



ARE YOU READY FOR VMI?

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*Not every company benefits.
This methodology can
help you decide*

are you ready for VMI?



VENDOR MANAGED INVENTORY — VMI — LONG has been considered a best practice to integrate the supply chain. It is one of the best-known solutions to the bullwhip effect, in which inventory builds up along the supply chain in a pattern of delay, distortion and amplification, while product availability plummets. Information handoff between supply chain nodes — like the orders sent from buyer to supplier — is a potential source of uncertainty that triggers the devastating wave. VMI simply eliminates this bullwhip trigger and is credited with many other benefits.

In the traditional supply chain environment, a manufacturer intermittently submits purchase orders to its supplier without further explanation of the material requirements. The supplier reacts to the incoming order, and hopefully is prepared for whatever is demanded. Both buyer and supplier work in isolation, in their own interests, building up buffers or scaling back production quantities in case the other fails to meet expectations, speculating on each other's motives and capabilities, and confirming their worst fears when the unexpected inevitably occurs. This conventional approach to trade is costly and frustrating.

VMI transforms the traditional arm's length relationship into a more collaborative model in which a firm from outside decides on the levels of supply. Under VMI, the buyer provides direct access to information about end-customer demand and

levels of current inventory to the supplier, which uses this information to manage reorder quantities optimally. The flow of purchase orders is eliminated completely, and the details of demand become transparent to the vendor, reducing uncertainty for its production planning.

Inspirational case studies of VMI at Procter & Gamble and Wal-Mart routinely are taught by business schools. Conventional wisdom both inside and outside the classroom prescribes VMI as if it were applicable universally. Under this influence, most managers at least will have considered some form of vendor-managed replenishment in their own supply chains and probably have grappled with the decision to invest in VMI.

VMI: very mixed impact?

On the one hand, VMI receives applause as if it were a panacea for inventory-related problems. On the other hand, evidence is accumulating that VMI doesn't work for everyone. Observing less successful implementations, a recent study teasingly suggested that it could stand for "very mixed impact." Following up on these cases and the challenges that managers face, we came across valuable clues as to when VMI makes sense and when to avoid it.

It turns out that specific features of company, product and supplier are prerequisites to success. These are by no means a

TOTAL IMPACT

PRECONDITIONS FOR VMI		
COMPANY	PRODUCT	SUPPLIER
Stable growth	Standardized products	★ Supply chain trust/long-term relationships
High transaction costs	Repeating products	Advantages evident to both supplier/customer
★ Good information and communication system	Standard product identification	★ Key suppliers constitute a high percentage of purchase orders
★ Willingness to share information	Low demand variance	Suppliers are willing to cooperate
Purchasing is NOT a core competency	★ Demand is forecasted and stock levels are monitored	★ Integrated information system

★ Can be improved

Figure 1: The 15 features that affect an organization's readiness for VMI

given. For example, since the purchasing functionality is enabled by technical infrastructure, standard product identification and an integrated IT system must be put in place. And for those organizations that consider purchasing to be one of their core competencies, the benefits of a VMI process may not outweigh its costs, since it is just this capability that is given away. For both parties in the supply chain, the quality of the relationship, manifested by shared information, will determine success. Lack of trust between trading partners will doom their VMI initiative.

For the supplier, the aim of VMI should be to integrate key customers into the supply chain, and this only will make sense if those key customers make up a high percentage of the vendor's sales figures. Since VMI deploys automatic replenishment logic, the products should be standardized and ordered repeatedly, product growth or decline should not be excessive (meaning the requirement patterns are stable), and it should be safe to assume that demand will be repetitive and not occur spontaneously.

Finally, it is no surprise that cost plays a crucial role. Where the transactional costs for order processing and production planning are high, the greater the reduction in total order costs, the higher the benefits. This is most frequently the case when the buyer's total carrying cost is higher relative to that of the supplier.

The assessment framework

As these success factors crystallized (for an overview see Figure 1), it became clear that not every supply chain works this way. The time has come to give managers a simple tool to assess their own VMI-readiness.

