

Mariusz Szuster

Poznań University of Economics

mariusz.szuster@ue.poznan.pl

SOPHISTICATED SALES AND SUPPLY CHAIN STRATEGIES AS A REMEDY FOR MISTAKEN FORECASTS

Abstract:

Many companies (retailers and manufacturers) cope with mistaken forecasts. The first part of the paper contains a description of sources of potential mistakes. There are many methods and statistical tools but their accuracy is too often too low. This is the reason of looking for new solutions like a strategy of quick response or lead-time shortening. The target of the paper is to show the efficiency of these solutions. These methods and strategies may lead to the avoidance of problems connected with mistaken forecasts.

Key words: forecasting, supply chain management, sales strategy.

1. SOURCES OF DIFFICULTIES IN FORECASTING

Forecasts preparation in many cases is a very problematic task. This concerns seasonal products, fashion industry, food, new products, and spare parts. This refers also to companies which are sourcing materials from distant countries. Forecasting irrespective of the sophistication of the tool used, is at best an approximate and sometimes dangerously unreal¹. In these cases higher inventory buffers are often used to cope with uncertainty. In this way

¹ N.Ravichandran, *Managing bullwhip effect: two case studies*, "Journal of Advances in Management Research", Vo. 5(II) 2008, p. 78.

companies try to be more responsive to demand. Unfortunately such preventive actions like bigger safety stock are more costly. Consequently inventory-carrying cost quickly rises. If demand is seasonal or unpredictable the cost of a wrong forecast tends to increase. It causes that retail system is not efficient. The mistaken forecasting often leads to stock-outs during the season, caused by sales made quicker than it was described in a forecast. Another option is the situation when unwanted goods leave at the end of the season, because significant volume of stock did not meet the customers' expectations. The typical reaction is then marking down the selling price.

Sometimes even when the production is on the higher level than the expected demand, particular retailer may not be able to offer demanded products, because someone decided to keep them in an inappropriate place (another store or distribution center). This may happen also when capacity is directed towards wrong products. Inefficiencies in forecasting leads to problems with scheduling (capacity utilization), sourcing, distribution and to lack of predictable conditions within supply chain. What is especially important; this is not only a problem of sales departments. Price reduction and distribution costs usually don't create the largest share of the total costs. The problem concerns excess inventories throughout the whole supply chain. The material flow throughout the logistics system causes higher stock levels at various stages in supply chain and contributes to the increase of the costs. Amplification of demand changes from one tier to the next in supply chain has been called the *bullwhip effect*². The whole logistics system may accumulate inventory of finished goods, materials or semi products, which were gathered to meet an expected demand.

Even if the demand is stable, some steps taken by competitors may cause that forecasts for many products would be wrong. Price discounts often lead to demand profile distortion and wrong forecasting. Even in, perceived as stable, market of food retailing,

² A.Harrison, R. Van Hoek, Logistics Management and Strategy, Prentice Hall, Pearson Education 2002, p. 200.

forecasting is problematic, mainly because of low gross margins. The study involving over 50 food companies showed that 48% of them had indicated that they were poor at forecasting³. In this case many depend on weather conditions like temperature or rainfall, which are important for weather-sensitive products like ice cream or beverages.

More dynamic is the nature of fashion retailing, which usually tends to have very short selling time. Seasonal goods are those that are replaced by new lines two or three times per year⁴. In fashion retailers inefficiencies caused by mistaken forecasts meant that approximately 25 billion USD is lost each year⁵. This is also a result of the length of time to move through the supply chain, from the source of raw material to garments delivery. Within the clothing industry, the retailer sends orders to suppliers up to one year ahead of the season⁶. The time between ordering a good or service and its receiving, is defined as the lead time (or response time). Long lead time reduces the ability of a supply chain to respond quickly to changing conditions, such as changes of quantity or timing of demand, changes in product or service demand⁷. Longer lead time also applies to overseas sourcing. An important aspect of the forecasting problem is the long lead time on the supply side of manufacturers. The production process of many products was relocated to East Europe, South America, China and other Far Eastern countries. The longest material lead times may reach even 140 days⁸.

