

Catalogue Structure: Design and Management of Digital Procurement Catalogues

The catalogue structure describes the systematic design of a digital procurement catalogue – that is, the hierarchy, classification and attribution of the items and services it contains. A well-thought-out catalogue structure is the prerequisite for buyers to find materials quickly, compare prices and place error-free orders. It combines technical master data, supplier data and e-procurement systems into a unified navigation and search logic. Without a clear structure, the risks are duplicate maintenance, incorrect orders and poor analysability in procurement controlling.

Key facts

- The catalogue structure defines the hierarchy, categories, attributes and search logic of a procurement catalogue.
- Standardised classification systems such as ECLASS or UNSPSC often form the backbone of category design.
- A clean structure reduces order processing times and curbs maverick buying.
- Catalogue data must be maintained regularly; outdated prices and assortments are one of the most common sources of error.
- The quality of the catalogue structure can be measured using metrics such as hit rate, catalogue compliance and catalogue share of orders.
- Catalogues are distinguished into supplier catalogues, internally maintained catalogues and marketplace catalogues.

Definition: Catalogue structure

The catalogue structure is the systematic organisation of an electronic procurement catalogue: it determines how items and services are grouped into categories, subcategories and item positions, which attributes they are given, and via which search paths they can be found. It encompasses both the content taxonomy and the technical data structure behind an e-procurement system.

Components of a catalogue structure

A complete catalogue structure typically consists of several levels: the top category level (e.g. C-parts, raw materials, operating supplies, services), below that product groups and finally the item positions with prices, units, delivery times and manufacturer details. In addition, metadata such as approval status, validity periods, contract references and internal cost centre assignments are included. These fields enable automated checks such as catalogue compliance at the point of order.

- Category hierarchy (multi-level)
- Item master data and attributes
- Price and condition data
- Approval and validity data

- Assignment to account assignments and contracts

Distinction from a simple item list

Unlike a mere item list, the catalogue structure is user-centred: it follows the logic of the searcher, not that of the vendor. Good catalogue design takes into account whether buyers search by material numbers, description texts, manufacturer designations or technical characteristics. The structure must also be maintainable – it grows with the assortment without becoming confusing. A simple list, by contrast, quickly becomes outdated and causes search frustration.

Design and configuration of the catalogue structure

Building a catalogue structure follows a multi-stage approach: first the conceptual taxonomy, then data modelling, followed by population with supplier data and ongoing catalogue management. What is decisive is that the structure is derived from the needs analysis of the buyers, not from the system logic of the IT vendor.

Classification systems as the foundation

International classification systems have established themselves as the backbone of category design. ECLASS is widespread in German mechanical and plant engineering and is characterised by deep technical characteristic descriptions; UNSPSC is frequently found in international groups. The advantage: proprietary categories can be mirrored against standards, which facilitates data exchange with suppliers and marketplaces. In practice, a dual system is often used – a user-friendly internal view and a standardised exchange view.

- ECLASS for technical products with characteristic depth
- UNSPSC for internationally oriented assortments
- Proprietary product group systems (e.g. based on HAU/HWA) for indirect materials

Attribution and search logic

Attributes make catalogues searchable and comparable. What matters are uniform units (piece, metre, kilogram), binding characteristic lists per product group and consistent spelling. For C-parts, a few attributes are often sufficient; for technical components such as bearings, valves or fasteners, detailed characteristics such as standard, material and dimensions are needed. A good search also understands synonyms and the colloquial terms used in plant practice, otherwise urgent orders bypass the catalogue.

Catalogue types at a glance

Three catalogue types have become established in practice: with the supplier catalogue, the supplier maintains the structure and prices itself and delivers them in a defined format (frequently OCI or cXML) into the customer system. With the internal catalogue, procurement handles maintenance centrally – more controllable, but more resource-intensive. Marketplace catalogues aggregate many providers under a single structure and relieve procurement of individual integration. Hybrid forms are common, for example an internal catalogue for strategic items and marketplace access for marginal requirements.

Methods and approach for introduction and maintenance

The introduction of a catalogue structure is a project with clear phases: as-is analysis, taxonomy design, data migration, piloting and rollout. Thereafter, permanent catalogue management takes over with

defined responsibilities and service-level requirements for data maintenance.

