Inventory Analysis: Systematically Recording, Evaluating and Optimising Stock

Inventory analysis is the systematic recording, evaluation and interpretation of all stock held by a company. It shows which materials exist in which quantities and value ranges, where capital is tied up and which stock levels are over-, under- or short-stocked. For buyers and supply chain managers, it is the data foundation for procurement decisions, lot sizes and replenishment strategies.

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Key facts at a glance

01 Inventory analysis covers the quantity, value, movement and holding time of all items in stock.

02 Typical methods are ABC, XYZ and combined ABC/XYZ analysis for classifying the product range.

03 Key metrics are inventory turnover, average stock coverage and capital tied up.

04 Inventory analyses reveal shortages, excess stock and obsolete stock and reduce the risk of obsolescence.

05 They rely on clean master data and movement data from ERP or inventory management systems.

06 The results feed directly into ordering policy, lot sizes, safety stocks and supplier management.

Definition: Inventory Analysis

Inventory analysis refers to the periodic or continuous evaluation of stock levels by quantity, value, movement behaviour and holding time. It answers what is in stock, how quickly it turns over and how much capital is tied up in it.

Distinction from stocktaking

Whereas stocktaking serves purely to record actual quantities, inventory analysis interprets this data economically. It assesses stock by turnover, contribution margin and risk potential and derives recommendations for action. In practice, the two complement each other: stocktaking provides the data basis, inventory analysis the evaluation.

Role in the procurement process

For procurement, inventory analysis is a mirror of the sourcing policy: high stock levels often indicate oversized lot sizes, pessimistic replenishment or unreliable suppliers. The analysis therefore also provides arguments for negotiations in contract management, for example on call-off orders or consignment models.

Objectives and Benefits of Inventory Analysis

A professionally conducted inventory analysis has a simultaneous impact on working capital, material availability and replenishment costs. It turns stock data into controllable management variables.

Reducing capital tied up

Material stock typically ties up a considerable proportion of working capital. Inventory analysis identifies items with long coverage and low turnover and, in practice, reveals reduction potential of over 20 per cent where stock had previously been persistently over-ordered. Lower stock levels measurably improve liquidity and free cash flow.

Ensuring availability

Not every stock level is bad: missing safety stocks lead to supply blockages, line stoppages and emergency purchases. The analysis ensures that critical A items, but also C items, are provided with balanced stock levels so that service level and capital tied up remain in equilibrium.

Avoiding obsolete stock and obsolescence

At series launch (SOP) and product changes, residual stock frequently arises that later has to be written down. A regular analysis detects impending obsolescence at an early stage, before special components or aged materials become unusable.

Methods and Procedure in Inventory Analysis

A step-by-step approach has proven successful: consolidate data, classify, interpret and translate into concrete replenishment rules.

Data basis and preparation

The basis is stock quantities, movement data and values from the ERP system. Often a procurement

ETL process is required to consolidate and cleanse data from various sources. Incorrect master data, such as outdated prices or duplicate item numbers, distorts every result and should be corrected first.

ABC and XYZ analysis

ABC analysis sorts items by value or consumption relevance: typically, around 20 per cent of items generate roughly 80 per cent of the stock value. XYZ analysis adds demand predictability: X items run steadily, Y items fluctuating, Z items sporadically. The combination of both leads to differentiated replenishment rules per class.

Further evaluation logic

In addition, coverage analyses, portfolio displays by turnover and value, and movement analyses for obsolete stock are useful. Combined with a spend taxonomy or a spend cube, stock can also be evaluated at category, supplier and plant level, which facilitates alignment with supplier strategies such as single sourcing.

Key KPIs of Inventory Analysis

Metrics make stock manageable. They should be uniformly defined, reported regularly and linked to clear target values.

Inventory turnover and coverage

Turnover relates consumption to average stock; stock coverage indicates how many days or weeks the stock will last. Both metrics should be assessed per item class, as raw materials, purchased parts and finished goods typically have different target values.

Capital tied up and stock value

The stock value at cost prices and the capital tied up derived from it show the financial dimension. In addition, the storage interest and storage cost view provides the actual holding costs, which in practice are often estimated at 15 to 25 per cent of the stock value per year.

Service level and delivery reliability

Inventory targets must not come at the expense of delivery capability. Inventory metrics are therefore always contrasted with the service level, i.e. the proportion of items available on time and in full. Only this combination prevents stock reductions being bought at the cost of customer satisfaction.

Risks and Controls in Inventory Analysis

The greatest danger is an analysis based on poor data or without consequences. Controls and clear responsibilities are therefore part of every concept.

Data quality as the main risk

Missing postings, outdated replenishment parameters and unclear item structures lead to incorrect classifications and wrong decisions. Regular stocktakes, cycle counts and plausibility checks of movement data are mandatory. Procurement policy compliance should also ensure that ordering and stock processes are followed consistently.

