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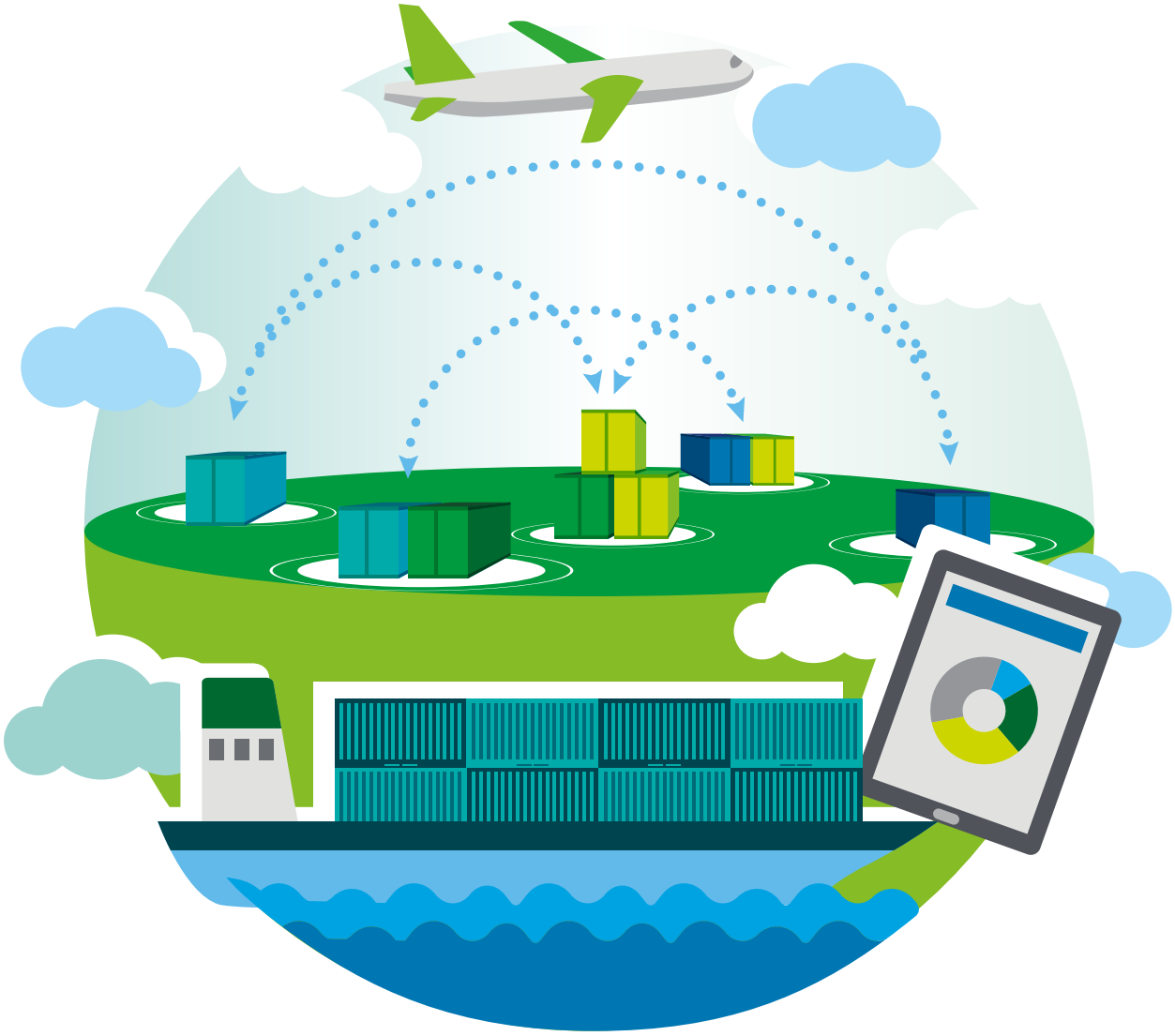


Supply Chain Planning 2025

No Planning, Continuous Planning and Beyond

Planning 2019 – Case Study: “No Planning”

Our Client
Manufacturer & distributor of construction materials. € 6.1bn revenues. 25,000 employees. 220 sites in 86 countries.

The Challenge
Our client’s customers store construction materials in containers at their construction sites. These containers have to be refilled on time. However, the regularity of use of the construction materials is difficult to predict. It depends on the overall progress of the construction work, which in turn depends on the timely performance of many parties involved as well as on the weather.

Currently, the manager of the construction site reorders the materials based on a more or less ad hoc assessment of the current stock level in the containers and the future needs of the site.

Of course, this process creates a burden on everyone involved: Our client does not always know at which point in time orders will be placed and what order volume will be coming in, which undermines our client’s service levels. Construction site managers run the risk of ordering too little, too late, or being underserved if our client could not keep the promised lead time in case of unforeseen peak demands.

The Change to "No Planning"

Our client switched to a Vendor Managed Inventory (VMI) model: Here, the suppliers keep track of stock levels on behalf of their customers. They now replenish the containers at their own discretion while guaranteeing the availability of the construction material at all times.

To this end, the containers were equipped with sensors inside to determine the fill level. The containers now show the amount of available stock once a day. There are seven different sizes of containers. For each size, three ranges of stock levels have been determined: Red (very low, has to be replenished within the next 48 hours), yellow (should be replenished within the next 5 working days) and green (no need to replenish). These stock levels are fixed subject to an annual review.

The materials are distributed from our customer's regional plants. The plants keep an inventory of finished goods, which are shipped to the construction sites depending on their stock levels (red, yellow, green). Material is shipped via trucks, whereas our client manages a fixed number on its own. The target is to effectively manage the daily truckloads. The traffic light status gives a clear priority for tour planning of those trucks; e.g. a container that is at 10% of the red level should be replenished prior to one that is only at 85% of the red level. At the same time, these priorities allow scheduling full truckloads easily.

As with the inventory in the containers, the stock of finished goods is managed using the same traffic light logic; i.e. production is triggered if the stock level drops into the yellow or even red zone. The dimensioning of those zones takes batch sizes, desired production frequencies and other factors into account. Similar to VMI, the traffic light status of the stock provides clear guidance on the priorities for production.

The Result

Our client has reduced planning to a minimum: In the operational horizon, scheduling tours for the trucks is the only relevant planning activity. For tactical planning, only the zones of the finished goods inventories are resized if necessary. Configured in this way, the supply chain adapts itself to actual demand as it arises and stabilizes automatically. Our client's (former) planners now focus on tuning the system's parameters and handling exceptions, like roadblocks, truck accidents, rush orders etc. The payback period of the total investment (project incl. software and hardware) was less than a year.

Planning 2019 – Case Study: “Continuous Planning”

Our Client
Automotive, Premium OEM. € 100bn revenues. 131,000 employees. 30 sites in 14 countries.

