

ABC analysis: value-based classification of items and suppliers

ABC analysis is a classic method in procurement and materials management for classifying items, suppliers or order lines according to their importance to business success. It is based on the Pareto principle, whereby typically a small share of items triggers a disproportionate share of value or effort. For buyers and supply chain managers, it serves as a basis for control decisions on procurement strategies, inventory management and supplier management.

Key facts

- ABC analysis assigns items to classes A, B and C, typically by annual procurement volume.
- In practice, around 60 to 80 per cent of purchasing volume often comes from about 10 to 20 per cent of items (A items).
- Class boundaries are a guideline tool, not an instruction – criteria such as supply risk must be added.
- Combining it with XYZ analysis of forecastability produces ABC-XYZ analysis, a standard in strategic procurement.
- Regular updating, in practice often annually or after significant changes, is crucial for validity.
- The data quality of master data and value parameters determines the robustness of the results.

Definition: ABC analysis

ABC analysis is a value-based classification method that assigns objects such as items, suppliers or customers to classes A, B and C according to their relative contribution to a target value – usually annual revenue or procurement volume. It is based on the Pareto principle (80/20 rule) and serves to prioritise resources in procurement and logistics. It is thus a simple but effective tool of working capital management, because it shows where order volumes, stock and planning effort have the greatest leverage.

Origin and underlying principle

The methodological foundation stems from the observation that in many inventory and revenue structures, a small number of items account for the majority of value. Applied to procurement, this means: few materials or suppliers often bind the largest part of the procurement budget, while a large number of C items contribute only a minor share of value. ABC analysis makes this imbalance visible and thus creates a rational basis for allocating buyer time, planning effort and safety stock.

Distinction from other classifications

ABC analysis considers only a single value measure; criteria such as availability, substitutability or delivery reliability are ignored. This is precisely where ABC-XYZ analysis comes in, supplementing procurement risk and demand forecastability. Nor is ABC analysis identical to criticality analysis or supplier evaluation, but rather a precursor: it says which items should be treated differently, not how

risky or capable they are.

Methods and procedure of ABC analysis

The approach is deliberately kept lean and can be mapped with common ERP or Excel tools. What matter are the right question, the appropriate value measure and a clean data basis. Anyone applying the methodology systematically obtains a robust prioritisation in a short time.

Step 1: Define objective and object

First, define what is to be classified: material numbers, product groups, suppliers, part families or even order lines. The value measure is equally important. Annual procurement volume is typical; alternatively, inventory value, inbound quantity or processing effort are suitable. For services and supplier services, an indirect value approach can also be chosen, for example the share in critical production processes.

Step 2: Prepare the data basis

The quality of the results depends directly on data quality. Duplicates in material master data maintenance, outdated prices or inconsistent product groups distort the ranking. A defined planning period – in practice often the last twelve months – is recommended, as is reconciliation with current purchase prices before the evaluation is carried out.

Step 3: Sort and form classes

The items are then sorted in descending order of value and cumulated. Common guideline values are: A items with around 70 to 80 per cent of cumulative value, B items with about 15 to 20 per cent and C items with the remaining few per cent. The thresholds are not a standard but must in practice be adapted to the respective assortment structure and market dynamics – for long-running C items, an additional risk view may shift the boundaries.

Key KPIs and derivations for procurement

ABC analysis only becomes valuable once concrete control measures are derived from the classes. These affect procurement strategies, planning parameters and supplier management alike. Typical derivations can be structured as follows.

Measures per class

A items justify intensive attention: individual price negotiations, framework agreements, dual sourcing for critical items and regular supplier meetings up to structured annual reviews. B items are often handled via catalogue solutions, small-volume tenders or standardised framework agreements. C items should be procured automatically – for example via approval processes, contract logistics or min/max-controlled replenishment – in order to free up buyer time for the value-relevant items.

Link to supplier KPIs

For A suppliers, KPIs such as On-Time Delivery (OTD), quality results from goods receipt with QC inspection and response times to enquiries (for example as part of a Request for Information (RFI)) are particularly relevant control variables. For C suppliers, in practice sample checks of performance are often sufficient, provided no anomalies occur. In this way, inspection and management effort matches the respective level of importance.

Inventory management effects

Class assignments allow order frequencies, safety stocks and lot sizes to be differentiated: for A items, finer lot splitting can reduce capital tie-up, while for C items larger order quantities, taking account of freight surcharges and processing costs, are often more economical. ABC analysis is thus also a building block of working capital management, as it shows where stock and ordering processes offer the greatest capital leverage.

Risks and controls in applying ABC analysis

Despite its simplicity, ABC analysis carries typical pitfalls. Anyone using it as the sole basis for decisions overlooks critical C items whose failure can bring entire production lines to a standstill, or misses shifts in the product range. Controls and supplements are therefore indispensable.

Typical sources of error

Common errors are outdated master data, mixing stock and consumption values, and rigidly applied class boundaries. Neglecting supply risks is also problematic: a low-cost item may deserve the same protection as an A item because of long replenishment lead times or single-source situations. Pure value analysis remains blind here.

Complementary methods and controls

Combination with ABC-XYZ analysis, which incorporates demand variability and forecastability, is proven in practice. For strategic procurement decisions, results should be supplemented by supply market intelligence and systematic market monitoring, for example to include interactions with customs preferences, Intrastat declarations or warehousing concepts such as bonded warehouses in the value assessment. Before re-selecting suppliers, a supplier feasibility review provides additional assurance.

