FORECAST SERVICES

THE BEST POSSIBLE FORECAST!

CONTENTS

1
INTRODUCTION

Forecasting is an essential part of business planning and involves a wide range of functional areas such as marketing and sales, finance and logistics. A good forecast drives an efficient supply chain and improves service levels, cash flow and ultimately profitability. Forecasts can be acquired via statistics and/or judgment. Whereas a statistical forecast bases its projection of the future on realized results of the past by identifying trends, patterns, and business drivers within the historic data, judgmental forecasts rely on intuitive judgments, opinions, and probability estimates. The use of a statistical baseline makes the forecasting process reliable, efficient, transparent, fast and objective.

To build a high quality forecast, the demand signal for a specific product has to be differentiated according to the phase in the product life cycle (new products, mature and end-of-life products) and the distinction between regular sales and demand spikes (promotions, tenders).
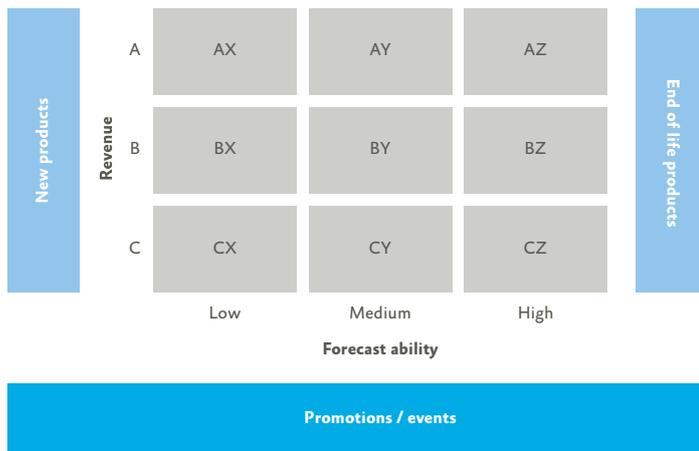

Figure 1: Demand differentiation.

Statistics can be applied to support forecasting in many situations:
1. Base line forecasting for mature products: based on historical sales data and often using trend models, a high quality statistical forecast allows companies to focus the enrichment process on those elements that really add value.
2. Promotion forecasting: based on historical sales, point of sales data and promotion characteristics, a high quality promotion forecast is generated (generally using regression models) for retailers and their suppliers to improve promotion effectiveness.
3. New product forecasting: based on several internal and external data sources, historical introductions, volumes and characteristics, or social media data, a high quality forecast for new products can be prepared and used to improve the effectiveness of new product introductions. Statistics (often multinomial logit) regression models can be used to forecast the full life cycle quantity, the initial launch quantity and the ramp-up profile.
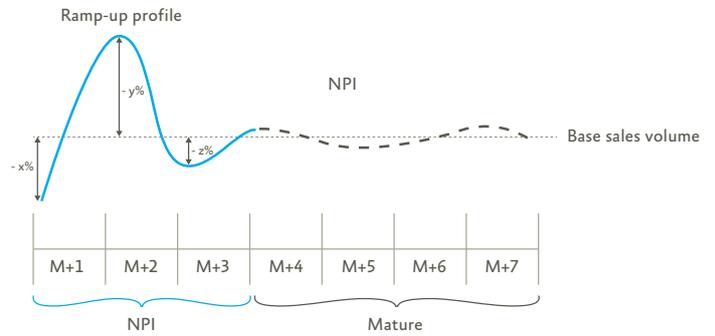

Figure 2: New product forecasting.

During the last decade, outsourcing has been on the agenda of nearly all supply-chain executives. Third-party logistics and third-party manufacturing have enabled companies to focus attention on core competences such as research, product design and marketing. Firms are constantly looking for ways to improve their forecast accuracy; in some cases outsourcing of the forecast function is an increasingly popular option. In this white paper, insights on outsourcing specific parts of the forecast functions are shared. We will discuss reasons and potential benefits of outsourcing.

2
WHY OUTSOURCE?

The bottom-line is that a specialist outsider delivers the best possible forecast in terms of accuracy and efficiency at a faster rate than internal teams!

"Outsourcing enables us to efficiently increase our accuracy through process improvement as well as tools leverage."
John van Dongen VP Sales Operations, Electrolux.

