

WHITE PAPER

13 BEST PRACTICE CRITERIA FOR SUSTAINABLE AND HOLISTIC INVENTORY MANAGEMENT



Inventories tie up capital, usually too much capital that could be used more efficiently elsewhere. Inventories also cost money, usually more money than most of us would have guessed before doing the math.

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13 Best Practice Criteria for Sustainable and Holistic Inventory Management

Holdings bind Capital, usually too much capital, that on another position used more efficiently could be. Holdings also cost money, mostly more Money, than the most from us before the Recalculating would have guessed.

In a statistical average company of the producing business make possible 20% inventory reduction one increase free liquidity by 46% or a reduction long-term liabilities by 29%. These figures make clearly, how much entrepreneurial freedom you go through the reduction the existing holdings can create.

Depending on, how to calculate the costs of different positions a storage cost rate evaluated, come on average ongoing costs of 19% to 30% of inventory costs per year together. Extremely rare have we experienced it, that the calculated costs fall below 15%.

Average values in relation to the stored goods' value:	
Interest of fixed capital	6.5 – 8.5 %
Ageing, wear	3.5 – 5 %
Loss, breakage	2 – 4 %
Transport, handling	2 – 4 %
Storage, depreciation	1.5 – 2.5 %
Storage management	3 – 5 %
Insurance	0.5 – 1 %
Total	19 – 30 %

Let's imagine that our borrowing costs were 15%: we would only make those investments that are really necessary and that bring a correspondingly high return. Unfortunately, inventory costs are hidden in various places in the company, so that many companies do not realize how expensive the loan is to finance their inventories and therefore stocks are generously built up beyond what is required.

If you don't take care of your stocks, they will grow. This is an old experience and there is a simple reason for this:

Basic Principle 1: Excess inventory is convenient and has many secret supporters.

Inventories are an effective logistical lubricant. Purchasing prices in Asia are so cheap? We don't want to cut our product portfolio, maintain our material master data, set up our scheduling system correctly, always use our production to capacity, worry about our customers' needs and get into trouble with them? Great, then we'll just add a few shovels of inventory and get rid of the hassle. Like some sweets, inventories are good for the soul. Success in inventory management starts with continually determining our own excess inventory.

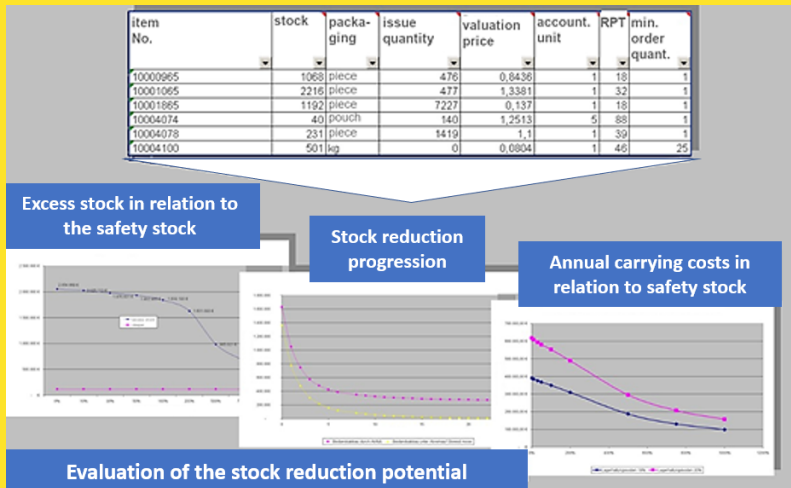
A popular approach to determining excess inventory in a company is the bottom stock analysis. In inventory management, bottom stock is defined as the inventory that was never touched during a certain period of time. This corresponds to the smallest amount of inventory that was in stock during this period of time.

At first glance, it seems plausible to view inventory that has not been used in the last 12 months as unnecessary inventory and therefore as excess inventory. However, on closer inspection, this reasoning is too simple. Just because you have not needed your home contents insurance in the last 12 months does not mean you should cancel it immediately. Ensuring a certain required delivery readiness requires a certain safety stock.

This is a statistical value that takes into account the probability that you will unexpectedly have to meet certain larger requirements. There is no systematic connection between the required safety stock and the existing stock level. The required safety stock can be significantly higher than the stock level, but it can also be lower. In the first case, we would have to add stock to the stock level, in the latter case, the excess stock only consists of the difference between the safety stock level and the stock level.

If the bottom stock is not suitable as an assessment parameter for excess stock, what is left? Provided the quality of the planning is good and the necessary data is available and can be evaluated, you can, for example, compare the average stock in the past with the average stock in the future for each item. The average stock in the future would result from the settings of the planning parameters and the required safety stock.

