

Parameter maintenance (MRP): master data quality as the foundation of materials planning

Parameter maintenance (MRP) refers to the ongoing checking and updating of planning parameters in materials management and ERP systems, in particular the MRP parameters such as MRP type, procurement type, reorder point, lot size and lead times. It ensures that demand determination, order proposals and stock management reflect the actual procurement and production situation. For buyers and supply chain managers, it is a central instrument for sustainably controlling stock levels, delivery capability and release effort.

Key facts

- Parameter maintenance typically covers around 10–20 MRP fields per material, including MRP type, lot-sizing procedure, replenishment lead time and safety stock.
- In practice, incorrect MRP parameters frequently cause unnecessary stock, unplanned stock transfers and expedite orders.
- A rolling maintenance approach often proves successful, with A materials reviewed quarterly and C items annually.
- System-supported analyses such as exception lists and simulation runs are increasingly replacing manual field checks.
- Parameter maintenance has a direct impact on KPIs such as stock coverage, First Pass Yield (FPY) in planning and On-Time In Full (OTIF).

Definition: parameter maintenance (MRP)

Parameter maintenance (MRP) is the systematic review, updating and documentation of all material-related master data that controls planning within Material Requirements Planning (MRP). It belongs to operational master data management and links procurement, production and logistics.

Core parameters at a glance

The parameters typically maintained include MRP type and planning parameters, procurement type (in-house production, external procurement, manual purchase, reorder point planning), lot-sizing procedure, replenishment and processing lead time, safety stock, setup time overlap and ABC indicator. Planning relevance (e.g. mass maintenance indicator or planning on demand) and inspection exemptions for the AQL sample in goods receipt inspection are also frequently maintained alongside.

- MRP type and procurement type
- Lot size and rounding rules
- Replenishment lead time including buffers
- Safety stock and service level target

Distinction from master data maintenance

Master data maintenance covers the entire material profile – short texts, dimensions, customs tariffs, sustainable packaging group or life cycle data. Parameter maintenance (MRP) picks out the planning-relevant fields from this and treats them as a distinct process with its own responsibilities, cycles and quality criteria. In smaller organisations both tasks coincide; in larger structures they are often separated by responsibility.

Methods and procedure of parameter maintenance

An effective process combines event-driven triggers (new creation, series change, supplier change) with rolling maintenance cycles and systemic analyses. A clear allocation of roles between planning, procurement and master data management is crucial.

Event-driven versus rolling maintenance

Parameters are changed on an event-driven basis when a material is newly created, the source of supply changes, lot sizes shift or the business partner reports new delivery times. On a rolling basis, many companies review all A and B items at intervals of six to twelve months; C items often remain subject to an annual collective check. The events are documented to preserve traceability and procurement compliance.

Data-driven analysis and simulation

Rather than looking at fields in isolation, more mature organisations use evaluations of stock coverage, consumption, open order proposals and parts shortages. Simulation runs in the planning run or in the data lake show how a changed lot size or adjusted safety stock affects stock levels and shortages. This allows mis-steering to be identified before it takes effect – for example when capacity messages in Capacity Planning persistently run against current lead times.

Exchange with suppliers and internal interfaces

Correct lead times and minimum order quantities are established in dialogue with the source. In supplier meetings or in supplier evaluation based on defined supplier evaluation criteria, realistic replenishment times, quantity scales and call-off behaviour are agreed. For framework contracts with delivery schedule call-offs, well-maintained parameters optimise the coordination between forecast bands and firm call-offs.

Key KPIs for controlling parameter quality

The effect of parameter maintenance can be measured. Sensible metrics link stock, service and process quality and reveal weaknesses in planning before they show up in procurement or supply chain KPIs.

Stock and service metrics

Key figures are stock coverage, stock freshness, safety stock adherence and the delivery service level towards production. On the customer side, parameter maintenance has an impact via On-Time In Full (OTIF). In practice, high levels of stock transfers or expedite orders often indicate incorrect lot sizes or lead times.

Process and quality metrics

On the process side, what count are the number of materials reviewed per period, the error rate in exception lists and the share of manually corrected planning proposals. Analogous to First Pass Yield (FPY) in manufacturing, a 'planning FPY' can be defined: the share of demand planning runs without manual correction. In addition, cost centre reporting in procurement and budget deviations in the procurement business plan show whether parameter changes are keeping to the planned material cost development.

- Planning FPY (share of correction-free runs)
- Number of exceptions per 1,000 materials
- Stock coverage versus target

Supplier-related evaluations

Parameters and supplier performance are closely linked: lead times maintained too optimistically mask delivery problems, while overly pessimistic ones obscure potential. Linking MRP parameters with the supplier's OTIF data shows where maintenance or supplier development should step in.

Risks and controls in parameter maintenance

Incorrect parameters are often invisible until they show up in stocks, parts shortages or budget deviations. Clear controls, governance and documentation significantly reduce this risk.

