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YEARS AHEAD



# EFFECTIVE CUSTOMER DRIVEN S&OP

IN THE PHARMACEUTICAL INDUSTRY

AN EYEON WHITE PAPER

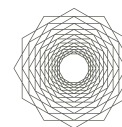
APRIL 2015



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# CONTENTS

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1 EXECUTIVE SUMMARY	4
2 INDUSTRY DYNAMICS	5
3 THE OBJECTIVE OF S&OP	6
4 TACTICS NOT STRATEGY	6
5 PRESSURES	7
6 CLEAR OBJECTIVES & TIMELY DECISIONS	8
7 REGULAR PROCESS	9
8 ONE-NUMBER PLANNING	10
9 USE OF STATISTICS FOR EFFECTIVE & EFFICIENT PROCESS	11
10 BASELINE ENRICHMENT	12
11 EVENT-PLANNING ENRICHMENT	13
12 ROBUST SUPPLY	14
13 INVENTORY OPTIMIZATION	14
14 AN EFFECTIVE NPI & EOL PROCESS	15
15 FIT FOR USE TOOLS	16
16 THE RIGHT PLANNING SKILLS	16
17 CONTINUOUS IMPROVEMENT	17
18 CONCLUSION	18
ABOUT	19

# 1

## EXECUTIVE SUMMARY

Today, sales and operations planning (S&OP) is considered as being the key means to execute corporate strategy. A successful S&OP process aligns an organization strategically to execute tactically. But the road to S&OP excellence is often hampered by complexity. For instance, data acquisition and analysis or process governance may be difficult to achieve, resulting in the process becoming hard to execute.

Research shows that setting up a successful S&OP often falls short for the following reasons:

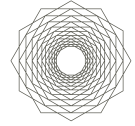
- Lack of clarity of planning objectives.
- Lack of effective decision making.
- Irregularity of process.
- Lack of use of statistics.
- Lack of focus on where value can be added.
- Inadequate baseline-demand-forecast and event-planning.
- Limited insight into (potential) supply issues & risks.
- Poorly differentiated product and service-level requirements.
- Poorly anticipated product portfolio changes.
- Use of IT tools that do not adequately support the planning process.

In this context, EyeOn has introduced 12 building blocks that compress the path for pharmaceutical companies towards achieving game-changing benefits by following a step-by-step approach to S&OP success. These building blocks address all of the above issues.



Figure 1: 12 building blocks.

## 2 INDUSTRY DYNAMICS



Integral or Sales and Operations Planning (S&OP) is at the core of improved business performance. For decades companies have been using it and followed its evolution from fundamental demand and supply balancing to an integrated strategic deployment and management process. But times change and we now live in an age of increasing complexity and uncertainty. Just consider what changes have occurred over the past few decades. Regulatory controls have tightened. New markets have emerged and the competitive playing field has changed due to mergers and acquisitions, startups and generic producers broadening their scope. Markets have grown, as have the number of innovations, which include the niche production of drugs, biotech applications and the threat of biosimilar introductions. In supply chains of growing complexity, high-priority issues include ensuring quality and compliance and obtaining end-to-end visibility. Other issues include reduced R&D pipelines, reimbursement and cost pressures, to name a few.

### GENERAL INDUSTRY TRENDS

Overall prescription drugs sales are forecast to grow just below 4% per year until 2018. The growth from patented drugs is expected to be lower though as a result of lost sales due to products going off patent. Emerging markets are expected to present growth opportunities up to 2016, but growth will be subject to the influence of price pressures (see figure 'Healthcare expenses as % of GDP'). The promise of emerging markets as an easy volume and revenue driver has been adjusted in the past years. No longer does a one-size-fits-all approach work and market offerings require tailoring to current demographics, reimbursement policies and general healthcare structure. This has consequences for the product portfolio, distribution and pricing, among others. Furthermore, a substantial local presence in growth countries is required across the board.

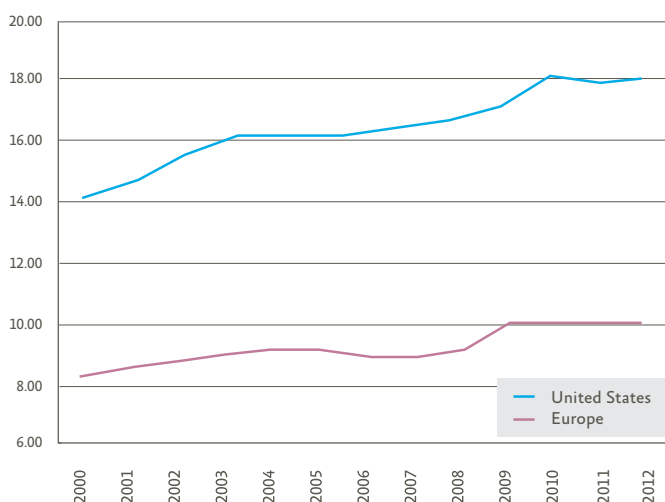


Figure 2: Healthcare expenses as a % of GDP.

The key to sustained revenues and growth is innovation, but not 'just a new product'. Product approval depends more than ever on the added value the product brings to the treatment area. In other words it is judged on its comparative effectiveness.

### PHARMACEUTICAL INDUSTRY TRENDS

Health economics is now an important issue, in many countries Manufacturers must respond with market-oriented products and solutions that meet new demands for affordable and sustainable healthcare. The similarity of today's products accentuates the need to differentiate by this means.

The number of new medicines approved by the FDA on a yearly basis is stable at around 20. In 2012, an exceptional number (39) of new molecules was approved. The development cost has never been so high: since the year 2000 less than one medicine was introduced per invested billion USD, whereas in the 1980s this figure was about eight medicines per billion USD. The key factor is how well the product adds value compared with existing treatments. Effective new product introductions for shorter time to market are crucial to market success and have consequences for S&OP.

Approximately one third of the entities approved are treatments for orphan diseases with a smaller potential market, but where manufacturers can command a high price. The most growth is expected from the treatment areas Oncology, Multiple Sclerosis, Hepatitis C, Diabetes and Immunology.

As a result of most of the above trends, supply chains have been transformed into complex global value networks as multinationals have increasingly focused on what they are good at and outsourced everything else to specialist companies with technical expertise in a particular area. The typical supply chain now involves many of these kinds of specialist firms. However, cost reductions in the supply chain should not be at the expense of regulatory control and compliance. So multinationals need to find ways to design and manage these large and complex networks to maximise their competitive advantage.

