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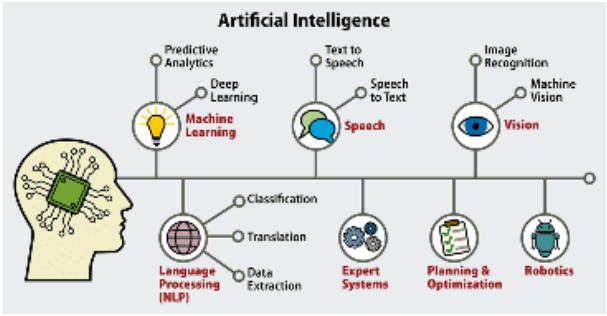
Agentic AI and the Supply Chain (Implementation, Benefits and Challenges)

Sources: Aberdeen Research, CAPS, Gartner, BCG, SCS



Topics

1. What is Agentic AI?
2. What does Agentic AI Offer?
3. Five Strategic Moves
4. Challenges
5. Rol of Agentic AI and Humans
6. Focus is on High-Value, High-Density
7. Hybrid Implementation
8. Expected Benefits

What is Agentic AI?

The next wave moves beyond generative AI with proactive intelligent agents that work through steps toward a goal.

What does agentic AI offer?

- **Goal-oriented approach:** Comprehends a high-level goal and the AI agent's defined role.
- **Multistep problem solving:** Devises a plan to reach the goal.
- **Self-directed execution:** Takes tactical action, working with other tools, applications, and workflows
- **Adaptability:** Flexibly handles trial-and-error and other changes.

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Agentic AI is positioned to drive near-term top- and bottom-line impact by transforming supply chain decisions

- **Supply chains have realized little value after adopting simple Gen AI apps**
- **Agentic AI has the potential to break traditional supply chain constraints**
- **A *human-agentic operating* model is emerging as the future framework for supply chain**

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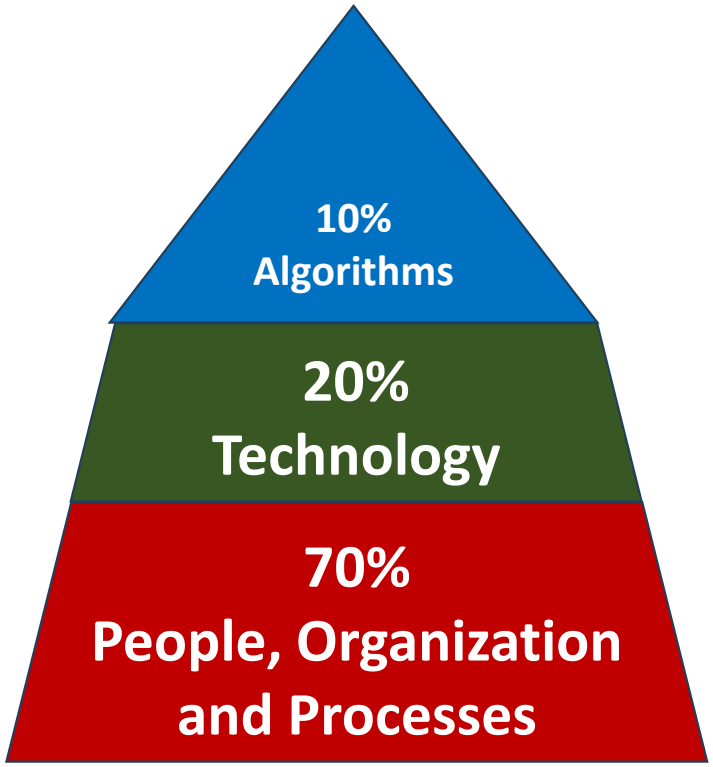
Today, leaders are making five strategic moves to ensure future success

1. Invest in a robust data foundation
2. Start where decision density and value intersect
3. Rebuild workflows around AI-led enterprise optimization vs. functional negotiations
4. Adopt a hybrid build-and-buy approach to platform strategies
5. Make AI decisions transparent, auditable, and explainable Supply chains have realized little value after adopting simple Gen AI apps