However, this ideal, future-oriented calculation of the average inventory does not reflect the real picture, as too many disruptive factors affect the disposition, which are ignored in an idealized view of the future.



With the E:S:A procedure, we developed a simple calculation mechanism for excess stocks several years ago, which we continually recalibrate. We make the E:S:A procedure available to interested companies in return for consent to process the determined key figures anonymously in statistics. The disadvantage of this procedure: For statistical reasons, no statements can be made about individual items, only about the entire excess stocks of a storage level. Where the stocks are located exactly and what caused them must then be determined. We will discuss a more detailed, but also more complex, analysis of item-specific excess stocks at the end of the text.

Let us note the first best practice building block of inventory management:

Best Practice Module 1:

Successful companies specifically and regularly identify their surplus inventory and not the bottom stock of items.

Regardless of whether you are gambling on the bottom stocks, using average stock comparisons or using E:S:A analysis, it is always important to find out what caused the identified excess stocks. Excess stocks are like headaches, they not only cause headaches, but are ultimately just symptoms of the actual causes that need to be identified.

If you have identified an article with actual or supposed surplus stock and ask about the reasons, you will inevitably come across

Basic Principle 2: Every surplus has a story and sometimes it is not invented

Excess stocks do not arise intentionally, i.e. through sabotage, but through incorrect considerations and decisions, some of which may have seemed completely correct at the time the decision was made.

The best way to determine which excess inventory was unavoidable and which could have been avoided is to use the company's on-board resources to bring together all functional areas that directly or indirectly contribute to the inventory level of the items in question in workshops. In such "inventory driver workshops", the inventory levels of critical items can be examined from different perspectives in order to identify the possible causes of the inventory.

Inventory driver workshops initially lead to situational improvements, which often enable inventory reductions in the short term. Regular inventory driver workshops therefore represent the second best practice component:

Best Practice Module 2:

Regular inventory driver workshops can help identify the structural causes of excessive inventories and show short-term remedial measures.

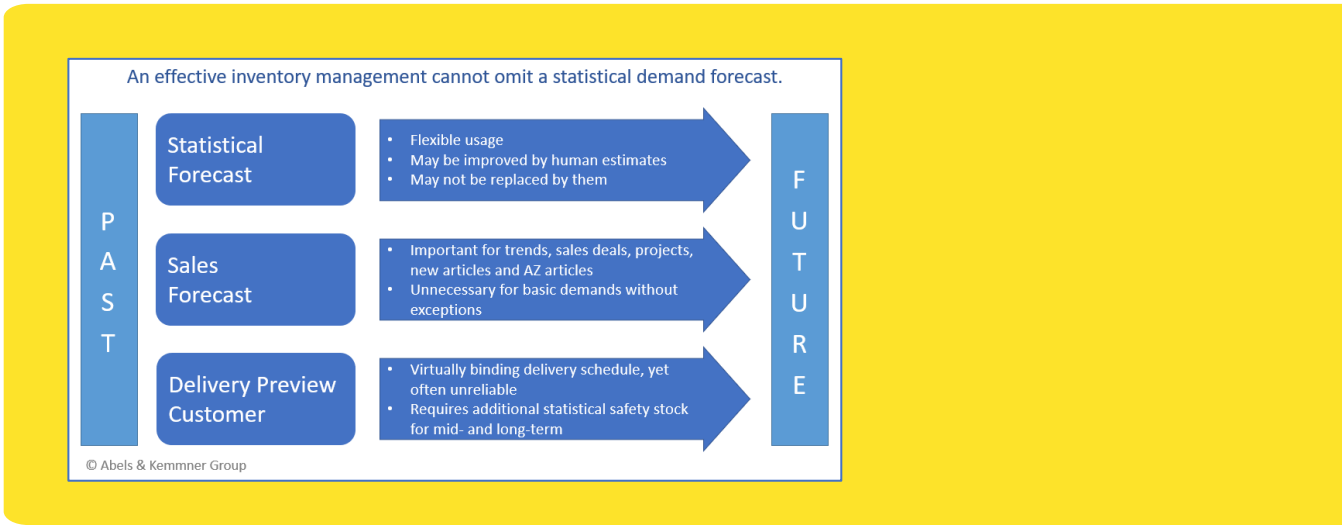
If you regularly hold inventory driver workshops, you know that the main inventory drivers are structural in nature. Some of them can be identified during the inventory driver workshops. But knowing them does not mean that they have been eliminated. Perhaps you have already had the experience of repeatedly encountering the same structural inventory drivers, even though, theoretically speaking, there are an infinite number of inventory drivers.

