

# INTELLIGENT SUPPLY NETWORKS

**CONTINUOUS  
TOUCHLESS PLANNING**

## TABLE OF CONTENTS

HOW CAPGEMINI DEFINES CONTINUOUS, TOUCHLESS PLANNING	— 03
THE FOUNDATIONS WITHIN YOUR ORGANIZATION	— 06
BUSINESS BENEFITS OF DOING THINGS DIFFERENTLY	— 07
CAPGEMINI'S APPROACH	— 11
GLOBAL CASE STUDY	— 15
CONNECT WITH THE AUTHORS	— 16
CONNECT WITH A LOCAL EXPERT	— 16

## INTRODUCTION



### What is continuous, touchless planning?

**Continuous, touchless planning** is a self-governing, self-optimizing process that leverages intelligent automation applications and big data to improve the speed at which plans are created, reviewed, and adapted in response to real-time changes in demand and supply.

## HOW CONSUMER-PRODUCTS ORGANIZATIONS CAN ENABLE A MODERN SUPPLY-VALUE NETWORK THROUGH NEXT-GENERATION DEMAND AND PLANNING CAPABILITIES

In our recent paper, [The death of the supply chain](#), we explored how evolving consumer behaviors and market dynamics have challenged the very identity of the traditional supply chain. Once a rigid, linear flow, today's supply chain is not a chain at all but rather a flexible, agile value network designed to deliver instant choice and hyper-personalization across a variety of fulfillment channels and an expanding range of digital enablers.

The establishment of a supply-value network calls into question virtually every aspect of the organization's strategy and operations, with planning chief among them. To enable the speed, flexibility, and scalability critical to the digital world, organizations must adapt planning processes and systems to allow for continuous updates, constant testing of plan validity and, when necessary, automatic re-planning. We call this capability continuous,

touchless planning – a self-governing, self-optimizing process that leverages intelligent automation applications and big data to increase the speed at which plans are created, reviewed, and adapted in response to real-time changes in demand and supply.

This capability is especially important for consumer-products organizations, which are experiencing an unprecedented level of market volatility as a result of changing consumer expectations and an onslaught of new competitors. In this evolving landscape, improved predictability and responsiveness in planning can create immense value, realized through increased process and organizational efficiency as well as plan effectiveness, all of which drive better outcomes for the supply chain and wider business.



*The needs and expectations of today's connected consumer necessitates a shift from a traditional supply chain to a modern supply-value network."*

**Hein Regeer**  
Principal, Caggemini Invent

# PART ONE: THE VALUE OF CONTINUOUS, TOUCHLESS PLANNING

Shifting from a traditional supply chain to a supply-value network enables growth, optimizes operations, and improves service, while reducing costs and working capital. At the same time, this new model introduces greater levels of complexity, as organizations must now manage the flow of materials, products, and data between and among a growing number of ecosystem partners – all of which must be coordinated to maintain stability in the network.

The challenge then for consumer-products organizations is not to simply produce goods quickly and cost-effectively, but to anticipate any number of demand and supply variables that could impact the balance in the supply value network – from a shortage of raw materials to changes in demand to rising fuel costs – and proactively address them.

As the name implies, continuous, touchless planning leverages data-driven intelligent automation applications, such as artificial intelligence (AI) and machine learning (ML), to enable ongoing planning capabilities and automated responses to pre-determined scenarios. These capabilities enable shorter planning cycles as well as the ability to respond more quickly when necessary to demand and supply dynamics. Perhaps more importantly, the system can be trained to distinguish between inconsequential shifts and situations that require re-planning. Thus, a continuous, touchless system isn't

just fast, but smart – focusing planners only on matters of consequence.

**“Unnecessary re-planning introduces instability within the supply network, which is why it is critical to differentiate between supply and demand changes that can be absorbed within the prevailing plan and situations that require intervention,” explains Shaun Cheyne, Principal at Caggemini Invent. “We help businesses shift to a daily planning cycle that continuously assesses whether there is a need to re-plan based on actual market demand and supply side performance.”**

Thinking about planning in this way, the business works toward a live environment where responses are not dictated by individual planner preferences but instead actual data and continuously improving algorithms. At the most advanced level, the system can be self-correcting, self-improving, and self-optimizing.

