

Cargo ship sailing across the sea with containers on board.

Reliable delivery dates with standard delivery times

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Setting reliable delivery dates the easy way

A reliable delivery date doesn't always have to be the result of a complex planning system. With carefully chosen standard times for each order category, you can quickly and easily make reliable delivery commitments – provided you take account of variations, flexibility and rush orders.

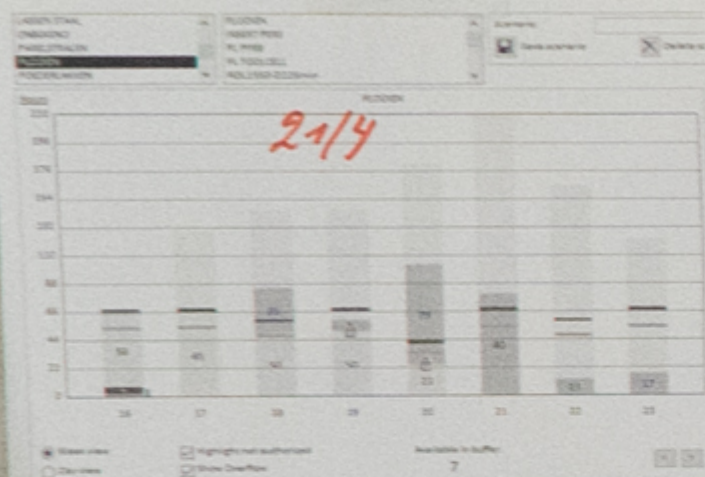
In [the first article](#) in this series, we discussed three principles for better planning: make delivery reliability the starting point, don't treat rush orders as exceptions and choose the simplest capacity model that works. In this article, we apply these principles to the simplest method of working out delivery dates: using standard delivery times.

This method establishes a standard delivery time in advance for each order category. The delivery date is then calculated directly from the order date:

Delivery date = order date + standard delivery time

This method requires little planning. The sales or order administration team can usually set the delivery date themselves, without having to consult the planner for every order. Standard delivery times can be very reliable, provided they are calculated correctly.

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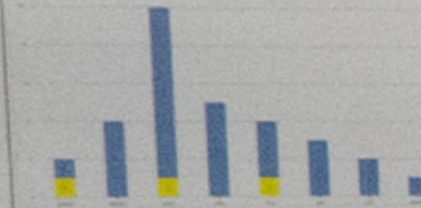
TER KENNIS GESTE
ALLE PMC MEDEWI

KVALITÄTSANALYSE DER

Annual NCR per Cell



aantal NCR per maand



NPI QUALITY	2019	2020	2021	2022
Accounting of NPI	98%	97%	98%	100%
Accounting of NPI - Cash	98%	97%	98%	100%
Accounting of NPI - Debt	98%	97%	98%	100%
Accounting of NPI - Equity	98%	97%	98%	100%
Accounting of NPI - Other	98%	97%	98%	100%
Accounting of NPI - Total	98%	97%	98%	100%
Accounting of NPI - Cash	98%	97%	98%	100%
Accounting of NPI - Debt	98%	97%	98%	100%
Accounting of NPI - Equity	98%	97%	98%	100%
Accounting of NPI - Other	98%	97%	98%	100%
Accounting of NPI - Total	98%	97%	98%	100%
Accounting of NPI - Cash	98%	97%	98%	100%
Accounting of NPI - Debt	98%	97%	98%	100%
Accounting of NPI - Equity	98%	97%	98%	100%
Accounting of NPI - Other	98%	97%	98%	100%
Accounting of NPI - Total	98%	97%	98%	100%

How do you determine a reliable standard delivery time?

One set delivery time for all orders is rarely a good idea. A standard product, a complex bespoke order and an order requiring special materials will generally have different lead times. The solution is to group orders into a small number of categories with similar lead times. A specific delivery time is then worked out for each category.

The categories must be sufficiently homogeneous. If some orders in a category take five days to fulfil and others take fifty days, it is impossible for a single standard delivery time to be both short and reliable. Subdivision may make sense in such cases, but don't create a new category for every minor difference. The strength of this method lies precisely in its simplicity.

