

### 2.1.2. Cost-Benefit Analysis: VMI Savings Calculator

In order to calculate return on investment (ROI), in addition to revenues, also **costs** should be estimated. Implementing VMI requires **investments** like executing any other project in the company. The costs of implementing VMI vary to a large extent and depend on different characteristics of the company such as the size of the company, the ERP systems used in the company, the role of the company in the supply chain (vendor/buyer) and so on. The costs can be divided into two groups: 1. Initial investments, 2. Operational (ongoing) costs (see Table 1).

**Table 1. VMI program costs: initial investment and operational costs**

1. VMI project initial investments	2. VMI operational costs
<p>Initial costs include investments into business process change, new software systems, and personnel training:</p> <ul style="list-style-type: none"> <li>• VMI software and hardware</li> <li>• Cost of changing business processes</li> <li>• IT support - in house and external</li> <li>• Personnel training costs</li> <li>• Project management costs</li> </ul> <p>GS1 Switzerland's (2011) estimation of total costs for a vendor company setting up VMI were about €75 to €130 thousand. These estimations were done for companies setting up VMI for the first time. The cost for setting up an additional VMI partnership (with another buyer) should be considerably less, amounting to 20% of the initial costs.</p> <p>The initial costs for a buyer company are 2/3 less, considering that the VMI technological solution will be set up at the vendor, not at the buyer side.</p>	<p>The running costs of a VMI program consist of the following:</p> <ul style="list-style-type: none"> <li>• <b>VMI manager/team costs.</b> The extent of personnel used in VMI program depends on which VMI level is chosen—is it pure VMI or is it co-managed inventory (in latter case, there is a VMI manager on buyer side as well). Additionally, the amount of work on vendor side depends on which VMI model is chosen, DC or DSD VMI. In DSD VMI, at least 1 FTE should be planned for the work.</li> <li>• <b>VMI operational costs.</b> Operational costs include running costs of new equipment and new software (VMI solution for vendor, and potential adjustments in buyer system), IT support for VMI solution, and electronic data interchange (EDI) costs to service provider.</li> </ul> <p>In addition, if consignment is part of the deal<sup>3</sup>, running costs also include inventory carrying costs for vendors.</p>

One handy tool to estimate the net benefits (all potential savings minus all potential costs) when switching to VMI is to use a VMI savings calculator. For example, a simple Excel-based calculator created by Telema can be used. This is a strategic level tool for defending the business case to your partners or your management board. While many benefits are similar to both buyers and vendors, the costs differ quite a lot. Therefore, the **Telema VMI Savings Calculator** includes separate versions for buyers and vendors.

#### VENDOR



#### VMI savings calculator for Vendor

Telema VMI Savings Calculator for the Vendor is an Excel based model<sup>4</sup>. The calculator's version 201508 is shown on Figure 7. On left-hand side are input cells for calculation of savings. On right-hand side are input cells

<sup>3</sup> Large buyers may rely on their leverage to pressure the vendor into consignment deals. These customers own the current inventory at their locations. Once the consignment agreement has been settled, customers still have inventory at their locations but the capital of the inventory is disengaged. By entering into consignment agreements with vendor, customers are effectively transferring their inventory carrying cost and capital opportunity cost to that vendor.

<sup>4</sup> Telema VMI Savings Calculator is freely usable and can be found on the web: [links.telema.com/VMICALCULATOR](http://links.telema.com/VMICALCULATOR). All suggestions for improvement are welcome.

for investments and costs and the resulting total numbers. All blue cells should be filled with relevant data for your specific company (the numbers there are just an **example**).