Measures to overcome the main structural inventory drivers are essential best practice building blocks from which the building of sustainable inventory management is constructed. In the following, we will look at the main structural inventory drivers.

If we start at the beginning of the planning chain, we find that many of our companies operate without a plan. Sales have worked out where they want their sales to be at the end of the financial year and how they want to distribute the sales across the individual product groups. However, with regard to the individual material to be planned, they have no precise idea of what needs they need to meet. *actually* However, the material flow in the company works at this level. If this gap is not closed properly, you are violating...

Basic principle 3: Only those who know which way the wind of demand is blowing can adjust their production sails accordingly.

There are various ways to improve the demand forecast. In any case, statements about the individual planning object must be made at the logistical decoupling point. The logistical decoupling point is the storage level downstream of the value stream, up to the customer order-neutral land from which production is based on customer orders. There can be different decoupling points for different material numbers. Stocks for the respective planning objects must be built up at the respective logistical decoupling points. Depending on the location of the decoupling points, the planning objects can be end products, assemblies or individual parts.



In order to arrive at meaningful figures, there is usually no way around statistical forecasts, which may need to be supplemented by additional information from sales, such as campaigns, projects and generally expected market growth.

Classic forecasting methods, which you may be familiar with from your ERP systems, must be supplemented by distribution-free methods and supported by simulation mechanisms in order to arrive at reliable forecast values.

Best Practice Module 3:

Companies that are leaders in inventory management have identified and implemented the key levers for improving their sales and demand forecasts.

Reliable sales and demand forecasts are an essential basis for better planning. As necessary as improved demand forecasts are, they are not sufficient for sustainable, effective inventory management, because in planning you are constantly battling with...

Basic principle 4: When it comes to material planning, reason is often overwhelmed

And the gut is a bad advisor.

One goal when introducing your scheduling system was certainly to enable employees to plan “better” because the system provides “better” scheduling suggestions for procurement and Production control. “Better” in this context means that users do not have to constantly adjust the planning suggestions in terms of quantity and date, but can largely simply confirm them.

The later reality often looks different: users are still constantly tinkering with the suggestions. In some cases, this is unavoidable, as most of our companies keep experiencing problems that were not taken into account in the system's planning suggestions. In some cases, the system's planning suggestions could have been better if the master data and system parameters had been set up to suit the situation, and in some cases, planning suggestions are overridden because they contradict gut feeling.

1000 items * 10 master data
↓
10.000 data fields * 60 sec
↓
166.6 h * 2 per year
↓
333 h per year

People often blame users for incorrectly configured master data and system parameters. However, they are completely overwhelmed in terms of time and expertise when it comes to making the correct settings. A simple calculation example shows how much effort would be required for users to carefully maintain master data: Even if you only want to maintain essential parameters for an article, you quickly end up with 8 to 10 values and settings per article (replenishment time, minimum batch size, jump batch size, minimum stock, goods receipt processing time, lead time, safety time, scheduling procedure, batch size procedure, planned value distribution, billing intervals, target delivery readiness, scheduling mode (automatic/manual, etc.)) and we are already assuming that forecasting procedures and safety stock procedures as well as the complex size of the safety margin are determined by the system. For 1000 articles for which a scheduler is responsible, this is, say, 10,000 data fields that would have to be viewed and changed if necessary at least twice a year. With an average of just one minute per data field for access, checking, consideration, calculation and, if necessary, change, this results in a time requirement of 20,000 minutes, corresponding to two working months per year. With 3000 articles, it would already be six months of annual maintenance effort and with quarterly instead of half-yearly maintenance, one person would already be employed full-time to maintain the data of these 3000 articles.

In addition, the interaction of the individual parameter values is so complex that the user quickly becomes overwhelmed and cannot find the best economic setting without additional tools.

Ultimately, many users tend to revise scheduling suggestions because they trust their gut feeling more than the system's suggestions.

Companies that strive for successful inventory management must overcome these problems and establish effective and efficient inventory management. The following applies:

Best Practice Module 4:

Sustainable inventory management requires reproducible and economical planning decisions. These can only be achieved if rules and simulation mechanisms ensure that procedures, parameters and master data are set in a way that is appropriate to the situation and if the user's gut feeling is pushed aside.

Subjective decisions influenced by gut feeling are also a major cause of the often perceived "stress" in the supply chain because we overreact to changes in demand in the value chain and as a result have to contend with the effects of Basic Principle 5:

Basic principle 5: Hectic steering and oversteering in response to fluctuations in demand and delivery causes the supply chain to oscillate.