Principle 1: Make delivery reliability the starting point

Standard delivery times are often determined on the basis of experience: 'We usually deliver orders like this within three weeks'. But what does 'usually' mean? Is the deadline met in 50, 80 or 95% per cent of cases?

If you want to make a reliable delivery commitment, you therefore first need to determine exactly how reliable you want to be. You can then derive the right standard delivery time from historical data.

To do this, collect data on the actual lead times achieved for each category, preferably over a period at least one year. First, work out the median: half of the orders were processed more quickly and the other half more slowly. The median provides a good indication of the typical lead time and is not greatly affected by outliers.

Next, work out the lead time that corresponds to the delivery reliability you want to achieve. If you are aiming for 95% per cent delivery reliability, you should choose the 95th percentile: the time within which 95% per cent of orders were completed.

Suppose the median is 10 working days, but 95% per cent of orders were completed within fifteen working days. The standard delivery time is fifteen days, and the five-day difference is the safety margin:

$$\text{Standard delivery time} = \text{typical lead time} + \text{safety margin}$$

The safety margin isn't an arbitrary figure, therefore. It is based on the desired delivery reliability and the actual spread of lead times.

If the calculated delivery time is too long from a commercial point of view, it's no use simply promising a shorter safety margin. Instead, look at why the spread is so wide. Perhaps the categories are too broad, production is overburdened or the capacity is unable to adapt sufficiently to changes in demand.

Principle 2: Treat rush orders as a separate category

Even in a system with standard delivery times, some customers will want their orders delivered more quickly. Where such orders occur regularly, they should not be treated as an unexpected exception each time.

If rush orders are systematically given priority, their lead time will be reduced, but standard orders will have to wait longer. Kleinrock demonstrated an interesting conservation law in this regard: if the total load and capacity remain constant, the average queue time, weighted by workload share, remains the same. For example, if rush orders account for 10% per cent of the total workload, reducing the lead time by nine days for these orders will, on average, result in one additional day's lead time for the remaining 90% per cent of the workload.

A robust approach involves treating rush orders as a separate priority category, with clear acceptance rules. We then work out a specific standard delivery time for both rush and standard orders, based on their historical lead time distribution and the desired reliability. For example, a company could aim for 95% per cent delivery reliability for both rush and standard orders, but with different delivery times.

The proportion of rush work must be sufficiently stable here. A system designed to handle 10% per cent rush work will not continue to function properly if 25% per cent of the workload is suddenly classified as rush. It is therefore necessary to clearly define which orders are accepted as rush.

In addition, don't just look at the number of orders, but above all at their share of the workload. A few large rush orders can have a much greater impact than a large number of small orders.

A box of express cargo

Principle 3: Go for simplicity

Standard delivery times are perhaps the simplest way to guarantee delivery dates. There is no need for detailed planning of machinery and operations: a small number of clear order categories and standard delivery rules are sufficient. However, be sure to check periodically whether each category is still achieving the desired delivery reliability. If not, adjust the lead time or the categorisation, or address the cause of the increased variation.

Flexibility makes standard delivery times reliable

Standard delivery times work best when demand is relatively stable or when production can respond flexibly to fluctuations.

When demand rises temporarily, capacity must be able to adapt quickly enough. Otherwise, a backlog will build up and it will become increasingly difficult to meet the standard delivery times. It must also be possible to cope with changes in the product mix without certain product categories becoming bottlenecks.

Flexibility therefore helps to restrict the spread of lead times. The more stable the lead times, the less safety margin is required.

In the Sirris article '[Five ways to increase flexibility in manufacturing companies](#)', we discuss how factors such as adjustable capacity, shorter changeover times, cross-training, digitalisation and manageable product variation can help achieve this.

Conclusion

Reliable delivery dates don't always require a complex planning system. With carefully chosen standard delivery times, you can easily make reliable commitments. The key lies in realistic order categories, sufficient safety margin and flexibility. If demand grows too volatile, a different approach is needed.

In the next article, we will therefore look at how you can determine reliable delivery dates in environments characterised by significant fluctuations in demand.

Would you like to know what approach is best suited to your production environment?

Sirris helps you to analyse your delivery reliability and improve your planning approach. Get in touch and work with our experts to find out what steps will make the biggest difference to your business.

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Authors



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