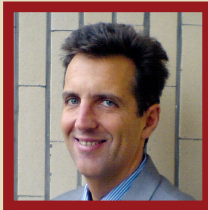


PLANNING AHEAD FOR BETTER BUSINESS

Forecasting plays an important role in business. **Enrico Camerinelli** of **OAUG EMEA** looks at the many ways this process is carried out and how technologies can be used to better predict business outcomes.



Author

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Forecasting is the process of analysing current and historical data to determine future trends. It is currently applied to unpredictable demand to anticipate future behaviour.

Forecasting practices have always been a focal point in enterprises that need to know in advance the demand profiles of goods and services from the client base; the earlier the prediction, the more time available to prepare and plan for the execution.

However, forecasting processes cannot apply only to customer demand. Suppliers management, production operations, logistics, transportation and returns management all need to know how current and historical data will affect operations in their specific domain. There is a general assumption that the forecasted volumes of customer demand are the only information needed and that the predicted volumes for the other domains are generated from a breakdown of sales volumes through correlation tables. Such an assumption holds true in stable environments where demand can be modelled through sophisticated algorithms. A stochastic modelling, based on cause-and-effect correlations, is the foundation for such profiling.

Current business is unpredictable and hardly framed in a stable model. Some argue that unpredictability already exists, and so forecasting techniques have been created. Yet, unpredictable information in the past was related to the quantity of goods to sell. In today's business scenario there are several other unforeseeable figures: product categories, associated services, consumer taste and price rebates due to stiff competition from the Far East. A deviation of the actual values from the forecast can have a heavy negative impact on a company's profit.

Companies are facing the conditions set by the current business scenario in two ways. First, there is a strong shift from a centralised and automatic algorithm-based to a more collaborative forecast and planning process. Knowledge of market conditions, shared expertise and common sense provide the results that were once automatically calculated by sophisticated multi-level complex algorithms. Enterprise application software that enables collaboration, dialogue and opportunity-based decisions is now sitting beside the rigid mechanical computation modules. The forecasting software is used as a supporting mechanism and an enabler of the human-based, collaborative decision-making process.

From systems-based forecasting to collaboration

The description of the forecasting process of Laboratoires Expanscience, a large French pharmaceutical company, will help elaborate the concept (see figure overleaf). First, the estimated sales figures are compared and matched against the effective volumes sold in the past. The historical data is then cleansed from spikes generated by promotions, stock-outs and seasonal effects. The resulting data serves as the basis for the demand generation.

At central group level, the forecasts are automatically generated through a system-based algorithm. At the divisional subsidiary level, each country manager generates a manual projection supported by a Collaborative Demand Planning suite provided

FACTORS THAT CANNOT BE FORECAST

- Customer demand
- Product categories
- Associated services
- Consumer taste
- Price rebates

by the enterprise software solution. The overall forecast figures derived from the automatic calculation and the manual adjustments are then consolidated. A final manual adjustment of the forecasted volumes is then carried out. The quality of the forecast is measured, with the purpose of gauging the reliability of the proposed figures of the past quarter with actuals.

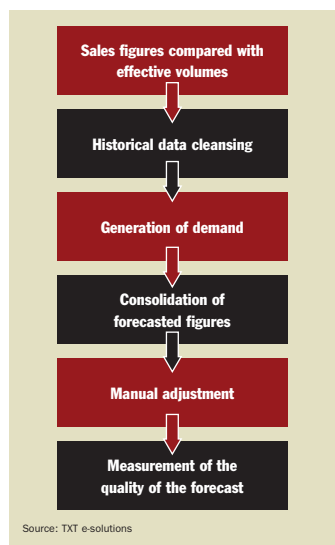
The collaborative process leads to a proactive rather than a reactive approach to managing the future. Planning takes a pre-eminent position against pure forecasting. While forecasting is the process of analysing current and historical data to determine future trends, planning is the process of analysing current data to develop and establish courses of action over specified time periods for future operations. This entails the need to cover the entire spectrum of a supply chain's processes.

The shift from the reliance on pure forecasting algorithm-based mechanisms to a more collaborative planning approach is evident in the strong interest in sales and operations planning (S&OP) manifested by enterprises. S&OP is the process whereby the top management team decides how demand should be balanced with supply, based on profitability objectives, channel requirements and the overall business strategy. A possible objective could be to serve only the most profitable customers. Typical components of the process are the definition of a consensus-based demand plan, a supply plan (constraint based) and agreeing on how to meet demand and supply.

