

Engineering Change Notice (ECN): The change notice as a control instrument in the procurement process

The Engineering Change Notice (ECN) is the formal document by which a product or design change is announced, justified and released. It triggers downstream activities throughout the entire procurement process – from updating bills of materials and drawings to communicating new prices and dates to suppliers. For technical buyers, the ECN is therefore a key control instrument for avoiding change costs, material shortages and inventory risks.

Key facts

- The ECN officially documents an engineering change with justification, scope, date and approval.
- It differs from the Engineering Change Request (ECR), which only describes a change request prior to approval.
- In procurement, the ECN triggers adjustments to bills of materials, framework agreements, planning parameters and residual inventories.
- Running changes require clear cut files and arrangements with the supplier in practice.
- Without structured change management, the typical consequences are legacy inventory, material recalls and unnecessary rework.
- KPIs such as cycle time and change cost make the quality of the ECN process measurable.

Definition: Engineering Change Notice

The Engineering Change Notice (ECN), also known in German as Änderungshinweis or Änderungsmeldung, is the binding document by which an already approved product or design change is announced. It describes what is changing, from when the change takes effect, and what consequences it entails for engineering, production and procurement.

Distinction from ECR and ECO

The process typically begins with the Engineering Change Request (ECR), in which a proposed change is described and justified. After review and approval, the change request is converted into an Engineering Change Order (ECO), which instructs the technical implementation. Finally, the ECN communicates the approved change to all affected departments and external partners. In some companies the ECO and ECN are combined in a single document; what matters most is a clear separation of request, instruction and announcement.

Contents of an ECN

As a rule, a practical ECN contains: the affected parts and documents with their revision level, the reason for the change, an as-is/to-be description, the effective date, i.e. the serial number or date of the transition (cut-in), the impact on open orders and inventory, and the approvals of the affected

departments. For procurement, the details on legacy inventory, blocked quantities and the date from which only the new version may be ordered are decisive.

Legal and contractual dimension

Changes to technical specifications affect the contract: prices, inspection effort, tooling and lead times may be affected. Particularly for factory-initiated changes, the question arises as to who bears the cost of tool modifications, first-article samples or special inspections. The legal treatment should be governed contractually and reviewed on a case-by-case basis; sweeping statements are not permissible here.

Process in procurement: from ECN to an effective purchase order change

The ECN is only effectively implemented once all interfaces of the procurement process have been adapted. A structured sequence prevents parallel sourcing of the old and new versions.

Update master data and bills of materials

First, material master records, bills of materials and drawing revisions are updated to the new version in the ERP or PLM system. This includes planning parameters, material numbers (for changes with a new part number) and procurement texts. In practice, incorrect master data is one of the main causes of obsolete inventory after changes; a high data quality score for master data significantly reduces this risk.

Communicate with suppliers and resolve residual inventory

The supplier must be informed as of which date or from which batch the new version applies. Key points are arrangements on the last call-off of the old version, the disposal or take-back of legacy inventory, and checking ongoing production orders. With volume-flexible arrangements such as a delivery schedule agreement, call-offs up to the cut-in date must be clearly marked. The order acknowledgement requirement helps ensure that the supplier expressly confirms the amended specification.

Involve affected parties internally

Changes almost always affect multiple functions: engineering, production planning, quality management, sales (for customer-relevant changes) and procurement. Effective stakeholder management ensures that approvals are documented before the ECN takes effect. For safety-relevant or function-critical parts, the inspection plan in incoming inspection must also be adapted accordingly.

Typical change types and their procurement consequences

Not every ECN has the same depth of impact. The classification of the change determines the effort and risk for procurement.

Change with the same part master

For revision-equivalent changes – for example an adjusted dimension with no functional effect – the part number remains unchanged, while the drawing revision index increases. Procurement must clarify whether quantities already ordered are still usable and update the purchase order items to the new revision level. Often merely informing the supplier without price negotiation is sufficient.

Change with a new part number

Functionally relevant changes frequently result in a new material number. Procurement must then map the change of sourcing environment in full: new enquiry, quotation comparison, potentially a new selection in the sourcing process, creation of new contracts and phase-out of the old material. Design changes of this kind also require an update of the risk classes and of the supplier rating if a new supplier comes into play.

Cost-relevant changes

If the ECN changes the material input, tooling costs or inspection scope arise, a price negotiation is necessary. In an environment of volatile commodity prices, the change may also affect existing agreements on alloy surcharges or material surcharges. Within design-to-cost, procurement should be involved as early as the ECR stage in order to evaluate cost-effective alternatives early on.

Key KPIs in ECN management

Without measurement, change management remains a black box. Several KPIs have proven themselves in practice, although benchmark values vary by industry and product.

Cycle time and schedule adherence

The ECN cycle time measures the time from submission of the request to the effective announcement. Typically, it is in the range of a few days for simple changes and several weeks for complex design changes. Schedule adherence describes what proportion of changes is implemented by the planned cut-in date; benchmark values of over 90 per cent are considered a good target corridor.

Change costs and inventory burn-down

Two figures show the economic quality: the change cost per ECN (including legacy inventory, tooling, rework) and the proportion of changes with legacy inventory fully resolved by the cut-in. A high proportion of obsolete inventory indicates late communication or missing call-off management.

Supplier-related KPIs

The supplier's implementation quality can be measured via schedule adherence for acknowledgements and via the rate of defect-free deliveries after the cut-in. It makes sense to feed these figures into the supplier rating, creating incentives to acknowledge change notifications promptly and in full.