# 3 THE OBJECTIVE OF S&OP

## 4 TACTICS NOT STRATEGY

### 3 THE OBJECTIVE OF S&OP

To design a qualitatively good planning process, the basic question of why Sales & Operations Planning is necessary in the first place has to be answered. The primary objective of S&OP is to make accurate decisions. The process must be arranged in such a way that relevant information can be shared rapidly, efficiently and transparently within an organization (see figure 'S&OP is about making decisions'). So a good forecast is required to make timely and robust decisions on supply and identify potential gaps and risks to reach (strategic) targets.

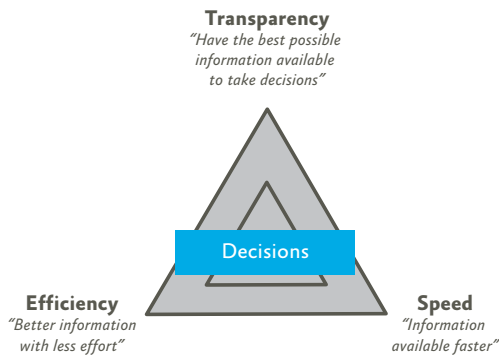


Figure 3: S&OP is about making decisions.

Fast communication of the forecast with all necessary parties involved to support decision making is more important than to try and predict the future with perfect accuracy. A forecast that is 'roughly correct' is better than one which is 'exactly wrong'! Likewise, S&OP should deliver decisions on a robust supply plan rather than a locally optimal plan that is very sensitive to changes.

### 4 TACTICS NOT STRATEGY

Companies in many industries, including pharmaceuticals, recognize the need to improve their forecasting and planning processes in order to succeed and indeed survive. In this respect, the position of tactical planning in the common business classification of planning, i.e. strategic, tactical and operational planning (Gupta and Marana, 2003) is crucial. Decisions on the tactical horizon are related to the question of whether or not the company is still on track to follow its strategy and whether or not corrective (operational) actions are required (see figure 4). This is related to market and price trends, potential business scenarios, customer plans and resource/ capacity adaptations.

Tactical planning is the link between operational planning and strategic direction. In a highly volatile market, the outcome of this process largely determines a company's success. Decisions have to be made on resource allocations and whether or not:

- The right future products are in development.
- The right customers / markets are being targeted.
- The right capacities are installed at production sites.
- The right product is planned.
- The right financial value will be returned.

Although critical to success, this planning process is also the most challenging to implement for many companies.

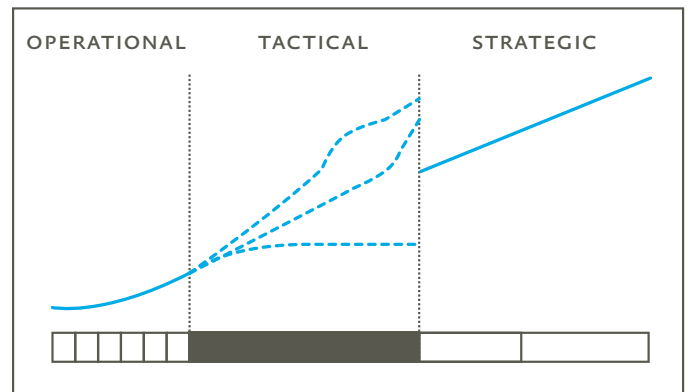
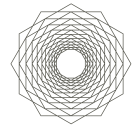


Figure 4: Tactical planning as a link between operational planning and strategic direction.

# 5 PRESSURES



The pressures on forecasting and planning are steadily increasing on both the supply and demand sides. But these pressures can be relieved through effective decision making based on higher forecasting and planning accuracy.

The number of products a company has in its portfolio and the channels through which they are sold increases as a consequence of entering new markets, developing niche products and keeping a competitive edge. Pressure on product prices and increasing regulatory / quality control require a more effective and efficient R&D management and supply chain. Reducing the supply chain complexity is therefore a next logical step. In reality, supply chain complexity will only increase for pharmaceutical companies, in view of continuing:

- Mergers and acquisitions (increased footprint).
- Joint collaboration (shared supply chain).
- Outsourcing of activities.
- Increasing local presence.
- Shortening product life-cycles.
- Increasing share of tender-driven business.

In short, pressure will increase on all three 'trade-off balloons', i.e. delivery, capacity and stock (see figure). In those cases, planning and forecasting will optimize the supply chain while simultaneously maintaining delivery performance.

The most straightforward consequence of the shifting trade-off between demand, capacity and stocks is that forecasting accuracy and effective decision making needs to improve. On the supply side, capacity and inventories have to be used optimally to maintain or lower the cost of capital and contribute to the margin. On the demand side, the availability to the end-user needs to be guaranteed.

A better forecast that is shared with business rapidly translates directly into lower inventories. Moreover, forecast improvements lead to less bullwhip in the chain, more reliable incoming supplies and less re-planning and rescheduling in the factories.

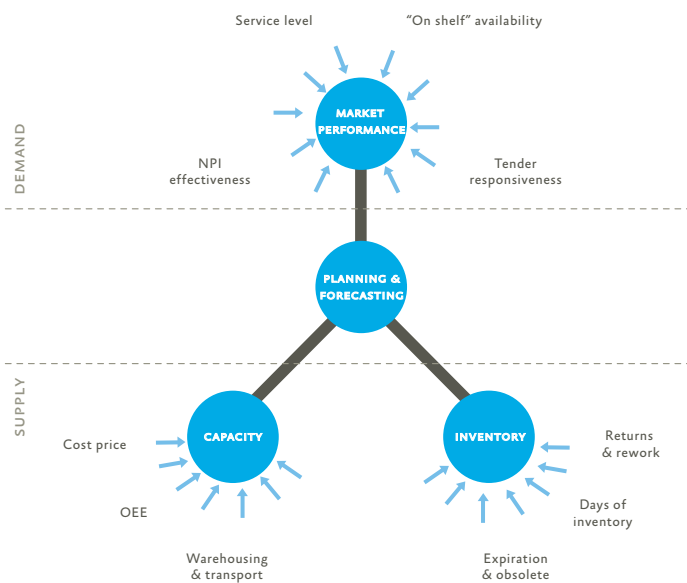


Figure 5: Increased importance of forecasting and planning.

