

MASTER

Improvement of the customer service level at IgloMora Groep

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“Improvement of the Customer Service Level”

at



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Abstract

The project's goal is reducing the out of stock days at the IgloMora Group. The situation of the Sourcing department is described and root causes of the problem have been identified. A model is build to calculate the supply chain parameters and determine the impact of different factors to the Customer Service Level and costs. The Sales Planning process is further analysed and subsequent recommendations are done to reduce the unreliability of the sales forecast.

Management Summary

Relevant situation

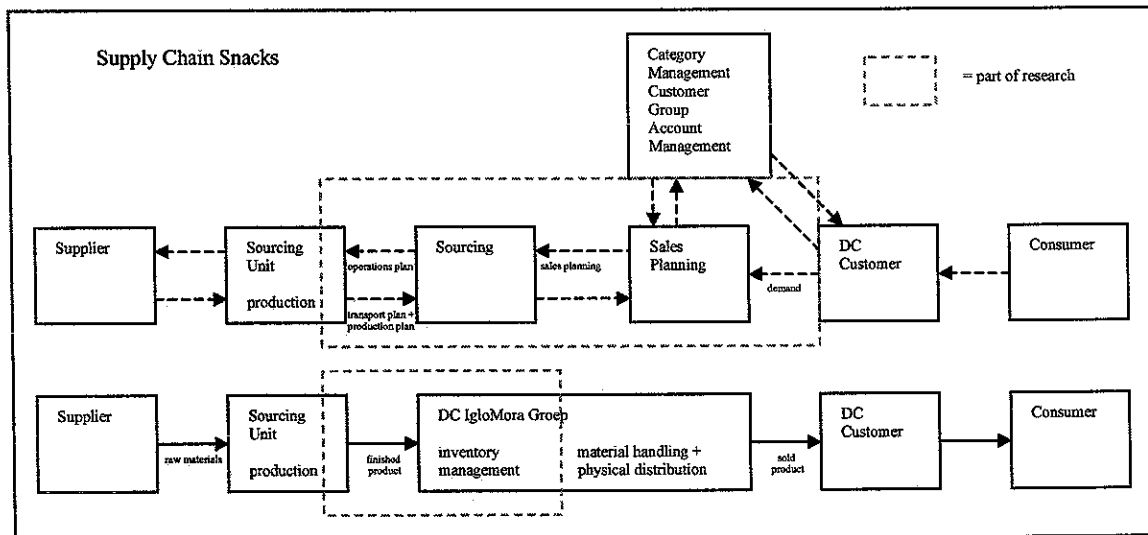
The project was done at the IgloMora Group in Den Bosch. IgloMora is a business unit of the business group Ice Cream and Frozen Foods. It has three divisions, Iglo selling frozen foods, Ola selling ice cream and Mora selling snacks. In total 550 different stock keeping units are sold to customers.

The IgloMora Group is separated in a Marketing and Sales Unit (MSU) and Sourcing Units (SU). The MSU is responsible for the Marketing and sales. The Sourcing Units are responsible for the production. The finished products are transported from the SU's to two Distribution Centres (DC). From there the products are delivered to the customers.

The project focuses on the Snacks division, because here were a lot of logistics supply chain problems in 1999. The snacks division operates on the Dutch and Belgium market. The assortment consists of meat, poultry, ragout, snacks & sauce, bakery, appetisers and exotic products. The products are sold to retailers and to the out of home market. In both channels the products are sold with private labels and with Unilevers customer brand "Van Lieshout"(out of home) and consumer brand "Mora" (retail). The products are made in 3 Sourcing Units, located in Helmond, Maastricht and Mol.

The relevant supply chain starts at the Sales Planning. The department at the MSU prepares a sales forecast, which is the main input for the Sourcing Units and the Sourcing department. Sourcing is responsible to have the right product available in the right quantity at the right DC at the right time. Figure 1 gives an overview of the information and product flow. The dash boxes show what is part of the research assignment and what is not.