**“With continuous, touchless planning, the business is more likely to get results that are driven by the correct attributes, as opposed to the information at hand,” adds Peter Tacken, Managing Consultant at Caggemini Invent. “With autonomous planning, the business is no longer limited by internal processes, personal subjectivity, or the information at hand. It is now able to unleash the power of data to drive insights and better outcomes.”**



*With autonomous planning, the business is no longer limited by internal processes, personal subjectivity, or the information at hand.”*

**Peter Tacken**  
Managing Consultant,  
Caggemini Invent



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**Shaun Cheyne**  
Principal, Caggemini Invent



## TRADITIONAL DEMAND PLANNING VS. TOTAL-DEMAND FORECASTING

In the past, demand plans were prepared using a two-step process that employed historical sales to create a baseline forecast that was then overlaid with known future events, such as promotions. While helpful, this approach required significant manual intervention and was limited by the processing speed and accuracy of people within the planning organization, and the pressure of sales targets often influenced the overlay input. As a result, the business achieved relatively low levels of forecast accuracy, typically in the 50 to 60 percent range.

Leading organizations deploy total-demand forecasting, which is a cornerstone of a continuous, touchless planning capability. Total-demand forecasting uses AI and ML to recognize historical patterns, select best-fit statistical models, and draw on a variety of inputs and forward-looking variables, such as promotional grids, sell-out data, and environmental factors, to create more accurate demand forecasts with less manual effort.

Traditional demand-planning inputs		Total-demand forecasting	
Performance data	Characteristics	Customer and consumer data	Characteristics
<ul style="list-style-type: none"> <li>Historical sales data (in-store and digital channels)</li> <li>Existing purchase orders</li> </ul>	<ul style="list-style-type: none"> <li>Sequential baseline followed by promotional overlays</li> <li>Significant manual effort</li> <li>Forecast accuracy often destroyed through inconsistent human intervention and errors</li> <li>Longer lead times for forecasting</li> </ul>	<ul style="list-style-type: none"> <li>Historical sales and existing purchase orders</li> <li>Customer sell-out data</li> <li>Biographical and demographic data</li> <li>Behavioral data (in-store and online)</li> <li>Environmental sensing (e.g., social-media activity, events, weather)</li> </ul>	<ul style="list-style-type: none"> <li>Multiple-variable models capable of single-step demand-forecast creation</li> <li>Pattern recognition</li> <li>Consistency and learning</li> <li>Algorithm driven</li> <li>Low human input</li> <li>Shorter lead times for forecasting</li> </ul>



## ESTABLISHING A FOUNDATION FOR NEXT-GENERATION CONTINUOUS, TOUCHLESS-PLANNING CAPABILITY

Developing an autonomous planning capability and self-driving supply-value network is an important long-term goal for every consumer-products organization. To realize this vision, organizations must focus on establishing the following foundations within the business:

### 1. Data integrity

Enabling a touchless planning capability requires the organization to create and standardize robust data collection and analysis capabilities that will inform the planning system. Many organizations need to reconsider their technological capabilities, as well as their organizational processes, structure, and workforce skills, in order to enable this function.

### 2. Data operations

As part of this process, some organization may need to digitize operations, equipping the entirety of

the supplier ecosystem with sensors that provide near real-time feedback to the planning systems on various issues, such as production capacity and material availability.