As companies become more demand driven, the S&OP process becomes more vital as it formalises the decision on demand and how to fulfil with optimised usage of resources. S&OP also emphasises the importance of establishing a collaborative demand plan, across the organisation and involving customers.

Most pharmaceutical companies struggle with organisational silos like R&D, production and commercial operations.

Laboratoires Expanscience's forecasting process



Defining or redefining the S&OP process is the best opportunity to start breaking down those walls and introduce the value chain concept. While the importance of a good S&OP process has not changed, the complexity of making the right decisions has grown exponentially. There are more channels to serve, more exigent customers and key accounts, faster changing consumer habits and preferences resulting in a highly volatile demand. Also, the world has become more competitive; the internet has brought almost full price transparency in many areas.

Successful projects for S&OP implementation focus 50 per cent of their efforts on change management, 40 per cent on process alignment and 10 per cent on the implementation of technology (source: AMR Research). But technology has become an essential part to cope with the ever-growing process complexity and has become a process enabler for crucial parts of the new S&OP process.

As companies become more demand driven, the S&OP process becomes more vital.

The S&OP process drives a profitable balance between demand and supply. It helps companies understand real customer demand, which demand is more or less profitable, and what the supply constraints are. Being good at S&OP means matching demand and supply efficiently. Studies reveal that S&OP improvement initiatives with the broad process coverage as outlined below, on average can result in 30 per cent better order fill rates and 25 per cent higher gross margins.

Innovation to face unpredictability

While collaborative forecast and planning are still the centre of a company's demand-generation process, a strong strategic trend across large and medium-sized organisations is emerging, aimed at anticipating, rather than reacting to (and thus trying to forecast), market tendencies and needs; innovation is key.

Laboratoires Expanscience is running a thorough strategic programme that will become the main competitive lever for survival and expansion. To intercept unpredicted events, mitigate disruption and enable faster manager decisions, the company has identified in the areas of processes, organisation and systems/IT applications the strategic levers that dramatically reduce sales volumes 'guesstimates'.

Regarding processes, this pharma company systematically measures the performance of each supply chain process and promotes a policy to develop a win-win partnership with customers and suppliers on inventory management (for example, planning and operational management). For the cosmetics sector, it is now able to propose to the market new-look products with a higher frequency than before.

At the organisational level the company has initiated a lean office project. This will optimise administrative processes and information circulation, maintaining a continuous flow of information that links two worlds that are too often suffering from conflicting agendas and forecasts: sales and production.

The creation of a centre of excellence of experts in finance, IT and logistics reduces the uncertainties of missing the predicted future sales volumes. This team will support the demand-generation activities of the group subsidiaries. The systems/IT line is covered by developing a decision support system that quickly analyses the feasibility of conflicting opportunities.

The results are shared via web meetings with subsidiaries and suppliers through an internally developed system. The company has also developed a group reporting system that helps manage growth across the subsidiary divisions, anticipating demand in a more consistent manner than relying on system-based forecasts.

Agent-based technology: the new frontier

Most planners use software to aid their decision-making. The systems that planners have used to support their experience-based calculations are mainly rules-based, following a formula that allocates resources according to predetermined decisions. This means that if X happens, then Y should be the outcome. When there is an unexpected change at any stage of the order (such as different quantity or machine failure) the system does not have the information it needs to make a decision, and it is up to the planners to draw on their experience to present a best-fit solution. If the planner wants to add this scenario into the rules-based system, it must then be programmed in, which often takes too long to be practical in the fast moving world of logistics.

A solution to creating an efficient and responsive supply chain is to incorporate every aspect of the network into one system, allowing the entire network to react as one to a new event. The technology is now available that can support this process of

continuous planning: multi-agent technology (source: Magenta Technology). This is a granular approach to IT, allowing individual objects (agents) within an application to intelligently seek interaction with other objects within a wider system for their own and the wider system's benefit. Each object, which has its own needs and constraints, attributes and preferences, constantly communicates, negotiates and trades with other agents seeking to maximise its own and the totality's benefit.

Agents have the ability to sense events, reason, plan and act, and when to ask for help. Developing separate modules, where each one provides a solution and allowing them to exchange information in order to solve the larger problem makes the problem-solving process easier to manage (source: AgentLink.org). This may sound laborious, but collaboration between thousands of agents can occur in seconds, making them alert to change. For example, in a road transport application, an agent might be defined as representing a truck looking for a load and a driver. Other agents could be a load looking for a truck, or a driver looking for a truck. The limitations of the truck, the size of the load, its delivery-timing requirement, and the restrictions on and preferences of the driver are all programmed into their respective agents. This allows them to collaboratively find an ideal outcome. **END**

Maintain the Coldchain



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