Every yacht sailor knows the effect: a large yacht reacts rather sluggishly to the rudder. Many try to speed up the course change by turning the rudder harder, which on the one hand only works to a limited extent, but on the other hand means that once the ship turns, it also turns "with momentum" and reacts to the opposite rudder position with an even greater delay. The result is not a straight course, but a serpentine line, in which the ship moves.

We know the same effect from the practice of inventory management. Often, people react too hastily and over-control to item-specific surpluses or shortages. Once the increased flow of goods from the supplier starts flowing, they try to slow it down by drastically reducing order quantities, and the cycle starts all over again.

If we transfer the sailing experience to the practice of inventory management, then it is important to react cautiously and not excessively in order to dampen inventory fluctuations. In the case of living items, the cause of inventory fluctuations is primarily fluctuations in demand in the upstream value chain. It is important to react to these carefully by

- cushioning increases in demand with a safety stock,
- Consistently and promptly communicates information on declines in demand within the company and
- BWhen demand increases, reorders are always made a little more cautiously than would correspond to the first increase in demand, or
- BWhen demand falls, inventories are always reduced somewhat more cautiously than would correspond to the fall in demand.

Unfortunately, another lesson learned from sailing can also be applied to inventory management: there are sailors who learn to helm within a short time and others who never learn it in their entire lives. We have often seen similar things in practice. When sailing on cruising yachts, the autopilot now provides a solution, taking over the steering and generally doing it better than humans. In the practice of inventory management, the set of rules represents the autopilot.

A hasty reaction may help your own inventory management in the short term. Unfortunately, however, the resulting fluctuations spread across the interconnected supply chains and ultimately have a negative impact on your own company. Since the costs of a supply chain are borne by everyone involved in the long term, the costs increase for everyone.

It is therefore very important to note:

Best Practice Module 5:

The effective stability control (ESC) of sustainable inventory management consists of short-cycle but moderate reactions to changes in demand, supply or production.

Not only unsuitable disposition rules and mechanisms, as well as subjective decisions and a tendency to over-control, have an inventory-driving effect, but also the incorrect decoupling of inventory and disposition levels. This is a very multifaceted topic.

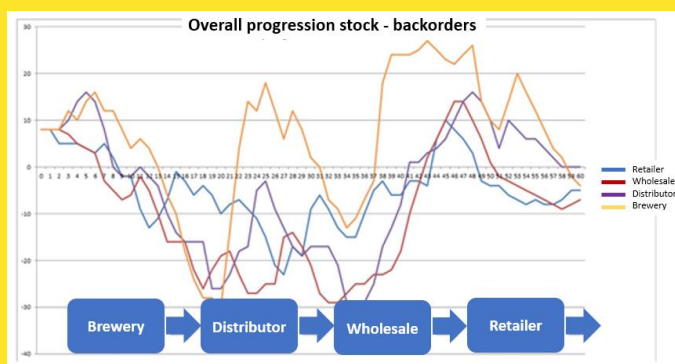
On the distribution side, from the central warehouses to possible regional warehouses to possible branches or even beyond them, points of sale. Many companies still work with planning stages that are conceptually and personnel-wise decoupled. Each regional or state leader pursues his own strategy, each branch manager decides on his own replenishment. However, this represents the first step towards planning anarchy.

Basic principle 6: Decoupled decisions in internal and external distribution chains disrupt the flow of goods

If you are not familiar with the so-called "Beer Game", you should give it a try. This simulation game depicts a supply chain from a brewery to a distributor, a wholesaler and a retailer to the customer. In each round of the game, decisions must be made in the individual warehouse levels about the quantities of beer crates to be reordered so that stocks remain as low as possible and the delivery readiness levels remain as high as possible. Each warehouse level only knows the current orders from the respective customer side and decides independently which quantities to reorder from the supplier. It is exciting and entertaining to see how the disposition quantities and stocks build up.

This beer game corresponds to the typical strategy in a supply chain in which each storage level operates independently and responsibly. With concepts such as "forward sourcing", Efficient Consumer Response (ECR) or Collaborative Planning, Forecasting and Replenishment (CPFR) attempts are being made to capture such planning chains. This is not easy, as many interests and egoisms of independent parties that do not obey a common master must be reconciled. In many of our companies, however, there are indeed distribution chains that common shepherds and their individual behavior is ultimately consolidated into the overall result of the company.

At least in these distribution chains, one can work against arbitrariness and top performers in inventory management do just that. The way to get there is through a centrally controlled replenishment of the various distribution levels based on a correspondingly sophisticated and continuously optimized set of rules.