### 3. Current planning

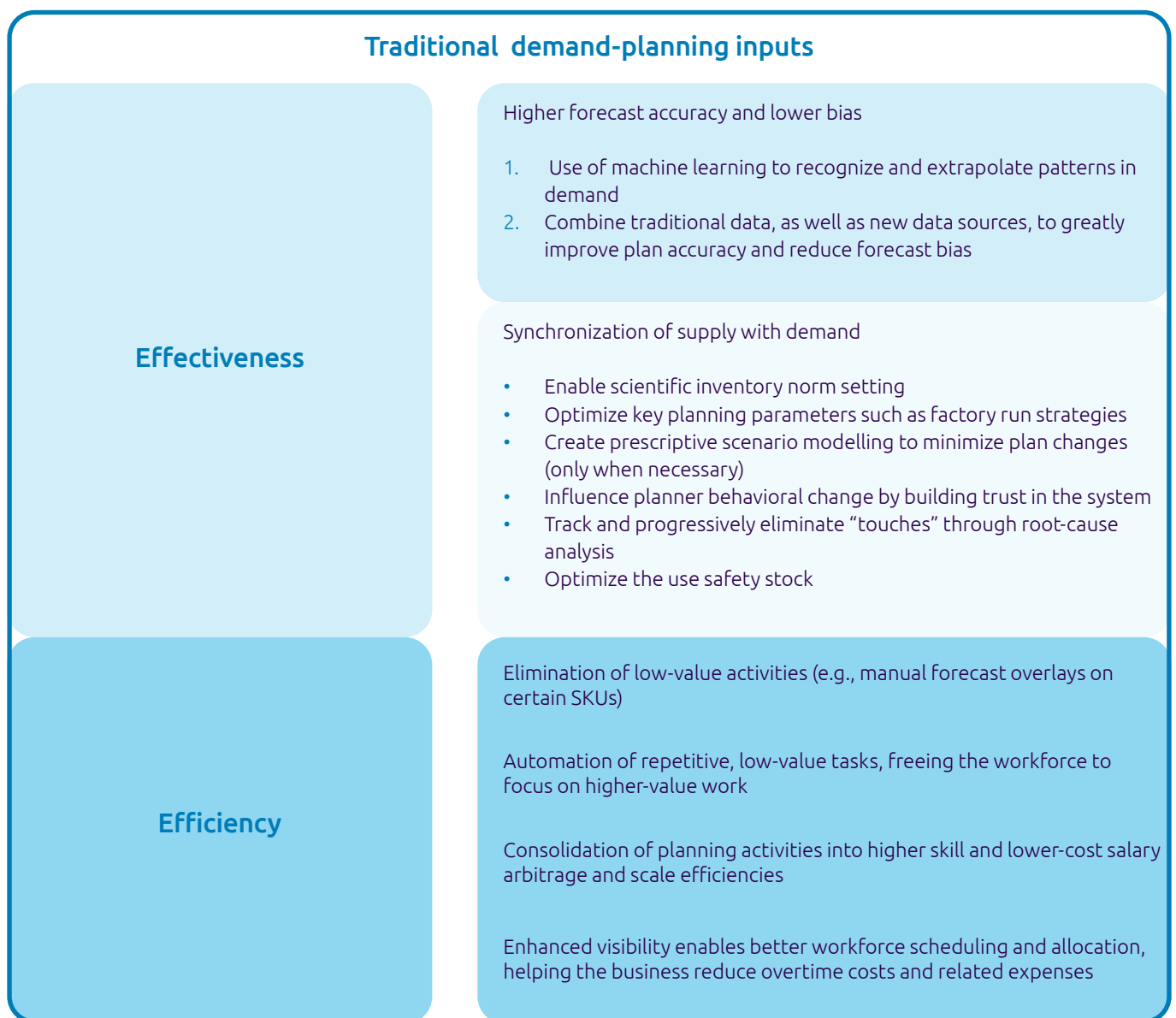
Finally, the organization will need to enable concurrent planning systems, linking demand and supply systems into a single view and bringing these functions together within the organization. The rule set will need to be defined and mapped into these systems, thus automating recurring or routine tasks according to program settings and scenario planning.

**“While this process is by no means simple, it holds extraordinary promise for consumer-products organizations,” notes Hein Regeer, Principal at Capgemini Invent. “Further, it is important to remember that digitization is the way of the future. Those organizations that resist evolution risk losing market share to competitors – ground that may be impossible to regain in the future.”**



## CONTINUOUS, TOUCHLESS PLANNING: BENEFITS AND OUTCOMES

The benefits of continuous, touchless planning fall into two main categories: one, planning effectiveness as achieved through better synchronization of supply and demand; and two, process and organizational efficiencies, as realized through enhanced speed and automation.