New products are one of the most difficult to forecast. There is no historical data. Nobody knows what will be the reaction of the market and behavior of consumers. Another problem is product cannibalization. It is defined as “the progress by which a new product

³ D.Adebanjo, R.Mann, *Identifying problems in forecasting consumer demand in the fast moving consumer goods sector*, “Benchmarking: An International Journal, Vol.7, No.3, 2000, p.224.

⁴ H. Al-Zubaidi, D.Taylor, *A simulation model of quick response replenishment of seasonal clothing*, “International Journal of Retail & Distribution Management”, Vol. 32, No 6, 2004, p. 320.

⁵ G.Birtwistle, N.Siddiqui, S. Fiorito, *Quick response: perceptions of UK fashion retailers*, “International Journal of Retail & Distribution Management”, Vol. 31, No. 2, 2003, p. 118.

⁶ J.Hexter, J.Woetzer, N.Shister, *Getting More from China Sourcing*, World Trade, August 2008, Vol. 21. Issue 8, p. 40.

⁷ H. Al-Zubaidi, D.Taylor, *A simulation model of quick response replenishment of seasonal clothing*, “International Journal of Retail & Distribution Management”, Vol. 32, No 6, 2004, p. 321.

⁸ R.Kaipia, J.Holmström, *Selecting the right planning approach for a product*, “Supply Chain Management: An International Journal”, 12/1 2007, p. 9.

gains sales by diverting sales from an existing product” and as “the extent to which one product’s sales are the expense of other products offered by the same firm”⁹. New products entering a market not always create a new demand, sometimes they share from the existing offer. Predicting this cannibalization effect is also one of the most difficult tasks. This is also connected with the growing number of end products at different life-cycle stage that increases forecasting complexity.

Problems with forecasting concerns also spare parts. This is different from a typical stock management. Forecasting of spare parts stock is an important task with tremendous cost implications for organizations that are holding relevant inventories¹⁰. Efforts put in spare parts availability (especially in case of closing production of particular model of a product) signify that very small mistake in this area may lead to substantial cost increase.

2. STANDARD PROCEDURES AND CONTEMPORARY PATTERNS OF FORECASTING

The purpose of forecasting is to capture sales opportunities in terms of price, location and product variability. The target is to ensure supply capabilities across the logistics pipeline. The plan may be communicated to suppliers and manufacturers, which can assure capacity for fulfilling expected demand. The goal is to know how they respond the future demand.

The major gain from effective forecasting is:

- increased product availability to the consumer,
- lower inventory levels along the supply chain,
- more effective use of current capital assets,
- clearer identification of future capital needs,

⁹ S.Srinivasan, S.Ramakrishnan, S.Grasman, *Identifying the effects of cannibalization on the product portfolio*, “Marketing Intelligence & Planning”, Vol. 23, No. 4, 2005, p. 359.

¹⁰ A.Syntetos, M.Keyes, M.Babai, *Demand categorisation in a European spare parts logistics network*, “International Journal of Operations & Production Management” Vol. 29, No.3, 2009, p. 293.

- true customers/supplier partnership¹¹.

The typical time horizon is several months into the future, depending on characteristic of a branch. Many retailers commit details of their orders even six months before the season, increasing inflexibility of the operations. Many manufacturers don't agree on changes in the orders within closest weeks. Changes for periods of five to nine weeks usually can't surpass 10-20% (for example in automotive industry). The aim is to provide a stable plan with a minimum number of revisions and suitable frequency of re-planning. The aim is also to avoid rapid last minute changes. This relates both to quantity of future deliveries and to number of variants (quantity of each separate model of the product). Manufacturer may use different approaches for planning total volume and for different types of product. This influence the technique of forecast preparation. For example, total-demand information is needed to reserve manufacturing capacity, and the demand for each product variant can be planned close to delivery, using end-customer demand¹². Fast moving products can be forecast at SKU (Stock Keeping Unit) level, whereas random-demand products can be forecast at category level to produce a pattern and then desegregated to SKU level¹³.

Forecasts are usually prepared on the base of two factors. The past sales results and expectations about future trends, based on the perception of the supply chain members that are close to consumers. Past history of sales results is useful for recognizing seasonal patterns. This helps also to evaluate promotional impact. In high technology industry there is a need for collaborative planning systems that will be able to take into account product life cycles and

¹¹ D.Adebanjo, R.Mann, *Identifying problems in forecasting consumer demand in the fast moving consumer goods sector*, "Benchmarking: An International Journal, Vol.7, No.3, 2000, p.225.

