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CONSULTANCY

Paul Durlinger MSc

DURLINGER ESSENTIAL

Five things the MT must know about Inventory management



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1. Introduction

Let's face it: Inventory management isn't easy. It's a discipline, taught at all major universities on this planet. Every year reams and reams of paper are filled with texts about how to determine batch sizes, re-order levels and safety stocks. Furthermore, (top) management hasn't the time, and often even hasn't the background, to be able to read and understand everything. (Even specialists sometimes fail!)

On the other hand, top management is responsible for adequate stock levels and for ensuring good customer service, while at the same time delivering satisfactory (financial) results to the stake- / shareholders. In discussions with (top) management we often find that they don't feel that they have the right tools to do this job. But we are going to change all that. We have already taken the first step ... you are reading this booklet!

Top management doesn't have to know all the nitty-gritty details, or understand all the calculations. At a tactical level, you have smart people for that. And you have probably also invested in smart software.

2. What background does a manager need?

In this booklet we will look at a number of stock-related issues that you as a top manager can directly influence:

1. Who is responsible for the stock?
2. The range
3. The stocked / non-stocked decision
4. The ABC classification
5. Service level to the customer

These are all things that you, as the top manager, need to consider. Analyses by tactical management can help you in this. Sometimes the results of these analyses are no-brainers and sometimes they will be confrontational, but they will always be based on data.

Doing business, however, involves more. Vision and market 'feeling' also play an important role. Combining both aspects, feeling and statistics, allows you, MT member, to make the difference.

3. Who is responsible for the inventory?

The answer to this question is surprisingly straightforward: you yourself, top management, bear the responsibility for the inventory and for the level of service provided to the customer. NOT the Supply Chain, nor Inventory management, nor Planning. And certainly not your Orders department. After all, they just implement policy.

The vision of the American inventory gurus George Plossl and Evert Welch is illustrated in figure 1, from their classic *Role of Top Management in the Control of Inventory* [1979]. A book well worth reading!



Peerless
Topman
Says....

“The top-management edict is a must. Inventory goes down only when top management says it must”

Figure 1 Management is ultimately responsible.

4. There is no such thing as 'the' inventory

We must realise that the total inventory for any business consists of several distinct inventories, as defined by their function or source. Some of these types of inventory are determined *explicitly* by the MT, some *implicitly* by the formulated policy.

An example of *explicitly* determined inventories is the strategic inventory: that which the MT considers crucial for operational management. Coffee roasters, for instance, maintain a strategic inventory as insurance against failed harvests; and the Dutch state maintains a strategic oil reserve. The MT determines the initial inventory for new products as well as the level of seasonal inventory that must be provided.

Process environments have capacity inventory to balance the demand for capacity. We also see the phenomenon of promotional inventory, purchased to meet the (hoped for) increase in demand. Someone in the MT is responsible for (setting) the level of this inventory component, and it is obvious where it originates: Marketing is responsible for promotional inventory and Sales for obsolete inventory.

Two types of inventory are *implicitly* determined by the MT: the batch size stock and the safety stock (see chapter 8).

5. The range

The **second** aspect for which the MT is responsible is the range. Certainly in the online world, it seems *bon-ton* to offer a wide range. In some companies, assortments seem to be growing like weeds. They keep on expanding. This has some drawbacks. For each of these products, someone must determine whether we will deliver them from stock or not, someone must verify whether the master data is correct, and the stock strategy for each product must be considered (order quantities, when to order). Furthermore, the demand for a certain product (say toothpaste) will be distributed over multiple variants. You run the real risk that your expensive and smart people will spend a lot of time on products that don't matter.

5.1 Existing range

This means that you have to take a good look at the existing range and be especially careful about the procedures for phasing out products. Are they all equally worthwhile? Two MT tools designed to help with this are the *ABC analysis* (Durlinger [2019, 2]) that is intended to achieve focus, and the *Incremental Margin Analysis* [IMA] (Durlinger [2019, 3]) to determine which products generate money. I will return to this briefly in Chapter 6.

5.2 New range

Furthermore, unbridled inclusion of products in your assortment is not such a good idea either. Certainly when you know that research agency Nielsen has calculated that 95% of product introductions fail! Of course this certainly does not mean that we shouldn't add products to our range. But we can try to add some rationale to an otherwise fairly emotional process. The *Assortment Index* (Durlinger [2019.4]) is a great tool for that.

6. Stocked / non-stocked decision

The **third** choice the MT must make at the strategic level is the stocked / non-stocked decision. In other words, when do we deliver an item from stock and when do we produce or order on demand? This is primarily a commercial decision. If the customer will not accept a delivery delay, the choice is easy: we must deliver from stock. If the customer does accept a longer delivery time, we might be able to purchase or produce the product specifically to order. The question in these cases is: who pays the ordering cost?

