities to be reserved in time.

Binding nature of dates

Under procurement law, confirmed delivery dates are considered an essential part of the contract. Delays can trigger default and may be associated with rights such as contractual penalties or withdrawal. The specific legal situation depends on the individual case and the contractual design; buyers should have schedule frameworks, duties of cooperation and consequences of default reviewed in the framework agreement.

Methods and approach of scheduling

Field-proven scheduling combines forward and backward scheduling, defined buffer times and systematic schedule monitoring. It begins as early as the quotation phase and only ends with the posted goods receipt. Depending on the procurement situation, such as series demand or pre-series procurement, methodology and level of detail differ considerably.

Scheduling along the procurement process

The starting point is the requirement date from production or a project. From this date, calculation proceeds backwards: inspection times, transport times, packaging and dispatch, the supplier's production and procurement times as well as internal approval and processing times. In addition, safety time buffers are planned in, whose size depends on supplier risk, raw material price volatility and the criticality of the item.

- Backward scheduling from the requirement date
- Pre-population with lead, transport and inspection times
- Risk-appropriate safety time buffers per item criticality

Schedule alignment with the supplier

Dates, capacity commitments and notification processes should already be requested in the request for proposal (RFP). After contract award, confirmation dates, binding backorder reports and defined escalation paths are standard. For critical projects, it has proven worthwhile to link milestones such as run at rate or pre-series samples with dates and acceptance criteria before series call-offs are released.

Call-off and framework planning processes

In series production, framework agreements with rolling call-off schedules dominate: firm call-offs for the near-term period and forecast-based quantities for the wider planning horizons. Scheduling updates these call-offs periodically and reconciles them with suppliers' capacity notifications. In the preferred supplier environment, this often results in reliable supply chains with short response times.

Key KPIs of scheduling

Dates can only be managed if deviations are measurable. Key figures describe both supplier performance and the quality of one's own planning. Regular reviews, for example as part of a quarterly business review (QBR), use these figures as a shared basis for discussion.

On-time delivery and delivery reliability

On-time delivery measures the share of punctual deliveries out of all deliveries, often as a target value

above 95 to 98 per cent. It is extended into delivery reliability, which also incorporates quantity and quality conformity. In practice, reporting by supplier status and commodity group has proven effective, as different item classes justify different requirements.

Planning quality and inventories

In addition to on-time delivery, key figures such as the shortage rate, inventory coverage, planned and actual lead times and the number of short-notice date changes are relevant. High inventories often conceal poor scheduling; conversely, chronic expediting indicates insufficient buffers or unstable processes. Cost of poor quality (COPQ) can also rise due to schedule delays, for example through additional effort in manufacturing or customer penalties.

Risks and controls in scheduling

Scheduling is always subject to uncertainty: raw material shortages, capacity conflicts, transport problems or internal data errors jeopardise commitments that have been made. Effective control therefore requires early-warning systems, clear responsibilities and clean master data.

Typical causes of missed deadlines

Common causes are unrealistic lead times in the master data, a lack of capacity alignment, unclear technical requirements in the specification and drawing changes without schedule impact assessment. Incomplete unit and currency master data or poorly maintained records due to weak master data governance also lead to incorrect materials planning and thus to schedule deviations.

Controls and early-warning systems

Daily or weekly schedule monitoring lists with deviation thresholds, binding confirmation processes and clear escalation levels have proven effective. Open items are followed up until the supplier gives a binding commitment; the PO-flip process, i.e. converting a supplier confirmation into a purchase order, should automatically check for date and quantity deviations. For critical items, safety time buffers and alternative sources of supply provide support.

Contractual safeguards

Delivery dates, contractual penalties, duties of cooperation and notification obligations in the event of foreseeable delays should be governed contractually. A price adjustment clause can also stipulate how long quotations and dates remain binding in the event of raw material price volatility. Individual legal questions should always be reviewed by experts.