The developed framework is set up as a self-administered questionnaire on 15 success factors along three dimensions of the business (company, product and supplier). It permits a margin for individual cases. With the support of their colleagues and peers (as required), senior supply chain managers normally should need less than 30 minutes to fill the questionnaire and compute the VMI-readiness score of their firm.

The premise of the framework is simple: It is not sufficient for any single factor, or even the group of factors, to achieve a high score. Rather, it is the composite score of all features that reliably predicts how ready the company would be to adopt VMI.

To emphasize a further distinction, each of the 15 factors can be classified as either controllable or uncontrollable — either within the influence of a firm or beyond it. For example, if a company sells products with high demand variability or if the company growth is not stable, the supply chain manager can do little to change these characteristics in the short term. They effectively constitute an uncontrollable environment in which VMI will operate (should it be implemented). On the other

ABOUT THE RESEARCH

The framework was developed by a rigorous methodology:

1. After an exhaustive literature review, we asked researchers to name factors that they knew to be prerequisites to successful VMI usage.
2. We boiled down this long list into 15 key factors.
3. To capture how important these factors were in predicting the success of VMI usage by a firm, academic experts assigned relative weights to each one.
4. Industry experts were asked to assign weights to each factor as well.
5. The weights from steps three and four were found to be consistent with one another. The scores were averaged to obtain the final weights of relative importance of the factors, and then expressed in percentages for easy computation.
6. The questionnaire has a five-point Likert scale response from zero to four. Therefore, the maximum possible score is four multiplied by 100, or 400, while the minimum possible score is zero multiplied by 100, or zero, where 100 is the total weight of all factors expressed in a percentage.
7. Ten carefully selected case studies yielded insight into how the list of factors translated into practice. For this, the questionnaire was administered to the 10 companies to validate the framework with quantitative and qualitative results. Different managers were used for the detailed qualitative case study and quantitative part (the questionnaire responses) to increase objectivity and validity.

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hand, a series of success factors, such as the relationship with suppliers, fall within some degree of managerial influence. The prediction of the framework rests on a composition of factors that by no means point to an inescapable fate. As the illustrations from our field work will show, managers have a degree of freedom in how they choose to proceed with VMI.

Using the VMI-readiness framework

The framework is a quick and simple first step in evaluating your company's VMI readiness. It must be seen as a complement and not a substitute to more thorough analysis. To complete the questionnaire (Figure 2) and compute your final score, you will need less than half an hour:

1. Answer each question with a rank from zero to four of how well each factor applies to your supply chain.
2. Multiply each question's ranking by the weight provided for each factor.
3. The sum of the weighted rankings gives the final score of your firm's VMI-readiness. It will fall somewhere between zero and 400.

Interpreting the final score

A final score of more than 300 (75 percent) suggests that the company is ready to deploy VMI and should be doing so unless it has extenuating circumstances. The field study confirmed that no company with a score exceeding 300 was not working with a VMI solution. All of these cases used VMI and were happy with the outcome.

A score between 200 and 300 (50 percent to 75 percent) suggests that the organization consider VMI. In other words, this is a borderline situation, and the framework advocates that the company give serious thought on whether to go for VMI. Without qualifying context and deeper analysis, it is impossible to judge which decision would be best for this firm. Our field study found some companies that had considered VMI and decided not to go for it; others had decided to put a solution in place with varying levels of effort. If the company scores low primarily due to controllable factors, the situation can be improved and the company can become more VMI-ready with time. If the low score arises primarily from uncontrollable factors, the framework suggests that little can be done to improve the overall situation, and VMI probably is