Suppose the ordering cost is £25 per order, then it must yield at least £25 gross margin. But suppose the same product is ordered 5 times a year; in that case it might be better to keep these products in stock. The decision must be based on the trade-off between inventory and order costs, which means that we must know both of these factors. This is where the assortment index may prove useful.

7. ABC-classification

Especially when dealing with a wide range of products, your employees should be focused on the 'right' products and customers. Unfortunately, we often see just the opposite. *ABC analysis* (also known as *Pareto analysis* or 80/20 rule) is the best way to distinguish between important (A) and unimportant (C) products or customers.

The **fourth** MT responsibility is the definitive classification. This will determine the stock strategy and forecasting method. The actual ABC analysis is for tactical management to perform, but you as MT set the parameters. We can use an ABC analysis for various purposes, such as assortment analysis, stock analysis, warehouse layout or customer analysis. In all cases the goal is the same: focusing on important products and / or customers. The MT determines which parameters play a role. For assortment analysis this could be total margin, or total sales, or number of customers per *Stock Keeping Unit* [SKU]. The MT must then indicate when to consider a certain product important. For example, 'a gross margin of > £ 100 K makes it an A product and a product with a gross margin of < £ 100 is C.' But there may also be other, less quantitative issues that play a role.

The MT remains responsible for the final classification, with the aid of ABC analysis and Incremental Margin Analysis (see Durlinger [2019, 5]).

8. Service level

The service level to your customers is what we do it all for. This must be 'excellent', and this is the **fifth** parameter for which the MT is responsible. However, the level of service proves to be a diffuse concept in practice. The MT must be very clear on this subject, otherwise everyone will interpret it in a different way. But the MT must understand some things concerning the level of service. We will summarise the main points here, and refer to Durlinger [2019, 6] for more MT-related information. The MT must know the following things:

- Difference between external and internal service level
- Definition of the service level
- Required level of service

8.1 Internal versus external service level

The *internal* service level has to do with the *performance* of your stock point / warehouse. The *external* service level is the level of service to your customers. Software uses the internal service level to calculate the safety stock level. This is determined at the outset; the service level to your customer is measured afterwards. And, often, they don't have much in common. This has to do with the definition of the service level used.

8.2 Definition of service level

The two most common service level definitions are the number of times the inventory point goes out of stock per year, and the number of products that cannot be delivered from stock per year. If you opted instead for a definition that has to do with the number of products delivered on time, a link could be made between external and internal service levels. Otherwise the connection is completely lost, and the results of the calculations remain confusing. You can read more about this in Durlinger [2019, 6]. But, as always, you as MT are responsible for the definition used.

8.3 Level of service: how high?

Another MT decision. To put it simply: higher service levels lead to larger safety stocks. The relationship between service level and safety stock is exponential. This means that the last few percent improvement in service level is disproportionately expensive. In practice, this becomes distinctly apparent at service levels above 95%. Furthermore, does every customer and product deserve the same level of service? Again I refer the reader to Durlinger [2019, 6].

9. What else should the MT know about?

In addition to the points mentioned above, there are a number of aspects on which the MT should have an opinion.

9.1 Order and Inventory costs

The key questions for inventory management are how much to order and when to order? “How much to order”, determining the batch size, is a trade-off between ordering costs and inventory costs. But this means that we must know these costs. It is always astonishing to a logistician that most companies have no idea how high these costs are in their company.

Something similar applies to the security stock level, where inventory costs certainly play a role. But so does the series size!

This means that if we do not know the inventory costs and the order costs, we are unable to answer the two basic questions of inventory management. Nor can any software that we are using, since it relies on these same cost components. The MT is responsible for ensuring that the correct costs are known.

9.2 Supplier assessment

The main cause of a poor service level to our customers is the delivery behaviour of our (internal and/or external) supplier. It will be useful, therefore, to determine whether our suppliers are reliable. Once again, we find that many companies barely measure this. It is often claimed that the required data is not available. However, may I point out that all the necessary information is already available in your IT system. Otherwise you would have been out of business before now. The fact that you or your software supplier cannot retrieve this data is another story. Here too, there is a simple solution called SQL. A language that every IT professional knows (or should know) and with which all required data can be retrieved from your ERP system within 30 minutes. It is a little more strategic to find out how important you are to your supplier or how important your main products are to him. I am happy to refer to Durlinger [2019, 7].

10. Summary

The MT is responsible for:

1. Stock levels
2. Product range
3. The stocked / non-stocked decision
4. The ABC classification
5. The service level to the customer

Furthermore, the MT must ensure that the inventory and ordering costs are known and that supplier reliability is measured. And we should also know how important we are to our supplier.

11. Literature

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Paul Durlinger

Paul lectured at several universities and has twenty years of experience as a senior consultant. He sees it as his mission to make difficult concepts readily understandable.

He is also attached to the Slimstock Academy.





DURLINGER
CONSULTANCY

Nieuw Holsterweg 15
6061 EG Posterholt

 +31-6 224 07 919

Paul@durlinger.nl

www.durlinger.nl