

Delivery reliability: the KPI for dependable delivery dates in supplier management

Delivery reliability denotes the proportion of deliveries that arrive at the customer on the agreed date or within the agreed delivery window. It is one of the key performance indicators in supplier management and frequently feeds into supplier evaluations and bonus-malus systems. For buyers, it is an early indicator of supply difficulties, inventory build-ups and production risks. This article explains the definition, measurement, assessment and management of delivery reliability from a buyer's perspective.

Key facts

- Delivery reliability typically measures the proportion of on-time deliveries out of all deliveries from a supplier.
- In practice, a delivery reliability of at least 95 to 98 per cent is often regarded as acceptable, depending on the industry and the criticality of the material.
- Measurement requires a clear definition of the reference date, e.g. goods receipt date rather than dispatch date.
- Delivery reliability is usually combined with quantity reliability in supplier evaluations, often as delivery service level or OTD/OTIF.
- Missing or early-delivered items likewise reduce the KPI in most approaches.
- Systematic measurement of delivery reliability presupposes sound master data and uniform date coordination with suppliers.

Definition: delivery reliability

Delivery reliability is the percentage KPI for the proportion of deliveries that meet the agreed date. It belongs to the family of delivery performance KPIs and is a core element of operational supplier evaluation.

Distinction from delivery performance and OTIF

In practice, these terms are sometimes used synonymously and sometimes differentiated. Delivery reliability generally considers only the timing aspect, whereas delivery performance additionally includes quantity reliability. The internationally established term OTIF (On Time In Full) combines both dimensions: on time and in full. Anyone wishing to compare suppliers should establish a uniform definition within supplier management, as divergent interpretations lead to conflict.

Reference date and tolerance window

The reference date can be the supplier's dispatch date, the estimated arrival date or the actual verified goods receipt. Assessment at goods receipt is customary, as this is where the benefit to the customer arises. A tolerance window of one to two days is frequently defined; just-in-time delivery concepts, by contrast, often tolerate only hours. In some definitions, quantities delivered to the gate count as

delivered only upon acceptance.

Methods and approach for measuring delivery reliability

A meaningful delivery reliability measurement stands or falls with the data basis. It requires defined target dates in the purchasing system, consistently maintained order confirmations and systematic evaluation at item level.

Data sources and master data quality

The basis is purchase order items with firm target dates together with supplier confirmations. Poor data quality quickly distorts the KPI: unconfirmed dates, subsequent date changes without coordination or duplicates in the supplier master render comparisons worthless. Metrics such as a Data Quality Score or Data Quality KPIs help to verify the robustness of the evaluation before statements are made about individual suppliers. A duplicate score in the supplier master also prevents the same delivery from being counted twice in the evaluation.

Calculation at item or order level

Calculation at purchase order item level is customary: on-time items divided by all items in the period. Alternatively, the assessment is carried out per delivery or per order. The aggregation level should match the procurement structure, for example with framework contracts and call-off orders. It is important to treat partial deliveries consistently and to exclude cancellations cleanly from the base quantity, for example following a cancelled purchase order.

Tolerance windows and exception rules

Many companies define graduated tolerances: strict for production-synchronised materials, more generous for C-parts classified by ABC-XYZ analysis. Force majeure, extended material lead times or date changes caused by the buyer itself should be documented and assessed in accordance with a defined rule set. Without such exception rules, acceptance of the KPI among suppliers declines.

Key KPIs surrounding delivery reliability

Delivery reliability does not operate in isolation but in conjunction with further supply KPIs. Only the combination of several metrics shows whether a supplier delivers reliably, flexibly and predictably.

OTIF, quantity reliability and delivery service level

In addition to delivery reliability itself, the OTIF value, quantity reliability and the delivery service level (usually defined as service level or fill rate) are the most important accompanying KPIs. A supplier can deliver on time but in the wrong quantity – or vice versa. In supplier evaluations, a supplier PPM target for quality is frequently added, so that an overall picture emerges covering dates, quantities, quality and price conformity.

Delivery reliability in the supplier portfolio

Suppliers with poor delivery reliability and simultaneously high procurement risk – typical of single sourcing – require immediate action. Under dual sourcing, the KPI can be deliberately used as a control variable in order allocation: more reliable sources receive a proportionally larger share of the volume. Delivery reliability from history should also be included as an evaluation criterion in a tendering strategy or reverse auction, not merely price.

Making follow-up costs visible

Poor delivery reliability generates costs that rarely appear in the supplier account: increased safety stock, multiple checks, express freight and downtime. Anyone who roughly monetises these figures can argue persuasively in supplier discussions. Even when other projects show negative results – for instance when savings leakage wipes out part of the savings – demonstrating that delivery disruptions cause real costs is helpful.

Managing delivery reliability: measures in supplier management

Delivery reliability can be managed, but rarely through chasing letters alone. What works is a mix of contractual instruments, joint planning and systematic clarification of causes.

Contractual and commercial levers

Contracts can define delivery windows, notification deadlines and, for raw material prices, a raw material sliding price clause in order to keep price discussions separate from date issues. Payment mechanisms such as reverse factoring can, when used correctly, also create incentives to reward sound processes, but they do not replace operational date tracking. Escalation levels and defined responsible persons accelerate the resolution of repeated cases.

Planning and capacity transparency

Many missed dates on the supplier side arise from overloading. Rough Cut Capacity Planning (RCCP) across the supplier, supplemented by agreements on safety capacity for critical parts, creates predictability on both sides. Regular open-order reconciliations, clear delivery concepts and standardised delivery time slots reduce friction at goods receipt. When using 3PL providers, responsibility for the interface for delivery date data must be clearly regulated.