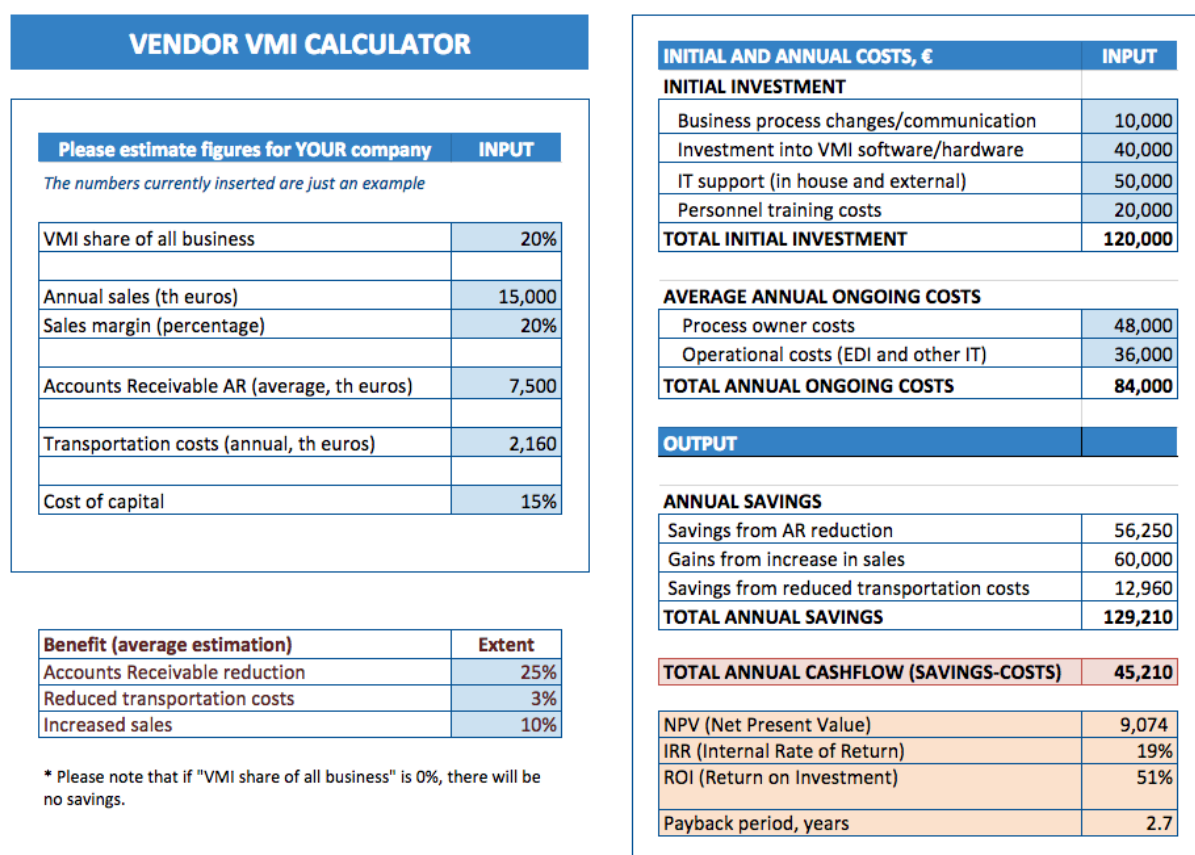


Figure 7. Sample Vendor VMI calculations using Telema VMI Calculator

For a Vendor, the following should be entered as inputs:

1. **VMI share of all business.** Enter 100%, if all business is conducted using VMI. Enter 0%, if no VMI is used. If VMI is used with one retailer that amounts to 10% of all business, then enter 10%. If VMI is used with 10 retailers that bring 75% of all business to vendor, then enter 75%. This is the cell which allows to try different scenarios—what is the impact of VMI, if we do it only with one partner versus if we do it with majority of our partners.
2. **Annual sales.** Enter your total annual revenue, in thousands of euros.
3. **Sales margin.** Enter your average sales margin in percentages: net profit divided by revenues.
4. **Accounts receivable.** Enter the amount of your average accounts receivable (customer debt) from your balance sheet. (For example, add the balances at the end of last two months and divide by 2).
5. **Transportation costs.** Enter your average annual transportation costs related to delivery of products.
6. **Cost of capital.** Enter your weighted average cost of capital<sup>5</sup>. Do not forget that equity capital has an opportunity cost attached. The easiest is to ask from your financial department.

