How to improve the service levels at GCE Norden AB
- Without having an increase in capital employed

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To be competitive a company needs to provide a high service level for the customers. This article is based on a master thesis study, which was conducted at GCE Norden, in Malmö, and at their subsidiary GCE s.r.o., in the Czech Republic. The aim of the study was to provide GCE Norden with recommendations of how their service level can be improved without having an increase in capital employed.

INTRODUCTION

In an increasingly competitive business world, global competition puts high demand on the flexibility of industrial companies.[1] The tougher competition makes it important to increase the company’s competitive strength.

To be competitive a company needs to provide a high service level for the customers. A high service level can mean different things; it depends on the customer requirements and wishes. In this article service level refers to delivery reliability. According to Hill delivery reliability is a competitive factor with increasingly importance. In many businesses high delivery reliability is necessary to be able to compete for the orders, if a company continues to miss due dates the customers will stop considering them as a potential supplier.[2]

PROBLEM DESCRIPTION

GCE Norden believes that they can achieve a higher service level without having to increase the capital employed within the company group. An improvement of the service level would increase GCE Norden’s competitive strength and make their customers more satisfied. This leads to the main problem studied within this thesis: How can the service level of GCE Norden be improved without having an increase in capital employed within the company group?

The question concerns service levels and capital employed. The definition of service level, which is used by GCE Norden and will be used in the article, is the proportion of order rows delivered on time, according to the confirmed delivery date. Capital employed refers to the capital tied-up in stock.

Service levels and capital tied-up concerns the whole supply chain and a study with only this focus would be very extensive. Therefore a pre-study was performed to identify a relevant focus area for the study.

The pre-study showed that in order to improve the service level to GCE Norden’s customers the most important is to improve the service level between GCE s.r.o. and GCE Norden. At GCE s.r.o. two focus areas were identified, namely: forecasting and purchasing.

PURPOSE

The overall purpose of this study was to provide GCE Norden with recommendations of how their service level can be improved without having an increase in capital employed within the company group. As a result of the pre-study, the recommendations will be directed on how GCE s.r.o. can improve
the accuracy of their forecasts and their purchasing work.

**METHODOLOGY**

For this study I have chosen to use the system approach, since it analyses a complex system with many dependent parts and in the ambition to make the supply chain more effective it is important to look at the entirety and not to isolate the parts.

The pre-study was primarily a statistical analysis of delivery statistics from GCE Norden, which was performed to determine the focus of this study. For the chosen focus areas information to build a frame of reference has been gathered from relevant books and articles. The empirical information comes from semi-structured interviews with the personnel at GCE s.r.o. and GCE Norden. The analysis and conclusions is based upon the theoretical and empirical information that has been collected.

**FORECASTS**

A forecast is a prediction about future events. Long lead-times can force you to produce in advance. The purpose with forecasts is in first place to facilitate the decision making in the company by organising and analysing available knowledge so that the uncertainty in the decision situation can be reduced.[3]

Forecasting is a process and a formal procedure should be defined. This procedure should provide for communication between the commercial and the production organisation. In this procedure the responsibility of different departments to contribute to the forecasting process should be specified.[4]

A fundamental forecast process is illustrated in Figure 1. The study showed that GCE s.r.o. can develop their forecasting procedure within every area presented in the figure.

![Figure 1 A fundamental forecast process. [5]](attachment:figure1.png)

**Forecast process**

Today all forecasts are made by the production planners at GCE s.r.o. and they do not have much knowledge about the customer market. No one is held responsible for the forecast quality. If the different sales companies of the GCE Group made forecasts for their market, the sales managers could be responsible for the quality of the forecasts. This would motivated them to make them correct. It would probably require more resources, but it would most probably increase the accuracy of the forecast and thereby a higher service level with less capital employed can be achieved. To get a forecast for their total demand, GCE s.r.o. would merge the amounts of the different forecasts.

**Quantitative forecast method**

Today GCE s.r.o. uses a season curve, shown in Figure 2, to create their forecasts.

![Figure 2 The season curve used when making forecasts for all forecasted products.](attachment:figure2.png)

Quantitative forecast methods take consideration of different demand model components and the choice of forecast method should be based upon which demand model that exist. [5] The study
showed that level, season, trend and hazard are components of the studied demand models. The method that GCE uses today does not take trend into consideration and the season effects are handled in a simplified manner, based on the assumption that it is the same for all products. Different products have different season effects and, therefore different curves should be used. The ideal case would be to have one curve for every product, but that would require that too much information was stored. If the products were grouped after their demand model, different curves can then be used for the different groups.

The recommendations mentioned above do not change the fact that the method does not take trend into consideration. To compensate for a possible trend the forecasts should be updated every month.

Qualitative forecast method
As stated before, the forecast are made with the assumption that the sales will be the same next year. They do not try to predict if the demand is going to increase or decrease. According to the theory qualitative forecast methods are useful for long-term forecasting and the study showed that GCE s.r.o. needs to develop their qualitative forecast method. The different sales companies should predict future declines and rises of sales.