## Traditional demand-planning inputs

The combined effects of better forecast accuracy and synchronization of supply with demand drives better planning and a more stable supply chain, leading to additional benefits in cost, cash, and service.

- Improvement in service, including on-time in-full (OTIF) delivery and on-shelf availability
- Lower operational factory costs due to higher capacity utilization, less overtime, and less use of third-party overflow capacity
- Lower logistics costs due to less overtime and more predictable transport requirements, which leads to better lane rates and less expediting
- Lower safety-stock requirement
- More stable signals to suppliers

## Supply Chain Metrics



Service



Availability (OSA)



Inventory



Manufacturing Efficiency (OEE)



Transportation Cost



People Cost



Supplier Demand Stability

## Business Value



Revenue



Cost



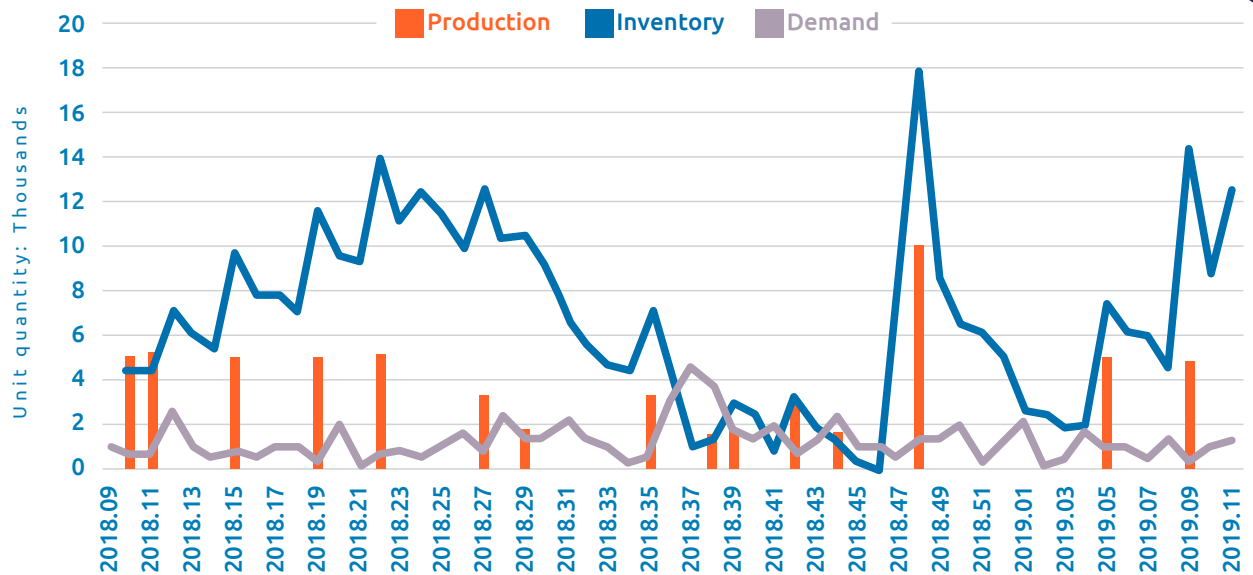
Cash



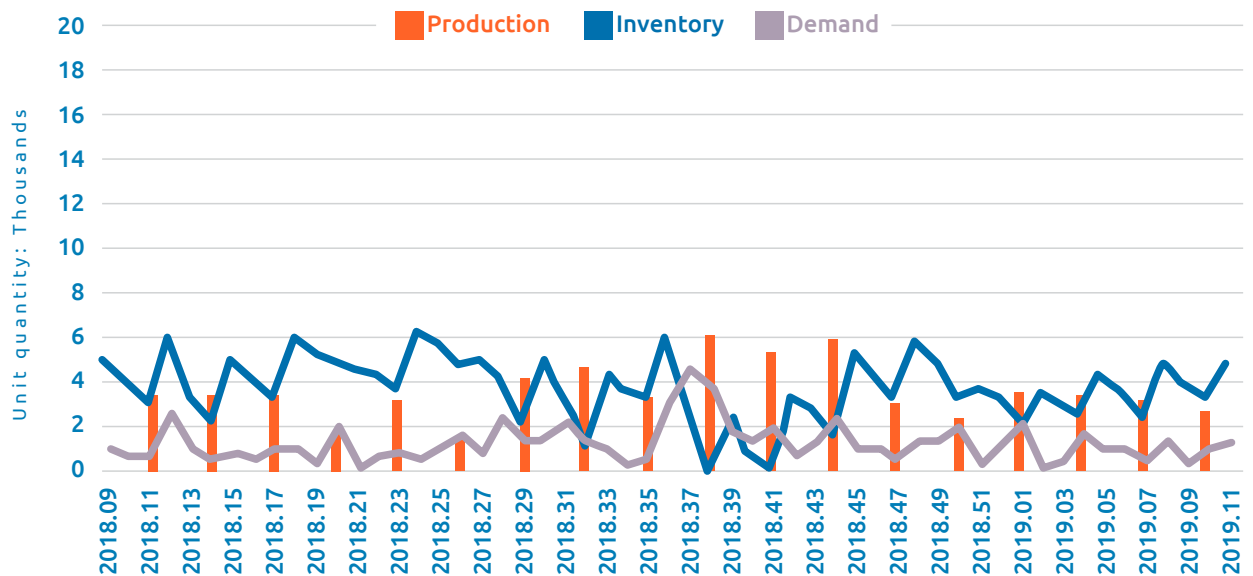
## SYNCHRONIZATION OF DEMAND AND SUPPLY

By linking supply and demand within a continuous, touchless planning system, the business is able to maintain the current service level with a lower inventory.

### TRADITIONAL PLANNING METHOD



### INTEGRATED SUPPLY AND DEMAND PLANNING



## THE IMPORTANCE OF CULTURE AND VISION

By linking supply and demand within a continuous, touchless planning system, the business is able to maintain the current service level with a lower inventory.

As the planning function changes, so too will the role of the demand planner. Increased automation of traditional operations will cause many of these positions to focus less on transactional tasks and more on the overarching business strategy. As a result, the profile of the demand planner is likely to rise within the organization, shifting from a function-based resource to a business partner working in collaboration with other disciplines. This transition implies the need for some professionals to level-up skills and expertise as they will be expected to serve both the business and the customer through a range of advanced production and planning systems and emerging automation and AI solutions.