The Challenge
A finished car goes through many hands after it leaves the factory and before it reaches the customer: First, it is parked somewhere near the factory. Then, it is transported by sea, railway and finally by truck to the dealer, where it is handed over to the customer. Handling and moving the cars back and forth frequently causes damage. Parts and even entire cars are lost or stolen. This is worse for our client in the premium segment compared to the average OEM, as our client produces premium cars of high value. Yet, there have been few opportunities until recently to track the position, let alone the status, of a car.

The Change to "Continuous Planning"

Our client leveraged the fact that modern cars are equipped with GPS, a SIM card and a number of sensors. For instance, safety systems in the car recognize whenever a car is abruptly moved. Our client added a piece of software to the car's operating system which consolidates all this information and sends it back to our client in real time – a feature that is (of course) turned off before the car is handed over to the customer. The transmitted data covers not only obvious things such as the car's current position but also the current state of the battery – and whether or not a door or a window has been opened recently.

The data of the cars is processed in (near) real time. Based on the continuously updated information, the vehicle distribution plan is constantly revised as well. For instance, if a ship is delayed due to adverse weather, the subsequent transport modes (rail or truck) are rescheduled, and dealers and customers are informed. Even production plans can be revised (virtual built-to-order). The position is the most obvious piece of data to be used for planning, but the possibilities are practically endless given the wealth of sensor data transmitted by the cars.

The Result

The constant stream of data from cars in our client's distribution network provides an unprecedented transparency on the current logistical flows. Although the volume of data gathered is enormous, it is still processed in near real time. Fast algorithms, leveraging classical optimization methods as well as Artificial Intelligence techniques serve to reoptimize the distribution plan constantly. This planning system also triggers the communication to all affected parties. Intervention in planning by the staff is minimal.

Fast Forward to 2025

These two case studies show two aspects: what is technically feasible and what is useful in 2019. What do they tell us for supply chain planning in 2025+?

They point towards two different scenarios:
(1) No planning at all and (2) continuous re-planning.

Scenario 1: In 2025, supply chain planning will no longer exist

What is the value of planning? What is the business case for hiring ten additional planners or implementing a new planning system? These questions have always been difficult to answer. To be honest: Nowadays, most plans (supply chain, financial or other plans) are not capable of reflecting reality very well. In fact, many plans are outdated at the very moment they are published, often they are too inaccurate to be useful and ignored by many stakeholders – and rightly so.

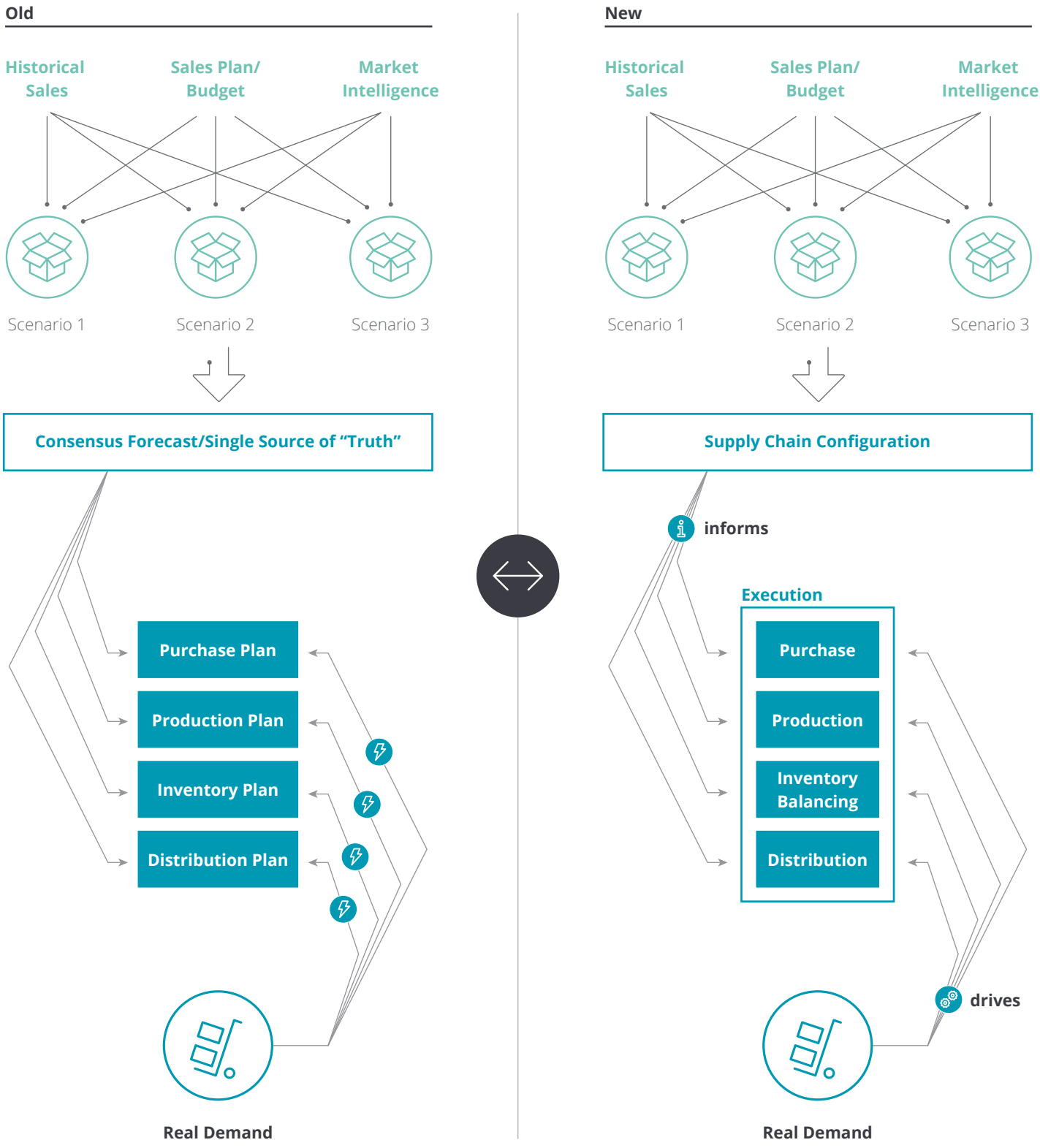
Thus, it is a valid question to ask: Why plan at all? The two principal functions of planning are:

1. **To shape the future** – We have strategic goals and a strategy, but this is rarely sufficiently actionable to tell us what to do in the short and medium term.

2. **To prepare for what is coming** – While our plans may be very wrong, not preparing for the future at all does not seem to be much wiser.