Forecast quality
The forecast quality has an important effect on production and a direct influence on customer service and stock levels. If the forecast is more accurate and it is accepted as well, it will mean that production can better anticipate the customer demand. Customer service elements like delivery reliability and order completeness can be improved and a better overall customer service level can thereby be achieved. A better forecast quality can also decrease the investment in inventory, since there will be less uncertainty associated with the future demand.[4] The study showed that GCE s.r.o. needs to make some control of the forecast quality. According to the analysis it is important that GCE s.r.o. starts to calculate the mean absolute deviation, MAD, to get a picture of which accuracy their forecasts hold.

Purchasing
To achieve effective purchasing not all buyer-supplier relationships are to be managed in the same way. Research findings indicate that successful supply chain management requires the effective and efficient management of a portfolio of relationships [6] and therefore the suppliers need to be classified.

Classification
GCE s.r.o. has some classifications of their purchased components but they do not have a classification that determines the strategy for the product and supplier in question. The study showed that it would be beneficial to introduce a classification that helps the purchasers to differentiate the management of different suppliers and products.

A classification model called Krajic’s portfolio model, was developed in 1983. This model seems to be the dominant approach in the profession [7] and this is the approach that Van Weele recommends.[8]

Krajlic’s portfolio model is a purchasing product portfolio approach and it is used to differentiate the purchasing work and the purchasing strategies. Its general idea is to minimize supply risk and make the most of buying power. The product groups and the supplier base are analysed based on purchasing’s impact on financial result and the supply risk. The combination of these two variables result in a two dimension matrix with four quadrants, these represent the different product groups.[9] The matrix is shown in Figure 3.
Below the different product groups are clarified:[8]

- **Strategic products** – As the matrix show, products in this category have a high financial importance and the supply risk is high. These are often high-tech, high volume products that are delivered after customer specification. There is only one, or a few, supply sources that can not be changed, in the short term, without considerable costs. Usually these products represent a high share of the cost for the end product. The communication and interaction with the supplier is often complex and intensive.

- **Leverage products** – Also these products are of high financial importance and represent a high share of the end costs for the product, but unlike the strategic products these products can be supplied from a number of different suppliers. Since they represent a high share of the cost a small change in the price gives a relatively strong effect and that is the reason why buyers use aggressive sourcing and tendering among a group of prequalified suppliers.

- **Bottleneck products** – Products in this category have a high supply risk but they represent a limited economical value. The supplier has a domination position, which can lead to high prices, long lead-times and low service.

- **Routine products** – These are non critical products, they represent a small value and there are many alternative suppliers. In practice most products fall into this category and the problem is that the handling cost more than the products themselves. Usually 80 per cent of the buyer’s time and energy is put on these products.

**Supplier strategies**

GCE s.r.o. has special relationships with their top 80 suppliers, the suppliers from which they purchase the highest volume values. For example they are asked to keep stock on their side. For non problematic products they make comparison between different suppliers. For products with low supply risk they put more pressure on the competition. GCE s.r.o. uses a lot of the strategies suggested in the literature, for example internet auctions, multiple sourcing when possible and forecast sharing with their top 80 suppliers. But they only classify strategic, or as they say important, products. If they had used Kraljic’s portfolio model to classify their products, different strategies could be formulated for each group.

**Strategic products and bottleneck products** have a high supply risk and the analysis showed that GCE s.r.o. should make and send forecasts to their suppliers. The forecasts should show the forecasted demand for every week to help the suppliers to achieve a better service level. In the same way as discussed for the forecasts of produced products GCE s.r.o. should measure the forecast error of these forecasts. The bottleneck products have
low impact on the financial result but are associated with a high supply risk, therefore GCE s.r.o. should try to standardize the products to decrease the supply risk and thereby move them out of this category.

For the **leverage products** GCE s.r.o. has good focus. They focus on price, which is beneficial for these products. Internet auctions and multiple sourcing, two strategies that GCE s.r.o. already uses, should be used for this category.

For the **routine products** GCE s.r.o. focuses on standardising the product range and reducing both the number of products and the number of suppliers. This strategy follows the theory well.

**CONCLUSIONS**
The study showed that it would be valuable to improve the quality of GCE s.r.o.’s forecasts. The conclusion of the study is that a higher quality can be achieved by developing their forecasting method. First of all, the analysis showed that it would be beneficial if the different sales companies were responsible for making the forecasts for their market.

Concerning the quantitative forecast method the conclusion of the study is that the GCE Group should continue to use the same quantitative forecast method as today, but with the following changes. The products should be grouped after their demand model and different season curves should be developed and used for the different groups. To compensate for trend in the demand the forecasts should be updated more frequently than today.

Furthermore the analysis showed that the GCE Group should develop their qualitative forecast method. The different sales companies should predict future declines and rises of the sales.

According to the analysis it would be beneficial to measure the forecast error and to use control methods to track incorrect demand data and to discover changes in the level of demand.

The conclusion of the study of the purchasing work is that it would be positive to structure the purchasing work by using Kraljic’s portfolio model. This means that GCE s.r.o. should categorize their products into the following categories: strategic products, leverage products, bottleneck products and routine products. For each category different strategies should be developed.
REFERENCES


