Identifying problems in forecasting consumer demand in the fast moving consumer goods sector

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Abstract *The ability to forecast consumer demand accurately is of great importance to companies in the consumer market. The food industry, in particular, views consumer availability as the cornerstone of their business. However, many companies concede that their forecasting process does not perform as well as they would wish. A group of forecasting and demand managers from some of the leading UK food companies, with the support of Leatherhead Food RA, examined the problems associated with their functions over an 18-month period. This paper presents the key findings from their collaborative work.*

Introduction

The food and drinks sector is a major industry in the UK, providing employment for over 3 million people throughout the supply chain. In 1998, an estimated £54 billion was spent on household food, representing an increase of 1.2 per cent on 1997. When expenditure on alcoholic drinks and catering is added, the total consumer expenditure is in excess of £130 billion (National Food Survey, 1998). While this figure appears impressive, the industry faces massive challenges, including the following (Rice, 1997a):

- A flat growth profile, with overall European market volumes not expected to grow more than 1.8 per cent in total between 1995 and 2000.
- A change in consumption trends as a result of increased affluence and ageing of the population.

Against this background, significant changes have become necessary in the industry. There has been an advance in multiple retailing and, consequently, market needs are dictated more by retailers (Rice, 1997b). In the drive to satisfy consumers, who are increasingly demanding and sophisticated (Hogarth-Scott, 1999), the powerful retailers seek greater responsiveness and flexibility from manufacturers. The ability to forecast consumer demand accurately now plays

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an important part in the need for both retailers and suppliers to ensure product availability without overstocking and overproduction.

Leatherhead Food Research Association has been at the forefront of helping UK food companies improve their business performance through the development of "world class" business and management practices. This has been mainly channelled through the 1996 launching of the "Food and Drinks Industry Benchmarking and Self-Assessment Initiative" (Mann *et al.* 1998), with the support of the Department of Trade and Industry (DTI), and the Ministry of Agriculture, Fisheries and Food (MAFF).

As part of this initiative, a benchmarking club for the food and drinks industry was formed in April 1997 with the primary objective of promoting the use of business excellence, benchmarking and sharing of best practices within the industry. Companies that have been involved in the club include Campbell Soups, Glanbia Foods, Dromona Quality Foods, J.A. Sharwood & Co. Ltd, J. Sainsbury plc, Kraft Jacobs Suchard, McKey Food Service Ltd, Quadrant, Scottish Courage Brands, Seaforth Corn Mills, HP Foods Ltd, Smithkline Beecham and Van den Bergh Foods.

In addition to regular sharing of information on how member companies address the various criteria within the EFQM business excellence model, issues of particular concern are identified for further investigation. One such issue is the forecasting of consumer demand along the supply chain. A workgroup of forecasting and demand managers from seven of the companies was set up to investigate problems associated with forecasting within the industry. The major advantages of setting up the workgroup include:

- Getting together professionals within the same field to discuss problems they commonly face together.
- The amount of expertise, knowledge and experience that is available in such a group. Between them, the participants had over 40 years' experience in forecasting and demand management.
- The natural interest and ownership that participants in such a group have.
- Ideas for operational benefits that can be obtained through in-depth discussion of the different forecasting systems in the various companies.

The workgroup was formed in January 1998 and met constantly over a period of 18 months. This article provides feedback on some of the key findings of the workgroup.

Why focus on forecasting?

The first meeting of the forecasting work group was held in January 1998. The group examined evidence from Leatherhead's self-assessment study involving over 50 food companies.

This study showed that 48 per cent of food companies had indicated that they were poor at forecasting (Mann and Adebanjo, 1997). The members of the group agreed with the findings from this report and further stressed the importance of this issue within the industry, describing forecasting as a key

and critical process. In discussing how much effort the group should put into tackling this issue, the major gains from effective forecasting were put forward. These were:

- 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; and
- true customer/supplier partnerships.

As a result of this discussion, it was decided that significant gains could be made by the industry and the member companies by beginning a joint project on this topic.

Understanding the forecasting process

In order to understand fully the problems faced by forecasters, it was necessary to define the current process of forecasting. The group identified that the main input into the process was consumer demand, while the desired output was satisfied consumers, retailers and suppliers. The input and output are affected by a range of mechanisms and controls, which are shown in Figure 1. Furthermore, the group was not convinced that the identified desired output was being attained by the food industry.