So, what shall we do? Well, there are alternatives between the two extremes of "not preparing for/shaping the future at all" and "planning based on a forecast, which is treated as if it were true". What if we just use the forecast to determine target stock levels, define capacities (e.g. shift models in factories) – and then wait for the actual demand to arise? In this world, supply chain planning is replaced by configuration, where the main (tactical) planning activity is to set up our supply system such that it adapts well to the actual demand.

Fig. 1 – Old: planning vs. new: configuration



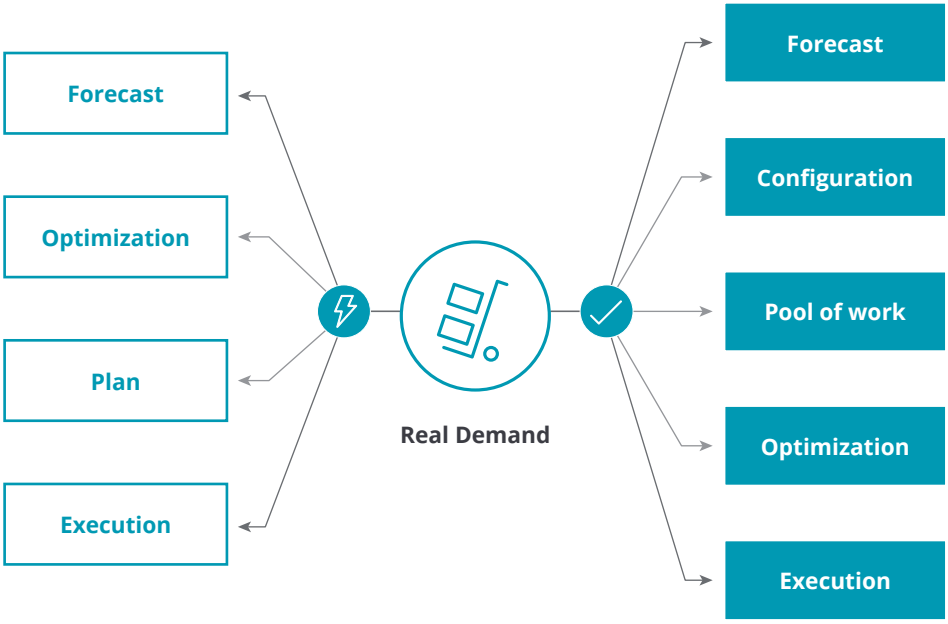
What does this mean for the three core supply chain activities, i.e. "source", "make" and "deliver"?

For **"source"**, we differentiate between two categories of purchased materials: Those for which we keep safety buffer stocks, and those where we only keep cycle stocks (or nothing at all). For the former, we define target stock levels based on forecasted consumption. This can be done e.g. by following the traffic light logic outlined in the first case study. A simpler way would be to define a minimum stock level and to reorder whenever the current levels drops below that level. Taking this one step further, we may switch to a VMI model with our supplier based on defined service levels. If set up in the correct way, we can ensure that downstream processes will draw upon a buffer of available materials (at defined service levels).

This is not the case for materials which only have cycle stock (or no stock at all), i.e. so called make-to-order materials. These commodities are just ordered whenever demand for them arises in downstream processes. This not only emphasizes customer centricity: Our supply chain focuses on products and services with actual demand. It also leads to the absence of planning activities for this type of materials on the tactical level. On the operational level, we may still want to bundle orders from a supplier to save on fixed cost of ordering, transport cost, or to qualify for volume rebates or the like. Alternatively, we may establish agreements with the supplier to hold a certain minimum stock level at the supplier's site, e.g. based on statistical sales.

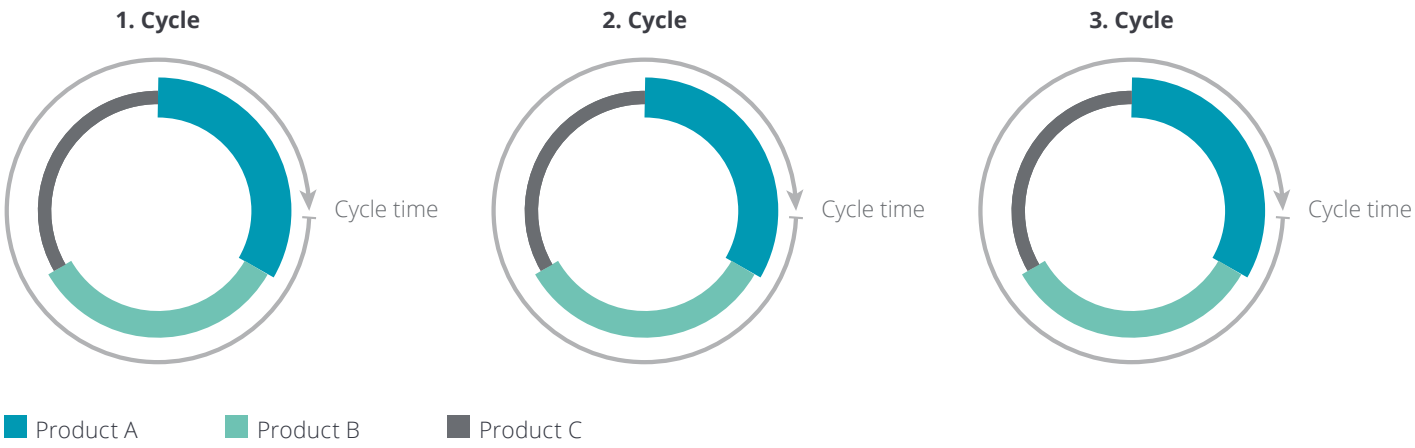
The most notable change for the **"make"** supply chain activity is that we do not prepare a production plan on the tactical level any more – no more forecast planning. Yet, batch sizing, sequencing and scheduling remain relevant as long as production technology enforces nontrivial setup activities. However, for those planning activities we wait until demand arises and starts to pull from downstream stock buffer (if any) or (if not) to pull from production directly. This creates a pool of "potential work" which we can use for production planning and detailed scheduling. This can be done in the usual way, e.g. using planning or optimization procedures, which run on a daily or weekly basis for the given capacity (defined by the shift model).

Fig. 2 – Optimization from the "pool of potential work"



However, the logical step in a "no planning" scenario would be to define a production sequence in advance (before demand arises) in the form of a production wheel. This wheel defines a stable way of production, which is repeated in cycles over and over again.

Fig. 3 – Production wheel



In this wheel, sequence dependencies, setup optimization and batch sizing have already been taken into account. These factors determine the sequence and size of the "pie slices" on the wheel. To handle this tedious configuration task, it is beneficial to segment the concerned materials based on the variability of demand (e.g. XYZ analysis). The "runners" (X parts with a steady demand) will then get slices of a fixed size, either a single large slice or multiple equally sized slices, to optimize setups while maintaining a steady downstream flow of smaller batches of this material. Z parts of unpredictable variability are produced rather "on demand" in slices which are deliberately held open and not explicitly dedicated to a certain product in advance.