¹² R.Kaipia, J.Holmström, *Selecting the right planning approach for a product*, "Supply Chain Management: An International Journal", 12/1 2007, p. 3.

¹³ D.Adebanjo, R.Mann, *Identifying problems in forecasting consumer demand in the fast moving consumer goods sector*, "Benchmarking: An International Journal, Vol.7, No.3, 2000, p.228.

integrate demand planning¹⁴. This includes information about actual point-of-sale data, providing details about orders, internet-based communication, vendor managed inventory.

The alternative for presented solutions is the focus on lead-time reduction. Many professionals say that lead time reduction is a less risky strategy than organizing deliveries accordingly to prepared earlier forecasts.

3. STRATEGIES FOCUSED ON LEAD-TIME REDUCTION

Many current planning approaches still cannot cope with uncertainty. The basic question is how to reduce reliance on forecasts. Because of that some experts offer solutions useful as a support for supply chain strategy preparation. The target is to support companies having problems with mistaken forecasts. Long-term forecasts may be, for example, considered most important for firms applying make to order strategies, while short-term material forecasts could be expected to be more important when applying make-to-stock strategies¹⁵. However, in the case when demand uncertainty is high and value-adding capacity is low, the make-to-order strategy performed best¹⁶. If demand uncertainty is low, strategy should be focused on efficient flow of materials. If demand uncertainty is high, the other strategies may be more appropriate and helps to achieve better performance.

A business strategy of quick response makes possible a fast reaction for a changing demand. It is widely used within the fashion industry. This is a strategy of regular in-season re-estimation of real consumer demand. This strategy helps to actualize the orders from retailers, eliminate unnecessary inventory and shorten processing times. Quick response method was developed in the USA between suppliers and fashion retailers in recognition that

¹⁴ R.Kaipia, J.Holmström, *Selecting the right planning approach for a product*, "Supply Chain Management: An International Journal", 12/1 2007, p. 4.

¹⁵ H.Forslund P.Johnsson, *The impact of forecast information quality on supply chain performance*, "International Journal of Operations & Production Management", Vol. 27, No. 1, 2007, p. 91.

¹⁶ R.Kaipia, J.Holmström, *Selecting the right planning approach for a product*, "Supply Chain Management: An International Journal", 12/1 2007, p. 5.

a new strategy had to be implemented to compete with off-shore manufacturers¹⁷. The principles of the strategy were to check beginning sales results to identify best sold products. In case of fashion industry, retailers send information about sales database with details like style, size and color. Next step is to produce, mainly onshore, small amount of quick selling goods. To compress response time, fundamental changes must be addressed in every function that affects the delivery of the product (from design, product development, manufacturing, order entry, and distribution)¹⁸. The buyers book production time, but do not specify particular model of product. This is made shortly before the time of delivery. Generally the manufacturing process should be demand driven, instead of being based on forecasts.

The example of such a strategy is the Spanish fashion retailer Zara. The company designs and provides fashionable clothing. Stores re-merchandise every three weeks to provide space for new lines and encourage customers to visit more frequently¹⁹. Six months before the beginning of the season Zara commits only up to 20% of the target level of production. By the start of the season this increases to 50%²⁰. This permits the other 50% to be decided once the season has been launched. Design and production flexibility is a pillar of the enterprise. Inditex, the parent company, has its own production facility in Spain. This strategy allows for a quick response to the newest fashion trends. The response time from design to product in store can be as little as three weeks²¹.

The example of innovative sales strategy implementation is the case of is Mattel Inc. This company has launched a special sales strategy to cope with demand fluctuation in the toy business. The solution is called the rolling-mix strategy, which involves increasing product

¹⁷ G.Birtwistle, N.Siddiqui, S. Fiorito, *Quick response: perceptions of UK fashion retailers*, "International Journal of Retail & Distribution Management", Vol. 31, No. 2, 2003, p. 118.