From demand to taxonomy

The starting point is a systematic needs analysis: which product groups are ordered in which quantities, which search terms do users use, where does spending occur outside the catalogue? From historical order data, an A-B-C approach can be derived: the most important 80 per cent of procurement volume receive a detailed structure and negotiated terms; residual demand is covered via generic categories and marketplaces. This focus keeps the maintenance effort manageable.

Supplier integration and data transfer

When integrating supplier catalogues, quality comes before quantity. Before onboarding, every catalogue undergoes a review of price accuracy, attribute depth and image/document data – comparable to a quotation check. Data quality checklists and sampling per supplier have proven effective in practice. For custom manufacturing services that cannot be catalogued, the classic request for quotation remains the right route; the catalogue should then at least point to the responsible buyer and the process.

Ongoing catalogue management

Catalogues become outdated without active maintenance: prices rise, items are discontinued, delivery times change. A maintenance cycle has proven effective, in which prices and availability are often reviewed quarterly in practice, and critical items more frequently. Supplier price changes should go through a controlled approval process rather than taking effect directly. For special cases such as short-term demand, urgent ordering outside the catalogue remains possible – but it should be captured and subsequently included in the analysis in order to identify gaps in the structure.

Key KPIs for evaluating the catalogue structure

The benefit of a catalogue structure can be measured. Key metrics come from the order data of the e-procurement system and the search logs. They form the basis for continuous procurement controlling of the catalogue topic.

Core metrics in detail

The most important metric is the catalogue share of orders or order volume: how much flows through the structured procurement page and how much via free-text orders? In addition, the search hit rate and the no-result rate show whether the structure reflects the search logic of the users. Catalogue compliance measures how many order items exactly match the catalogue terms – price, quantity, unit. A deviation analysis of order items reveals where prices are paid outside the catalogue.

- Catalogue penetration (share of orders via catalogue)
- Search hit rate and no-result rate
- Catalogue compliance (adherence to terms)
- Data freshness (age of price data)
- Processing time per order

Analysis and derived actions

Metrics only have an impact if they are regularly analysed and translated into actions. A falling hit rate indicates missing synonyms or new product groups; a falling catalogue share indicates price pressure or

missing items. The KPIs should be broken down by product group and supplier so that actions become concrete. The interface to controlling processes such as budgeting also benefits: anyone buying via catalogues generates cleanly accounted, budget-compliant order data.

Risks and controls in the catalogue structure

The most common risks are data decay, maverick buying bypassing the structure and opaque price changes. Controls address three areas: data quality, process discipline and contractual anchoring.

Data quality and maverick buying

Outdated or duplicate item positions undermine user trust – anyone who has once fallen for an incorrect price will order freely again in future. Duplicate structures arise when several suppliers list identical items under different designations. Controls: regular deduplication, mandatory attributes per product group and sampling of catalogue data. Maverick buying is reduced through procurement policies, search convenience and simple ordering routes – restrictive processes alone merely shift the problem into urgent ordering.

Contractual and procedural safeguards

Suppliers should be contractually obliged to maintain data: update deadlines for prices and delivery times, format specifications, responsibility for accuracy. Price changes require approval; in the event of quantity or item deviations, the defined deviation workflow from the terms of order applies. For catalogue-based framework agreements, a change order clause governing the adjustment of catalogue items in the event of specification changes is recommended. Data protection and export issues also touch the catalogue: Intrastat-relevant commodity codes and origin information should be maintained as attributes so that reportable data is available automatically.

Operational risks and dependencies

Anyone relying heavily on individual supplier catalogues creates dependencies – comparable to supplier capacity risk, only at the data level: if the catalogue integration fails or the supplier leaves, the ordering route is lost. Safeguards include alternative sources in the catalogue (second source per critical product group) and a documented failure scenario process. For technically sensitive items, the qualification of suppliers and items also remains a prerequisite before they are released – the catalogue must not replace qualification.

Current developments in catalogue structures

Catalogue structures are changing due to AI-supported search, increasing data standardisation and integration with procurement platforms. The trend is moving away from static price lists towards dynamic, data-driven catalogues.

AI-supported search and automatic classification

Language models and semantic search today also recognise colloquial descriptions and assign them to the correct categories. Automatic classification services map unstructured supplier lists onto ECLASS or UNSPSC and significantly shorten catalogue maintenance. This shifts the effort from manual assignment to editorial review. For buyers, the barrier to mapping even extensive technical assortments in a structured way decreases.

