On-Time Delivery (OTD): Measuring, managing and sustainably improving delivery reliability

On-Time Delivery (OTD) refers to a supplier's ability to meet agreed delivery dates and is usually measured as the percentage of orders delivered on time. For buyers and supply chain managers, OTD is one of the most important KPIs for assessing delivery performance, as delivery reliability directly affects production planning, inventory levels and customer commitments. The term is often used synonymously with delivery performance or schedule adherence, although different numerator and denominator definitions exist in practice.

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Key facts at a glance

01 OTD typically measures the proportion of order line items that arrive within the agreed time window or exactly on the agreed date.

02 In practice, OTD values of at least 95 per cent are considered acceptable; in automotive and volume production, 98 per cent or more is common.

03 Measurement presupposes a binding, agreed delivery date – without a clean date agreement, OTD is not reliable.

04 On-Time-In-Full (OTIF) extends OTD to include fill rate and is the more relevant KPI for volume and just-in-time production.

05 Causes of poor OTD often lie not only with the supplier, but also in unclear demand specifications, late changes and poor discipline within one's own organisation.

06 OTD is a key input for supplier evaluation, supplier selection and escalation processes in supplier management.

Definition: On-Time Delivery (OTD)

On-Time Delivery describes the alignment between the agreed and the actual delivery date. The KPI is usually formed as the ratio of punctually delivered line items or orders to the total number of deliveries

assessed in the period under review. It is one of the standard KPIs of supplier evaluation and closely related to delivery performance, which can additionally include quality and quantity aspects.

Distinction from OTIF, delivery performance and schedule adherence

On-Time Delivery considers only the date; whether the delivered quantity was complete and defect-free is initially disregarded. On-Time-In-Full (OTIF), by contrast, combines delivery reliability with fill rate and is regarded in volume production as the stricter and more meaningful measure. The term 'delivery performance' is used inconsistently in practice: sometimes it means only OTD, sometimes the overall picture of date, quantity and quality. Buyers should therefore define bindingly, both internally and with suppliers, which KPI is meant – otherwise disputes over target achievement may arise from differing measurement logics.

Objects of measurement: order, line item or goods receipt

OTD can be measured at customer order, order line or goods receipt level. The line-item view is most common, as it accurately captures partial deliveries. Defining the target time window is important: many companies accept a tolerance of typically zero to a few days before or after the date, whereas in just-in-time environments often only the exact day counts. The reference point is either the supplier's confirmed date or the originally requested requirement date – both approaches are legitimate, but they measure different things.

Methods and procedures for OTD measurement

A robust OTD measurement requires less effort in reporting than discipline in the master data and processes upstream. The calculation itself is a simple ratio; the quality of the KPI stands or falls with the quality of the underlying dates and postings.

Define the delivery date as the measurement anchor

Before the first evaluation, it must be clarified which date applies: the originally requested date from the purchase requisition, the date agreed as part of the ordering process, or the date confirmed by the supplier. The confirmed date is common practice, supplemented by a separate KPI for date deviation between request and confirmation, in order to make so-called date gaming by the supplier visible. Without this distinction, suppliers can cosmetically improve their OTD score through subsequent date shifts.

Data basis: goods receipt, purchasing and ERP

Measurement is usually automated from the ERP system by comparing order date, confirmed date and goods receipt posting. A prerequisite is a clean goods receipt process in which incoming data is recorded promptly and completely. Manual post-processing should be avoided. For part-level analysis, ensure correct assignment to the order line; residual quantities from partial deliveries must not be lost, otherwise the picture is distorted.

Review period and aggregation levels

Rolling monthly or quarterly reviews are common, supplemented by a twelve-month trend analysis. Aggregation is typically by supplier, delivering plant, material group or commodity group – the assignment to commodity groups is often carried out as part of category management. For strategic suppliers, a joint monthly date review is recommended, in which deviations are qualified and root causes are clarified in dialogue before KPIs feed into formal evaluations.