# 6 CLEAR OBJECTIVES & TIMELY DECISIONS

## BUILDING BLOCK 1 – SET CLEAR PLANNING OBJECTIVES AND DETERMINE WHICH DECISIONS TO MAKE, WHEN.

The level at which decisions are made (strategic, tactical, operational) determines the way that the forecasting and planning process is organized. The throughput times of planning processes in many industries, including pharmaceuticals, have to be restricted to an absolute minimum. At the same time, key value drivers should be managed in an interdisciplinary way. Companies should therefore define key drivers as a basic starting point for designing the planning process.

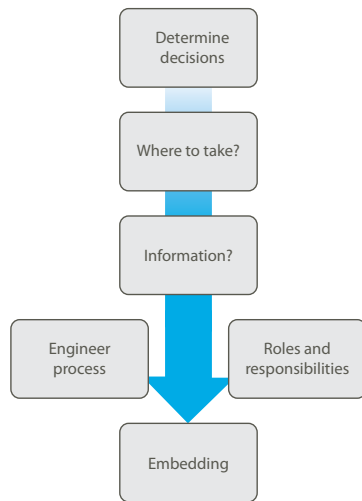


Figure 6: Implementing a responsive forecasting and planning process.

Key questions to be addressed are:

- What decisions have to be made?
- Where will these decisions be taken?
- What information is required to make these decisions?
- Who is doing what and when?

Especially in pharmaceutical industry, long lead times mean that SC performance drivers need to be taken into account while setting the objectives and decisions. In the case of biotech for example, the fermentation (cell growth) often is a bottleneck while it is relatively upstream, so key decisions need to take into account the (gross) capacity.

The decision-making structure should be formalized in a cross-functional meeting. Planning meetings often become discussions about data and its validity, so automate as much as possible. Make sure that data collection is final and complete when decision-making starts, which should be as close as possible to the moment of the decision-making meeting.

When it is known what decisions need to be made, the source of the information and who is assigned to provide it, the detailed process can be designed.

Short planning cycles can only be established when a strict planning calendar is prepared for all activities. This should be adhered to and compliance measured. The effectiveness and value add of every activity should be evaluated in a Plan-Do-Check-Act (PDCA) cycle to drive continuous improvement.

### Aggregated planning

For mid-to-long-term decisions, not as much detailed information is required as for the short term, so it is important to aggregate the planning where possible. Aggregation is possible within most organizations when the mid-to-long-term decisions are not related to information at SKU level. While deciding on aggregation, it should be remembered that the product mix (i.e. packaging presentation) for example, is a dominant factor in packaging load profile even in the mid-term. This gives a number of benefits that translate into a more efficient process:

- Improved long-term forecastability.
- Better alignment with business processes.
- Reduced effort and increased focus for sales & marketing.
- Less data to manage.

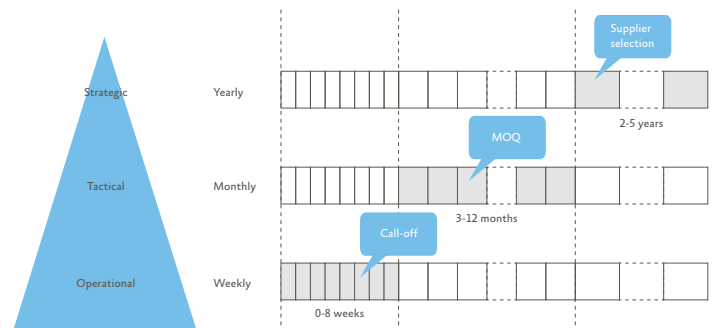
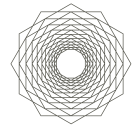


Figure 7: Different horizon, different decisions.



# 7 REGULAR PROCESS



## BUILDING BLOCK 2 – A REGULAR PROCESS WITH PREDEFINED STEPS AND STANDARDIZED DECISION MEETINGS.

To achieve a high-quality decision-making process, it is important to fix the decision-making structure and incorporate it into a routine, periodic, cross-functional process that clearly indicates WHO does WHAT WHEN (see figure 8). To break through the buffers (silo effect) between operations and sales, best-in-class companies set up multi-disciplinary teams to manage the cross-functional processes that they have created.

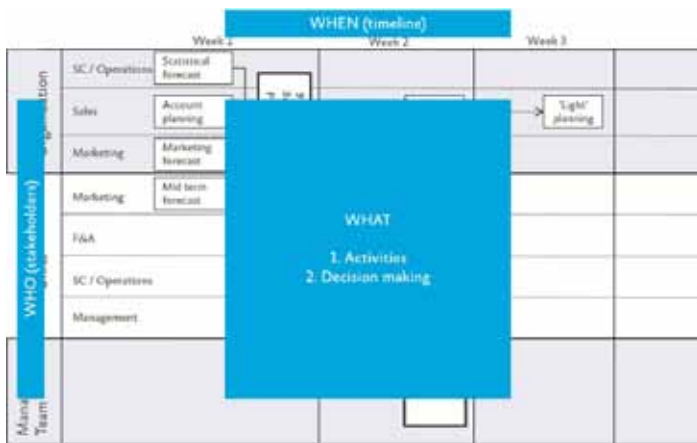


Figure 8: Fixed decision making structure.

A clear guideline is required on who will be responsible for what. Which products to forecast statistically and which to forecast judgmentally should also be clearly defined. This leads to increased involvement and increases the quality of the demand forecast.

Participants in S&OP meetings from the various different functional areas must have decision-making authority. A clear insight into the boundary conditions must be prepared in advance to avoid situations where decisions made at the meeting are merely reversed by senior management after the meeting.

An important success factor for this meeting is the participation – preferably in the role chairman – of a business manager who can enforce decisions in the event of a dispute. He/she should be able to bring a balance when discussing business and interpreting figures and trends during the meeting. Another suggestion is for the sales director to chair a formal ‘forecast sign-off meeting’.

A major challenge experienced by many companies is how to engage sales & marketing in the forecasting process and make them take ownership of the forecast (EyeOn 2012). Involving them in the forecasting process is often regarded as challenging, but is a prerequisite to generating high-quality forecasts. Frequent statements, such as, “My job is selling, not forecasting,” clearly show that many sales & marketing people feel that forecasting is simply not part of their job. Unlike supply chain management people, their lack of familiarity with Enterprise Resource Planning (ERP) or advanced forecasting systems makes it even less likely that sales & marketing could produce a good forecast. Requesting a stock-keeping-unit (SKU) forecast six months ahead would already be difficult. Locating a dedicated demand/supply coordinator in the marketing & sales office is a proven critical success factor.