Typical error patterns

Common weaknesses include lead times unchanged for decades, duplicate structures with parallel planning records for the same material, oversized lot sizes based on historical quantity scales and missing deletion flags for phase-out items. A lack of alignment between safety stock and the actual degree of demand fluctuation also regularly leads to stock build-up.

Governance and approval processes

A change logic has proven its worth in practice: changes to critical parameters are requested, provided with a justification, checked by a second instance and only then released. Change records document who, when and why. Where there are externally relevant effects – for example on agreed delivery commitments or warranty agreements – it is sensible to coordinate with procurement and quality management before release.

Legal and contractual dependencies

Parameters influence which quantities and dates are called off on a binding basis. If reorder points or lead times are set unrealistically, delivery shortfalls, delays or conflicts over the limitation of liability for late deliveries loom. In international procurement – for example with Incoterms CIF or FCA – well-maintained lead times also influence schedule adherence and transport costs; detailed questions must be examined contractually and, if necessary, legally on a case-by-case basis.

Current developments: automation and data platforms

Parameter maintenance is moving away from manual fieldwork towards data-driven, partially automated control. Suggestion systems, machine learning and integrated supplier data are noticeably changing the working profile of planning.

Automatic suggestion logic

Modern systems calculate suggested values for safety stock, lot size and lead time on the basis of historical consumption and delivery data. The planner checks and confirms rather than calculating themselves. In practice this significantly reduces the review effort, but requires clear thresholds above which manual approval remains mandatory.

Integrated supplier and market data

Parameter maintenance gains quality when external signals are incorporated: replenishment times from supplier portals, capacity indicators from market observation or ESG data such as CO2e and Life Cycle Assessment (LCA) values for packaging and material alternatives. This produces parameters that reflect not only quantities and dates but also sustainability and risk perspectives.

Organisational consequence

Many companies establish dedicated roles such as Master Data Steward or planning data owner, who operate parameter maintenance as a qualified specialist process. This elevates the task beyond being a 'side activity of planning' and makes it visible as a career path – a relevant factor, because in practice lack of time is often the main reason for outdated parameters.

Typical metrics

Planning FPY (correction-free planning runs): > 90%

Share of planning runs without manual correction; practical benchmark

Stock coverage: typically 4–12 weeks

Depending on material group and industry cycle

Number of exceptions per 1,000 materials: < 20

Benchmark; rising values indicate parameter errors

Review cycle A materials: 3–6 months

Usual rolling cycle in practice

Practical example

A mid-sized mechanical engineering company with around 18,000 active materials found in its stock analysis that more than 30 per cent of inventory values were tied up in items with above-average coverage. The causes were predominantly historical lot sizes and pessimistic lead times dating from before a supplier change.

- Rolling review path: A items quarterly, B items semi-annually, C items annually
- Simulation runs in the planning run before every lot size or safety stock change
- Linking lead times with OTIF data from supplier evaluation criteria
- Change records with four-eyes approval for critical parameters

Conclusion

Parameter maintenance (MRP) may seem unglamorous, but it determines whether planning, procurement and production work on the same data-driven basis. Cleanly maintained parameters reduce stock, stabilise delivery reliability and relieve planners of manual firefighting. Clear responsibilities, rolling cycles and a link with supplier and market data are crucial. Those who establish

parameter maintenance as a dedicated specialist process with KPIs and governance create the foundation for robust metrics and sound procurement decisions. In practice, the effort frequently pays for itself within a few months through stock and shortage reductions.

Frequently asked questions

What does parameter maintenance in MRP mean?

Parameter maintenance (MRP) refers to the ongoing updating and checking of all material-related planning parameters such as lot size, replenishment lead time, safety stock and procurement type. It ensures that demand planning generates realistic proposals. It is part of master data management and links planning, procurement and logistics.

Which MRP parameters should be reviewed regularly?

Typically, one checks replenishment and lead times, lot-sizing procedures, safety stock, MRP type and procurement type. In addition, planning relevance, rounding rules and inspection exemptions for goods receipt inspection are relevant. A rolling cycle – A items more frequently than C items – has proven its worth in practice.

How often should parameter maintenance be carried out?

The frequency depends on material criticality and rate of change. In practice, companies check A materials quarterly to semi-annually, while C items are often reviewed only once a year. In addition, event-driven maintenance makes sense when suppliers change, series are revised or consumption patterns shift.

What are the consequences of incorrect MRP parameters?

Incorrect parameters generate excessive stocks, unnecessary stock transfers and expedite orders. They distort delivery dates, complicate coordination with suppliers and strain procurement budgets. In the worst case, delays and disputes over delivery reliability and contractual limitation of liability loom.

How can parameter maintenance be linked to supplier evaluation?

The lead times and minimum order quantities from the MRP should be reconciled with the suppliers' actual performance, for example using OTIF data and defined supplier evaluation criteria. This produces realistic parameters and at the same time an objective basis for discussion in supplier meetings. Deviations show whether the process or the performance needs adjusting.