Key KPIs relating to delivery reliability

OTD is rarely meaningful in isolation. Only in combination with quantity, quality and responsiveness KPIs does a reliable picture of supplier performance emerge, which can also be used for supplier selection and contract management.

OTIF and fill rate

On-Time-In-Fe links delivery reliability with complete delivery of the confirmed quantity. A supplier can shine with 100 per cent OTD yet fall away sharply on OTIF if they systematically deliver in two partial shipments. In volume and supply contexts, OTIF should therefore be measured at least in parallel with OTD. In addition, the partial delivery rate is a good early indicator of process weaknesses at the supplier.

Date confirmation quality and response times

Alongside actual delivery reliability, it is worth examining how reliably suppliers confirm dates: how often does the confirmation deviate from the requested date, how quickly is the order confirmation issued at all, and how often are dates subsequently shifted? These KPIs show whether a supplier can realistically plan their own availability. Methods such as Available to Promise (ATP) on the supplier side, or Demand Sensing and Demand Planning on the customer side, improve the data basis for realistic commitments on both sides.

OTD in the context of quality and cost

Delivery reliability should never be evaluated in isolation from quality. A supplier who delivers on time but has high scrap rates – evident from a low First Pass Yield (FPY) rate – merely shifts problems into quality assurance. In supplier evaluation, it has proven effective to consolidate OTD with quality KPIs, price analysis and further soft factors into an overall score that serves as the basis for award decisions, supplier development measures or a change of supplier.

Risks and controls: causes of poor OTD

Low OTD values in practice usually have several causes at once – at the supplier, within one's own organisation and at the interface. Effective measures therefore start with systematic root-cause analysis, not immediately with sanctions.

Causes at the supplier

Typical supplier-side causes include overbooked capacities, lack of material availability at sub-suppliers, inadequate production control and late, unannounced date changes. Lack of transparency about one's own production progress also plays a role. Here, agreements on binding reporting cycles, tracking of open items and – for structural problems – joint improvement projects up to a change of supplier help, if the causes cannot be remedied.

Causes within one's own organisation

Often the problem starts at home: unclear or short-notice requirement changes, late purchase requisitions, missing demand analysis or insufficient demand consolidation lead to unrealistic dates. Errors in material planning, inconsistent master data or poor demand planning also create date chaos that the supplier cannot resolve. An honest analysis of one's own processes should therefore always be the first step in any OTD improvement.

Contractual and operational controls

Contractually, delivery reliability can be safeguarded through service level agreements, delivery window provisions, contractual penalties and escalation levels; however, the enforceability of contractual penalties should always be reviewed legally on a case-by-case basis. Operationally, regular supplier evaluations with documented meetings, clear consequence paths in the event of persistent non-compliance and complete documentation of deviations including root cause and agreement have proven effective. In cross-border procurement, logistical and documentary risks are added, such as delayed customs clearance or missing papers such as the certificate of origin.

Current developments: OTD in digital supply chains

Expectations of delivery reliability are rising, while supply chains are becoming less predictable at the same time due to global disruptions, volatility and increasing customisation. Digitalisation and forecast-based methods are significantly changing OTD management.

Forecast-based date planning

Dynamic methods are gaining importance over static replenishment lead times. Demand Sensing uses current demand signals to plan short-term requirements more realistically; modern Demand Planning combines statistics with market signals. More realistic demand leads to more realistic date requests – and thus to measurably achievable dates. The interplay with availability checking via Available to Promise (ATP) also becomes closer as suppliers share capacity and availability data.

Automated monitoring and early warning

Digital platforms and supplier portals enable continuous monitoring of open orders, including automatic early warning of impending date deviations. Instead of reacting retrospectively in a monthly report, buyers can intervene proactively – for example through re-allocation, alternative sourcing or joint prioritisation with the supplier. Clean master data management remains a prerequisite, including in

supplier master record creation, since incorrect supplier data also distorts the KPIs.