As a general rule, it is most important that participants use the language of business and reach value-based instead of volume-based decisions. Sales & marketing should be encouraged only to provide input when and where it really adds value. Moreover, the focus should be maintained on exceptions, issues and risks. Largely due to organization complexity (e.g. many different national sales offices in various regions and supply centres scattered over the globe) the pharmaceutical industry is not known for gathering demand information quickly or effectively. As speed is essential and the S&OP process needs to be global, utmost thought and attention should be applied during its setting-up.

As already emphasized, the S&OP process is value based, but volume details might be required. Product mix effects can be an important driver for supply performance, so product mix, e.g. the mix of 3, 5 and 15 pill packs, should be known next to value for the Rough Cut Capacity Planning (RCCP).

One way of encouraging the participation of sales in forecasting is to prioritize orders for which a forecast is available. Another method that has produced positive results in some companies is to tie sales bonuses to forecast accuracy. This has proven especially effective when used to stress the importance of demand planning during the start-up phase of the process. However, linking performance to the attainment of forecasts does run the risk of tempting the phenomenon known as ‘gaming’ or ‘sandbagging’ to the process. This is when executives deliberately understate forecasts to increase the probability that they will match or exceed targets.

# ONE-NUMBER PLANNING

## BUILDING BLOCK 3 – MAKE RELEVANT INFORMATION IMMEDIATELY AVAILABLE FOR ALL STAKEHOLDERS

Making relevant information available to all supply chain stakeholders brings transparency and therefore clarity to any process, but this is especially valid and indeed crucial in forecasting and planning. Companies often plan exclusively in volumes without translating forecasts into value. And managers are often confronted – not to mention confused – by differences between the forecasts of sales people, the estimates (for the future) of logistics people, and the annual forecasts of the finance department.

The S&OP process needs to move away from the operational process into an integrated business process involving finance and using scenario planning instead of volume-based decisions. The benefits of ‘value-based S&OP’ and ‘one-number planning’ need to be made equally clear to all stakeholders. Although supply-chain management will be familiar with these, the benefits are not always clear to sales & marketing. However, it must be remembered that the objective is consistent planning. Sales must reflect optimism and the forecasting process should not become a purely mathematical exercise devoid of enthusiasm.

Sharing of information is not limited to the internal organisation. Also exchange of relevant information and collaboration with partners outside the company (customers, suppliers) contributes to improved planning accuracy and stability. The level of collaboration within a company on forecasting and planning can be determined using a ‘collaboration index’ (Simatupang, Sridharan 2005), which measures three important dimensions:

- Information sharing among supply chain partners.
- Decision synchronization among supply chain partners.
- Incentive alignment among supply chain partners.

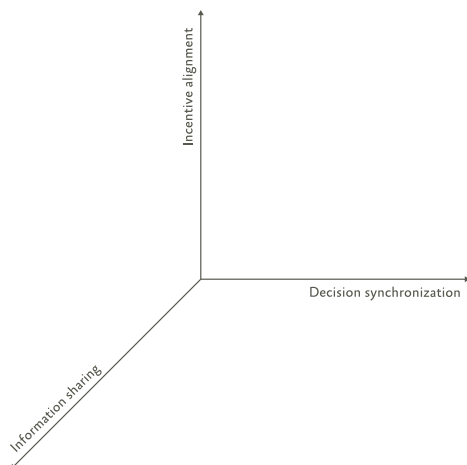


Figure 9: Collaboration index for forecasting and planning.

Combining the collaboration index with the basic forms of collaboration shows the impact of intensified collaboration. Research shows that data sharing between partner companies happens quite a lot, although differences arise in the way it is shared (EyeOn 2006). The main problem seems to be in finding time (or being disciplined enough) to discuss it, which is the crucial factor in turning data into value-added information.

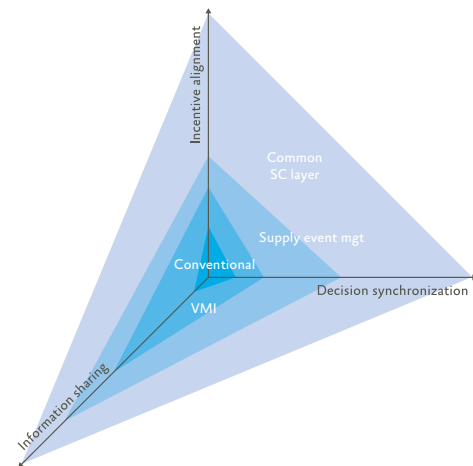
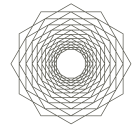


Figure 10: Combined form and index.

However, it is common to share product information (portfolios and life cycles) unless this is withheld for strategic reasons. The question remains, to what extent can data that is being shared be interpreted and transformed into valuable information to make supply chain decisions?

Decision synchronization, or the level at which supply chain partners mutually decide on important aspects of their forecasting and planning relationship, usually touches areas such as production start-up quantities and timing, ordered-material quantities and timing, priority settings and allocation of capacity alignment. Here, decisions on filling the next production slot at contract manufacturing organisations, or monitoring min/max volume agreements are typical tactical areas of focus within outsourced supply chains. In reality, meetings among supply chain partners are more likely to cover burning issues and how to resolve operational hiccups. Despite general awareness among partners of the benefits that forecasting and planning might bring for end-to-end visibility, there are still reservations about whether it will really work and what pitfalls await. Here, outsourcing to subcontractors – third-party manufacturing and logistics companies – should enable more attention to be focused on core competencies, such as research, product design and marketing.

# 9 USE OF STATISTICS FOR EFFECTIVE & EFFICIENT PROCESS



## BUILDING BLOCK 4 – USE STATISTICS TO GENERATE BASELINE DEMAND FORECAST: EFFICIENT & EFFECTIVE

Forecasting is an essential part of business planning and involves a wide range of functional areas, such as marketing & sales, finance and logistics. A good forecast not only drives an efficient supply chain, it improves service levels and cash flow, and ultimately profitability. Forecasts can be generated using statistics and/or judgement. A statistical forecast bases its projection of the future on results realized in the past by identifying trends, patterns and business drivers within the historic data. Judgmental forecasts, on the other hand, rely on intuitive judgements, opinions and probability estimates. The use of a statistical baseline makes the forecasting process reliable, efficient, transparent, fast and objective. Depending on the possibility to centralize the planning process, a statistical forecast can be prepared very efficiently and eventually leads to a -large -decrease in planning-organization costs.