Figure 1



Problem

Due to the 395 out of stock days Sourcing did not realise the desired customer service level in 1999. This was the reason to initiate this project. IgloMora realised a customer service level of 89.4% while the target was 99.3%. The main reason for the out of stocks was the sales forecast. In a certain period more products were sold than were expected in the sales forecast for that particular period. Other reasons were the late delivery of packaging, bacteriological problems with production at the Sourcing Unit in Helmond, blockade of products because of quality issues, the vacation closure of the Sourcing Unit in Helmond and other problems at the Sourcing Units. The process of sales planning has been changed since the integration of Iglo-Ola and Mora in 1998. Since then the communication lines

between production planning and sales planning have been lengthened. This has caused more lack of understanding in the supply chain. Besides the planning system has changed. In the past, two Sales Planners did the planning of the planning of Snacks by hand. They had a lot of experience and knowledge of the customers. Nowadays the Sales Planner uses a computer program Manugistics as a tool to make the sales forecast. Finally the way actions (additional sales supported by temporary price reductions) are handled in the organisation causes problems. Actions are confirmed too late or are not confirmed at all and are not always communicated to the right persons.

By improving the Customer Service Level the cost for obsolete stocks and inventory have to be considered. Obsolete costs originate from products exceeding the shelf life. Especially the meat snacks have restricted shelf lives. The current inventory and obsolete costs depend on the supply chain parameters, the minimum and maximum coverage. Sourcing and the Sourcing Units are supposed to keep the inventory at the DC's between the minimum and maximum coverage.

Project's objective and approach

The objective of this project is to improve the Customer Service Level and to decrease the amount of out of stocks without increasing obsolete and inventory costs. The situation has to be analysed, in order to find out, which factors contribute to the out of stocks and to the relevant costs. Once the factor with the most impact is found, further analysis is necessary to be able to do proposals for improvement. The first step is to adjust the minimum and maximum coverage based on the characteristics of the sku's. Currently the parameters are determined by experience. The re-adjustment will improve the customer service level and makes analysis of the situation possible.

Re-adjust minimum and maximum coverage

The minimum coverage should be the sum of safety stock and pipeline stock. The safety stock should cover the uncertainties of the sales forecast, the production planning and the lead-time. The pipeline stock is necessary to cover the time the products need from production till release at the DC. This takes a week. To adjust the parameters in virtue the characteristics a theoretic model is chosen to determine the safety stock. For all the sku's an individual minimum coverage is determined based on the formula: $safety_stock. = k * \sigma_x \sqrt{(L + R) / F}$.

The maximum coverage is to prevent that the inventory exceeds the shelf life. The maximum coverage is at least the minimum coverage plus the production batch. At most the maximum coverage is the internal shelf life. From the total shelf life a certain time is given to the customers. The rest of the shelf life is called the internal shelf life. A model is built to calculate the coverages. The results were discussed with the logistic managers and the operators of the Sourcing Units. After some changes the parameters were implemented in the enterprise resource planning system, MFG/Pro. The implementation, of the coverages decreases the number of out of stocks (which will appear later on) and saves nearly 100.000 Dutch guilders a year of capital invested in inventory. Assuming that the storage costs are variable another 150.000 Dutch guilders would be saved. For the implementation coverages were shortened because either the minimum or maximum coverage caused obsolete problems. The level of inventory that has to be kept, according the current characteristics of the sku's, is higher than the shelf lives. So further analysis of the factors that affect the customer service level or the relevant costs is needed.

Analysis Customer Service related factors

With the model that was used to calculate the parameters, further analysis is done. The factors that were analysed are:

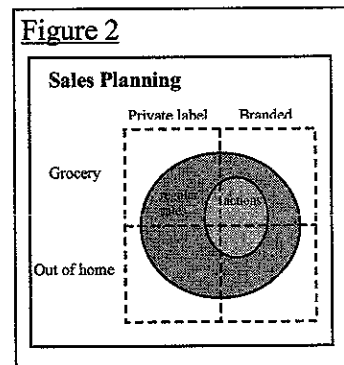
- Production batch; the production batch has to be considered in relation with the shelf life. Short shelf lives and big production batches causing obsolete problems. This is especially the case for slow moving meat products.

- Unreliability of sales forecast; the private labels sold in the out of home market and export products have much unreliability in the sales forecast.
- Unreliability of production planning; the most unreliable Sourcing Unit is Maastricht. The majority of the unreliability in the production planning is caused there. Exotic products are very difficult to produce.
- Reaction time; the reaction time depends on the flexibility of the Sourcing Unit.
- Pipeline time; this the time that is necessary to produce products, inspect the quality, transport them to the DC, and release them for sale. The Sourcing Units themselves can cover the unreliability in the pipeline time.
- The shelf life; the snacks products have restricted shelf life. After the shelf life the taste reduces, so that will not do IgloMora any good to sell them after this time. Two third of the shelf life is given to the retailers and consumers (grocery channel) or the wholesalers and caterer's and cafeteria (out of home channel). One third is left for IgloMora as intern shelf life.

