

Vendor Managed Inventory (VMI): From traditional purchase order management to shared stock responsibility

Vendor Managed Inventory (VMI) is a logistics collaboration model in which the supplier actively controls stock availability at the customer's site. Instead of the buyer determining requirements and triggering purchase orders, the supplier takes over stock planning on the basis of agreed stock targets. For industrial companies, VMI reduces procurement workload and stabilises supply, but it also shifts responsibility and data sovereignty onto new shoulders.

Key facts

- VMI shifts stock planning responsibility from the customer to the supplier; ownership of the stock remains negotiable.
- The foundation is a regular, structured data flow on stock levels and consumption, frequently via EDI or a portal.
- In practice, minimum and maximum stock levels per item are typically defined jointly and monitored by the supplier.
- VMI is particularly suitable for C-parts, standard ranges and high item counts with steady, predictable consumption.
- Key metrics are delivery reliability, stock levels, shortage rate and the data quality of the exchange.
- Contracts must clearly regulate responsibilities, take-back obligations, prices and termination terms.

Definition: Vendor Managed Inventory (VMI)

Vendor Managed Inventory describes an arrangement in which the supplier monitors the stock of its items at the customer's site and independently triggers replenishment orders. The customer provides consumption and stock data, and the supplier plans delivery quantities and delivery dates within agreed corridors. Operational stock planning thus changes hands, but not necessarily the legal and financial attribution of the stock.

Distinction from traditional ordering processes

In the traditional model, the buyer issues purchase orders based on material requirements, including order confirmation, delivery reminders and incoming goods inspection. With VMI, these individual orders are often replaced by a call-off or framework agreement that only defines the framework terms and volume corridors. The buyer moves from operational planner to coordinator, managing processes, data quality and terms.

Consignment stock as a special form

With consignment stock, the stock remains the property of the supplier until it is withdrawn; it is only recorded in value terms upon consumption. This relieves the customer's working capital, but also means

making the supplier the warehouse keeper at their own production site. Consignment and VMI are often combined, but can also be used independently of each other.

Methods and approach for implementing VMI

VMI does not succeed through the mere introduction of a tool, but as a clearly structured partnership model. Implementation typically follows a sequence of item selection, data agreements, pilot phase and roll-out. What is crucial is that both parties understand the target metrics and trigger logic in exactly the same way.

Item and supplier selection

Particularly suitable are items with steady consumption, low model sensitivity and moderate value, such as standard fasteners, wear parts or packaging materials. Critical A-parts with high value or long lead times are less often placed under VMI. When selecting suppliers, proven relationships from supplier management have a positive effect; a supplier already listed as a Preferred Supplier in a Preferred Supplier Policy can be integrated into a closer linkage more easily. Single sourcing for the respective range simplifies stock planning but increases the importance of supplier risk analyses.

Data flow and stock agreements

The core of the model is the regular exchange of stock levels, consumption data and open shipments, frequently via EDI, file transfer or a supplier portal. Minimum stock, maximum stock and replenishment quantities are defined jointly per item and reviewed periodically. The supplier plans replenishment so that the agreed corridors are maintained; the customer reserves the right to make quantity corrections in the event of demand peaks.

Pilot phase and contractual basis

In practice, a pilot with a manageable number of items over six to twelve months has proven effective, accompanied by a plan-vs-actual comparison of stock and delivery reliability. In addition to commercial terms, the contract should also cover liability, stock valuation, stocktaking procedures, take-back upon termination and data usage rights. Legal details, such as the tax treatment of consignment stock, should be examined on a case-by-case basis.

Key KPIs for managing VMI

VMI thrives on transparent, jointly shared metrics. Without reliable KPIs, the partnership quickly descends into mutual blame. Data quality itself becomes a control variable.

Supply and stock metrics

Key metrics are delivery reliability and supply capability against the agreed corridors, stock levels in days or value, and shortage events in production control. A regular plan-vs-actual stock comparison shows whether the supplier is actually keeping to the corridors or systematically overfilling them. The complaint rate for VMI items also belongs on the dashboard, as high stock levels would otherwise mask quality problems.

Data and process quality

The quality of the data exchange is the most common stumbling block: missing postings, late bookings or deviating units of measure distort stock planning. Data quality KPIs such as completeness, currency

and accuracy of the transmitted stock data should therefore be agreed as binding and evaluated regularly. In addition, process metrics such as the share of automated call-offs or the number of manual corrections can be used.

Risks and controls in the VMI model

VMI creates dependencies and shifts in costs and risks that must be actively managed. Those who ignore the control mechanisms trade workload for intransparency.

Dependency and supply risk

With stock planning, the customer also gives up visibility and influence. If the supplier fails, the warehouse may no longer be available even though the customer controls it. A Business Continuity Plan (BCP) with alternative sources or minimum in-house stock of critical items is therefore a mandatory component of any VMI concept. Supplier risk assessments should also include the partner's financial stability, as VMI can increase the supplier's financing burden.

Stock inflation and price transparency

Suppliers have an incentive to set corridors higher in order to secure sales and capacity utilisation; the customer pays for withdrawn quantities and bears the warehouse space. Countermeasures include binding maximum stock levels, stock value caps and periodic review of discount tiers where volume bundling is involved. Early payment discounts and payment terms must also remain clearly regulated in the contract so that the withdrawal-based settlement does not in effect undermine payment terms.