BE PREPARED

Company related (company score):	
1. Our company revenues have been stable over the years, neither growing nor falling rapidly.	(3.86)
2. Transaction costs pertaining to purchase are high.	(5.14)
3. Information and communication systems are good.*	(6.75)
4. The company has no problem sharing inventory/forecast information with the suppliers.*	(9.97)
5. Purchasing is a core competence of our organization.	(7.07)
Product related (product score):	
6. Products are standardized, and customization is minimal.	(7.07)
7. Products are repetitive with infrequent changes in product specification by customer.	(8.04)
8. Products have standard product identification throughout the supply chain.*	(6.75)
9. Demand variance is low.	(4.82)
10. Demand is forecasted and stock levels are monitored closely.*	(7.40)
Supplier related (supplier score):	
11. High levels of trust and long-term relationships with the suppliers exist.*	(7.72)
12. VMI benefits are evident to both our company and our suppliers.	(7.07)
13. Key suppliers constitute a high percentage of purchase orders.*	(5.14)
14. Suppliers are willing to cooperate with a VMI initiative.	(8.68)
15. The company's information system is integrated with the suppliers.*	(4.50)

Figure 2: In this VMI readiness questionnaire, items marked with an asterisk (*) are controllable or improvable features. The figures in parenthesis are the weights expressed in percentage. The asterisks and weights are shown here for illustrative purposes and should not appear in the survey.

not a feasible option.

A score of less than 200 (50 percent) suggests that VMI will not benefit the firm, which probably need not bother to consider the solution. In the unlikely case that it already has deployed VMI, the supply chain managers need to consider withdrawing from it. Consistent with the framework's predictions, our field study found no company that scored less than 200 and used VMI; none of these cases felt that they missed VMI in any form.

The framework's range of outcomes

Our research tested the framework on a range of Swiss companies in a variety of industries, from retail apparel (ODLO) to aerospace (RUAG). The four selected cases below illustrate four significant outcomes. Figure 3 shows the predictive score versus actual success of VMI implementation.

Case One. A custom manufacturer in the highly regulated aerospace industry decided against VMI with good reason. RUAG Aerospace works on a build-to-order project basis with one-off parts. Because of its highly volatile, low-volume materials requirements, the company did not think it was

worthwhile to implement a VMI process with any of its suppliers. The complex and intensive documentation of both parts and suppliers made an automated replenishment unfeasible. RUAG chose to place orders itself and control its inventory in a hands-on process. The VMI-readiness score was 33 percent, for which the framework would recommend against VMI implementation, consistent with RUAG's policy.

Case Two. A retail garment supplier implemented VMI but continues to face issues to this day. The Swiss sportswear manufacturer ODLO uses VMI with both customers and suppliers. On the downstream side to customers, VMI binds them to their resellers while improving their availability and minimizing lost sales. In some cases, retail partners demand that ODLO manage the inventory in their stores. The efficiency of the process, however, only can be as good as the data and people on which it depends.

ODLO's VMI suffers from divergent master data and product identifications in multiple ERP systems, which make it difficult to align the partners in the supply chain. Information management that requires ongoing correction leads to inaccuracies in actual stocks on hand and, ultimately, suboptimal demand-supply matching. The VMI-readiness score (300) was in the 51 percent to 75 percent range for this company, which suggests that it generally is suited for the VMI integration it strives for. The company's use of VMI was consistent with the framework's prediction, but obviously there is room for improvement.

Case Three. A serial manufacturer of pharmaceutical products is a systematic and enthusiastic user of VMI. A comprehensive IT and supply chain strategy has helped Novartis relentlessly pursue its goals of integration, inventory reduction and velocity. Novartis implemented VMI as part of a drive to automate the repetitive work while focusing its resources on value-added processes. Its VMI implementation required no additional software since Novartis created a collaborative platform in its existing SAP system.

Its suppliers were granted access to data that previously was available only to internal procurement staff. Inputs to the Novartis MRP algorithm, like current