Often, individual warehouses in the distribution chain represent legally independent units that also bear independent responsibility for their results. These warehouses usually see the management of their own warehouse stocks as a sovereign right and a competitive factor: “If I am responsible for the results of this national company, then I must also be able to manage my warehouse as I see fit,” is a typical reaction to the suggestion of a central replenishment. In practice, however, it has been shown time and again that more can be achieved with less inventory overall, but distributed across the right items. Material availability at the individual storage levels can be ensured by means of delivery service agreements between these and the central planning department. This must be supported by disciplined exception planning for projects, campaigns or other special requirements.

Best Practice Module 6:

Sustainable inventory management in a distribution chain can usually only be achieved through a centrally controlled replenishment. Instead of decentralized inventory responsibility for the externally managed storage levels, responsibility for exceptional planning and delivery service agreements is taken over.

A supply chain does not only consist of distribution relationships in which different storage levels are linked to each other via transport processes, but also of long-term procurement relationships between a customer and a manufacturing supplier. In these cases, the logistics process does not only consist of a transfer relationship between the The supplier's finished goods warehouse and the customer's receiving warehouse. The supplier may not even store the part to be delivered as a finished product; in any case, the warehouse from which the item is delivered to the customer is replenished through a production process.

In such cases, lean management often recommends producing in line with the customer's pace, i.e. linking both production stages in terms of time and quantity.

If the right conditions are in place, this works very well, as we will see. In many cases, however, you miss out on opportunities for inventory reduction and profitability, because you pay more attention to

Basic Principle 7: A company's logistics system operates according to its own unique rhythm.

From an inventory management perspective, there is still considerable potential in cooperative collaboration between customers and suppliers to reduce inventories and improve security of supply. The possibilities start with drawing parts in the product specification and range from avoiding storage levels to administrative integration.

Bringing your own production into sync can be a very effective approach to getting material flows to flow evenly and thus simplifying inventory management. Adopting the customer's tempo is often too simple a model, as in many cases the supplier's production chain does not work specifically and exclusively for the customer's production chain. We know from sports medicine that jogging together is not always an advantage: each runner has to find his own rhythm according to his own condition.

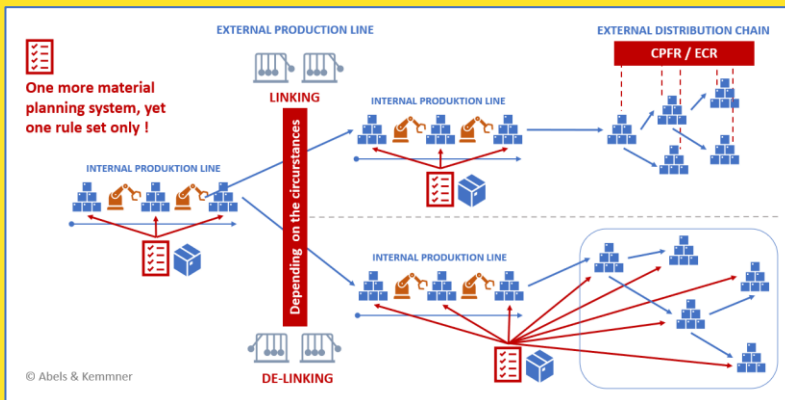
A link between customer and supplier exists not only when the supplier works in line with the customer's rhythm, but also, in a weaker form, when the supplier has to respond immediately to the customer's order or request in order to meet an agreed delivery deadline.

In long-term business relationships and regular deliveries, there is often great economic potential hidden in the decoupling of supplier and customer. It can be more economical and inventory-wise to manufacture at your own pace or to emancipate yourself from the customer by maintaining an inventory buffer. A classic finished goods inventory also serves to decouple, but then possibly at the cost of higher inventories. A more clever and very effective instrument for decoupling is a VMI (Vendor Managed Inventory) concept.

In typical VMI mode, the supplier replenishes the customer's warehouse independently. The customer saves himself the work of planning, and the supplier gains more freedom in terms of planning, as he can decide more independently on the delivery date and quantity of his subsequent delivery. The supplier takes on the capital commitment of the stocks held by the customer, while the customer takes on the storage and management of the stocks and typically also the economic risk. VMI concepts are not a bad deal for suppliers. It is astonishing that many still resist them.

The situation is different when the supplier's production chain is really specifically aligned with the customer's production chain, as is very common in series production and especially in the automotive industry. In this case, the strategy of a very close

Cooperation is advantageous, especially since it has already been designed into the production chain. If the production processes of the customer and supplier are very precisely coordinated and both run very stable, Just in Time (JIT) or Just Insequence (JIS) processes achieve very low inventories with a high level of delivery readiness. However, the supplier side foregoes the principle of pull control, which is sacred in lean management, in favor of targeted push control, so that the materials are delivered at exactly the right moment.