For **"deliver"**, we only make sure that sufficient capacity is available during tactical planning. For route planning, we can also define a cycle similar to the product wheel outlined for "make". Alternatively, we schedule routes based on stock buffer priorities as shown in the case study. Another operational planning activity that may be maintained is optimizing truckloads, container fill rates or the like.

In the ways described, operational planning in "source", "make" and "deliver" is reduced to a minimum and is guided by clear priorities derived from the configuration parameters. For instance, it is very important to schedule production for a material if its current stock level is deeply in "the red". Materials that are still in "yellow" can be scheduled later. Yet, the ingenious task to define the necessary configuration parameters, e.g. the target stock levels, remains on the tactical level.

The following table summarizes the differences between the "old" and the "new" planning approach:

	Old	New
Goal	"Determine what we can and will build"	"Define the capability to build what we will sell"
Forecast	Treated as true, planned as if it were the actual demand	Only used to configure the supply chain
KPIs	Striving towards OEE based on forecast, resulting in reluctance to make changes based on actual demands – often at high cost	Holistic incentive schemes incorporating various KPIs, maximizing benefit for the company and not for one singular area
Result	Master Production Schedule (MPS – how much to produce and when) – determines exactly what should happen in the operation	Configuration – conditions the supply chain to cope with what will happen in the operation
Replenishment orders	They are the result of the process and become effective as planned immediately after the plan is released	They are not the result of the process anymore and are generated when actual demand arises
Fosters a robust operational planning	Typically not	Yes (as the supply chain can and will adapt to actual demands being higher or lower than planned)

Scenario 2: In 2025, supply chain planning will be "always on"

In scenario 1, which we have covered so far, there are still distinct planning levels and events: We have tactical planning, which in fact is just a configuration of the supply chain. Tactical planning produces a defined milestone, namely the supply chain setup for the next period (e.g. a month). In the next planning event, this setup is revised, modified and updated for the next period.

In scenario 2, which we are going to discuss now, there are no more discrete planning events and milestones, though changes to the plan may occur every (milli-) second. Changes are the response to new information as it materializes, but not linked to a predefined and fixed planning calendar dictating that some planning (or configuration) activities are due every month, quarter or year.

What does this look like in practice? In the old world, we typically have a monthly S&OP process for supply chain planning. A major output of this is the consensus demand forecast. However, even today, forecasting is a mostly automated process. Most companies have learned that statistical methods and AI techniques perform better than human judgement for most products with only a few exceptions (e.g. promotions, phase in / out or new market entry). Demand sensing procedures that try to read signals from current demand to update the forecast have taken forecasting to the very near term covering only the next couple of days. Other methods to enrich a demand forecast include gathering data from social media such as Twitter, Facebook or Instagram to detect trends which may influence demand especially for fashionable consumer products – own or competing products. Where people are increasingly using Google to search for certain medical terms in a given area, this indicates that some epidemic (e.g. influenza) may be around the corner, providing potentially reallife insights to pharmaceutical companies.

Summing up, given the possibilities to do automate forecasting, there is no need to limit forecast updates to a monthly frequency. It actually seems unwise not to tap the possibilities that automated forecasting or forecast enrichment procedures provide more frequently, e.g. on a daily basis or even more frequent. In the extreme case, a new forecast is produced at any time when new information such as actual sales, trends or the like becomes available. Consequently, forecasting will become rather a continuous process, as opposed to the discrete forecasting events we have today. This will not only cover volume forecasts, but also financial forecasts.

In the conventional planning logic, the monthly consensus forecast is the basis for other monthly plans, e.g. the Master Production Schedule (MPS). The level of detail of the MPS depends on each company's requirements. For instance, batch sizing and scheduling may already be a part of it, or the required production volumes derived from the forecast (and current stock levels, etc.) are just assigned to weekly buckets, and production planning and detailed scheduling is postponed to the later operational planning.

Under the new planning paradigm of continuous forecasting, it obviously does not make sense to create an MPS only at discrete points in time. Instead, we should update the subsequent plans every time after we have updated the forecast – at least if it is not only a minor change. This is of course impossible if those subsequent planning tasks require great manual effort. However, since the advent of Advanced Planning Systems (APS), supply chain planning can be mostly automated for all but the most exceptional cases. The increase of computing power, onpremise or rented on demand from the cloud, the increasing maturity of optimization algorithms and recent techniques such as machine learning make it possible to create a MPS, transport, tour and shift plans, etc., without human effort in a quick manner. The relative ease with which those plans are created also allow the simulation of many planning scenarios including stochastic influences. What is even more important: The widespread use of sensors, tags, etc., make tracking, tracing and collecting data very easy. This data can be gathered in data lakes and tapped using Big Data techniques. Hence, the enormous amount of data to calibrate and run those optimization techniques in a meaningful way is also available.

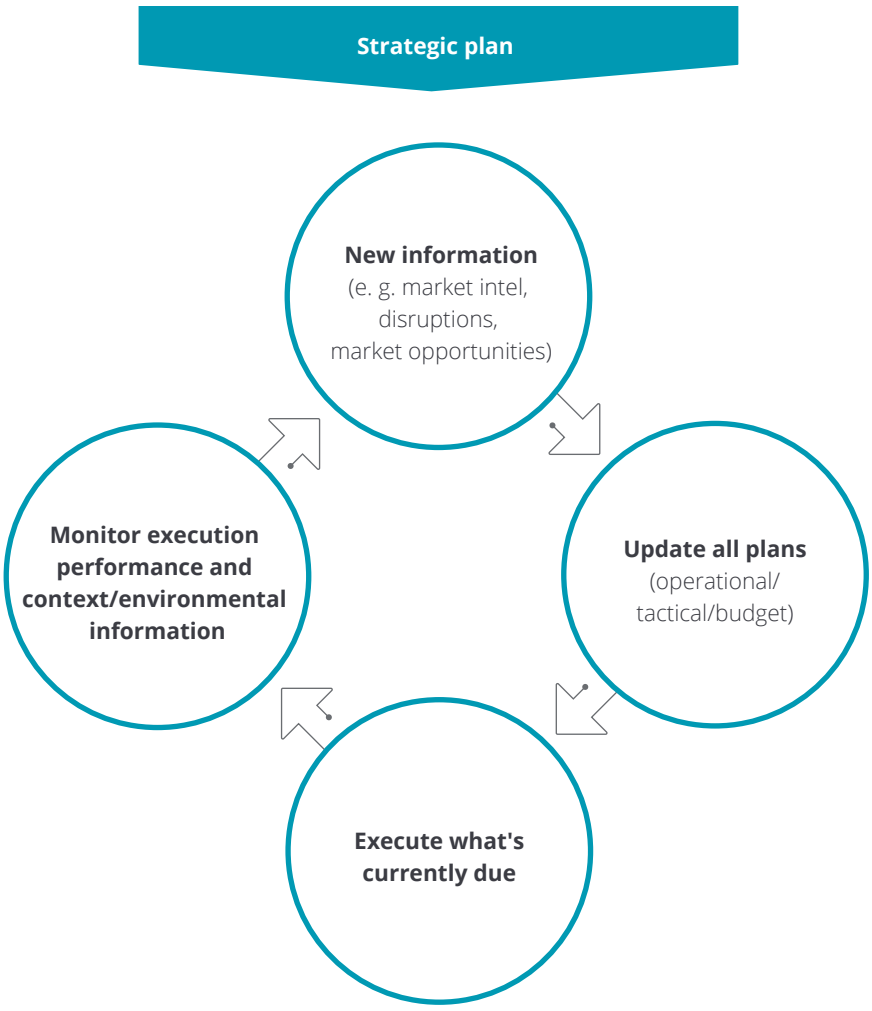
Thus, supply chain planning in 2025 could be a continuous cycle of gathering, updating and enriching data and enhancing the current set of plans based on this new information. What does this mean for the three core supply chain activities, i.e. "source", "make" and "deliver"?