Further, the cultural aspect of organizational change can never be understated. That is most certainly the case with continuous, touchless planning, as it has direct impact on the day-to-day activities of highly skilled people within the organization and will disrupt virtually every function within the business.

“When you’re addressing the ‘segment of one’ – the idea that consumer-products organizations are increasingly expected to design, plan, produce, and deliver one specific product to one specific consumer – demand planning assumes even greater importance,” explains Jörg Junghanns,

Vice President Europe, Digital Supply Chain, Capgemini. “Planning is no longer merely a fulfillment function. In this landscape, demand planning is a growth enabler, which is why now, more than ever, the role of the demand planner is so vital and evolving so rapidly.”

“Any time there is an impact on jobs and human activities, the business will face questions or concerns from the workforce,” explains Regeer. “When shifting to a continuous, touchless planning system, it’s important for leadership to communicate the vision for the company and to demonstrate how people within the organization can benefit by developing skills that are complementary to an increasingly automated environment.”

It is important to keep in mind that evolution, by its very nature, is intended to enable higher levels of performance. In much the same way, continuous, touchless planning will not simply eliminate tasks but also create new, more valuable forms of work. It is crucial that leadership communicate this point and a corresponding reallocation strategy to ensure the workforce remains engaged, positive, and invested in business goals.