A what-if analysis is done to determine the influence these factors exert on the customer service level and the relevant costs. An improvement in the unreliability of the sales forecast has the best result in both the customer service level and the obsolete and storage cost. The sales forecast is of crucial importance for the management of the supply chain. When no improvement can be made in the sales forecast, the reaction time of the Sourcing Unit should be improved. Shortening of the reaction time has the second best result in improving the customer service level and the relevant cost. This could be realised by shortening the lead times of the suppliers or increasing the flexibility of the Sourcing Units. The issue with planning machine capacity and personal should be considered as well. As a result of the what-if analysis and the cause analysis of the out of stocks the sales forecast is further analysed.

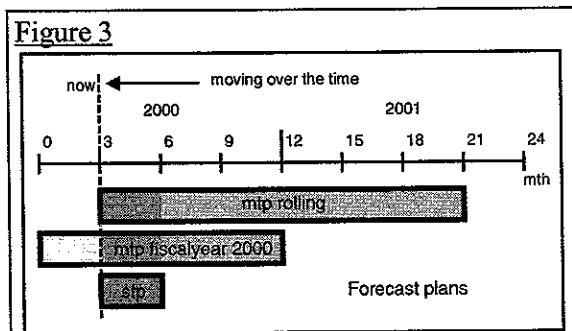
Analysis Sales Planning

Three different issues of the sales forecast are analysed. First of all the sales forecast process is analysed, because it is such an important link in the supply chain. A part of the sales forecast are the expected sales caused by actions. This is shown in figure 2. Attention is paid to the procedures for actions because Sourcing experiences lots of trouble with them. Finally the private labels sold in the out of home market are analysed. The big unreliability in the sales forecast of these products was addressed before.



Sales Planning process

The Sales Planner has a lot of meetings during the week with different departments to get information about national promotions, TV and radio use, advertisements and actions. The process of the Sales Planning is found state of the art according Unilever measures. All the information is combined with actual sales in a computer program. This program helps the Sales Planner to create a weekly forecast. The results of one model are 3 plans. The first is the medium term planning for the fiscal year. Sourcing does not use this. The Sourcing Units use the rolling medium term planning. They need this for the machine and human capacity planning. Euro Buying, that is responsible for closing the contracts of purchasing packaging and raw materials, uses this mtp as well. The short term planning is essential for the control of the physical product flow. The Sourcing Units base their production plan on the weekly forecast in



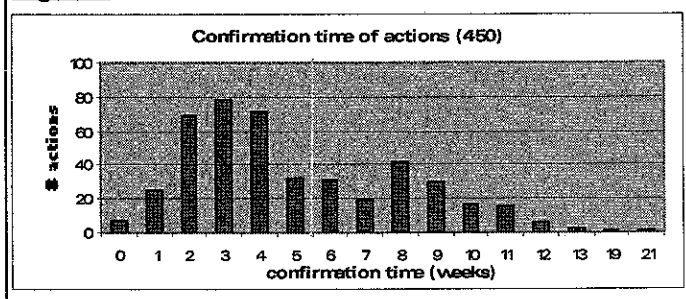
the short term planning. The Sales Planner measures his performance with a key performance indicator over 4 weeks. The Sales Planner slightly improved his performance since 1998. The main issue with the sales planning process is that it does not use an ABC classification and/ or a sku list, which shows the products that are difficult to produce for the Sourcing Units. A second issue with the short term planning is the fact that the Sales Planner does not updated it every week for the whole period. So the Sales Planner should get a target for the performance indicator for 13 weeks, next to the performance measure for 4 weeks.

Actions

The procedure for actions starts with Account Management. They do proposals to customers. The consumer confirms the proposal or confirms an action without a proposal to the Customer Group. The Customer Groups estimate the action volume. The Sales Planner uses this information for the forecast. The main problem with the action procedure is that actions are confirmed too late. The agreement is that actions are confirmed at least 6 weeks before the action is actually taking place.