Fig. 4 – Old: planning vs. new: continuous planning

Old: Sequence of discrete planning events

Strategic Planning (e. g. every 3–5 years) → **Budgeting** (e. g. annually) → **Tactical Planning/S&OP** (e. g. monthly) → **Operational Planning** (e. g. weekly) → **Execution** (e. g. daily)

New: Continuous planning in the tactical/operational horizon (only strategic planning left)



For **"source"**, orders can be continuously released to suppliers, who can then update confirmed volumes and dates all the time, and this new information is also taken into account immediately. For instance, if a supplier signals a delay of a crucial material, the subsequent plans are postponed as well. If this replanning shows that the delay causes a major miss of our own targets (e.g. confirmed volumes, dates or service levels), three responses are possible:

1. The planning system tries to leverage additional resources, which it is only allowed to employ in such exceptional cases.

2. The system suggests a response, which has to be approved by a human planner.

3. An exception is raised for a planner to handle manually.

In addition, tracking and tracing incoming material as well as environmental information is used to foster the use of predictive analytics. This helps to detect early warnings for upcoming disruptions (e.g. interruption of major traffic lines due to adverse weather).

The production plans used for **"make"** can be modified at any time in a major way. Thus, the production execution focusses on working on the next order (or the next few orders at most) with little look ahead to the future. Again, this fosters customer centricity, reactivity and agility. However, production can rely on the plan always being consistent and feasible. In particular, all input materials will be there on time (as they are traced continuously), the required machines will be working and be free at the time they are needed (as their status is tracked continuously as well), and staff will also be available.

For **"deliver"**, we constantly track the current status on rails, roads and seas and update the estimated arrival times of deliveries immediately. Changes in the production plan drive the availability of material for outbound deliveries. Distribution and (trans-)shipments, milk runs, etc., are reoptimized as upstream plans are revised or new information becomes available.

It is important to note that it is not necessary to follow the planning sequence Source > Make > Deliver here. For instance, where transport capacity is the bottleneck, we can plan deliver first and then proceed to source or make. Other planning models and optimization methods may even allow for a simultaneous optimization of all source, make and deliver activities (at least on a high level).

The following table summarizes the differences between "old" and "new":

	Old	New
Planning events	Discrete – e. g. annually for the budget, monthly for S&OP	None – plan is continuously updated as new information becomes available
Number of plans	At least 3–5 (strategic plan, budget, sales plan, S&OP, production plan) – reconciliation is typically a burden	One integrated plan, always kept consistent by the planning system
Response to opportunities & disruptions	Have to wait until next plan update – or require "emergency" process which interfere with the regular planning processes (triggered by the discrete planning events)	Immediately taken into account as they become known to the planning system (e. g. manual entry, automatic transfer from other data sources)
Quality of the resulting plan(s)	The resulting plan(s) typically age very quickly and do not survive contact with reality very well	The plan is always up-to-date

Aligning the two scenarios

The two scenarios "no planning" and "continuous planning" are based on two different paradigms:

- **No Planning:** Foster robustness of the supply chain by minimizing interventions ("tampering with the running system"). Instead, let it stabilize and adapt to actual demand.

- **Continuous planning:** Foster correctness of the current orientation of the supply chain by accounting for any new information immediately.

At first sight, there is an obvious gap between those two schools of thought: The supporters of "no planning" will accuse the continuous planners of creating plans that are overly nervous, and permanently fluctuating and oscillating. The "continuous planning" supporters will blame the non-planners of creating a system that is too rigid and inflexible.

However, on second thoughts, the scenarios could actually be reconciled. This is possible because the "no planning" scenario rather defines a control method based on a parametrization and configuration of the supply chain. Those parameters can be determined equally well using a "continuous planning" approach, where the supply chain configuration is reoptimized in the very instant of new and significant information becoming available. Both approaches (as well as this joined approach) focus on reducing manual intervention to a minimum, only to deal with clearly defined exceptions which fall outside the tolerable range for the given configuration (for scenario 1) or out of the scope of the automated planning systems (for scenario 2).

In 2025, manual intervention is reduced to a minimum. Planners only deal with clearly defined exceptions which fall outside the tolerable range for the given configuration (for scenario 1) or out of the scope of the automated planning systems (for scenario 2).

Steps towards the two scenarios

From your current status quo, we envision four principal steps on your journey to Supply Chain Planning 2025 – regardless of whether your desired target state leans more towards scenario 1, scenario 2 or to a synthesis of both.

Step 1: Planning systems provide data and check results

In the first step, supply chain planning is still a predominantly manual exercise. The principal role of IT systems will be to provide the necessary data to assist human decision makers with reporting and analytical tools as well as methods to provide a reasonable starting point for manual planning (e.g. a statistical baseline forecast). The system then checks the soundness of the manual plan, especially whether parts of the plan created by different planners are consistent and feasible as a whole. In the operational planning horizon, the system flags and signals exceptional states which require (immediate) human attention.

This step obviously lacks the level of automation required for continuous planning, but it is an already possible move towards scenario 1 here. In fact, the "configuration instead of planning" paradigm of scenario 1 provides enormous value where the manual effort of planning is great, as it reduces (tactical) planning to a minimum and provides clear guidelines, priorities and a control method for operational planning.

Step 2: System plans based on guidance set by human planners

In step 2, an automated system rules the planning space except for certain carefully defined exceptional events and states of the supply chain. However, the system still relies on obtaining correct data in a timely manner – if false data is provided or data is provided too late (or both), the system may fail to produce a useful or even feasible plan.