*In this landscape, demand planning is a growth enabler, which is why now, more than ever, the role of the demand planner is so vital and evolving so rapidly.”*

**Jörg Junghanns**

Vice President Europe, Digital Supply Chain, Capgemini

# PART TWO: THE CAPGEMINI APPROACH TO CONTINUOUS, TOUCHLESS PLANNING

Continuous, touchless planning is designed to help consumer-products organizations create a sustainable competitive advantage in today's digital world. Capgemini's Supply Chain Planning Center of Excellence (CoE) leverages intelligent automation to drive a step change in planning effectiveness and efficiency.

## Traditional demand-planning inputs

### CPG supply-value network planning expertise

- Network of 3,000 global supply-value network professionals
- Deep understanding of planning processes for CPG
- Operate planning for some of the world's leading CPG brands
- Keen awareness of how planning processes integrate within end-to-end CPG processes, including category management, product development, supply-chain execution, commerce, and analytics

### Business services

- Support core planning operations, including demand, supply, inventory and operations planning
- Build and implement automation capabilities that enable the planning system to act with limited human evaluation and decision input
- Support scenario building to evaluate and fix demand/supply imbalances
- Develop and maintain a comprehensive data strategy; ensure the proper application of data throughout all planning operations
- Maintain a stable execution plan

### Alliances and partnerships

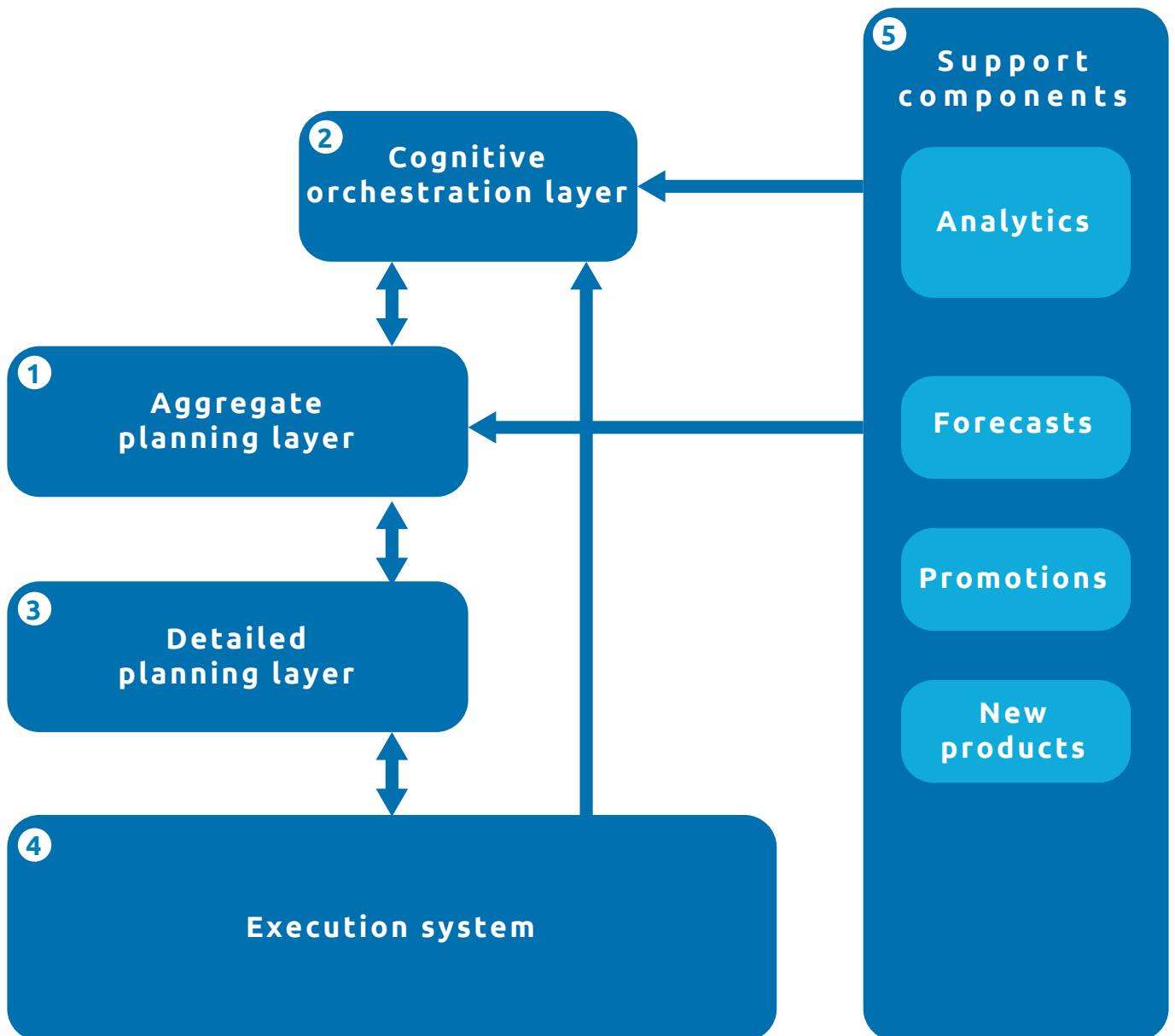
- Relationships with academic institutions to drive industry innovation and research
- Alliance partnerships with all major planning software vendors
- Active relationships with high-potential start-ups to revolutionize the planning software industry