Key in generating a high quality forecast is the availability of **specialized knowledge**. With the growth of the available data, like point of sales or social media, it has become even more important to find highly skilled statisticians to prepare the best possible forecast. Talent attraction and retention are especially difficult when this knowledge is not important for your career in a company. Consider a company with complex demand-management challenges. Since it is rare for a statistician to have a clear career path to a senior executive position in this hypothetical company, a highly-trained individual is less likely to apply for a job with this company. This person will be more attracted by a company in which statisticians are valued as revenue generators. In smaller sized firms the amount of work available for this specialist is simply too low and he will get bored and leave the company. A third party forecast-services company is better suited to attract experts and to offer a challenging environment with a clear career path to retain these experts.

The **fast implementation** of a new forecasting process sometimes asks for proven solutions based on lessons learned from multiple implementations. This shortens time-to-value and eliminates many of the implementation risks.

Optimize forecast accuracy and business visibility
The Dutch registered automotive group, Bosal, is a well-known tier one supplier to the automotive industry worldwide. From its 34 manufacturing plants and 18 distribution centers, the company supplies a large variety of products to OEM's like Audi, Volkswagen and General Motors. Bosal has decided to further professionalize their integral Sales & Operations Planning (S&OP) process to reduce stock levels, increase customer service and to create the ability to match the operational S&OP planning to a financial forecast. To achieve these objectives, Bosal has chosen a fast innovative solution by outsourcing the complete process of the creation of a statistical forecast and the S&OP reports to EyeOn.

Using the cloud based Anaplan planning tool, EyeOn and Bosal worked together in standardizing all the operational planning processes and providing enterprise-wide visibility of forecasts and plans. Anaplan provides detailed, SKU level forecasts and plans to all entities of Bosal and supports strategic and tactical supply chain planning. Using Bosal's actuals, EyeOn is able to create a realistic sales forecast in which products were categorized according to nine buckets. For mature products, visibility is achieved into the specific actions necessary to satisfy annual sales per country. Different procedures were adopted for new and also end-of-life products, deriving in a monthly output based on annual figures.

Today's solution simply requires the regular loading of stock information, pricing and master data into Anaplan, which can be logged onto at any time by Bosal staff via the Internet. The information output gives an immediate and accurate insight into product-levels, actual sales and forecasts to enable Bosal to react quickly to changing markets and stock-level situations. As EyeOn's first software customer in the Benelux, Bosal has experienced several benefits resulting from the strategic and operational planning support improvements, as Bosal's Jon Kuiper, Group Sourcing & Supply Director, explains.

"Together with EyeOn and the Anaplan software we have been able to drive significant improvements in our planning processes. Within a timeframe of 6 months we have been able to give our sales and manufacturing operations integral visibility." Bosal's Arthur van Bergen, Supply Chain Manager After Market, says: "By implementing Anaplan we have been able to fundamentally change and improve our new product introduction (NPI) process giving real-time information to key stakeholders, like our sales force."

Economies of scale and therefore lower costs can be obtained by having the forecast performed by a company that does nothing but producing forecasts for other companies. The forecast will be created by an expert using advanced statistical modeling techniques and using state of the art tooling. A third-party service provider will be challenged to **continuously improve** performance in terms of accuracy and performance. Most in-house forecasting teams will have a difficult call to make to **invest in new technologies and skills**, while a service provider will make these investments since they will be covered by a revenue stream and will strengthen its competitive position by enabling a continuous improvement culture. As part of the contract, the service provider has to deliver the forecast at a lower cost while improving the forecast accuracy.

2
WHY OUTSOURCE?

"This really innovative approach using social media data will deliver us valuable insights for the introduction of our new range of mobile phones."
Director Supply Chain Mobile Phone Manufacturer.

For channel partners it can be extremely beneficial to join data for forecasting reasons. For many product categories demand is dependent on a range of promotions offered in various, sometimes competing retail outlets. To improve promotional sales, retailers need to collaborate with manufacturers for forecasting and replenishment. Both parties have a significant part of the information. The retailer has insight into data like the success of previous promotions, promotion characteristics as pricing, advertising and shop behavior. The supplier, on the other hand, has superior knowledge regarding the product category. The strength lies in combing all data in one, unbiased regression-based forecast that can serve as an independent neutral estimation of promotion demand. In many cases the flawless exchange of information between channel partners is hampered by internal, often commercial, considerations. The use of a forecast specialist acting as an **independent information broker** collecting information from both sources and delivering a shared forecast enables true collaborative forecasting.