Organisational anchoring

The ABC classes should be linked to defined processes: for example, different approval routes for purchase order release, tiered inspection strategies in goods receipt or separate reporting within time management and production planning. Regular recertification of the classes – in practice annually – prevents outdated classifications from leading to misdirection.

Current developments and digitalisation

The basic logic of ABC analysis is stable, but its application is changing due to digitalisation and more dynamic procurement markets. Modern planning systems automate the classification and make it usable for operational decisions.

Automation and multidimensional classification

In modern ERP and analytics platforms, ABC classification is often updated automatically, sometimes on a rolling basis over the planning period. In addition, multidimensional approaches are gaining importance, taking into account not only value but also risk, sustainability criteria or supplier concentration. This creates a more differentiated picture than the classic one-dimensional ranking.

Dynamic markets and supply chain events

Price and customs-related changes – such as fluctuations in freight surcharges, exchange rate risks hedged via forwards and swaps, or changed customs preferences – shift value weights and thus class

membership. Supplier and site risks can be supplemented using instruments such as the D-U-N-S Number (DUNS) and structured supplier evaluations, extending pure value analysis with a risk filter.

ABC analysis in the procurement process: practical integration

ABC analysis unfolds its effect above all where it is anchored as a fixed component of the cycle of demand planning, tendering and supplier management. It is therefore less a stand-alone tool than an organising principle that takes effect at several interfaces of the procurement process.

From analysis to procurement strategy

The classification provides the prioritisation for strategic procurement decisions: A items are suitable for long-term framework agreements, strategic partnerships and targeted cost reduction projects, while C items are addressed through process efficiency and standardisation. The transition from analysis to strategy should be documented to ensure traceability and auditable decision-making bases.

Integration into tendering and award

In public and partly also private tenders, the results of ABC analysis feed into the structuring of the tender process: lot divisions, degree of bundling and bidder targeting are aligned with the value of the items. Preliminary steps such as a Request for Information (RFI) or a supplier feasibility review are used more intensively for A items, while for C items they are in practice shortened or standardised.

Typical metrics

Share of A-items (items): approx. 10–20 %

Typically, the A class accounts for only a small share of item positions.

Share of A-items (volume): approx. 60–80 %

Usual benchmark for the value share of A-items in annual purchasing volume.

Share of B-items: approx. 15–30 % of items

Often with about 10–30 % of volume; medium-priority class.

Share of C-items: approx. 50–70 % of items

In practice, usually many positions with a low value share of typically approx. 5–20 %.

Update interval: annually

Common practice; sooner after significant changes such as assortment or volume shifts.

Practical example

A mid-sized mechanical engineering company with around 12,000 active item numbers and an annual procurement volume in the low millions carries out an ABC analysis for the first time covering the last twelve months. The result shows the typical Pareto pattern: around 15 per cent of items account for almost 80 per cent of purchasing volume. On this basis, supplier and stock management are realigned.

- Framework agreements are concluded for the identified A items, and the most important suppliers are integrated into structured annual reviews.
- For high-risk A items, dual sourcing is established to reduce supply failure risks; delivery reliability is monitored via On-Time Delivery (OTD).
- C items are migrated to an approval process with simplified purchase order release and automated replenishment, which significantly frees up buyer time.

- The classification is extended with an XYZ view, so that critical low-cost parts with irregular demand are no longer treated as lower priority.

Conclusion

ABC analysis remains one of the most accessible and effective tools in procurement and inventory management. It translates complex data sets into clear prioritisation and helps direct scarce resources to where they generate the greatest value contribution. Its limitation lies in the one-dimensional view, which is why combining it with risk and variability criteria such as ABC-XYZ analysis is standard practice. Clean master data, an appropriate planning period and regular updating are crucial for quality. Anyone observing these controls obtains a robust steering instrument for strategy, replenishment and supplier management.

Frequently asked questions

What is ABC analysis in simple terms?

ABC analysis sorts items, suppliers or orders by their importance, usually measured by annual value. A small share of the items (A) accounts for the largest share of value, while the majority (C) contributes only a small proportion. This allows priorities to be derived for negotiation, planning and supplier management. It follows the Pareto principle, the 80/20 rule.

How do you carry out an ABC analysis step by step?

First, define the object and the value measure, for example items and annual procurement volume. Then clean the data, select a planning period (typically twelve months) and sort the items in descending order of value. Finally, cumulate the values and set class boundaries, frequently at around 80, 95 and 100 per cent of total value.

Which criteria belong in an ABC analysis?

The classic measure is annual consumption or procurement value. Depending on the objective, inventory value, share of revenue or processing effort can also be used. Supplementary criteria such as demand variability, criticality or replenishment lead time do not belong in pure ABC analysis, but rather in extensions such as ABC-XYZ analysis.

What is the difference between ABC and XYZ analysis?

ABC analysis classifies by share of value, while XYZ analysis classifies by the forecastability of demand: X means steady and easily plannable, Z means volatile and hard to predict. Combining the two methods into ABC-XYZ analysis enables more differentiated stock and procurement strategies, for example avoiding high safety stocks only for high-value but forecastable A-X items.

How often should an ABC analysis be carried out?

In practice, an annual update has become established, supplemented by ad hoc reviews in the event of significant changes to the product range, prices or suppliers. In highly volatile markets or with fast-turning assortments, shorter cycles also make sense. What matters is that outdated class assignments do not lead to lasting misdirection.

What are the limitations of ABC analysis?

The method considers only one value measure and neglects risk, substitutability and strategic importance. An item of low value can nevertheless be supply-critical, for example in a single-source

situation or with long replenishment lead times. ABC analysis should therefore always be supplemented with risk aspects, supplier evaluation and market intelligence.