To generate 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, mature and end-of-life) and the distinction made between whether the sales demand was normal or part of a spike due to promotions, tenders and projects.

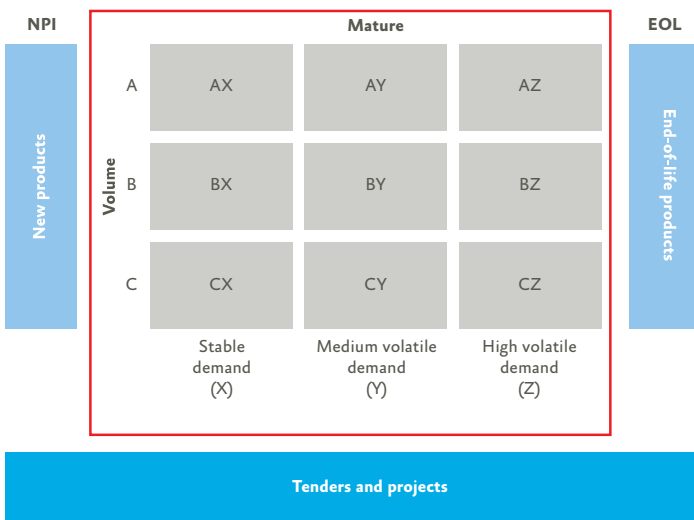


Figure 11: Demand differentiation.

Statistics can be applied to support forecasting in many situations and offer the following benefits:

- Objectivity.
- Insights from the past.
- Fast generation of different forecasts (see below).
- Scenario analysis and comparison.

Baseline forecasting for mature products is based on historical sales data and often uses trend and seasonal models. A high-quality statistical forecast allows companies to focus the enrichment process on those elements that really add value.

New-product forecasting is based on several internal and external data sources, historical introductions, volumes and characteristics, or social-media data. A high-quality new-product forecast can be used to improve the effectiveness of new-product introductions. Statistics (often multinomial logic) regression models can be used to forecast the full life cycle quantity, the initial launch quantity and the ramp-up profile.

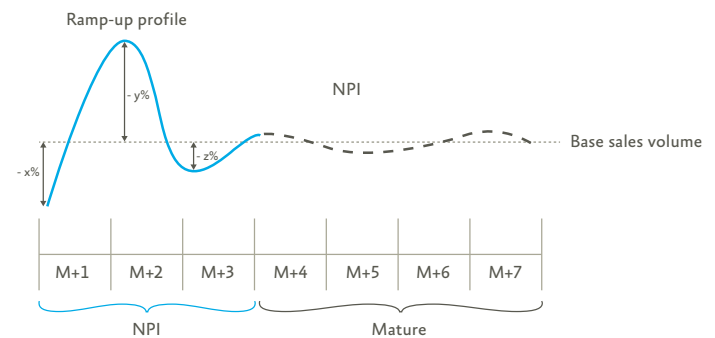


Figure 12: New product forecasting.

Statistically generated forecasts very often show performance that can match or even outperform manually generated forecasts. If required for decision making, a statistical forecast is generated for all SKUs and markets. The aggregation level depends on the level of detail required for decision making / planning (see section 6 under 'Aggregated Planning'). The forecasted outcomes can be used to lend focus, e.g. specific knowledge on global tenders and regional or local knowledge. The forecast is then enriched by adding specific knowledge of the local markets.

# 10 BASELINE ENRICHMENT

Outsourcing of the forecasting function is proving to be an increasingly popular option as companies continue to seek ways of improving their forecasting accuracy. There are multiple advantages to forecast outsourcing:

- Availability of specialized knowledge.
- Fast implementation – shortens time to value.
- Eliminates implementation risks.
- Economies of scale means lower costs.
- Continuous improvement due to investment in new technologies and skills.
- True, collaborative forecasting due to independent information broker.
- Best practice sharing.

The bottom line is that a specialist outsider delivers the best possible forecast in terms of accuracy, efficiency and speed.

## 10 BASELINE ENRICHMENT

### BUILDING BLOCK 5 – ENRICH THE BASELINE DEMAND FORECAST: FOCUS ONLY ON WHERE IT ADDS VALUE

When products are forecasted in several different ways, good product categorization is essential to provide the right focus, namely, where it adds the most value. This is the key to increasing planning efficiency and effectiveness – by spending available time and resources in the best way possible.

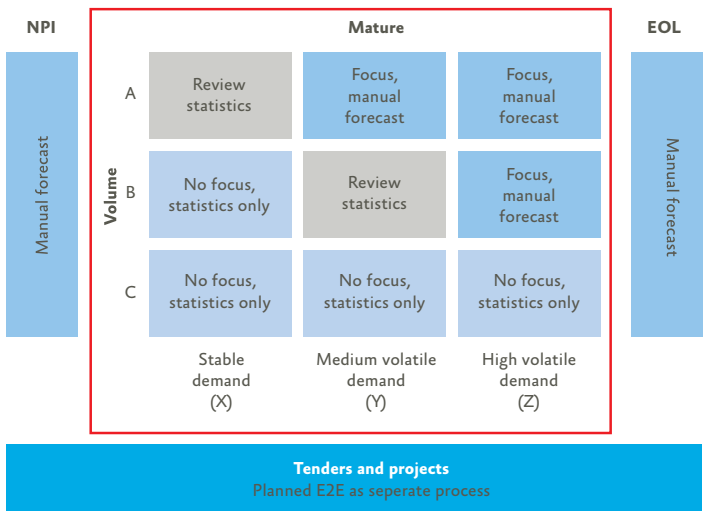


Figure 13: Baseline demand forecast enrichment.

In the context of the pharmaceuticals industry, basic categorization should be differentiated according to the demand characteristics. For instance, high volume products with high volatile demand will be very difficult to forecast statistically, but they still require focus in order to ensure that demand is met.