Even with AI, a supply chain transformation faces the same fundamental challenges of adoption, functional silos, and having the right expertise

Study of Main Challenges (% of Respondents)



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By 2030, SCM organizations are expected to have agents planning and executing and humans managing exceptions

Planning activity types

Design: Improve the system

Continuously improve planning rules, thresholds, and systems

Resolve: Manage exceptions

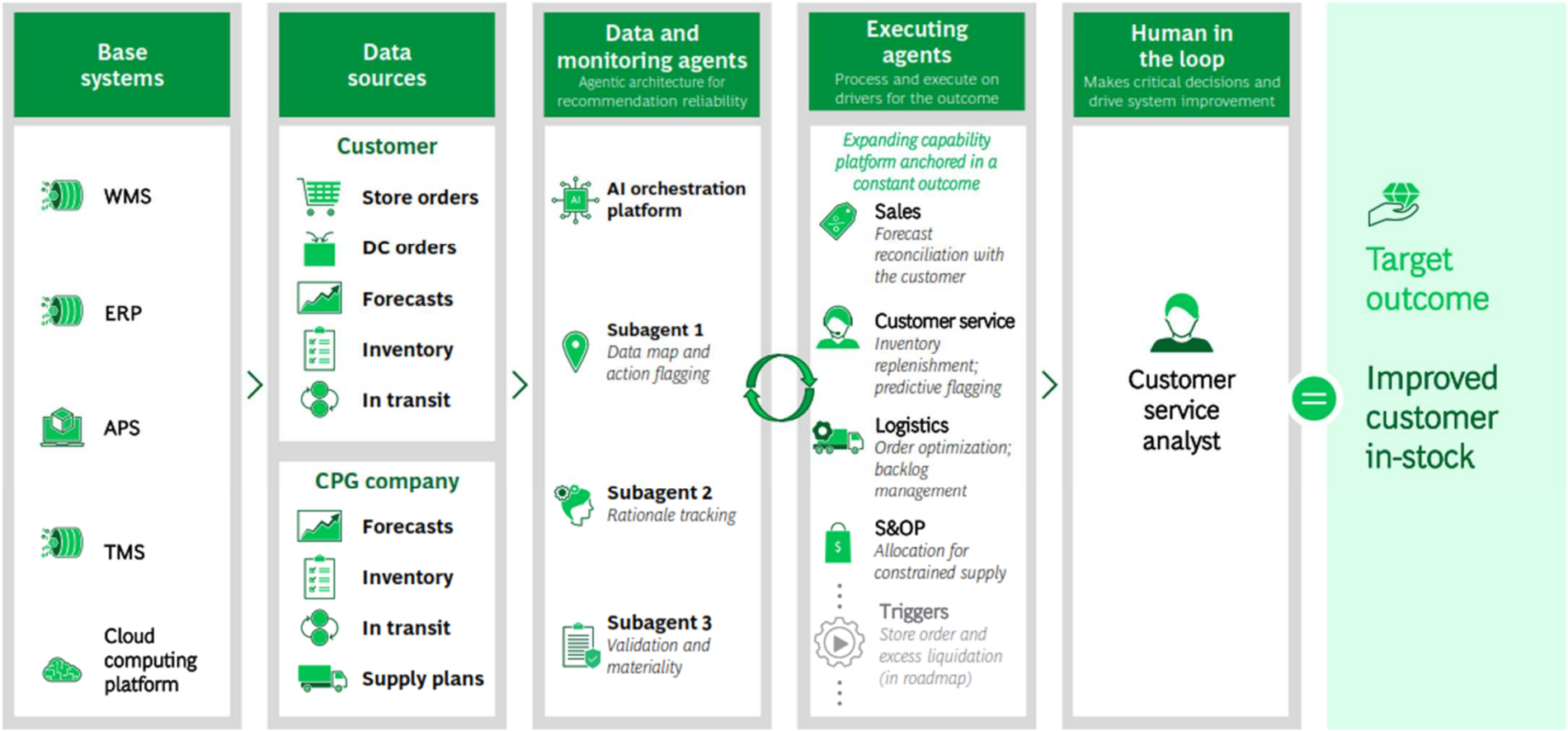
Prioritize and resolve exceptions through cross-functional tradeoffs