Figure 4 makes clear that 65% of the actions are confirmed within 5 weeks or less. This is causing the Sourcing Units and Sourcing problems, although not every late confirmed action leads to an out of stock. The rule is that Sourcing is informed in case of a late confirmation. It is not clear for the Customer Groups which communication lines they have to follow. A new blueprint is made for the procedure. It is made clear who is responsible for what. The Customer Groups should make use of the same ABC classification and a critical sku list as was proposed for the Sales Planner. With these documents they are able to consider if an action is critical or not. The Customer Groups should inform Sourcing in case of a critical action, before it is processed in the sales forecast.

Figure 4

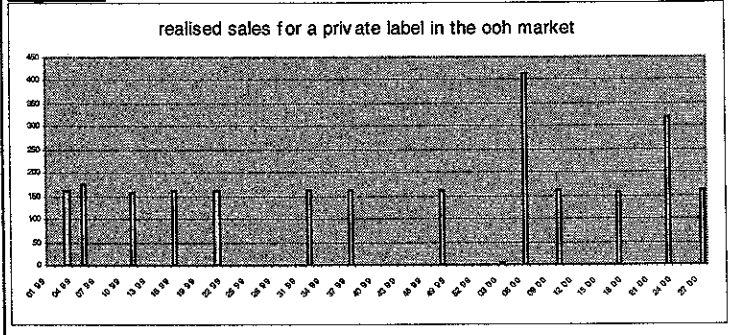


Sales Planning measures the performance of the estimation of the action volume. This is done by the PIF-score, which means promotion in full. Currently 40% of the actions is estimated with a deviation that is equal or less then 25%. In the new procedure the Customer Groups are measuring the performance their selves. Besides they have to do a cause and affect analysis. This will provide the Customer Groups information and experience to improve estimations in the future.

Private Labels

Each private label in the out of home market is produced for an individual customer. The private labels have different recipes, different weights and different packaging. This causes much conversion costs for the Sourcing Units. For the sales planning it causes problems because the demand is not aggregated. Due to the fact that only one customer is buying the product the sales planner has to forecast a pattern as is shown in figure 5. To better understand the reasons behind such patterns, 8 customers in the out of home market are interviewed. Conclusion is that the wholesalers do not have a professional order procedure. Replenishment is mainly done by experience and without or

Figure 5



with little help of a computer system. No possibly extensive co-operation is possible, because customers do not have the right IT-systems and the problems are divided over too many customers. IgloMora has already started 3 projects to cope with the private labels in the out of home market. If these projects do not solve all the problems for the private labels, further investigation into the possibilities of flexibility of the Sourcing Units is necessary.

Conclusions

The most important conclusions are:

- In 1999 Sourcing had too much out of stocks and was not able to realise the desired Customer Service Level. The main cause was the sales forecast.
- For the analysis necessary adjustment of the minimum and maximum coverage improved the Customer Service Level and reduced cost.
- The unreliability of the sales forecast has the biggest impact on the Customer Service Level and related costs.
- Private labels in the out of home market are hard to forecast. The demand is not aggregated because only one customer is buying the product. No extensive co-operation is possible, because customers are not ready for that yet and do not have the right IT systems.
- Actions are confirmed too late and the estimation of the action volume is bad. The procedure for the confirmation is unclear.
- The process of Sales Planning is found state of the art according Unilever measures.
- The short term planning does not happen with the right detail and is not measured.
- In week 44 in 2000 Sourcing counted in total 77 national out of stock days, compared to 346 at the same time in 1999. The target for 2000 is 195 days, which seems very likely to be achieved. So the implementation of the new coverage's contributed to the improvement of the customer service level.
- At first in 2000 the out of stocks at DC level are measured. In total (inclusive the national out of stocks) 437 out of stock days were counted. This is clearly an opportunity for next year.

Recommendations

The most important recommendations are:

- Once a year the minimum and maximum coverages should be updated.
- To cope with the unreliability in the sales forecast of the private labels in the out of home market, the flexibility of the Sourcing Units should be considered.
- The suggested procedure for actions should be used. IgloMora would improve the way actions are handled. Sourcing would be informed in case of late confirmations, the Customer Groups do have better information to decide if an action is critical or not and the evaluation of the estimations of actions deliver the Customer Groups information to improve the estimation in the future.
- To improve the prioritisation the Sales Planner should use an ABC classification and a list of sku's that are difficult to produce.
- To maintain an accurate short term planning, the Sales Planner should get a target for the 13-weekly performance indicator.
- The way the out of stocks are measured could be improved. A root cause of the out of stocks should be done. Once a month the causes should be discussed so that focused actions could be made.