The major role of human planners in this setting is to handle exceptions (mostly in the operational horizon) and to adjust and tune the parameters of the system based on past performance and to a changing environment. For instance, safety stock levels may be too low to reach the desired service levels. Thus, they are periodically reviewed while planners analyze root causes for systematic deviations and adjust planning parameters accordingly. These parameters then drive the next run of the planning system.

The planning system may run once a month only, or as frequently as every hour. Thus, step 2 provides the opportunity to realize scenario 2 here. At the same time, the outlined approach can be used to set and optimize the configuration of the supply chain in a "no planning" kind of fashion.

Step 3: Self-adjusting systems

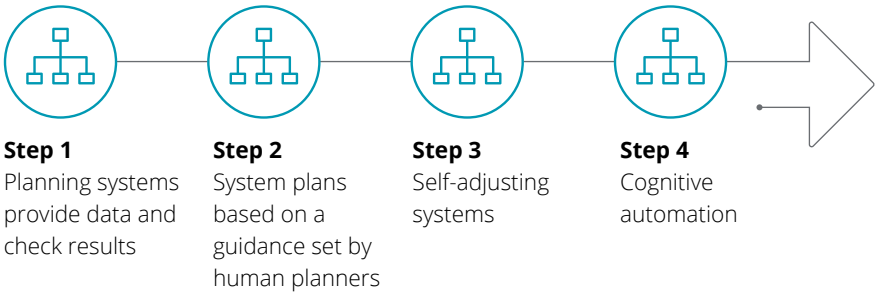
As in step 2, planning is fully automated in this step. In contrast to the previous step, however, the system adjusts its parameters now autonomously, and tunes itself to its past performance and signals regarding the future. This requires a deep understanding of the functional relationships between parameters and supply chain performance. This is typically beyond the scope of classic planning and optimization algorithms but requires new methods which are for instance provided by Deep Learning and other AI techniques.

In this setting, human planners handle exceptions in the operational horizon, select algorithms, define supply chain performance goals derived from the company's strategy, and guide and monitor the system's learning process. Strategic planning will also remain in the realm of human planners, but greatly supported by the system's capability to evaluate and simulate a number of scenarios quickly.

Step 4: Cognitive automation

In this step, the planning system acts fully autonomously by means of deep learning and artificial intelligence. The system not only considers internal input data, like tracking of incoming orders, seasonal effects and historical data for the purpose of self-adjusting future output figures autonomously. It now also evaluates external demand-influencing factors by monitoring electronic news feeds, like ad hoc news of competitors, news about natural disasters, tweets on twitter or other influential pieces of information published in the Internet. By using big data analytics, large-scale processing and deep learning in a cognitive manner, parameters are set without any human interaction and the system fully monitors the supply chain performance by itself.

Fig. 5 – The four principal steps on your journey to Supply Chain Planning 2025



What happens if you remain in your current state?

One option that has not been discussed in detail yet represents a scenario, where companies do not move towards automated planning – in whichever state – but decide to remain in their current setup. These companies are likely to face five disadvantages and should closely evaluate whether a move towards automation will be more beneficial in the end.

Lower forecast quality/FCA

With manual forecasting, the planners try to assess the forecast of each product on a month-by-month basis. Unfortunately, in an increasingly complex business environment with a growing number of article codes, it will become harder to manage the workload in general but in particular to manage it in a way where quality is high and here it is based on historical data as well as sales insights. In this setup, the forecast quality will (almost) never be able to compete with statistics based on forecast enriched by business insights, where the forecast planner focuses on great exceptions only and leaves the majority of products to statistical forecasting.

Higher inventories and net working capital

Lower quality forecasting has a direct link to the second disadvantage, namely higher inventory levels. In order to manage business fluctuations, both safety days and inventory on hand are on average 5–10 % higher than in a more automated forecasting environment. This leads to a greater amount of capital being tied to the inventory, which thus directly influences the P&L. Typically,, when calculating business cases for planning enhancement, inventory reduction is the greatest lever companies should assess in detail.

Lower degree of automation

The third disadvantage when deciding not to enhance forecasting is a lower degree of automation in supply chain planning departments. While in the past, processes were set up in a different working environment with other requirements as compared to today, a manual often Excel-based forecast with sometimes even limited integration of historical data is already today far away from state-of-the-art possibilities and reflects a work environment of the past.

Lower adaption of technological possibilities and learning of new skills

Initially, forecasting automation might be perceived as a threat by many employees (see section X “Mindshift and Change”). Should companies decide not to adopt modern planning technologies, they will not only create a disadvantage for their enterprise itself but also for the planning personnel. Such persons will not be able to learn about new technological possibilities, how to use them, or what enhanced processes might look like. In addition, the skills that will be required in the future, i.e. much more analytical, data-driven and structural skills, will not be adopted by SC planning personnel. Thus, employees will very likely be less well equipped for the future as compared with their competitors when they remain with the status quo.

Higher planning headcount leading to higher cost of personnel

From an employee’s perspective, the elephant in the room is always the same: Will I be able to keep my job? (see section X “Mindshift and Change”). From this point of view, the two scenarios depicted show that the needs of planning personnel and tasks associated with their jobs differ greatly. In vision number one, where supply chain planning will no longer exist, this setup looks very different from vision number two where planning will exist. However, compared to the initial state with entirely manual planning is in place, the likelihood of reducing personnel numbers while enhancing quality might be the case. However, such structural change must be carefully assessed. Furthermore, during the transition period from manual via statistical to automated planning and also immediately after the switch towards the higher stages, experienced personnel is a great asset to ensure forecast quality and process transition.

Mindshift and Change: The role of the planner in 2025

Developments towards a higher degree of automation lead us to ask what the exact role of humans will be in the future once AI, machine learning and digitalization replace many traditional tasks. However, we believe that the individual will not become redundant, as certain human features cannot be substituted by modern technologies – for instance, the ability to solve complex problems, social competences or cognitive abilities.