Requirements management and structure

Unclear requirements lead to avoidable date conflicts. Precisely specified requests for quotation with realistic lead times, defined processes for delivery date changes and a supplier code of conduct that demands dependability and notification obligations act structurally. Suppliers with a sustainable orientation, such as those with SBTi targets, frequently also invest in process digitalisation – which can have a positive long-term effect on date reliability.

Current developments: delivery reliability in a digital and disruptive environment

Supply chain uncertainties, material shortages and increasing digitalisation requirements are changing how delivery reliability is measured and managed. The KPI remains relevant but gains context.

Automated data capture

EDI-, API- and portal-based delivery date confirmations as well as automatic settlement procedures such as self-billing presuppose sound delivery date data. Automatic spend classification and clean commodity group logic make it easier to evaluate delivery reliability not only by supplier but also differentiated by category. This allows targeted measures to be derived, for example for contract manufacturing services or standard parts.

Turbulence and forecasting capability

Raw material shortages, logistics disruptions and ocean freight cost components, which can fluctuate rapidly, shift realistic target dates. Modern approaches combine backward-looking delivery reliability measurement with forward-looking indicators such as order confirmation rate, lead time deviations or early-warning levels in procurement controlling. Delivery reliability remains the core, but is complemented by early-warning signals.

Delivery reliability in supplier development

Increasingly, the KPI is used not merely as a screening tool but as a development instrument: joint improvement projects, target agreements and recurring business reviews address the causes. Buyers who systematically prepare delivery reliability data negotiate from a stronger position – particularly regarding follow-up costs that would otherwise remain invisible to the customer.

Typical metrics

Delivery reliability: > 95 %

Common minimum target; typically 98 % or higher for critical parts

OTIF: > 95 %

Combines delivery date and quantity reliability; stricter targets for JIT delivery

Tolerance window: 1–2 days

Usual guideline; often only hours for production-synchronised supply

Order confirmation rate: > 98 %

Proportion of dates confirmed in good time; an early indicator of delivery reliability problems

Practical example

A medium-sized mechanical engineering company with around 400 active suppliers repeatedly experienced bottlenecks with purchased parts, even though average delivery reliability according to its evaluations stood at 96 per cent. Closer analysis revealed that critical individual parts from an A-supplier arrived late only rarely but with serious consequences, while standard parts ran reliably. The company introduced a differentiated evaluation based on ABC-XYZ analysis.

- Introduction of a tolerance window of one working day for production-critical parts and two working days for C-parts
- Monthly delivery reliability evaluation at item level with an automated exception catalogue for confirmed delivery date changes
- RCCP discussions with the five most critical suppliers plus an agreement on safety capacity for long-lead-time components
- Inclusion of delivery reliability in the supplier's PPM target and in the bonus-malus arrangement of the supplier contract

Conclusion

Delivery reliability is more than a statistic about late deliveries: it makes the dependability of the entire supply chain measurable and creates a common, fact-based basis for discussion with suppliers. What is decisive is a consistent definition of the reference date, tolerance window and exceptions – otherwise conflict arises instead of control. Combined with quantity reliability, quality and cost, it produces a

balanced picture of supplier performance. Those who measure the KPI systematically, clarify causes jointly and consistently embed it in supplier development and procurement strategy sustainably reduce inventory, emergencies and downtime risks.

Frequently asked questions

How is delivery reliability calculated?

The typical rule is: $\text{delivery reliability} = \text{on-time delivery items} / \text{all delivery items in the observation period} \times 100$. The reference point is usually goods receipt, often with a defined tolerance window of one to two days. What matters is that the definition and exceptions (such as delivery date changes caused by the customer or a cancelled purchase order) are bindingly documented.

What is good delivery reliability?

In practice, a delivery reliability of at least 95 per cent is considered acceptable, while 98 per cent or more is often expected for critical or just-in-time products. The target value depends on the industry, material criticality and procurement strategy. More important than the absolute value is the trend and the comparison with similar suppliers.

What is the difference between delivery reliability and OTIF?

Delivery reliability considers only the timing aspect of the delivery, whereas OTIF (On Time In Full) combines punctuality with complete quantity and item conformity. A punctual partial delivery is therefore on time but not OTIF-compliant. OTIF has become established for supplier evaluations because it reflects the impact on the customer more realistically.

What are the consequences of poor delivery reliability for procurement?

Possible consequences include increased safety stock, expensive express freight, production interruptions and additional effort in materials planning and goods receipt. In the long term, planning certainty for manufacturing and sales also suffers. Buyers should quantify the follow-up costs in order to argue persuasively in supplier discussions and escalation processes.

How can supplier delivery reliability be improved?

Effective measures include clearly defined delivery windows and notification obligations in the contract, regular open-order reconciliations, capacity planning with critical suppliers and structured root cause analyses in the event of repeated deviations. Your own data quality – clean target dates and consistently confirmed delivery dates – is also crucial. Escalation levels and, if necessary, volume shifting under dual sourcing complement the toolkit.

Does delivery reliability form part of supplier evaluation?

Yes, in most supplier evaluation systems delivery reliability is one of the logistics criteria and is usually combined with quantity reliability into a delivery performance score. It is typically weighted alongside quality (e.g. PPM), price and service. The specific weighting should reflect the criticality of the commodity group.