Run: Plan and execute

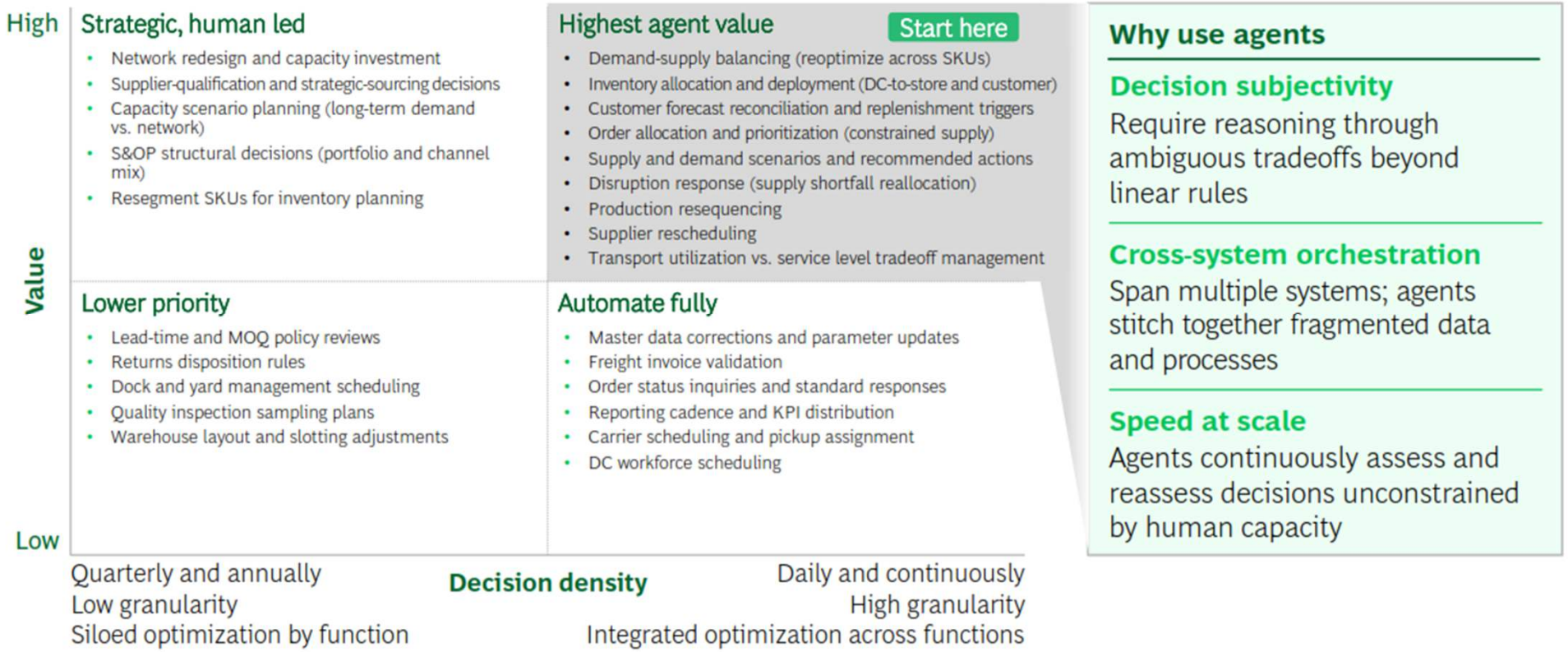
Execute plans through routines and rule-based activities, including manual analysis