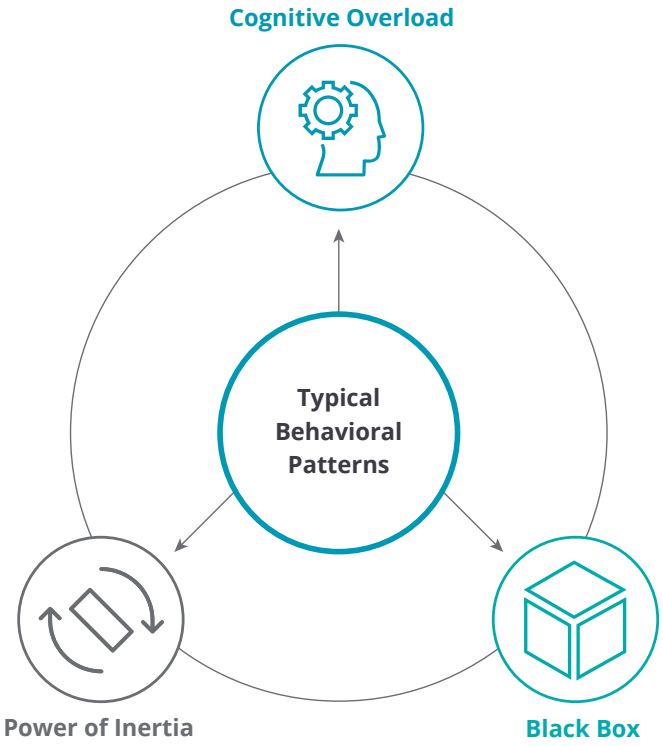
Modern technologies are most effective when they complement rather than replace humans

In order to maximize the opportunities of modern technologies and to minimize the potential fears of employees, humans must become the center of change for companies. The associated investment required here is often underestimated, and companies struggle to support their employees when adapting to new processes. The needs of the people concerned have to be understood and their thoughts must be taken into account, respected and responded to.

Often this is not the case, leading to employees fearing what might happen to their jobs in the future.

Fig. 6 – Your planners' typical questions and behavioral patterns facing such a significant change

- Will my role still be needed in the future?
- What will happen to my employment when machines replace many of my day-to-day tasks?
- How can I prepare for future tasks?
- What will be expected of me in the future?
- Do I have the right knowledge and skills to carry out new tasks?



We observe three typical behavioral patterns when such significant change is made. Firstly, employees often feel cognitive overload as a result of the many changes and the speed thereof in their environment. They feel that "everything just becomes too much". Secondly, it would seem that these changes occur in a black box, far away from the employee. There is both a lack of understanding as to why these changes are being made and a lack of involvement in the process itself. When working towards the new environment, people are not asked for their buy in, leading to lower motivation and an impression of separation. Lastly, power of inertia is typically very strong. It is much easier to continue doing things the way they were always done – it is the path of least resistance. That is why employees have to understand why the changes in their roles lead to improved results, are more efficient and provide a better outcome for the company in the end.

What companies can do to break the pattern

To break these patterns, companies need to establish a longterm talent strategy to train their employees for their new roles as well as attract the right people for these new requirements.

How to get there:

1. Assess current processes
2. Define which processes can become automated and digitalized
3. Analyze required skills for the new processes
4. Establish training courses to cover the new requirements
5. Train employees in these new skills
6. Offer modern technologies to assist the employees with their new tasks

In addition to preparing the employees for their new roles, companies need to reshape their organizational culture to attract and retain those with the most suitable skills and capabilities. Today, there are new principles of structuring companies, responding to the new needs in the digital environment, led by companies such as Spotify or Facebook and their platform business models. The new setup results in greater autonomy and flexibility, higher output, fast adaptability to changing market conditions

How to get there:

1. Initiate first changes
   a. Broaden current roles
   b. Enable innovation through for example establishing a board of innovation where ideas can be pitched
   c. Create greater job flexibility by for example offering home offices and sabbaticals
   d. Build attractive working environments with coffee corners, sports offerings and communities
2. Review organizational setup, associated hierarchies and decision making processes
3. Assess new organizational structures and how they may suit the organization
4. Create a change roadmap towards the new setup
5. Adopt structures and processes

Consequences in SC Planning

What does this mean for the SC planner? Overall, the role of the planner will change significantly in the future and this change needs to be prepared carefully. The traditional forecast planner who reviews each and every single product manually and develops a targeted forecast will have a very different daily routine in the future, whereas the forecast planner will base his/her decision making on IT systems support combined with qualitative information, backed up by financial implications and facts.

New tasks include for instance the following:

- Create aligned demand planning based on statistical forecast/AI combined with input from marketing/sales
- Control forecast quality using selected KPIs
- Manage fluctuations (e.g. bottlenecks)
- Provide information on demand fluctuations to stakeholders
- Solve demand/supply gaps crossfunctionally, developing different scenarios

By using the proposed five-step approach, the change towards these new requirements needs to be carefully prepared and initiated now:

How to get there:

1. Assess current processes
   a. What is the setup of your SC planning departments?
   b. What does the demand planning process look like?
   c. Who are the stakeholders affected?
2. Define which processes can become automated and digitalized
3. Analyze required skills for the new process
   a. Analytical skills
   b. Knowledge of new IT tools
4. Train employees in these new skills
   a. Change workshops
   b. Online self-training
   c. Videos
5. Offer modern technologies to assist the employees with their new tasks
   a. Contact person
   b. Communication strategy
   c. Regular calls

With this guideline in mind, companies start to prepare for the changes in demand planning

How to prepare your journey

For many organizations, planning has become an increasingly complex and important activity to advance their business. But managing this task has also become increasingly challenging. How can planning be more efficient and more accurate to balance supply and demand?

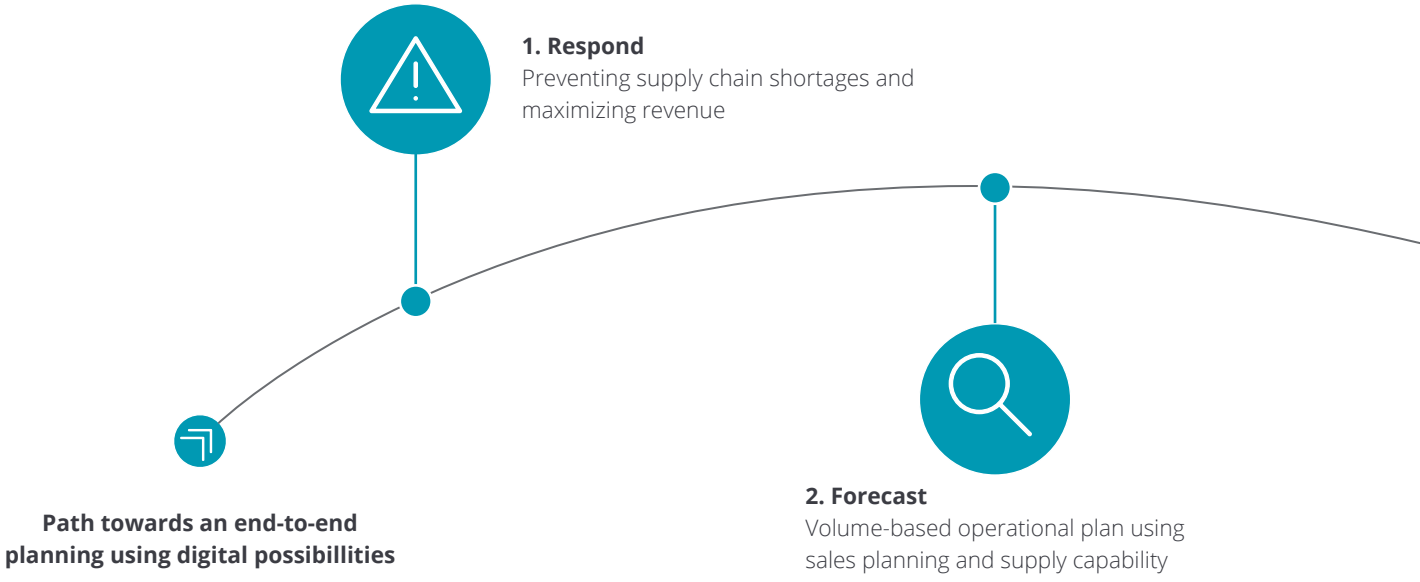
Imagine a world where all relevant information on supply and demand is instantaneously updated and complete across all functions. The goal for the future of planning is to move towards a self-driving planning system that leads to autonomous decision without human intervention. It can be seamlessly integrated into a self-driving Supply Chain Control Tower, bringing the right level of transparency on supply and demand.