Best Practice Module 7:

In a production chain of economically independent companies, the stocks, delivery readiness and profitability of the parties involved can usually be best optimized through decoupled processes. In the special case of precisely coordinated production lines, however, the coupling principles of an internal production chain apply again.

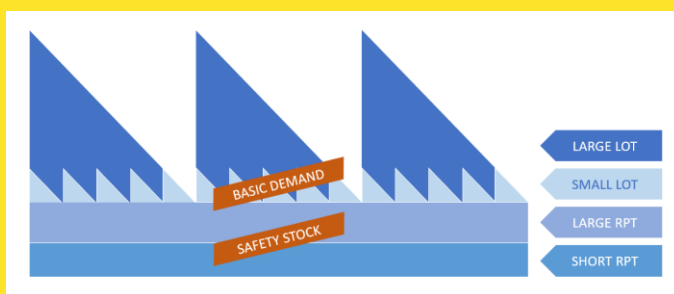
As discussed, synchronized production in internal production chains and in specially coordinated external production chains offers great advantages for the economic efficiency of production and for inventory management. Unfortunately, this ideal is all too often thwarted by articles with large batches and long lead times...

Basic Principle 8: Items with large batches and long lead and delivery times are junk food for the value chain – cheap to buy but difficult to digest.

Who among us does not work with Asian suppliers? Many products can only be obtained in Asia, while for others the price advantages of Asian suppliers leave you no choice. But that *Asian Sourcing* also brings with it considerable disadvantages. Let's forget the not so rare cases in which the price advantages of Asian suppliers are already eaten up by the travel costs of the buyers. From a logistical point of view, the effect is more serious, which is usually due to long replenishment times combined with large procurement batch sizes: regardless of whether this is the result of minimum order quantities, freight cost optimization or the need to fill containers.

Articles with large batch sizes and long replenishment times always cause high inventory fluctuations with high average inventories. On average, the large batches have a much more dramatic effect than the long replenishment times. If the replenishment time is doubled, the *Ein-cover* times do not necessarily increase. However, the required safety stock increases by around 40%. Doubling the batch size, on the other hand, leads to a doubling of the basic stock. The more irregular the item demand, the greater the safety stock effect; the more consistent the demand, the greater the impact of the change in the basic stock.

If you work with large batches not only in procurement but also in production, the material flows through production in large bursts. This is associated with the risk of temporary capacity bottlenecks that slowly push their way through the value chain like a piglet being swallowed by a snake. Such *Blockages* directly lead to higher inventory levels in production.



Of course, you cannot make production and procurement batches as small as you want, but you have to keep an eye on the total costs, but then really the total costs and not just the purchase prices. It makes a huge difference whether inventory management and logistics strategy are geared towards continuously working on reducing batch sizes and replenishment times or whether you accept both parameters as more or less given. Behind these two "inventory management cultures" the gap widens between the absolute top performers and the rest of the companies; the former work continuously to crush the flow of materials and thus to increase the flow rate of their production (ratio of processing times to throughput times). The higher the flow rate, the more even the flow of goods and the lower the inventory and circulating stocks.

Best Practice Module 8:

Sustainable inventory management requires an easily digestible material mix of small production and procurement batches and the shortest possible replenishment times.

In every supply relationship, regardless of whether the supply chain is decoupled or a central scheduling system is used, delivery bottlenecks can occur. In such cases, in decoupled supply chains, one encounters

Basic principle 9: If there is a shortage of everyday goods - and in the B2B sector this applies to practically all goods - then demand will initially overshoot.

We all know this from the food sector: impending winter storms and even several holidays in a row sometimes lead to panic buying. However, the nightmare is usually over quickly. This also applies to the industrial value chain when bottlenecks prove to be only temporary. The situation is different if the shortage lasts for a longer period and customers cannot switch to substitute products. Many suppliers who can no longer meet the market demand for such "no alternative" items naturally start sending partial deliveries to customers. This eases the delivery situation drastically if the shortage is only temporary, because the missing quantities are delivered for a short time. However, if a shortage lasts for a longer period, typically several months, then the supplier never meets its customers' needs. From the customer's point of view, the delivery situation then looks like a quota and some suppliers actually handle the shortage economy in this way. The customer has ordered 1,000 items and receives 200.

A typical customer reaction to this situation is a simple rule of three: If I get 200 for an order of 1000 pieces, then I get the 1000 I need for an order of 5000 pieces. It's easy to imagine that chaos would break out if all customers reacted like this...and many customers do.

