

Beyond forecasting

How AI and agentic planning are transforming
supply chain performance



Introduction

Artificial Intelligence is everywhere. Every software vendor claims to offer AI-powered planning. Every conference agenda includes sessions on autonomous supply chains. And now a new phrase has entered the conversation: Agentic AI.

For supply chain leaders, it raises an important question: **What's real, what's marketing and where can AI genuinely improve planning performance?**

The pressure on planning teams has never been greater. Supply chains are expected to be simultaneously leaner, more resilient, more responsive and more profitable. Yet many organisations still rely on disconnected spreadsheets, inconsistent data and planning processes that struggle to keep pace with change.

The next generation of planning technology offers an opportunity to change that.

Modern SAP IBP capabilities now combine forecasting, inventory optimisation, scenario modelling and machine learning to help planners make faster, more informed decisions. AI can improve forecast accuracy, identify risks earlier and automate repetitive activities. Agentic technologies promise to go even further by supporting decision-making across complex planning workflows.

But technology alone is not the answer. The organisations creating the greatest value are those combining technology, people, processes and data into a single integrated planning capability.

This guide explores how AI and Agentic Planning are reshaping supply chain planning and what organisations should do to prepare.

Chapter 1: Why traditional planning is reaching its limits

For decades, organisations have built planning processes around historical data and functional silos. Common symptoms include:

- Multiple versions of the truth
- Heavy spreadsheet dependence
- Planning cycles that take weeks rather than days
- Poor forecast accuracy
- Inventory excesses alongside service failures
- Slow responses to market disruption

The result is often a lack of confidence in planning decisions. Teams spend more time debating numbers than determining actions. Today's business environment demands something different:

- Real-time visibility
- Faster decision-making
- Cross-functional alignment
- Continuous scenario evaluation
- Data-driven planning

This is where AI-enabled planning begins to create value.

Chapter 2: What AI means in supply chain planning

Artificial Intelligence is often presented as a revolutionary new capability. In reality, many planning organisations are already using forms of AI without describing them that way.

Within supply chain planning, AI typically supports:

Demand forecasting

Machine learning algorithms identify patterns that traditional forecasting models may miss. These models can evaluate:

- Historical demand
- Seasonality
- Promotions

Weather influences

Economic indicators

Market signals

The result is improved forecast accuracy and reduced manual intervention.

Demand sensing

Demand sensing uses short-term signals to identify shifts in customer demand sooner. Rather than relying solely on historical trends, planners can react to emerging demand patterns in near real time.

Inventory optimisation

AI helps determine:

Safety stock levels

Inventory policies

Service targets

Working capital opportunities

This allows organisations to reduce inventory while protecting customer service.

Exception-based planning

Instead of analysing every data point manually, planners focus only on issues requiring intervention. This dramatically increases planning productivity.

Chapter 3: What is agentic planning?

Agentic AI is the next stage of AI-enabled planning. Traditional AI helps generate insights. Agentic AI is designed to take actions.

Think of the difference this way:

Traditional AI	Agentic AI
Identifies a problem	Identifies and recommends a response
Generates forecasts	Monitors forecast changes continuously
Highlights risks	Suggests mitigation options
Supports decisions	Helps orchestrate decisions

For example, a traditional planning system might identify that demand is likely to exceed supply.

An agentic planning system could:

- Detect the risk

- Evaluate alternative production scenarios

- Recommend inventory reallocations

- Identify supplier options

- Present the most effective response

The planner remains in control, but decision-making becomes significantly faster.

Chapter 4: The reality behind the hype

Agentic planning has generated enormous interest. However, many organisations are still early in their AI journey. The reality is that most businesses achieve significant value from:

- Better forecasting

- Improved planning data

- Scenario modelling

- Process automation

- Planning visibility

Long before autonomous planning becomes a reality. Organisations should focus on creating strong foundations before pursuing complex AI initiatives. The most successful adopters typically:

- Improve data quality

- Standardise planning processes

- Build trust in planning outputs

- Introduce AI-supported planning

- Progress towards agentic capabilities

Technology maturity follows planning maturity.

Chapter 5: The SAP IBP opportunity

SAP Integrated Business Planning provides many of the capabilities organisations need to accelerate planning performance.

Key capability areas include:

Demand planning

Statistical forecasting

AI-assisted forecasting

Demand sensing

Consensus planning

Inventory optimisation

Multi-echelon inventory optimisation

Safety stock modelling

Service level optimisation

Supply planning

Capacity planning

Constraint management

Supply balancing

Sales & operations planning

Cross-functional alignment

Financial integration

Executive decision support

Scenario planning

What-if modelling

Simulation environments

Risk assessment

Together these capabilities create a connected planning environment capable of supporting increasingly intelligent decision-making.

Chapter 6: Five high-value AI use cases

1. Forecast accuracy improvement

Benefits:

Better inventory positioning

Reduced stock-outs

Lower working capital

2. Automated demand sensing

Benefits:

Faster market response

Reduced forecast lag

Improved customer service

3. Inventory optimisation

Benefits:

Lower inventory costs

Improved service levels

Better cash flow

4. Scenario planning

Benefits:

Improved resilience

Better risk management

Faster executive decisions

5. Planning productivity

Benefits:

Reduced manual effort

More strategic planning activities

Better use of planner expertise

Chapter 7: Building an AI-ready planning function

Before investing heavily in AI, organisations should assess their readiness. Ask yourself:

Data

Can we trust our planning data?

Do we have a single source of truth?

Process

Are planning processes standardised?

Are decision rights clearly defined?

Technology

Are planning systems integrated?

Can we model multiple scenarios?

People

Do planners understand analytics?

Is the organisation prepared for change?

The organisations creating the greatest value typically address all four areas simultaneously.

Chapter 8: What planning will look like in 2030

The role of planners is changing.

Future planning teams will spend less time:

Collecting data

Creating reports

Reconciling spreadsheets

And more time:

Evaluating scenarios

Managing risk

Making strategic decisions

Collaborating across functions

AI will not replace planners. It will augment them. The competitive advantage will belong to organisations that successfully combine human expertise with intelligent planning technologies.

Final thoughts from Marco Gonclaves, Solutions Architect at TCT

The future of supply chain planning is not about replacing judgement with algorithms. It is about enabling better decisions.

AI, machine learning and emerging agentic capabilities offer significant opportunities to improve forecasting, inventory, resilience and planning productivity. But they deliver the greatest value when supported by effective processes, trusted data and strong organisational alignment.

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Marco Gonclaves,
Solutions Architect at TCT

About TCT

TCT helps organisations unlock greater value from Supply Chain Planning through connected processes, systems, people and data.

From SAP IBP implementation and transformation through to demand planning, inventory optimisation, scenario planning and intelligent planning capabilities, we help organisations create planning environments that deliver measurable business outcomes.

Ready to assess your AI planning readiness?

Book a complimentary Supply Chain Planning Discovery Session with a TCT planning specialist.



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