	Today	2030	2035
	Limited digital enablement; focus on systems	Early agent adoption; high human oversight	Scaled adoption; increasingly autonomous agents
	Most effort is spent running the machine	Agents plan and execute; humans focus on resolving	Design-led, exception-based planning
			
	Planners keep plans alive with little time to improve them	Automation reduces noise; planners shift to problem-solving	Planning becomes a strategic capability focused on shaping outcomes
Design	5%	20%	60%
Resolve	25%	50%	35%
Run	70%	30%	5%

The company's agentic platform provides validated recommendations with human analysts making critical decisions



Focus first on improving high-value, high-density decisions that are constrained by analytical capacity



Implement a hybrid build-and-buy strategy to unlock greater tech value

Buy the foundational layer and customize the agentic layers

Buy

APS and foundational planning systems

- Use off-the-shelf planning systems as your system of record for demand, supply, capacity, and inventory
- Use vendor agents for standard APS functions, but own the configuration and deeply understand the decision logic
- Retain in-house control over data, architecture, and governance even when the software is bought

Build

Custom workflow agents and orchestration layer

- Build agents for cross-system orchestration that no APS can deliver alone
- Focus on highest-value use cases with direct integration into critical systems
- Design for portability using popular frameworks (e.g., ADK and LangGraph) to avoid vendor lock-in

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Implement a hybrid build-and-buy strategy to unlock greater tech value

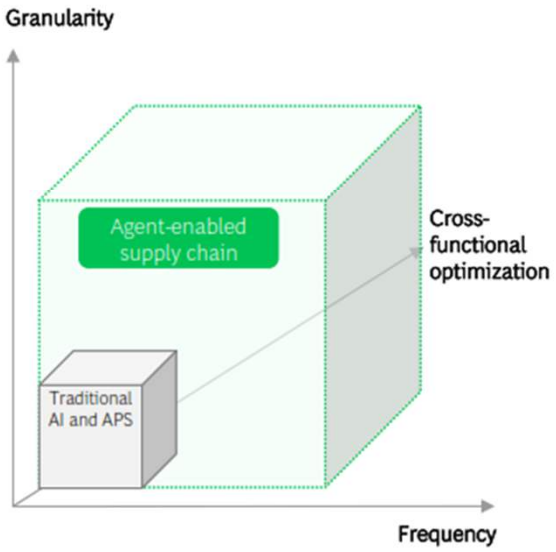
The Agent Development Kit (ADK) is an open-source agent development framework that allows you to build, debug, and then deploy reliable AI agents at enterprise scale. It starts with agents and tools, and progresses toward sophisticated multi-agent systems. The ADK enables developers to create everything from personal AI assistants to critical enterprise workflows.

LangGraph is an MIT-licensed, open-source orchestration framework built to create stateful, multi-agent AI applications. It models complex AI workflows as directed, cyclical graphs. Developers define distinct components as **nodes** (agents or tools) and connections as **edges** (decision logic or routing)

Agents are expanding the performance envelope in ways that advanced planning systems and human-led processes could not

Agents are removing the constraints that traditional AI and tools could not overcome

Supply chain decision space



Agents enable high decision density

1 High frequency

Always-on execution that is not constrained by planning cycles or analyst availability

2 High granularity

No longer forced to aggregate data to make problems manageable for humans

3 Integrated cross-functional optimization

One pass across price, service, cost, and risk versus sequential team negotiations

Agentic AI has the potential to unlock massive value creation for supply chains

Revenue upside	EBITDA	Working capital
+2%-5% Revenue uplift	+2-4 pp Profitability increase	15%-30% Inventory reduction
Service and satisfaction	Throughput	Costs
+5-15pp Service rate improvement	+5-10 pp OEE uplift	10%-20% Reduction in manufacturing, warehousing, and distribution costs
CO_2 emissions	Resilience	Flexibility
20%-50% Average near-term CO_2 reduction	Divide by 10 Time to understand upstream scenarios and actions needed vs. suppliers	Divide by 5 Time needed to make plan and execute

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