Contract termination and take-back obligations

Terminating a VMI model is underestimated: residual stock, return rights, valuation methods and transition periods must be fixed contractually. Otherwise, disputed amounts may arise that are difficult to quantify in the event of a dispute. Provisions for early termination from the customer's perspective, comparable to a termination for convenience, provide additional flexibility but must be negotiated realistically.

Current developments: digitalisation and sustainability

Technology and regulation are changing the framework conditions for VMI. Real-time data and platform solutions lower barriers to implementation, while sustainability requirements also take effect in stock supply chains.

Automation and real-time data

Modern solutions use sensors, automatic meter readings or integration with the customer's ERP, enabling the supplier to plan almost in real time. Short-term deviations can be continuously reconciled within the framework of Supply Chain Operations Execution (S&OE) rather than corrected monthly. AI-supported consumption forecasts improve trigger accuracy but do not replace the agreed corridor logic.

Sustainability and supply chain legislation

Close stock integration makes the supplier part of the customer's value chain, which also touches on sustainability obligations. Requirements arising from the Corporate Sustainability Due Diligence Directive (CSDDD) regarding due diligence in supply chains can make documented processes and risk

checks sensible for VMI partners as well. On the material side, binding specifications, such as compliance with a Restricted Substances List (RSL), play a role for consignment goods, since the customer transfers the components into its products upon withdrawal.

VMI in the context of strategic procurement

VMI changes the effects of supplier consolidation: fewer, more closely integrated suppliers can unlock economies of scale and better terms, but increase cluster risk. With global sourcing, VMI models reach their limits due to customs and lead time constraints; regional consignment warehouses operated by international suppliers are therefore the practical solution. Financing aspects such as factoring in procurement also touch on VMI when suppliers sell on their receivables from withdrawal-based settlements.

Typical metrics

Delivery reliability (VMI range): typically > 98%

Proportion of corridors replenished on time; target set individually per item class

Stock duration: commonly 2–6 weeks

depending on lead time and consumption stability; can be limited via stock value caps

Shortage rate: practical target commonly < 1%

shortages in production control due to missing VMI items

Data quality KPIs: > 95% completeness/currency

quality of the transmitted stock and consumption data; most frequent source of errors

Complaint rate for VMI items: comparable to the range average

high stock levels must not mask quality problems

Practical example

A medium-sized mechanical engineering company with around 350 employees managed over 4,000 small-part items through individual purchase orders. Following an analysis, the company shifted the majority of its wear and standard parts to a VMI model with two established suppliers, each operating a consignment warehouse at the plant. Within one year, the workload for handling C-parts fell significantly, while the shortage rate in assembly declined. Key success factors were a pilot phase with weekly plan-vs-actual stock comparisons and jointly defined data quality rules.

- Selection of around 1,200 C-part items with steady consumption as the pilot portfolio
- Agreement of minimum and maximum stock levels plus weekly data reconciliation via a portal
- Introduction of a monthly KPI review covering delivery reliability, stock value and complaint rate
- BCP provisions with qualified alternative suppliers for critical items

Conclusion

Vendor Managed Inventory is a proven model for reducing stock planning workload and stabilising the supply of standard and small-part ranges. It only works if data flows, stock corridors and responsibilities are precisely agreed and monitored in a measurable way. Buyers should deploy VMI in a targeted manner, not as a universal solution, and safeguard critical items through a Business Continuity Plan setup. Those who implement the control instruments alongside it gain flexibility and freedom for strategic tasks. Those who skip them trade purchase orders for gaps in stock transparency.

Frequently asked questions

What does Vendor Managed Inventory (VMI) mean in simple terms?

With VMI, the supplier monitors and plans the stock of its own items at the customer's site. In return, the customer regularly provides stock and consumption data. No individual orders are placed; instead, the supplier replenishes the warehouse within agreed minimum and maximum levels.

Which items and industries is VMI suitable for?

VMI is typically suitable for C-parts, standard components, wear parts and packaging with predictable consumption, for example in mechanical engineering, the electrical industry or the automotive supply sector. Highly critical or expensive A-parts are less often placed under VMI, as the loss of control and supply risk carry more weight here. A reliable data basis and a capable supplier are prerequisites.

What is the difference between VMI and consignment stock?

VMI describes who controls the stock planning, namely the supplier. Consignment stock describes who owns the stock until it is withdrawn, which is also the supplier. Both models can be used independently of each other or in combination.

What are the disadvantages of Vendor Managed Inventory?

Typical risks are dependency on the supplier, stock inflation caused by generously set corridors, lack of transparency in stock valuation and data interface problems. Countermeasures include binding stock ceilings, data quality KPIs, periodic reviews and BCP safeguards with alternative sources. Contractually regulating the return of stock upon termination is also essential.

How do you start a VMI project with a supplier?

A step-by-step approach has proven effective: select the item portfolio, agree target metrics and stock corridors, set up the data flow technically, then run a six to twelve-month pilot phase accompanied by a plan-vs-actual stock comparison. After a successful evaluation, the roll-out to further item groups follows. A written contract covering terms, liability and termination rules should be part of the process from the outset.

Who bears the storage costs under VMI?

It depends on the agreement. With consignment stock, the supplier often bears the tied-up capital while the customer provides warehouse space and handling; in other models, the customer purchases upon replenishment and stores the goods themselves. In practice, negotiation is common, factoring in interest savings, warehouse space costs and volume benefits.