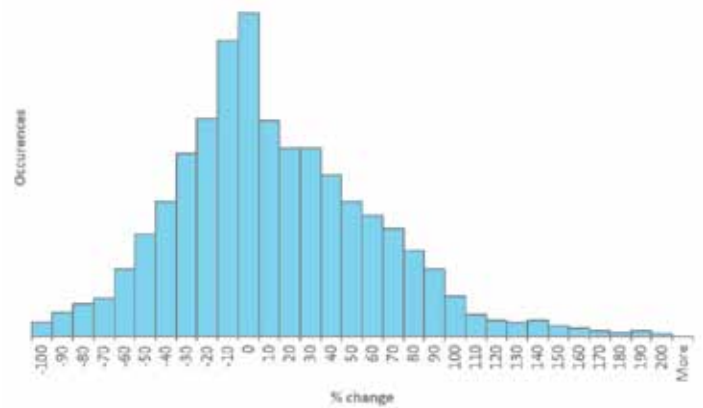
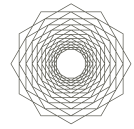


Figure 14: Many small adjustments – very few large adjustments (Goodwin 2010).

A differentiated approach supports demand planners in focusing their planning activities where it adds most value. Research (by Goodwin, 2010) has revealed that in many companies, planners spend the majority of their time on small (and often irrelevant) plan adjustments. By making use of product characterisation, they can focus their efforts on those products where human judgement is required, as the use of statistics will most likely not result in an accurate forecast. So, at the start of implementation, be critically aware of changes in the PDCA cycle by keeping track of added value that changes made by demand planners bring to the forecasting accuracy before and after the changes. This quick and objective feedback will enable the demand team to learn very quickly in what way the best performance can be delivered.



**BUILDING BLOCK 6 – ENRICH PLANNING FOR EVENTS, PROMOTIONS, TENDERS AND PROJECTS**

It is necessary to enrich the planning for a successful outcome in the case of events such as promotions, but this is especially the case for tenders and projects. For tender demand, the default forecasting generation and enrichment process is insufficient. In most cases tenders are either fully accepted or not. A huge part of the full requirements need to be met in the short term, leading to large spikes in demand. It is therefore essential that the management process facilitates explicit decisions about the risk of each bid.

A prerequisite for a good tender-management process is the separate capture of the tenders in the actuals and forecast. In this way they can be excluded from the regular forecasting process and form a focused input to the tender demand-management process.

A good tender-management process differs from the normal statistical forecasting process as follows:

1. Tender demand is captured separately.
2. Financial assessment of potential bids.
3. An explicit decision to bid.
4. Explicit risk decision.
5. Tender/bid-based follow-up of actuals versus forecast.

The time-phased dynamics can be managed by having the detailed forecast together with the aggregated initial forecast in one view (see figure). The risk decisions are made for the bids that will end in the short term. Mid-to-long-term capacity and procurement decisions can be made using the development of overall requirements, as compared with the initial forecast (right part of the table).

Country	Product	Discussion												Each cycle check rolling and budget totals		
		Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Total year	Total rolling	Budget
UK	Product A	0	30.000	0	0	0	30.000	0	0	40.000	0	0	25.000	100.000	125.000	140.000
UNFPA	Product A	0	0	0	0	0	0	60.000	0	0	0	23.000	0	83.000	83.000	50.000
Myanmar	Product A	0	0	15.000	0	8.000	0	0	8.000	0	0	0	0	31.000	31.000	60.000
India	Product A	0	0	0	0	0	0	0	0	0	150.000	0	0	150.000	150.000	150.000
Egypt	Product A	2.000	0	0	0	1.000	0	1.000	0	1.000	0	1.000	0	5.000	6.000	7.500
	SUM	2.000	30.000	15.000	0	9.000	30.000	61.000	8.000	41.000	150.000	24.000	25.000	369.000	395.000	407.500

Figure 15: Tender planning table.

# 12 A ROBUST SUPPLY

# 13 INVENTORY OPTIMIZATION

## 12 A ROBUST SUPPLY

### BUILDING BLOCK 7 – GENERATING A ROBUST SUPPLY PLAN

A robust supply plan is required to provide the insight and scenario planning capability so that the right decisions can be made (priority setting) to develop mitigating scenarios if disruptions or other unexpected events occur. In fact, it should create a good early warning system.

However, obtaining the right insight for decisions is difficult for several reasons, including long lead times, complex supply chains (diverging, converging, or partly outsourced and globally dispersed facilities executing one or more steps).

Other complicating factors that add to the difficulty in getting the necessary insight include the use of multiple ERP systems, or multiple non-connected SAP templates that may be in place.

So it is very difficult to get a clear understanding of risks and of capabilities in the supply chain. Typical of the challenges faced are issues that happen upstream (far from the market) and are not visible, or are overlooked. Very long throughput times for a demand signal to travel along the supply chain are problematic, as are long assessment times following the impact of events, let alone the time required for developing mitigating scenarios.

There are two basic ways to get this right. First, by achieving a quick (but rough) insight into the demand signal, gross capacities and effects of events (see example below) and second, by implementing an Advanced Planning System (modern APS systems leverage their aggregation, heuristics and solving capabilities also for the S&OP function).

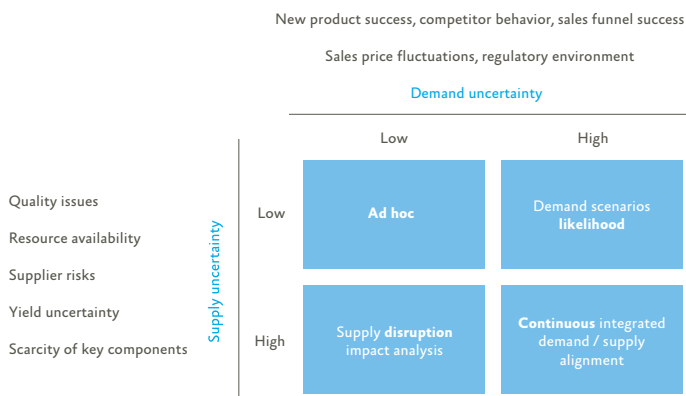


Figure 16: Main risks on the supply and demand side.

An example of such a signaling issue mentioned above is net requirements planning (NRP). Within NRP, the customer forecast is translated directly to upstream levels (bulk production / API

production) using the bill of material. Any stocks in the chain reduce the net requirements for the upstream level. NRP is fairly straightforward to calculate and it provides a look at the actual demand in the market, expressed in the unit of measurement familiar to the planner. It is a powerful tool to assess whether requirement fluctuations, as experienced by orders from downstream production, are structural or more bullwhip effects around very small variances.

## 13 INVENTORY OPTIMIZATION

### BUILDING BLOCK 8 – INVENTORY OPTIMIZATION THROUGH MODELLING: DIFFERENTIATE ON PRODUCT CHARACTERISTICS AND SERVICE-LEVEL REQUIREMENTS

Inventory management remains under the spotlight, even after the fierce and rigorous inventory reductions that ensued as a result of the last economic crisis. The pressure on margins and the strong focus on working capital are the reasons for this. Inventory has always been the result of strategic decisions, risk evaluation and forecasting (in)accuracy.