Risks and controls in change management

Incorrect or late ECNs can trigger production stoppages, quality problems and increased costs. Systematic controls significantly reduce these risks.

Obsolete inventory and material losses

The greatest operational risk is legacy inventory that is no longer usable after the cut-in. Control instruments are a binding cut file, blocking mechanisms in the ERP system against orders of the old version, and a regular overview of remaining quantities. For critical parts, an assessment in terms of risk classes is recommended in order to manage changes to single-source or long-running materials with special care.

Quality risks and fault analysis

Every change is a potential quality risk. Before release, it should be examined whether the change

affects failure modes – the FMEA is the usual instrument here. If a defect nevertheless occurs after a change, structured methods such as 5 Why help locate the cause in the change event. It is also important to have a documented first-article approval for all parts whose manufacturing process was affected.

Supplier and continuity risks

For changes to customer-specific parts or tools – for example in the context of tooling procurement – an ECN can shift supplier dependencies or jeopardise tool availability. For critical changes, the link to the Business Continuity Plan (BCP) should be established: what happens if the supplier cannot deliver the new version on time? Robust exception management intervenes early in the event of deviating acknowledgements or dates.

Current developments: digitalisation and early involvement of procurement

Change management is increasingly being digitised and anchored earlier in the development process. This creates new scope for action for procurement.

Digital workflows and PLM integration

Modern PLM and ERP systems map ECR, ECO and ECN as a digital workflow, including electronic approvals, automated notifications and an audit-proof history. The integration of PLM and ERP ensures that released changes automatically flow into the procurement data. This reduces manual transfer errors and shortens the requisition cycle time for changed requirements.

Early involvement beyond the ECR

The trend is towards "shift left": buyers are involved as early as the ECR stage in order to assess availability, costs and supplier risks before release. This partly shifts engineering change management into the strategic early phase of product development and strengthens stakeholder management between engineering and procurement.

Standardisation and data exchange with suppliers

Industries such as the automotive and aerospace sectors use standardised formats for change notifications and specification data, which are exchanged machine-readably via supplier portals or EDI. For smaller suppliers, email acknowledgement remains common; what matters in every case is a documented response that feeds into exception management.

Typical metrics

ECN cycle time: approx. 5–20 working days

depending on complexity and number of approval points

Schedule adherence (cut-in date compliance): > 90%

proportion of changes implemented on schedule

Legacy inventory burn-down rate: > 95%

proportion of changes with no remaining unusable legacy inventory

Supplier acknowledgement rate: > 98%

proportion of ECNs acknowledged on time and in full

Practical example

A medium-sized mechanical engineering company replaces a rolling bearing manufacturer that is no longer available on the customer side with a functionally equivalent alternative for a gearbox component. Procurement is only informed after the ECN has been released and discovers that several hundred units of legacy inventory are in stock and a framework agreement with fixed prices is in place.

- Introduction of a binding cut file with date, batch reference and remaining quantities per storage location
- Binding order acknowledgement requirement with feedback on the last call-off of the old version
- Involvement of procurement from the ECR stage via a firmly defined review checkpoint in the approval workflow
- Inclusion of ECN implementation adherence in the supplier rating of the affected supplier

Conclusion

The Engineering Change Notice is far more than a technical form: it is the control document through which changes become bindingly effective in production and procurement. For procurement, it determines whether legacy inventory is resolved in a controlled manner, prices are adjusted promptly and suppliers are bindingly involved. Those who involve procurement early in the change process, maintain master data cleanly and measure implementation adherence noticeably reduce costs and quality risks. Sound ECN management is therefore a hallmark of a mature procurement function.

Frequently asked questions

What is the difference between ECN, ECR and ECO?

The Engineering Change Request (ECR) is the request for a change, and the Engineering Change Order (ECO) is the internal instruction to implement it. The Engineering Change Notice (ECN) is the announcement of the approved change to all affected parties, including suppliers. In many companies, the ECO and ECN are combined in a single document.

What information must an ECN contain?

The essential contents are the affected parts and documents with their revision level, the reason for the change, an as-is/to-be description, and the effective date (cut-in). For procurement, additional details on existing inventory, open purchase orders and the impact on price and lead time are important. All approvals of the affected departments should be documented.

Who bears the costs of an engineering change?

This depends on who initiated the change and on the contractual agreement: customer-initiated changes are frequently invoiced via change orders, whereas factory-initiated changes can cause costs that must be clarified contractually. Tool modifications, first-article samples and special inspections are typical points of dispute. The treatment should be governed by the supply contract and reviewed legally on a case-by-case basis.

How does procurement handle existing inventory when an ECN is issued?

A proven practice is a cut file that records, per part number, the last call-off of the old version and the remaining quantities per storage location. Existing inventory is, depending on value, run down, redistributed to other locations, returned to the supplier or disposed of with the supplier's consent.

Blocking logics in the ERP system prevent the old version from being inadvertently ordered after the cut-in.

Which KPIs measure the quality of the ECN process?

Key KPIs are the cycle time from request to announcement, schedule adherence against the planned cut-in date, and the change cost per ECN. In addition, the inventory burn-down rate and the acknowledgement discipline of suppliers indicate the quality of implementation. These figures can be readily integrated into the supplier rating.

Must a supplier acknowledge an ECN?

It is strongly recommended to agree a mandatory acknowledgement, because only the supplier's response shows whether the new version will be implemented on time. A mandatory order acknowledgement requirement and a documented exception management process for deviating responses create reliability here. Without acknowledgement, there is a risk of deliveries with an outdated revision level.