It is also not easy for a buyer to place the advantages of their own company behind those of uncooperative customers, based on their greater insight. As a result, supposed market needs arise that do not correspond to reality. Such cycles are well known from the semiconductor industry. In the worst case, they lead to suppliers drastically increasing capacity. However, as soon as real demand can be satisfied again due to the higher production capacity, the artificial increase in demand collapses again. Before this happens, however, many buyers are flooded with high delivery volumes.

The solution to such persistent supply bottlenecks is actually obvious, but it must be applied consistently: It is correct to allocate the quantities to the customers, but on the basis of past orders at times without relevant supply bottlenecks and not on the basis of current customer orders. If this procedure is clear to all customers, there is no longer any reason for order quantity inflation and the threatening pig cycle is significantly dampened.

Best Practice Module 9:

In the event of long-term capacity bottlenecks, deliveries to customers must be quoted based on past delivery quantities.

The customer-supplier relationship in the supply chain is unfortunately not only strained by exceptional situations such as ongoing delivery bottlenecks, but also by the behavior of the partners in everyday business, see...

Basic Principle 10: When purchasing and sales meet, it is all too often about tactical maneuvers or the exploitation of power rather than about constructive cooperation.

It is in the nature of things that purchasing tries to achieve the best possible prices for the products and qualities required by the company. It is just as in the nature of things that sales intends to achieve the highest possible prices for the products and qualities it offers on the market.

We all know what happens when the supplier's sales department meets the customer's purchasing department: each tries to gain a negotiating advantage and exploit their own negotiating power. It is therefore particularly uncomfortable when one of the two parties has significantly more power. But even business partners on equal terms in many business relationships try to constantly catch each other out of misconduct or to conceal their own misconduct in order to strengthen their own position in the next price negotiations. This behavior is all the more pronounced the more sales and purchasing on both sides are responsible for day-to-day business. There is more cooperative work where planning talks to planning and logistics talks to logistics. In this way, many coordination problems can be solved "at the working level" before they lead to conflicts at the "ministerial level" and thus usually to increased inventories.

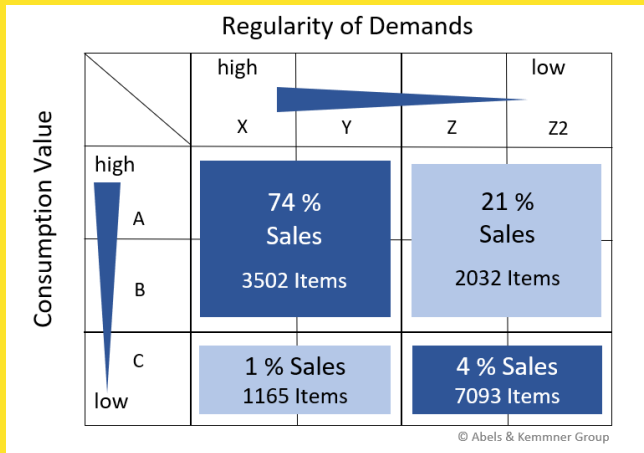
Best Practice Module 10:

Sustainably effective inventory management requires objective and cooperative collaboration with key suppliers, in which the costs of the supply chain are shared by all parties.

If we look beyond the hall door at the variety of products in our raw, semi-finished and finished goods warehouses, we quickly realize...

Basic principle 11: Small items in the product portfolio usually produce a lot of mess, but little turnover and even less profit.

In a typical product portfolio of a warehouse manufacturer or trading company, 20% - 30% of the items generate 60% - 80% of the turnover (AB/XY parts), while at the other end of the portfolio 20% - 40% of the items often generate only 2% - 3% of the turnover (C/Z-Z2 parts). While we are looking at the high-flyers. With turnover figures of 12-24 and sometimes much higher, the inventory of many of the exotic goods does not turn over once a year. But even this long tail of exotic goods ultimately has to be planned, managed and stored.



If this “long tail” is procured on an order-related basis, it does not represent a significant problem for inventory management. However, order-related procurement is often not possible for various reasons. In this case, it is important to find sensible strategies with which inventories and handling costs can be reduced.

Contract manufacturers also have to deal with this kind of product portfolio distribution, not at the finished goods level, but at the purchasing or assembly level. One solution here is short production throughput and replenishment times for these exotic parts or, in part, C-parts management, which is primarily geared towards C/XY parts; however, it can be used for some C/Z-Z2 parts with short replenishment times. However, a considerable proportion of these C/Z-Z2 parts consist of drawing parts, for which C-parts management is usually of no help.