Dynamic terms and platform models

Catalogues increasingly show up-to-date availability, tiered prices and delivery commitments, enriched from supplier systems. On B2B marketplaces, the uniform catalogue structure becomes a competitive factor: providers appearing there must translate their data into predefined structures – attribution, units, standard references. Beyond pure purchasing, catalogue data is also gaining in value: it feeds clean sheet calculations and cost breakdown analyses with real prices and characteristics, thereby supporting strategic procurement work.

Typical metrics

Catalogue penetration: typically 60–85 % of order items

Share of orders that run through the structured catalogue page; often significantly lower before introduction.

Search hit rate: > 90 %

Share of searches with at least one relevant result; below 80 % indicates structural gaps.

Catalogue compliance: > 95 %

Share of items that exactly match the catalogue terms (price, unit, quantity).

Data freshness: price data in practice often < 90 days

Age of price data; critical items merit shorter review cycles.

No-result rate: < 5 %

Share of searches with no result; high values indicate missing synonyms or categories.

Practical example

A medium-sized mechanical engineering company with around 350 employees struggled with high levels of maverick buying in C-parts: buyers ordered wear parts by telephone or email, prices drifted apart, and procurement controlling had no reliable data. Procurement therefore introduced a three-tier catalogue structure – approved supplier catalogues for series parts, an internal catalogue for operating supplies and a marketplace access route for marginal requirements. ECLASS served as the classification system in a reduced, plant-oriented view. After six months, the KPIs showed a significantly increased catalogue penetration and more consistent adherence to negotiated terms.

- Taxonomy derived from order data and user interviews rather than adopted from the system logic
- Supplier catalogues checked for price accuracy and attribute depth before onboarding (catalogue compliance)
- Quarterly catalogue management with defined maintenance responsibilities per product group
- Monthly deviation analysis of order items against catalogue terms

Conclusion

The catalogue structure is a key element of modern e-procurement: it determines whether buyers find approved items, pay correct prices and whether procurement controlling can access reliable data. A structure succeeds when it is derived from actual search and ordering behaviour and maintained permanently – not when it is merely technically elegant. Standards such as ECLASS facilitate data exchange but do not replace independent editorial control. Those who regularly evaluate metrics such as catalogue penetration and catalogue compliance identify weaknesses early and keep the catalogue alive. In this way, the catalogue structure evolves from an IT side issue into an active steering instrument of procurement.

Frequently asked questions

What is a catalogue structure in procurement?

The catalogue structure is the systematic organisation of an electronic procurement catalogue into categories, subcategories and item positions with defined attributes such as price, unit and delivery time. It determines how buyers search, navigate and order within the e-procurement system. A good structure follows the logic of its users and is aligned with classification standards such as ECLASS or UNSPSC.

What catalogue types are there in e-procurement?

Three types are common: supplier catalogues, which the supplier maintains itself and delivers in formats such as OCI or cXML; internal catalogues, which procurement manages centrally; and marketplace catalogues, which aggregate numerous providers under a single structure. In practice, companies combine several types, for example strategic items internally and marginal requirements via marketplaces.

How do you build a catalogue structure?

The starting point is a needs analysis: relevant product groups and search terms are derived from order histories and user surveys. This is followed by the taxonomy with categories and mandatory attributes, population with validated supplier data and a pilot phase. Thereafter, permanent catalogue management takes over, with defined maintenance cycles and approval processes for price changes.

Which metrics measure the quality of a catalogue structure?

Key KPIs are the catalogue share of orders or spend, the search hit rate, the no-result rate and catalogue compliance as a measure of adherence to negotiated terms. In addition, data freshness and processing time per order indicate operational quality. A regular deviation analysis of order positions reveals where purchases are being made outside the catalogue.

What is maverick buying and how does the catalogue structure help prevent it?

Maverick buying refers to purchases made outside approved processes and contracts. An attractive catalogue structure reduces it because it makes the easiest ordering route the regulated one: fast search, correct prices, clear account assignment. It is important that exceptions such as urgent orders are captured and analysed in order to close gaps in the structure.

What role does ECLASS play in the catalogue structure?

ECLASS is a cross-industry classification system with deep technical characteristics and serves as the reference system for category design. It facilitates data exchange with suppliers and platforms and improves the comparability of items. Many companies use an internal, user-friendly view in parallel with the ECLASS structure for external data exchange.