Research on the relationship between forecast accuracy, inventory and service levels has been carried out in several industries. Results show that forecast leaders perform better and are therefore not only differentiating themselves on service levels. At the same time they hold significantly lower inventories (see figure).

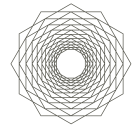
	Laggards (accuracy < 65%)	Followers (accuracy 65-80%)	Leaders (accuracy > 80%)
Supply chain KPI's			
· Customer service	92%	94%	95%
· Stock (in weeks)	7.4	5.6	4.1

Figure 17: Forecast accuracy and the impact on service level and inventory.

The challenge is to reduce inventory in a sustainable way without jeopardizing service levels. In this case, a differentiated approach based on product demand dynamics and service level requirements also adds value.

Especially in the case of pharmaceutical supply chains, inventory optimization should also be differentiated according to the location in the supply chain. Downstream (close to market) inventories can often be optimized according to textbook methods, but supply variability becomes much more dominant in the upstream part of the supply chain. This requires specific methods that are suited to particular production characteristics.

Monitoring to ensure a healthy and balanced inventory should be an integral part of S&OP. Since market environments tend to become increasingly dynamic, inventory management will obviously remain high on the agenda in the future.



### BUILDING BLOCK 9 – ANTICIPATE PRODUCT PORTFOLIO CHANGES WITH AN EFFECTIVE NPI & EOL PROCESS

Innovation is becoming more important, but more difficult than ever. A number of pitfalls await the unwary, including: failure to embed new product introductions in the organization, supply-chain inflexibility, delayed involvement and/or limited influence of supply-chain-management, and incomplete or out-of-date master data. Six guiding principles to manage innovation successfully and innovate more profitably are shown in the figure.

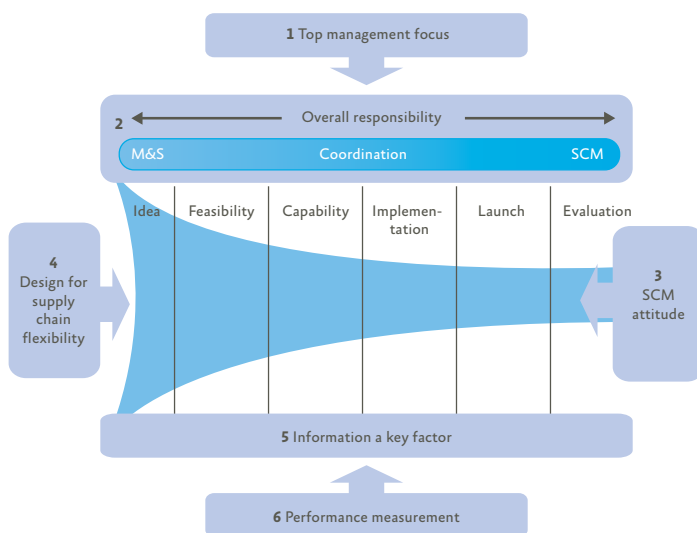


Figure 18: Six guiding principles for profitable new-product introductions.

**1. Top management focus** should be on creating an organizational structure that facilitates and stimulates innovation, and involves all relevant departments - not just sales & marketing – in new product introductions. Multi-disciplinary new-product teams and regular cross-functional meetings will ensure multiple sources of communication, information and perspectives, inclusion of downstream concerns in upstream product development, a clearer line of sight to the customer and faster time to market.

**2. Overall project responsibility** should be combined at business management level with differentiated operational coordination also at a high level. A proven methodology, e.g. Stage-gate™ model, will ensure that critical milestones and go/no-go decisions are built into the process and formalized. Clear procedures, responsibilities and accountabilities should be assigned at the earliest stage in the innovation process.

**3. Supply chain management (SCM)** should play a more important role in new-product-introduction processes to anticipate the new products, gather initial demand information, and translate regulatory timelines into transition plans. SCM is often responsible for maintaining relevant operational data in ERP systems. Early involvement results in improved data availability throughout the organization, enabling more accurate decision making during the process.

**4. Design for supply chain flexibility** should be considered at the very early stages of the innovation process. In reality, new product sales will always be different from the forecast. A flexible supply chain is vital. If sales & marketing decides to change the price at the last minute, ramp-up media exposure, time-to-volume might get critical. If the process is delayed, production capacity must be flexible enough to reschedule the first production batches, e.g. by reserving spare capacity with a subcontractor.

**5. Information is a key factor**, so accurate and up-to-date master data is essential for effective decision making. In the preliminary stages the uncertainty factor is large, but must be reduced as much as possible toward the launch of a new product. Ensuring that information is consistent, timely and correct, and available throughout the organization will help in this respect. Supply chain management should play a leading role in this.

**6. Performance measurement** should be applied throughout the entire innovation process. Appropriate KPIs and decision-support tools are therefore required to manage and keep track of possible issues. When multiple new-product projects run simultaneously, it is critical to have common KPIs. Questions like, 'Does a specific new-product-introduction process need more resources?' or 'What will be the consequences of this introduction delay on production capacity?' can only be addressed if processes are measured and managed.



# 15 FIT FOR USE TOOLS

# 16 THE RIGHT PLANNING SKILLS

## 15 FIT FOR USE TOOLS

### BUILDING BLOCK 10 – SUPPORT PLANNING PROCESSES WITH IT TOOLS THAT SUIT BUSINESS DYNAMICS AND COMPLEXITY

A planning benchmark survey (EyeOn) shows that the majority of companies still use Excel-based planning applications. In some instances, a low supply chain complexity doesn't require advanced planning tools, but their use in other cases offers many benefits, one of which is mathematical models to optimize supply plans and assess planning scenarios in case of demand or supply uncertainties. But in any model, the quality and efficiency of the planning process is more important than the tools used.

Today, a wide variety of planning tools is offered to support forecasting & planning processes. In a highly complex, global supply chain, advanced planning tools add value to decision-making efficiency. Careful consideration should be given to which tool to use and when. Remember that operational processes require very strict systems. For instance, systems that impact patient safety and quality need to be validated and ensure traceability. For planning purposes, this detail is not required and sometimes even dysfunctional. Good planning systems aggregate transactional information in a smart way to enable the S&OP process.