Current developments: digitalised scheduling

Scheduling is increasingly shifting from the static schedule list to data-driven, forward-looking management. Digital platforms, supplier portals and AI-supported forecasts are fundamentally changing the way buyers and planners work.

Predictive analytics and early warning

In practice, machine learning models assess, from historical data, supplier notifications and external signals, the probability of schedule deviations before they are officially reported. This enables earlier escalation and alternative materials planning, for example via the secondary supplier or adjusted lot sizes.

Collaboration platforms and supplier portals

Supplier portals allow suppliers to update dates and backlogs themselves; buyers confirm or escalate digitally. Coupled master data processes, such as the creation of vendor master records and defined data ownership, are a prerequisite for portal and ERP data to remain consistent.

Integration of sustainability and logistics

Scheduling increasingly also takes sustainability requirements into account: transport routes, supplier selection based on life cycle assessment (LCA) criteria or coordination with a preferred carrier for transport management. These factors influence lead times and must therefore be factored into scheduling.

Typical metrics

On-Time Delivery: > 95–98 %

typical target value by supplier and commodity group

Shortage rate: < 1 %

share of line items with missing material at the requirement date

Timely confirmations: > 95 %

share of purchase orders confirmed promptly with a binding date

Short-notice date changes: < 5 %

share of changes with less than one week's lead time

Practical example

A mid-sized mechanical engineering company with complex customer-specific systems suffered from recurring schedule delays with castings and long-lead components. Analysis revealed that lead times in the master data were outdated, supplier confirmations were not systematically followed up and safety buffers were set as flat-rate allowances.

- Introduced backward scheduling with risk-appropriate safety time buffers per item criticality
- Established binding confirmation and escalation processes, including PO-flip checks
- Evaluated schedule adherence and delivery reliability monthly by supplier status and discussed in the QBR
- Cleaned up lead times and master data as part of master data governance

Conclusion

In industrial procurement, scheduling is far more than maintaining date entries: it links demand planning, supplier management and manufacturing into a robust time logic. Those who operate scheduling systematically with reliable master data, clear buffers and measurable key figures reduce shortages, expediting costs and contractual risks. Digital developments reinforce this effect through early warning and collaboration. What remains decisive is the consistent follow-up of open dates and a joint performance review with suppliers. In this way, scheduling evolves from an administrative by-product into a genuine steering metric for delivery capability.

Frequently asked questions

What does scheduling mean in procurement?

Scheduling in procurement refers to the definition and monitoring of all procurement-relevant dates, from the purchase order through delivery to production readiness. It coordinates lead times, transport and inspection times as well as safety buffers. The goal is to have material available at the required date.

How do you create a procurement schedule?

The starting point is the requirement date from production or a project. From there, a backward scheduling process runs through all process steps: internal processing, supplier production, transport, goods receipt and inspection. Safety buffers are then added and dates are agreed with suppliers on a binding basis.

What is the difference between on-time delivery and delivery reliability?

On-time delivery measures solely whether deliveries arrive on the agreed date. Delivery reliability additionally includes quantity and quality conformity. Both key figures should be evaluated separately, as a supplier can deliver on time but with incorrect quantities.

How large should safety time buffers be in procurement?

The size of the buffer depends on supplier risk, item criticality and planning stability; in practice, several days to a few weeks are typical for critical or long-lead items. Standard items with stable supply require significantly less buffer. It is important to set buffers deliberately and review them periodically.

Which key figures are relevant for scheduling?

Core metrics are on-time delivery and delivery reliability, supplemented by the shortage rate, inventory coverage, the number of short-notice date changes and deviations between planned and actual lead times. These figures should be evaluated by supplier and commodity group. Regular supplier reviews use them as a basis for steering decisions.

What to do about recurring delivery date delays?

First, the causes should be analysed: master data, capacity alignment, process discipline in order confirmations or ambiguities in the specification. Subsequently, binding notification processes, escalation levels and, if necessary, contractual consequences help. For structural problems, the development of alternative sources of supply is recommended.