¹⁸ H. Al-Zubaidi, D.Tayler, *A simulation model of quick response replenishment of seasonal clothing*, "International Journal of Retail & Distribution Management", Vol. 32, No 6, 2004, p. 321.

¹⁹ G.Birtwistle, N.Siddiqui, S. Fiorito, *Quick response: perceptions of UK fashion retailers*, "International Journal of Retail & Distribution Management", Vol. 31, No. 2, 2003, p. 122.

²⁰ Ibidem, p. 122.

²¹ Ibidem, p. 122.

variety by continually introducing slightly different versions of the same product²². The typical changes of demand caused by new products are then avoided. The strategy creates an image of continuous change of the products. The assortment is changed continuously by 7-8% every two weeks, which means that the whole assortment is changed twice a year²³. In the production area forecasting has been eliminated. The production scheduling became more accurate and reliable. Continuous new products introduction assures the stability in the whole supply chain. The bullwhip effect also has been reduced.

Companies which are sourcing materials from distant countries cope with the organizational barriers and have to use global standard sourcing practices. Enterprises sourcing for example from China need to build real procurement capabilities in such a country. For example IBM moved its global procurement headquarters to Shenzhen (China)²⁴. The effect is shorter time of design or raw material acceptance and faster product development. Some of the time saved is through better sourcing, there can shorten lead times even by 30%²⁵.

Solutions based on quick response strategy have been implemented by some of the retailers like Wal-Mart, and by manufacturers like Whirlpool, Panasonic or Levi Strauss²⁶. General Electric and Nike use the idea of offshore strategic sourcing. These methods have enabled many retailers to improve profitability. They also reduced troublesome mark-downs. Presented strategies represent relatively new approach to sales and logistics problems with forecasting. But even they are not always efficient. Presented examples of best practices show details which must be taken into consideration before taking a decision of new strategy implementation. This also shows that usefulness of traditional methods based on forecasting and historical data of sales, will be decreasing.

²² R.Kaipia, J.Holmström, *Selecting the right planning approach for a product*, "Supply Chain Management: An International Journal", 12/1 2007, p. 8.

²³ Ibidem, p. 8.

²⁴ J.Hexter, J.Woetzer, N.Shister, *Getting More from China Sourcing*, World Trade, August 2008, Vol. 21. Issue 8, p. 39.

²⁵ Ibidem, p. 40

²⁶ G.Birtwistle, N.Siddiqui, S. Fiorito, *Quick response: perceptions of UK fashion retailers*, "International Journal of Retail & Distribution Management", Vol. 31, No. 2, 2003, p. 123.

References:

- Adebanjo D., Mann R., *Identifying problems in forecasting consumer demand in the fast moving consumer goods sector*, "Benchmarking: An International Journal, Vol.7, No.3, 2000.
- Al-Zubaidi H., Tayler D., *A simulation model of quick response replenishment of seasonal clothing*, "International Journal of Retail & Distribution Management", Vol. 32, No 6, 2004.
- Birtwistle G., Siddiqui N., Fiorito S., *Quick response: perceptions of UK fashion retailers*, "International Journal of Retail & Distribution Management", Vol. 31, No. 2, 2003.
- Forslund H., Johnsson P., *The impact of forecast information quality on supply chain performance*, "International Journal of Operations & Production Management", Vol. 27, No. 1, 2007.
- Harrison A., Van Hoek R., *Logistics Management and Strategy*, Prentice Hall, Pearson Education 2002.
- Hexter J., Woetzer J., Shister N., *Getting More from China Sourcing*, World Trade, August 2008, Vol. 21. Iss 8.
- Kaipia R., Holmström J., *Selecting the right planning approach for a product*, "Supply Chain Management: An International Journal", 12/1 2007.
- Ravichandran N., *Managing bullwhip effect: two case studies*, "Journal of Advances in Management Research", Vo. 5(II) 2008.
- Srinivasan S., Ramakrishnan S., Grasman S., *Identifying the effects of cannibalization on the product portfolio*, "Marketing Intelligence & Planning", Vol. 23, No. 4, 2005.
- Syntetos A., Keyes M., Babai M., *Demand categorisation in a European spare parts logistics network*, "International Journal of Operations & Production Management" Vol. 29, No.3, 2009.