The long tails in our companies' product portfolios have a story, and like all stories, it starts at the beginning. For a product or component, this means identifying or assuming a solution to a problem that the market is interested in. In order to be able to offer the solution, variants are split up or completely new parts or products are developed. New a runners it is in the nature of the business that we first build up stocks in order to be able to react quickly to the hoped-for increase in demand and thus give the new product a chance on the market. If the product had its chance and was not able to take advantage of it, then we have to get rid of the product.

From a logistical perspective, there is a lot to be optimized within the scope of product portfolio management, both for live items and for incoming and outgoing items.

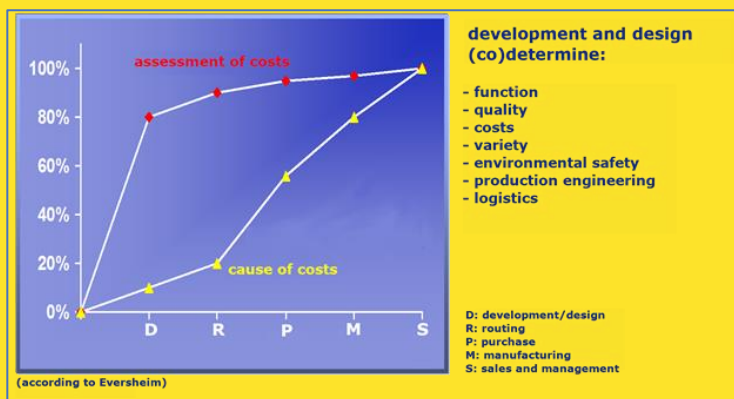
Best Practice Module 11:

In order to keep inventory levels sustainably reduced, there is no way around regular maintenance of the product portfolio.

Every product or component not only has a story, but also a history that plays a role in product development and construction. This is where the challenges of inventory management arise, because it says...

Basic Principle 12: Much of the inventory cost of a part is already determined by product development.

Many years of experience have shown that 80% of a product's life cycle costs are already determined during product development. Product development therefore influences the inventory costs and future inventory requirements of each part in several ways.



The choice of raw materials and the manufacturing processes and processing steps resulting from the shaping affect the procurement times, purchase prices as well as procurement and manufacturing costs and thus on inventory costs and delivery readiness.

The effects multiply with the number of parts that go into a product. If you then add to this the fact that the almost inevitable spread of variants over the course of a product's lifespan divides the material flows very early in the value chain, the problems multiply again.

Starting with product development means using a big lever, unfortunately also a heavy one that moves only slowly.

Best Practice Module 12:

To become one of the leaders in inventory management, you need to design your products to be logistically sound by having products consist of as few parts as possible, using as high a percentage of standard parts as possible, and having your variants appear as late in the value chain as possible, ideally not until they reach the customer.

At the end of our common path to sustainable and holistic inventory management, we must not forget one essential basic principle:

Basic Principle 13: Trust is the beginning of everything, including the end of inventory management.

Most of us generally abide by laws and rules, as the crime statistics and our personal and business experience tell us. And yet, as we know from our own experience, compliance with the law can quickly decline if it is not constantly enforced and monitored. And generally, compliance with the law declines where people are not convinced that the laws make sense or where they have disadvantages for them. Accordingly, when it comes to inventory management, moderate control is better than excessive trust.

Average sim. stock	738.95
Average sim. stock	24,015.88
Stock reduction	419.95
Stock reduction	13,648.38
Achieved service level	98.40%

Logistics controlling helps to identify the situation and find optimization approaches.

An effective control mechanism can be established using target inventory management. This tool can be used to continuously check how far the actual inventory deviates from the target inventory for each individual item at each inventory level in the entire supply chain.

However, in order to determine realistic rather than theoretical target stocks, a sophisticated set of instruments is required, because reliable target stocks can only be calculated using a simulation process and not by taking a close look at the inventory list of a scheduling system.

The core element of target inventory management is the key figure “inventory reduction potential” which is determined for each individual material number. The inventory reduction potential can show operational users and inventory managers where there is too much and where there is too little inventory and help them to stay on “inventory management course” in their day-to-day work.

Best Practice Module 13:

Consistent target inventory management represents the lane keeping assistant of inventory management. It gives users a guiding signal to always find their way back to the specified path of delivery readiness and inventory and shows managers the location and extent of the need for action.

Inventory management is a holistic task. Anyone who wants to achieve sustainable results needs perseverance and the right tools and methods.

Perhaps you have already implemented many of the best practice components presented, or perhaps you still have a lot of work ahead of you. It is work that is worthwhile from a corporate strategy perspective, because a 20% reduction in inventory improves the net profit in an average company just as much as an increase in sales of around 10%.

20% of stock reduction will increase the net profit of an average company as much as increasing its turnover by 10%.