Figure 2 shows an exploded view of the supply chain and depicts how the forecasts of suppliers and retailers, as well as interaction between the two organisations, support manufacturing and retailing activities. Following a brainstorming exercise, the group identified four issues that were of greatest concern to their daily functions. It was agreed that identification of the problems concerned with these issues would be vital in promoting more efficient management of the forecasting process. These issues, which form the basis of the group's discussion for the next 12 months, are:

- communication;
- organisation;
- information;
- forecast generation.

Communication

The group looked at three forms of communication and identified how they impacted on the forecasting process.

Internal communication: effective communication is vital in the forecasting process to enable one forecast to be used throughout the business. Once the forecast has been developed along with its assumptions, the business has to buy into it and use it. This is achieved by discussing the forecast and adding in business knowledge from all parts of the business, e.g. marketing, sales, logistics and production, so that a consensus is reached and all parties have ownership. It was agreed that communication in many of the companies was

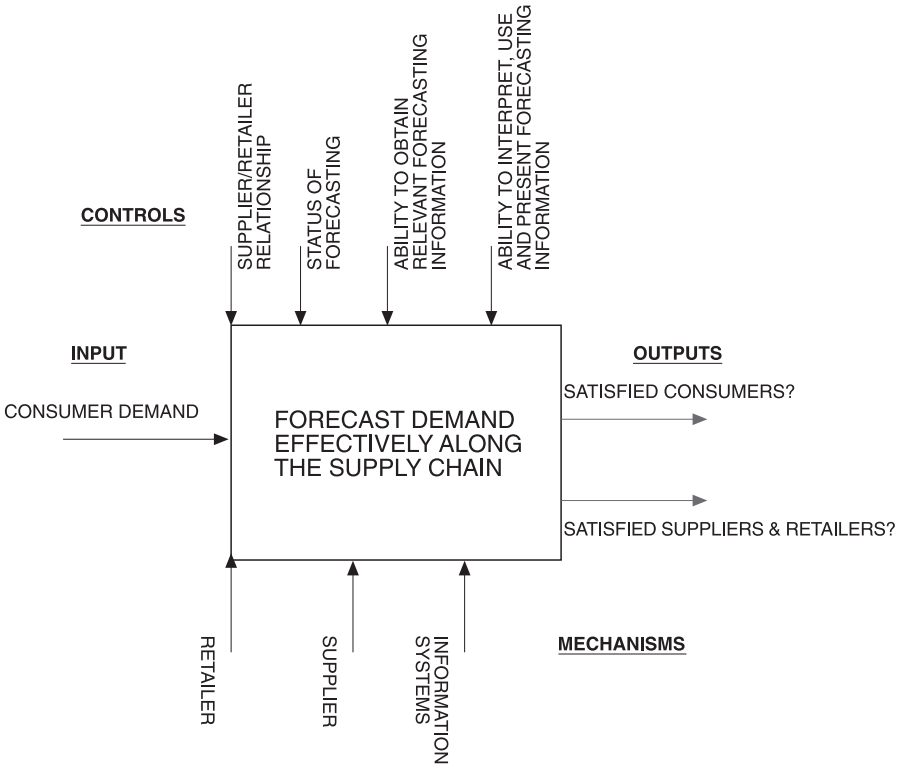

Figure 1.
Process of forecasting consumer demand along the supply chain

poor and it was common to find that different departments had generated separate forecasts based on incomplete information and undebated assumptions.

External communication: increasing consumer needs and greater competition have resulted in the need to reduce the cost of the end product and improve responsiveness.

Supplier companies within the group had witnessed a large increase in the number of short-notice major promotions. This has strained existing supply chain mechanics and has resulted in a need to focus promotions on an agreed list of high-volume standard stock keeping units (SKUs) to reduce the cost of the stock and provide high availability.

Suppliers and retailers need to share information on key indicators to enable both parties to agree a forecast of future orders. Both the supplier companies and the retailing company within the group agreed that there needed to be better sharing of information between the two types of organisation although there had been commendable improvements in the supplier-retailer relationships.

Technology advances: in the last 12 months, major advances in communication technologies have enabled exchange of information via the Internet. Currently, this is between retailers and suppliers, but could also be used by suppliers and raw material suppliers. Use of the Internet gives great cost benefit over traditional electronic data interchange (EDI).