For calculator to work, the vendor should now estimate the extent of VMI benefits. For vendor, these are in three categories:

1. **Accounts receivable (AR) reduction.** It is widely believed and confirmed with research that VMI optimizes inventory in the supply chain. Reported numbers range from 15% to 40% less inventory at the buyer side. Therefore, at any current moment in time, the buyer will owe vendors less money

<sup>5</sup> From Investopedia: The cost of funds used for financing a business. Cost of capital depends on the mode of financing used – it refers to the cost of equity if the business is financed solely through equity, or to the cost of debt if it is financed solely through debt. Many companies use a combination of debt and equity to finance their businesses, and for such companies, their overall cost of capital is derived from a weighted average of all capital sources, widely known as the weighted average cost of capital (WACC).

(reducing accounts receivable). If buyers own less money, vendor's capital is not tied up in buyer debt anymore and its financing costs will be reduced.

2. **Reduced transportation costs.** For DC delivery, VMI programs have resulted in significant savings in transportation costs due to being able to work with full pallets and even full trucks. It has been estimated that savings from optimized transportation are between 3-6%. However, for DSD delivery, transportation costs might even increase—if you believe this is the case, you can enter percentages with negative sign, for example, -2%. In summary, depending on cooperation mode (DC versus DSD), enter the percentage of savings you believe suitable to your company.
3. **Increased sales.** Practice and research has shown that VMI helps to reduce OOS and therefore, increase sales. While sometimes very high numbers are reported (up to 40%), the average improvements are from 2% to 5%. This is explained by the difference of starting points. In some industries and companies, starting point availability is very low, while in some industries and/or companies it is already at high level. Potential gains depend therefore on the starting point. Enter the percentage that will apply to your specific company.

Next on right hand side, both initial investment and ongoing average annual operational costs should be estimated. As explained in Table 1, vendor bears bigger initial setup costs than buyer, as the technological solution will be usually set up at the vendor. The right-hand side gives the framework for thinking about the related investments and cost, current numbers on Figure 7 are just an example and users should enter their own company-specific numbers.

On bottom right half, the resulting figures are presented in yellow cells.



### VMI savings calculator for the Buyer

Just like for vendors, there is a similar calculator developed for buyers. The **Telema VMI Saving Calculator for Buyer** is a strategic level tool for defending the business case to your colleagues or your management board. Telema VMI Savings Calculator for the Buyer is an Excel based model<sup>4</sup>. The calculator's version 201508 is shown on Figure 8. On left-hand side are input cells for calculation of savings. On right-hand side are input cells for investments and costs and the resulting total numbers. All blue cells should be filled with relevant data for your specific company (the numbers there are just an **example**).