OTD as part of integrated supplier development

In strategic partnerships, OTD shifts from a control KPI to a joint improvement objective. Formats such as co-development early in product development or a structured design sprint for process optimisation address root causes before they manifest as date problems in series production. Localising suppliers also reduces transport risks and, in many cases, improves delivery reliability, albeit with compromises on cost.

Typical metrics

Metric	Typical value
OTD rate	> 95 % *General practical benchmark; in volume production often 98 % or more*
OTIF rate	> 95 % *Delivery reliability plus fill rate; stricter KPI for JIT environments*
Partial delivery rate	< 5 % *Early indicator of process weaknesses at the supplier*
Date change rate	< 3 % *Proportion of subsequent date changes; reflects the supplier's planning quality*
Confirmation time	< 48 hours *Usual benchmark for order confirmation in volume production*

Practical example

A mid-sized mechanical engineering company with around 400 active suppliers found during its annual supplier evaluation that the OTD rate of key suppliers of serial components was significantly below the internal target. Production suffered from spontaneous changeovers and the warehouse built up precautionary buffer stocks as a result. A structured analysis revealed that around half of all date deviations originated from subsequent date changes within the company's own organisation and unrealistic requirement dates from material planning.

- Binding definition of OTD and OTIF with uniform measurement rules in the ERP system
- Weekly open-items meeting with the ten most critical suppliers, including root-cause documentation
- Introduction of binding confirmation deadlines and escalation levels in the terms and conditions of purchase based on the standard terms
- Adjustment of supplier evaluation: increased OTIF weighting, with consequences up to re-tendering

of affected parts

Conclusion

On-Time Delivery is more than a reporting KPI: it reveals how reliably the entire value chain can meet dates. OTD only becomes meaningful with clearly defined measurement rules, clean master data and honest root-cause analysis on both sides of the business relationship. Combined with OTIF, quality KPIs and date confirmation quality, it yields a reliable picture of supplier performance. Companies that manage OTD systematically reduce buffer stocks, stabilise their production and strengthen their ability to deliver to end customers. Those who use the KPI merely as a stick, by contrast, create sophistical disputes instead of genuine improvement.

Frequently asked questions

? What does On-Time Delivery (OTD) mean?

On-Time Delivery describes the delivery reliability of shipments, i.e. the ratio of punctually delivered order line items to the total number of deliveries within a period. The KPI is expressed as a percentage and is one of the standard measures in supplier evaluation. Comparability depends crucially on a uniform definition of the due date and any tolerance window.

? How is the OTD rate calculated?

The OTD rate is calculated by dividing the number of punctually delivered line items by the total number of delivered line items in the period under review, multiplied by 100. The confirmed delivery date is usually used as the reference date; some companies use the requested requirement date. What matters is the consistent application of one definition across all suppliers.

? What is a good OTD value?

In practice, OTD values of around 95 per cent or more are considered acceptable; in automotive and volume production, 98 per cent or more is common. However, the target value depends on the industry, the criticality of the material and the delivery concept. More important than the absolute value is the trend, as well as the combination with fill rate and quality.

? What is the difference between OTD and OTIF?

OTD measures only delivery reliability, whereas OTIF (On-Time-In-Full) additionally measures whether the complete confirmed quantity was delivered. A supplier can score excellently on OTD yet perform considerably worse on OTIF if they frequently deliver in partial shipments. For volume and just-in-time production, OTIF is generally the more meaningful KPI.

? How can supplier delivery reliability be improved?

Successful approaches combine realistic demand planning, binding date confirmations, regular alignment with critical suppliers and consistent escalation in the event of persistent deviations. Joint root-cause analysis is essential, as many problems stem from unclear requirements or late changes

within one's own organisation. Where structural, irreparable weaknesses exist, re-tendering or switching suppliers remains the last resort.

? What role does OTD play in supplier evaluation?

OTD is one of the most frequently weighted KPIs in operational supplier evaluation, typically alongside quality, price and service. It feeds into award decisions, framework agreement extensions and supplier development measures. A combination with OTIF and quality KPIs has proven effective in order to avoid one-sided incentives.

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