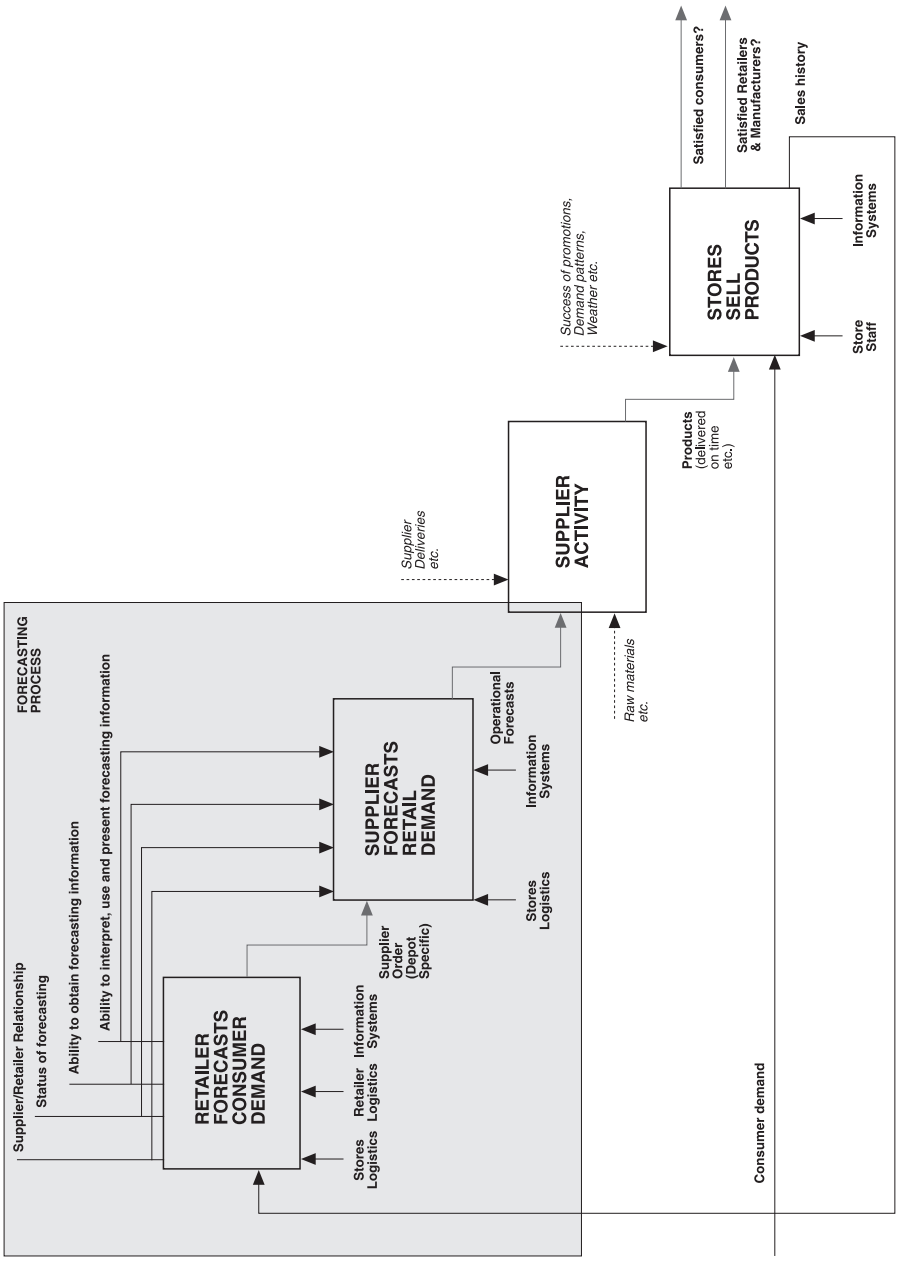

Figure 2.
Expanded view of the supply chain incorporating the input of forecasting

Organisation

The group viewed forecasting as a key business process affecting all areas of the business, and suggested that that the process was owned by a "demand neutral" function such as logistics. The group also identified two distinct parts to the act of forecasting:

(1) generation of a statistical or methodical forecast; and

(2) input of business knowledge to that forecast to provide a best case estimate for the business to use.

The group accepted good practice in organisation to include documentation of all changes to the original forecast, along with the assumptions made, to ensure accountability and ownership and that both forecasts were measured. This was practised by one of the companies in the group.

Organisational structure: an examination of the organisational structures of the companies revealed that there was neither agreement nor standardisation as to what person or function took ownership for different aspects of the forecasting process.

Overall ownership of the process varied in the companies and departments/functions mentioned as owners included logistics, sales, marketing, planning, procurement and production.