R&D forecasting has to deal effectively with large portfolio changes and complex development organizations. Promising products are added to the pipeline via mergers, acquisitions and collaboration, which leads to increased complexity as inter-company processes need to be set up to share information. Moreover, product price pressure and increasing regulatory and quality control call for a more effective and efficient R&D project management and supply chain. The basis for this is a transparent R&D process. Transparent scenarios are especially required in the phase when market size and prices are determined. Advanced planning tools allow companies to integrate various demand and supply plans across the supply chain, increasing transparency, enabling fast decisions and quick response to events, and resulting in significant cost reductions.

## 16 THE RIGHT PLANNING SKILLS

### BUILDING BLOCK 11 – PLANNERS' SKILLS ARE KEY TO IMPROVING PLANNING ACCURACY

In the past decade the skills required from planners have changed significantly, as a consequence of increased complexity, dynamics and uncertainties in the planning process. Based on extensive EyeOn benchmarking, the relevant skills of planners were identified that contribute most to improving plan accuracy (see figure).

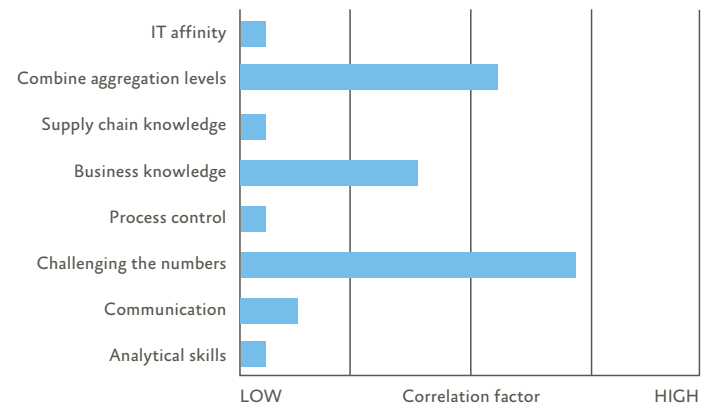
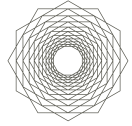


Figure 19: The importance of planning skills.

Skilled planners are generally graduates of higher education with at least a bachelor's degree. Planning calls for an analytical mind and solid grounding in maths and statistical skills. But more important, a good planner must also be able to communicate well across all levels and silos of an organization, and dare to challenge the inputs they get from other people. A deep business understanding of the requirements and specific interests of manufacturing, logistics, marketing, sales and finance is necessary. Planners are also able to reach outside a company to suppliers and customers, to ensure that all parties are in agreement about what the plan should be. Consequently, planners need to have strong leadership qualities, the ability to influence people and to lead by collaboration.





## 17 CONTINUOUS IMPROVEMENT

## BUILDING BLOCK 12 – CONTINUOUS IMPROVEMENT HAS THE STRONGEST RELATION WITH FORECAST ACCURACY

The essence of continuous improvement lies in active reflection on the effectiveness of actions taken in the past and identifying improvements for future improvement.

The improvement process is essentially about learning rather than blaming. True learning occurs when the real root causes of issues are identified, understood and managed in a step-by-step improvement process. Although this seems to be a relatively straightforward matter, achieving it often proves to be quite a different experience, as shown in the figure below.

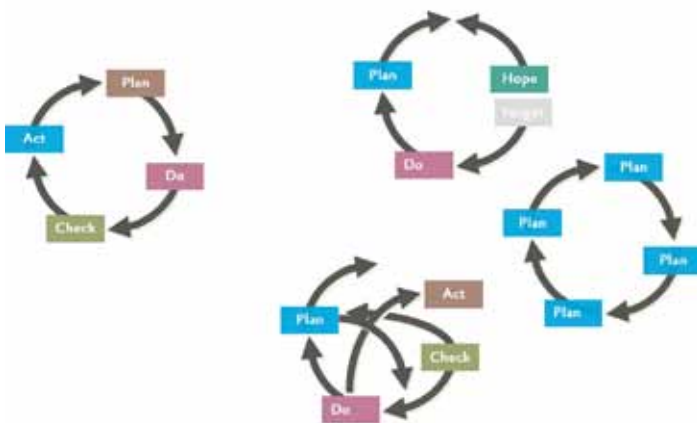


Figure 20: Three 'wrong' Deming circles.

Dr. J. Edward Deming, the famous quality guru, provided a simple yet highly effective technique that serves as a practical tool to carry out continuous improvement in the workplace. This technique - PDCA (Plan, Do, Check and Action) Cycle or simply Deming Cycle - provides conceptual as well as practical framework for continuous improvement.

Research by EyeOn revealed that a well-structured continuous improvement process makes the strongest contribution to forecast accuracy improvement.

The application of the PDCA cycle helps an organization to become agile or incorporate closed-loop management with speed. The process helps integrate the functioning of demand management, supply management, fulfillment management, rapid business reconfiguration, and IT systems within an organization.

## CONCLUSION

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### 18 CONCLUSION

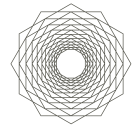
EyeOn has introduced a building-block approach to the setting up of an effective, customer-driven S&OP that addresses proven difficulties that typically arise in companies within the pharmaceutical industry. The building blocks, which are proven to form a solid and successful S&OP, can be summarized as follows:

1. Set clear planning objectives and make timely decisions.
2. Make S&OP a regular process with predefined steps.
3. Make relevant information immediately available to all stakeholders.
4. Use statistics to generate the baseline demand forecast.
5. Enrich the baseline demand forecast.
6. Enrich the planning for events.
7. Identify supply issues / risks and propose mitigation scenarios.
8. Optimize the inventory.
9. Anticipate product-portfolio changes with an effective new product-introduction process.
10. Support planning processes with IT tools that suit business dynamics and complexity.
11. Enlist planners with the right skills to improve accuracy.
12. Embark on a journey of continuous improvement.

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# ABOUT

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## CONTACT

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## 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.

## KNOWLEDGE NETWORK

In 2009, EyeOn launched a knowledge network through which pharmaceutical and medical device companies share business planning experiences and best practices. Many of our network members also participate in benchmarking and in the meantime, multiple network meetings and conferences have been organized on various business planning topics. These have proved highly successful.

Beyond network events and benchmarking, EyeOn also organizes expert sessions and master classes in various specific domains of supply chain and financial planning.

For more information: [www.eyeon.nl](http://www.eyeon.nl).

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