Event Casting enables perfect deliveries and on-shelf availability
A unique partnership between food and confectionary manufacturer, Mars Netherlands, and Dutch supermarket chain, Jumbo, has resulted in a sustainable solution for reducing costs and unnecessary inventory in the supply chain. Both companies have broken with tradition by identifying and integrating their planning processes. In doing so, they have succeeded in streamlining their order flow to provide faster and more efficient deliveries. This has resulted in the complete availability of Mars products at Jumbo. The breakthrough came with the help of a new concept called Event Casting, which was developed in collaboration with EyeOn.

After an initial analysis, EyeOn quickly recognized the problems facing both companies. Both are experiencing increasing market volatility and complexity. In the case of Jumbo, communication in the value chain was found to be difficult and it was experiencing more and more peaks and dips in sales. The situation required a solution that reduced stocks and kept the shelves filled more optimally. Enter the Event Casting tool, which is used for forecasting consumer demand and calculating it for the entire chain.

As demand can be forecasted more accurately, delivery vehicles can be loaded more efficiently and used more effectively. "The supermarket chain does not need to hold large inventories of Mars products and can respond more quickly to the needs of consumers," says Frans van den Boomen, Value Chain Manager at Mars Netherlands.

A problem that frequently arose in the information and supply chain prior to the new situation was lack of transparency due to inadequate communication between the sales and logistics departments. This had a negative impact on costs, inventory and product availability. "There was a great need for better communication among all disciplines involved," says Karel de Jong, Supply Chain Director for Jumbo Supermarkets. "Information exchange is now more frequent and complete, and so the activities in the Mars-Jumbo chain run much more efficiently."

EyeOn's contribution to the turn-around for both companies was essentially twofold: 1) acting as a facilitator in bringing everything together, including all relevant information and supply-chain people, and 2) modeling the data to create a picture of how the respective activities would be affected by the changes made. EyeOn now weekly generates an overall demand forecast for the complete value chain. "We start by forecasting the end-consumer demand and calculate this with all sales and logistical inputs for all parts of the chain," says André Vriens, partner at EyeOn. "The results and improvements are then tracked from the cash register to the factory using a joint scorecard for making quick adjustments when needed. In addition to better availability and optimizing stock levels, the solution has reduced supply-chain and other costs."

Third-party service providers often have valuable knowledge because they serve several companies within different industries. This allows **best practice sharing** over their customers, where the service provider guarantees that sensitive company information is handled correctly.

2
WHY OUTSOURCE?

Technical textiles producer
Bonar is part of an international group manufacturing and supplying a wide range of high-performance specialist materials for a broad customer base. The company is a globally active leading producer of high quality industrial nonwovens for flooring, automotive and construction applications. It also produces 3D polymeric structures and composites for civil engineering, building and industrial applications.

Within Bonar there is a world of technical expertise in terms of innovative product development and manufacturing expertise in extrusion, spinning, fleecing, and molding of various synthetic materials. But on the business front, it very much keeps an eye on best practices being used outside the company. In this context, its relationship with EyeOn has proved very useful and dates back almost a decade to when major restructuring took place at the company, which was formerly known as Colbond.

In the past, EyeOn has assisted Bonar in areas such as planning strategy with a view to increasing efficiency, but in this latest project EyeOn's experience in the field of forecasting is proving useful. "The diverse nature of our product range means that we are part of a highly complex supply chain in which forecasting accuracy is critical," says Bart-Jan van Beckhoven, Bonar's Director Logistics & Information Management, who is based at the company's Arnhem site in the Netherlands. "We were constantly presented with a situation where sales made a forecast, which was used by manufacturing to make a corresponding production plan. The setup left a lot to be desired and we wanted to take on board an outsider's view and gather information to evaluate a forecast-outsourcing concept."

In a nutshell, EyeOn first analyzed the wealth of historical data available at Bonar to establish the demand patterns and determine the value of statistical forecasting. It then defined the forecast outsourcing process, including demand-planning process and the roles and responsibilities within it, which was translated into a value-based demand plan. Finally, EyeOn set up a statistical tool necessary to drive the demand-planning process. The entire assessment and initialization phases took 8 days in total and Bonar is well pleased with the results so far.