False security and silo thinking

Excessive safety stocks mask supplier problems rather than solving them. Those who use stock only as a buffer shift the risk onto the balance sheet. It is better to optimise root causes such as unreliable delivery schedule call-offs and to improve process synchronisation with suppliers.

Implementation and sustainability

A one-off analysis evaporates. It is only sustainable if target stock levels are stored in the system, responsibilities are assigned and deviations are reported regularly. Modern planning systems and, where available, AI-supported demand forecasts support continuous monitoring.

Current Developments and Digital Support

Digitalisation is shifting inventory analysis from an annual Excel routine to continuous, data-driven management.

Automated evaluations and forecasts

Modern ERP and analytics systems calculate inventory metrics in real time and combine them with consumption and demand forecasts. Evaluations increasingly take place at category, supplier and plant level, thereby also supporting supply market intelligence and strategic procurement optimisation.

Supply chain and resilience

Since the supply bottlenecks of recent years, the focus has been on balancing lean stock levels and supply security. Companies deliberately hold higher buffers for critical items or consider dual sourcing, without losing sight of the overall stock level.

Collaboration with suppliers

Consignment stock, vendor-managed inventory and coordinated delivery schedule call-offs reduce stock along the chain. Requirements are reliable data and clear agreements in contract management, as well as joint evaluations perceived as fair by both sides.

Typical metrics

Metric	Typical value

Inventory turnover	6–12 per year *Benchmark for purchased parts; varies considerably by industry and item class*
Inventory record accuracy	> 95% *Comparison of book stock with counted stock during cycle counts*
Service level	> 98% *Proportion of items available on time; balanced against stock reduction*
Share of obsolete/blocked stock	< 2% *Proportion of value of unusable stock as a share of total stock*
Stock coverage	20–60 days *Target value differs by item class and industry*

Practical example

A medium-sized mechanical engineering company with around 25,000 item numbers found during an inventory analysis that its stock value had risen by almost a third over two years even though revenue had stagnated. An ABC/XYZ classification showed that in particular Z items from spare parts supply were persistently over-ordered, while critical A items repeatedly caused shortages.

- Introduction of combined ABC/XYZ replenishment rules with class-specific safety stocks and lot sizes
- Reduction of obsolete and residual stock after end of series through reclamation, discount campaigns and returns to suppliers
- Switching critical A items to agreed call-off orders and consignment models with two main suppliers
- Monthly inventory reporting covering turnover, coverage and service level per item class as a fixed agenda item in the procurement meeting

Conclusion

Inventory analysis is far more than a stock count: it translates stock data into economic management variables and makes capital tied up, availability and risks transparent. Those who prepare it methodically sound, work with ABC/XYZ classifications and translate the results into replenishment rules and supplier agreements reduce costs without jeopardising supply. Clean master data, clearly defined metrics and regular repetition rather than one-off initiatives are crucial. This turns inventory analysis into a fixed component of a data-driven procurement and supply chain strategy.

Frequently asked questions

? What is inventory analysis?

Inventory analysis is the systematic evaluation of all stock levels by quantity, value, movement behaviour and holding time. It shows where capital is tied up, which items are over- or under-stocked and how quickly stock turns over. From this, replenishment rules and procurement decisions are derived.

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

First, stock and movement data from the ERP system are consolidated and cleansed. Items are then classified using ABC and XYZ analysis, and key figures such as turnover, coverage and capital tied up are calculated. Finally, target stock levels are defined and measures such as adjusting lot sizes or reducing obsolete stock are implemented.

? Which metrics belong in an inventory analysis?

Core metrics are inventory turnover, average stock coverage, stock value and capital tied up. Supplementary figures include storage costs, obsolete and blocked stock, and service level. It is important always to assess inventory metrics together with availability metrics.

? What is the difference between ABC and XYZ analysis?

ABC analysis classifies items by value or consumption relevance, usually according to the Pareto principle. XYZ analysis assesses the predictability of demand, ranging from steady to sporadic. Only the combination of the two allows differentiated safety stocks and replenishment rules per item class.

? How often should an inventory analysis be carried out?

An in-depth analysis is typically useful at least once a year, supplemented by monthly or quarterly monitoring of the core metrics. Where the number of items is high or demand fluctuates strongly, an automated continuous evaluation is recommended. Crucially, deviations from target stock levels must have consequences.

? What benefits does inventory analysis bring to procurement?

Procurement can identify oversized lot sizes, pessimistic safety stocks and obsolete stock at an early stage and adjust ordering policies and supplier agreements accordingly. The results strengthen the negotiating position, for example regarding call-off orders or consignment models. At the same time, capital tied up falls without jeopardising material availability.

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