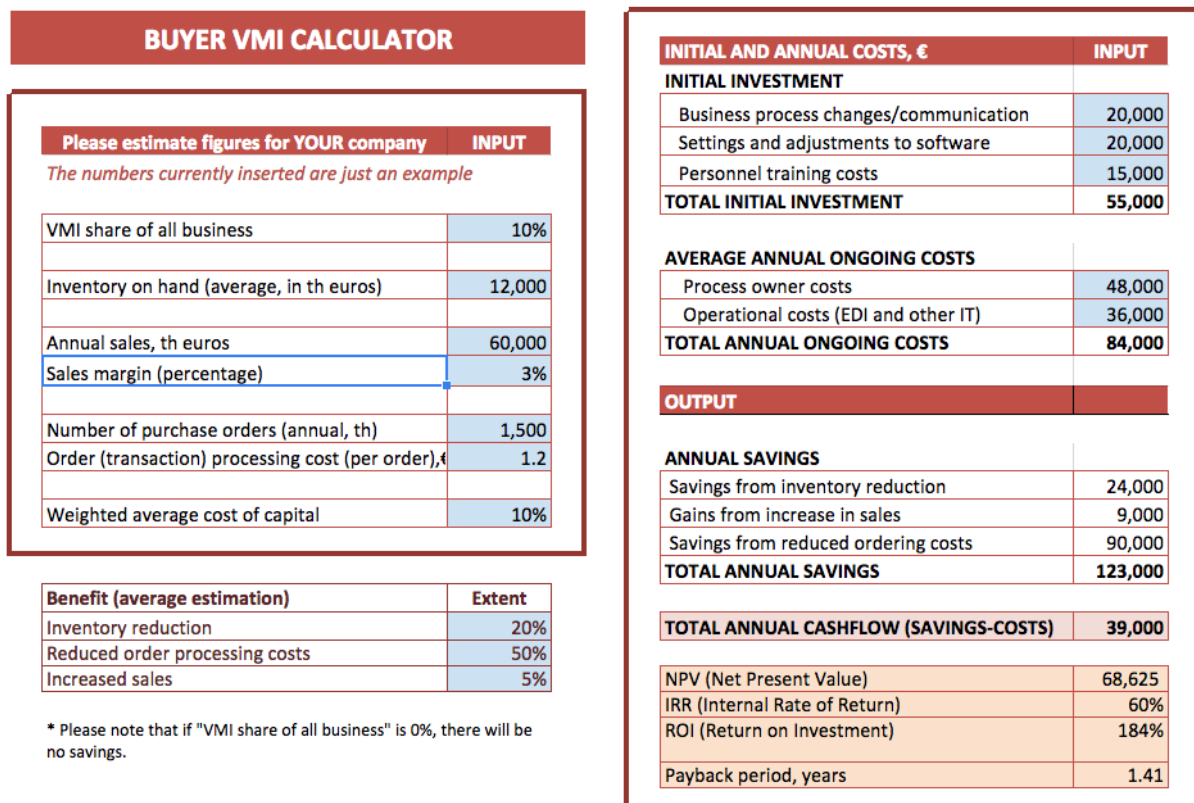


Figure 8. Sample Buyer VMI calculations using Telema VMI Calculator

For Buyer, the following should be entered as inputs:

- **VMI share of all business.** Enter 100%, if all business is conducted using VMI. Enter 0%, if no VMI is used. If VMI is used with one vendor whose business amounts to 10% of all business, then enter 10%. If VMI is used with 10 vendors that supply 25% of all your business, enter 25%. This is the cell which allows to try different scenarios—what is the impact of VMI, if we do it only with one partner versus if we do it with majority of our partners.
- **Inventory on hand.** Enter the average value of your inventory in thousands of euros. (For example, add the balances at the end of last two months and divide by 2).
- **Annual sales.** Enter your total annual revenue, in thousands of euros.
- **Sales margin.** Enter your average sales margin in percentages: net profit divided by revenues.
- **Number of purchase orders.** Enter the annual number of purchase orders: for example, multiply the number of orders you generate every month to all of your suppliers by 12.
- **Order processing cost per order.** If you do not know the average processing cost per one order, estimate it by summarizing the payroll costs and other costs of all people dealing with issuing orders and dividing the result by the number of orders.

- **Cost of capital.** Enter your weighted average cost of capital<sup>5</sup>. Do not forget that equity capital has an opportunity cost attached. The easiest is to ask from your financial department.

For calculator to work, the buyer should now estimate the extent of VMI benefits. For buyer, these are in three categories:

1. **Inventory reduction.** It is widely believed and confirmed with research that VMI optimizes inventory in the supply chain. Reported numbers range from 15% to 40% less inventory at the buyer side. Enter the percentage you feel applies in your company's case.
2. **Reduced order processing costs.** As VMI eliminates ordering on buyer side, in theory, this should be 100%. However, to be conservative, also lesser percentages can be entered. NB. This number applies to only orders related to VMI partnership (as the share of VMI business is considered already above). This means that if only 10% of business is over VMI, then a 100% reduction in ordering costs affects 10% of all ordering costs.
3. **Increased sales.** Practice and research has shown that VMI helps to reduce OOS and therefore, increase sales. While sometimes very high numbers are reported (up to 40%), the average improvements are from 2% to 5%. This is explained by the difference of starting points. In some industries and companies, starting point availability is very low, while in some industries and/or companies it is already at high level. Potential gains depend therefore on the starting point. Enter the percentage that will apply to your specific company.

Next on right hand side, both initial investment and ongoing average annual operational costs should be estimated. As explained in Table 1, buyer bears less initial setup costs than vendor, as the technological solution will be usually set up at the vendor. The right-hand side gives the framework for thinking about the related investments and cost, current numbers on Figure 8 are just an example and users should enter their own company-specific numbers.

On bottom right half, the resulting figures are presented in yellow cells.