"We knew EyeOn as being very knowledgeable with many skills in house, including a couple of consultants who specialize in my own field of econometrics. They proved exceptionally good at using their standard tools to help us going forward and we highly value the fact that we both speak the same language. Furthermore, being in their process network means that we no longer have to wait until issues arise, but can keep benchmarking against best-in-class companies to constantly update our thinking on how we run our day-to-day business."

In summary the benefits of outsourcing are various:
- Specialized knowledge
- Fast implementation and improvement
- Economies of scale
- Continuous improvement
- Investment in new technologies and skills
- Independent information broker

In-house statistical forecasting is preferred in those situations when key internal, often tacit knowledge is required to generate a forecast. This knowledge is not repeatable or transferrable to other parties. The more transactional or company-specific knowledge becomes, the more the internal organization is the preferred solution. For this reason forecast enrichment often remains within the company.

3
HOW DOES IT WORK?

The simplest, straightforward explanation: the client delivers data and the service provider generates the forecast. But in reality three steps are required to implement a solid process:
1. Process set up
2. Initialization
3. Execution

PROCESS SET UP

In the initial phase of the project a clear process model has to be established. At what moment in time is what activity required to create a high quality forecast? An important element in this is the required IT design; which data flows are required, clear definitions have to be agreed between the service provider and its customer. An established service provider will deliver templates to facilitate the discussion and to realize a fast implementation project.

Figure 3: Process set-up.

Also the applications to be used are agreed upon. The service provider has its own tool set to generate the forecast which is transferred into the supply chain planning tool of its customer. In other cases it can be preferred that the service provider operates in the planning tool of its customer, like SAP DP or any other planning tool. Both models; a proprietary tool of the service provider or the planning tool of the customer have to be catered for.

INITIALIZATION

After or in parallel with the agreement on process, roles and responsibilities, tooling and reporting the process of initializing the statistical forecast is the next logical step. What is required aggregation level for the forecast? Store level per product in case of a promotion forecast? Product group per country for the baseline forecast? For all possible aggregation levels the the accuracy that can be achieved is evaluated to allow for a well-considered decision on the aggregation level.

Figure 4: Initialization.

Besides the level of aggregation the initialization step includes the analysis of the data labels, seasonality determination and statistical forecast model selection. Experience has shown that with a limited number of trend and regression models a solid forecast can be provided.
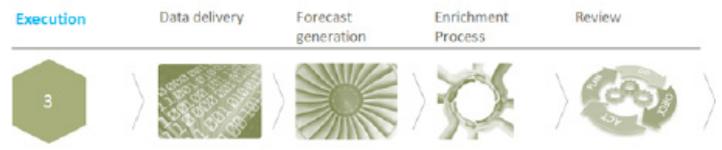
EXECUTION

Figure 5: Execution.

When all parameters are set the forecast is executed regularly; weekly or monthly depending on supply chain or market requirements. To continuously improve the forecast it is of extreme importance to install a continuous improvement loop with participants of both the customer and forecast service provider. Research has shown that the implementation of a continuous improvement cycle has a very strong impact on the accuracy of the forecast (Aertsen, 2013).

In summary the activities to be performed during the outsourcing process are:
*   Process set-up with agreement on the process, data flows, systems to be used and roles and responsibilities.
*   Initialization to decide on aggregation level, forecast segmentation, seasonality and statistical model.
*   Regular execution of the agreed process with special attention to the continuous improvement process to assure an improved forecast at lower costs!

WANT TO KNOW MORE?

For over 15 years EyeOn improved the bottom-line results of our customers by improving forecasting and planning capabilities and performance. Our service offering includes:

- Improvement projects (develop and implement tailored forecasting and planning solutions).
- Interim planners and analysts (temporary staff with assignment to improving processes and / or tools).
- Forecast outsourcing (deliver the best possible forecast).
- Academy (advance Forecasting and Planning specialists in their career by providing activities like training, knowledge networks, master classes and coaching).
- Solutions (Rapid implementation of ICT and mathematical modelling solutions to support forecasting and planning processes).

For more information on the outsourcing of forecasting processes please contact Freek.Aertsen@EyeOn.nl.

ABOUT EYEON

In striving for success, large companies have to continuously struggle against growing internal complexity. We help our clients manage this complexity by designing, implementing and executing excellent planning processes as a discriminating factor for this success. In order to achieve this, we develop and share knowledge about top level planning and forecasting, with constantly demonstrable return on investment for our clients.

For more information: www.eyeon.nl.

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