Lack of a proper structure and disagreement over the ownership of the forecast were characterised by the evolution of too many approval points within organisations and resulted in a tendency for forecasts to be changed frequently. Ultimately, this led to confusion and poor communication with suppliers.

Training in forecasting: the group suggested that there was little or no formal training in forecasting in many companies and forecasters often had to rely on personal experience. There was concern that lack of training impacted negatively on the ability of forecasters to understand the suitability of the various forecasting models available in addition to the dangers inherent in faulty interpretation of statistical software results.

Information

Past history of demand for a product is essential in the preparation of seasonal patterns, extraction of promotional impact and weather effects. Past history should be collected at different levels for different types of product with similar demand characteristics, i.e. fast moving products can be forecast at SKU level, whereas random-demand products can be forecast at category level to produce a pattern and then desegregated downwards to SKU level.

Weather history and forecasts, including temperature, rainfall and hours of sunshine, can be purchased from the Meteorological Office (such data are important for weather-sensitive products, e.g. ice cream, soft drinks, beer, barbecue products, etc., especially when considering the effects on promotional uplifts).

Companies need to develop a structured approach for identifying their information needs as described in the previous section.

Presentation of forecasts: forecasts need to be presented in a form that can be easily understood by the users. Comparison with a number of alternative or past measures is basic to understanding the context of the forecast. Comparative measures that are used by some of the companies include:

- previous forecast;
- actual performance (last year or moving annual total); and
- budget, etc.

The presentation may be improved by providing graphical formats, summary tables, etc. It is essential that the assumptions behind any forecast are clearly stated, so that the figures are understood, and any amendments recognise the origins of the forecast.

The experience of some of the companies in the group was that reports were often complex and difficult to assimilate. The basis of the forecasts might not be adequately defined, and the style of presentation might cause confusion.

Forecast generation

A number of dimensions of forecast generation were discussed by the group. The major conclusions are summarised below.

Promotion planning: the group agreed that promotions constituted the largest "controllable" event that could happen between manufacturer and retailer, and represented one of the main reasons for manufacturing inefficiencies, surplus or shortfall stocks, poor customer service and ultimately consumer dissatisfaction. To tackle these problems effectively retailers and suppliers needed to develop a better partnership approach to promotional planning.

Promotional information currently and effectively shared by members of the group include:

- Products stocks and planned production by variety for this promotion.
- Modelling of similar mechanics across other retailers for promotional events that have been run in the past. This can be used in providing consumer volume uplifts.
- Indication of retailer order patterns when on promotion.

Forecasting software: the experience of the members of the group was that forecasting software was often selected and purchased by the wrong people for the wrong reasons. The balance of the decision was often overly weighted by "IT infrastructure" considerations relative to other considerations such as "suitability for purpose" and "ease of use". It was also noted that the quality of the data to be forecast and the experience/knowledge of the forecaster were often ignored when evaluating forecasting software for purchase. Furthermore, the ability of the software to take account of promotional data was not always considered.

Forecast accuracy (or error): the group recognised that accurate sales forecasting was critical to the planning of a business, whether for supply, finance, sales or marketing reasons. The measurement of forecast accuracy, or

alternatively forecast error, was essential to monitor the performance of the forecasting method and the forecasting team. Although the group agreed that it might not be appropriate to use one global measure for all products within a business (as a result of value, volume and supply characteristics, e.g. shelf-life, lead time, capacity constraints), the following were viewed to be issues that caused particular concern and problems to forecasters:

- There are many methods of assessing forecast error, often resulting in inappropriate comparisons of forecast performance both within and between businesses.
- Most businesses provide single forecast figures for each SKU rather than providing a range to indicate the confidence levels of the forecast.
- Where there is intervention by sales and marketing management in deriving the forecast, there is often an element of bias within the forecast, but this is not usually assessed separately.

Conclusion

Over an 18-month period, the forecasting workgroup thoroughly examined the issues that presented problems to the demand and supply chain management of many companies. The group concluded that there were many similarities between FMCG suppliers and their retailing customers in terms of forecasting goals and experiences. Whilst lead times and shelf-life made comparison of forecast accuracy difficult, the solutions to improving forecast performance were equally valid.

The team members benefited substantially from the many discussions, helping improve their own processes as well as developing some generic proposals for best practice. It is hoped that this paper will not only increase awareness of the problems associated with forecasting but will serve as a springboard for further work aimed at seeking, understanding and communicating forecasting best practice not just in the food industry but also in the wider manufacturing-retailing dimension.

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