### Innovative commercial model

- Propositions designed with sustainability and optimization in mind for both parties
- Commitment to business outcomes
- Joint ownership of risk and change

## CAPGEMINI'S CONTINUOUS, TOUCHLESS PLANNING FRAMEWORK

Capgemini's approach to continuous, touchless planning provides a framework for organizations to develop and deploy capabilities and processes across the business that will enable new levels of speed, accuracy, and responsiveness. As the name implies, our continuous, touchless planning framework is cyclical in nature and designed to help the organization constantly evaluate supply and demand within the context of the current plan. The process is completed daily, allowing the organization to identify and respond to issues and opportunities in near real-time.



## 1. Aggregate planning layer

- Support core planning functions, including demand, supply, and inventory planning
- Support scenario building to evaluate and fix demand/supply imbalances; capability could be orchestrated to act automatically with limited human evaluation and decision input
- Maintain a stable execution plan

## 2. Cognitive orchestration layer

- Intercept events, including changes in demand, capability, or material availability within the ecosystem
- Qualify and evaluate events using machine-learned or rule-based models that drive predictive, prescriptive, or action-based outcomes
- Orchestrate across systems and planners

## 3. Detailed planning layer

- Support material-requirement planning (MRP) and detailed scheduling for optimized production runs
- Adopt updates from aggregate planning in finite cycles for detailed planning

## 4. Execution system

- Support execution of procurement, production, and inventory-management planning

## 5. Support components

- **Analytics**, including advanced capabilities that enable predictive and prescriptive modeling
- **Forecasts**, which rely on advanced AI/ML models and utilize varied inputs to assimilate demand drivers and anticipate high-fluctuation periods
- **Promotions**, which will vary by organization and may include trade-promotion management and optimization
- **New products planning**

*We work with clients to bring together processes, technology, and people to help establish the foundation of the supply-value network,” explains Anil Das, Managing Applications Consultant at Capgemini. “Our approach to continuous, touchless planning enables organizations to leverage near real-time insights about changes in demand, supply capability, and material availability to manage day-to-day operations.”*

*“The day-to-day operation of the continuous, touchless planning solution is critically important,” agrees Junghanns. “While we often help businesses build these capabilities internally, Capgemini can also construct, manage, and run the system. We work with our partners to determine the right approach as it relates to technology, processes, people, and operations.”*



*We work with clients to bring together processes, technology, and people to help establish the foundation of the supply-value network.”*

**Anil Das**

Managing Applications  
Consultant at Capgemini



## GETTING STARTED: BUILDING A CONTINUOUS, TOUCHLESS PLANNING CAPABILITY

While every organization's journey to continuous, touchless planning will be unique, below are initial steps that will guide the transformation of the planning capability.