The technology to support that world is available.

Where is your company positioned in the planning context?
Your journey towards self-driving planning starts with your S&OP process and with how you manage your planning processes today. A stable S&OP process is needed as a basis for further improvement.

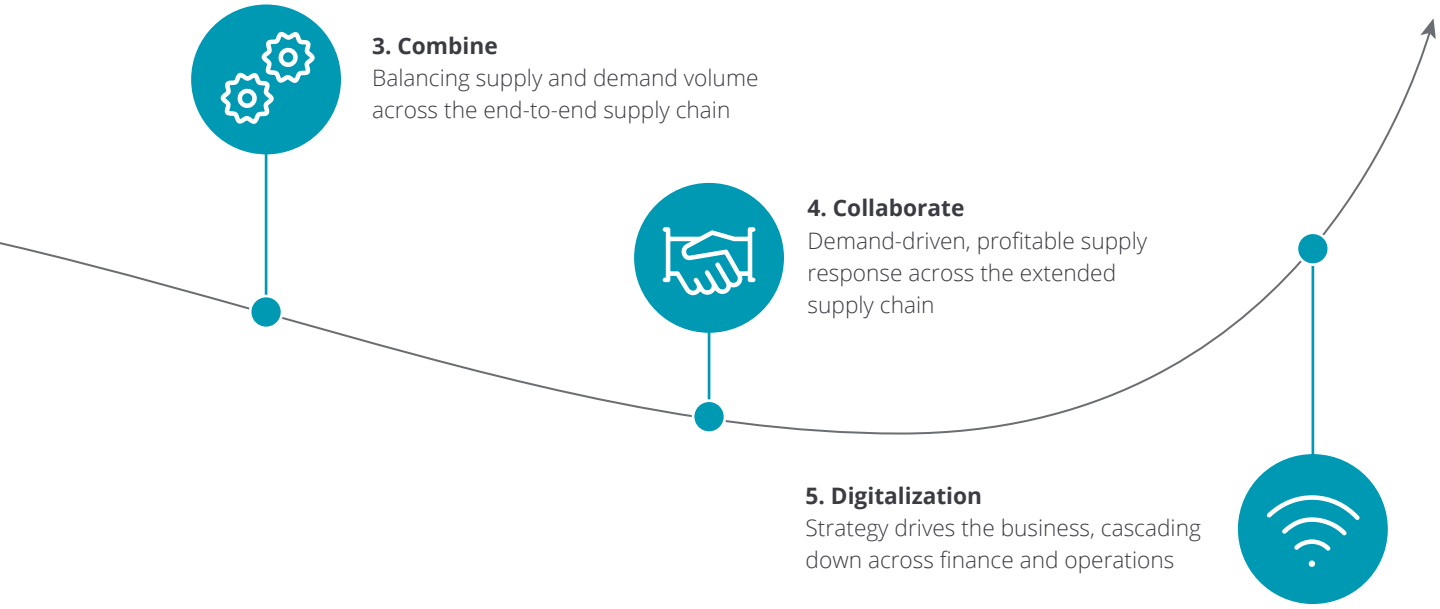
Evaluate your current status according to the dimensions of People, Planning and Performance to find your starting point.

Fig. 7 – Your journey to Supply Chain Planning 2025



People*	Planning*	Performance*	
• Limited experience • No prior meeting preparation • Department view • No collaboration	• Unaligned silo planning with no frozen horizon • Focus on next month	• Limited visibility to demand and new products • Performance metrics not discussed	**1. Basic**
• Some experience and preparation • Department view • Minimal data sharing	• Silo planning with no frozen horizon • Department view • Focus next month, consensus on ~3	• Impact on promotional activity discussed • Ability to track KPIs	**2. Developing**
• Experienced • Moderate collaboration and data sharing within functional areas	• Daily planning, frozen horizon is one week • Focus 2–4 months, limited consensus on next next ~15 months	• Allocations and supply scenarios are developed/ discussed • Ability to track key metrics	**3. Performing**
• Experienced, procative in prepared meetings • Full collaboration and data sharing	• Frozen horizon is 1–2 weeks • Focus on next 2–4 months, consensus on next ~15 months	• Discussions of performance and causes/impacts • Use of real-time dashboards	**4. Leading**
• Process robotics • Collaboration with digital possibilities • Department view • Data sharing in real-time	• Use of tools for integrated business planning • Focus on next 2–4 months, consensus on next ~15 months	• Demand sensing • Predictive analytics in combination with big data	**5. Cutting Edge**

* Selected dimensions from the Maturity Matrix

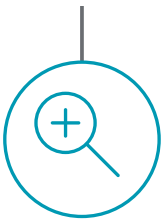


Build your roadmap – Where should you start?

To introduce an integrated self-driving planning system, we recommend a three-step approach.

Fig. 8 – How to build your roadmap to Supply Chain Planning 2025

1. **Conduct a Pulse Check** – Analyze your existing capabilities across the maturity matrix to identify your company's current level within the planning process. Identify businesses for prototyping.



2. **Identify Opportunities** – If your organization is ready for it, new technology can dramatically accelerate your journey to self-driving planning. Consider the right technology with strong ETL processes and meaningful AI and Machine Learning capabilities for planning. Ensure that the solution is scalable and not siloed.

3. **Build your Roadmap** – Determine tactical, actionable activities that will enable your business to achieve the desired future state and roll the activities out in a series of waves. Use DevOps and agile project methodology. Secure a single point of information solution, which is integrated and offers future capabilities, i.e. recommendations and write-backs.

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