PREDICTION AND REALITY

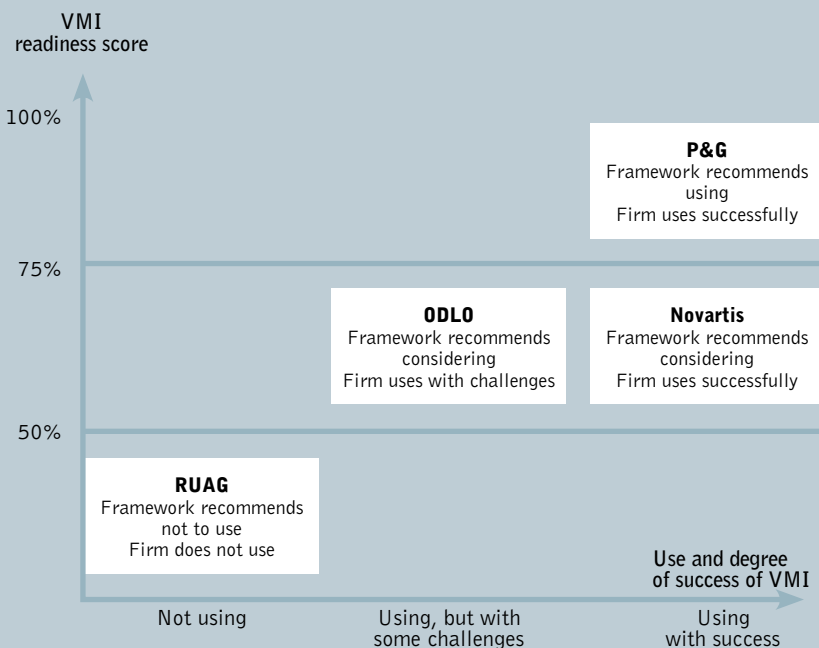


Figure 3: Companies with a higher VMI readiness score benefited from using the supply chain strategy.

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demand, bills of materials, quantities in transit and current levels of inventory, become transparent to the trade partner. With this insight, suppliers can decide either to ship in toto, as ordered, or adjust quantities to align with their own production schedule. The strong and mature ties with Novartis' suppliers helped create this win-win solution. Novartis' trade partners produce in their most optimal way while Novartis specialists rely on high service levels and dedicate their time to exception handling. Their business decision is in line with the 51 percent to 75 percent (247) score on the questionnaire framework. Although Novartis is not suited completely for a VMI solution, its comprehensive efforts turn that borderline fit into a successful case.

Case Four. A global consumer goods company known as a supply chain pioneer deploys VMI as part of its efficient consumer response strategy. Procter & Gamble's VMI optimizes logistics along supply chains to its customers by replenishing products directly on the grocery shelf based upon point-of-sale data. As a supplier of fast-moving consumer goods, the company has a higher focus on its products than its retail partners. In comparison to customers, Procter & Gamble can manage the flow of goods in a more efficient way because it has a better overview of the supply situation and product availability.

It also considers its planning tools to be better than those of its trade partners. Although efficient consumer response is positioned strategically as a strategic partnership with P&G's main customers, for some of these, VMI is a prerequisite to doing business, and so not an option. P&G's Swiss division scores in the 76 percent to 100 percent range with a whopping 366 raw score on the framework. This strongly suggests that P&G deploy VMI, which is in line with its business decision.

Although not every company will compare to one of these four illustrative cases, our field work demonstrates how the framework can be used as a decision-support tool for VMI-readiness.

Conclusion

Contrary to conventional wisdom, VMI is not for all. Like every other "best" practice, qualifying the VMI solution for the particular business at hand remains vital. There are a host of legitimate reasons to continue the "old-fashioned" way of working with suppliers. Even if publications and successful cases imply that traditional ordering is backward and inefficient, it may be cheaper and better for some companies to retain the purchasing function in-house.

Managers should take the time to analyze their own

business case — products, people, processes — and supplier relationships. They may well find themselves in one of the quadrants where VMI delivers dubious or no benefit. Custom manufacturers or companies with frequent product rollovers fall into these categories. As the case of Novartis demonstrates, the framework foresees a margin for individual control. With the right strategic management of a VMI project, a borderline fit can become a commercial success.

Should your framework score suggest a VMI-readiness for your firm, prioritize implementation along the improvement factors identified in Figure 1. For example, if in your company's culture suppliers traditionally are regarded as hostile opponents, some time will be needed to learn how to view them as partners in your overall system. Firms with successful cultures of collaboration (including VMI) share information in order to take out cost together: Their total savings exponentially are higher than the costs that can be cut in silos. Relationship-building is an ongoing project, demonstrating over and over again that VMI is not a silver bullet. As owners of the process they put in place, managers always influence the final result. ❖

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