### 1. Create a vision

- Determine organizational goals, timeline, and budget
- Identify an executive sponsor and champion

### 2. Establish a solid foundation

- Master data, inventory-record accuracy, operational disciplines, schedule adherence, and supplier reliability
- Assess these areas and launch an enablement program to close gaps and eliminate organizational silos

### 3. Focus on touchless demand forecasting

- Identify the SKUs that can be forecast through historical pattern recognition
- Phase in touchless planning operations with these SKUs to gain confidence of wider business stakeholders
- Expand the touchless SKU portfolio by introducing multiple-variable forecasting techniques

### 4. Optimize system parameters and instill trust in system-generated plans

- Measure system touches, track root causes, and systematically eliminate underlying reasons for touches
- Develop an optimal, executable plan accepted by Operations

### 5. Stabilize operations

- Foster collaboration between Planning and Operations to create and execute plans
- Constantly update systems when plans are not adopted

### 6. Move to a more frequent planning cycle

- Develop and deploy new system capabilities, such as rapid scenario modelling
- Move to a daily planning cycle to be more responsive when and only when response is needed

### 7. Implement the new planning operating model

- Determine who will own the operation of the solution
- Ensure the right talent is available to ramp up an effective planning function

## CASE STUDY: CONTINUOUS, TOUCHLESS PLANNING IN ACTION

While every organization's journey to continuous, touchless planning will be unique, below are initial steps that will guide the transformation of the planning capability.

1. Driving process efficiencies through automation of routine tasks and elimination of process waste and non-value-adding activities
2. Moving core planning activities into an above-market hub for supply-chain planning to achieve further efficiencies through scale, as well as concentrating capabilities for better planning outcomes
3. Leveraging next-generation planning technologies to drive continuous, touchless planning (e.g. total demand forecasting with ML and concurrent planning).

Our team then focused on the area of total-demand forecasting. Through segmentation analysis, we identified the subset of SKUs within the portfolio for the first wave of total-demand forecasting. We then ran a parallel

test over three months, during which we measured the accuracy of each tool and the existing manual demand planning process.

Our process generated positive results across almost all SKU types. Key metrics of the continuous, touchless planning capability include:

- Improvement in demand-forecast accuracy by 10 to 15 percentage points, as compared to the traditional planning process
- Improved forecast accuracy by four percent for one SKU category, representing nearly 40 percent of total units
- Anticipated accuracy improvements as the selected ML tool continues to ingest promotion and sell-out data.

Capgemini is now in the process of executing the first phase of a multi-step rollout plan. The initial launch period, which commenced in the first quarter of 2020, will apply the continuous, touchless planning capability to 60 percent of SKUs. During this time, we will manage the development, execution, and oversight of the tool and provide change-management support.

While initial program results are quite encouraging, we anticipate that additional efficiencies and cost savings will be realized as the planning tool becomes more accurate over time. As part of our ongoing engagement, we will work closely with the client team to ensure the data strategy enables the highest level of performance.

## CONCLUSION

For many consumer-products organizations, continuous, touchless planning will be a significant departure from the existing planning processes and systems. It will require fundamental changes to virtually every aspect of the current planning procedure, from strategy and process design to technology and human capital. The entire process may prove disruptive – and yet, we argue that is precisely the point.

Continuous, touchless planning matches the tone and tenor of the market. It equips organizations with the ability to monitor rapidly changing market dynamics, anticipate changes within the supply-value network and differentiate between an event of little consequence and one in need of a response. In this way, we see continuous, touchless planning not as a capability worth considering, but as the only approach suited for today's digital landscape.

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## About Capgemini Invent

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Capgemini Invent is an integral part of Capgemini, a global leader in consulting, digital transformation, technology and engineering services. The Group is at the forefront of innovation to address the entire breadth of clients' opportunities in the evolving world of cloud, digital and platforms. Building on its strong 50-year+ heritage and deep industry-specific expertise, Capgemini enables organizations to realize their business ambitions through an array of services from strategy to operations. Capgemini is driven by the conviction that the business value of technology comes from and through people. Today, it is a multicultural company of 270,000 team members in almost 50 countries. With Altran, the Group reported 2019 combined revenues of €17billion. .

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## People matter, results count.

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