Transforming order-to-delivery *operations with agentic AI*

Turning AI investment into real outcomes, including more sales, better margins, and stronger customer loyalty

Capgemini

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Introduction

As customer expectations continue to rise and supply chains grow more complex, the emergence of agentic AI signals a pivotal shift in how organizations can orchestrate their operations more autonomously, particularly within order-to-delivery (O2D). This domain, often burdened by repetitive, cross-functional tasks, demands a level of agility and adaptability that traditional automation struggles to deliver.

Over the past decade, companies have laid a solid foundation through investments in process harmonization, automation, and orchestration. Agentic AI builds on this groundwork, offering significant productivity gains. But its impact goes far beyond efficiency and a hands-free order management process.

When applied effectively and strategically, agentic AI can become a cornerstone of O2D excellence, uplifting sales, improving margins, enabling differentiated service levels, and strengthening customer loyalty – all while securing a needed return on investment (ROI) for the business.

Why a *new approach* to O2D is essential

Order-to-delivery operations are predominantly shaped by conventional automation frameworks layered on legacy systems, which limits responsiveness and adaptability in dynamic supply chain environments. While rule-based engines and tools focused on robotic process automation (RPA), advanced workflows, and orchestration platforms are useful for automating repetitive tasks and integrating systems, they are less capable of managing the increasing complexity of modern supply chains. Some key limitations are examined below.

Time and resource intensiveness:
Exception handling and failure resolution remain labor-intensive, particularly when data is fragmented across multiple systems.

Rising customer expectations:
Customers are demanding faster, more personalized, and seamless experiences, which traditional systems often fail to deliver.

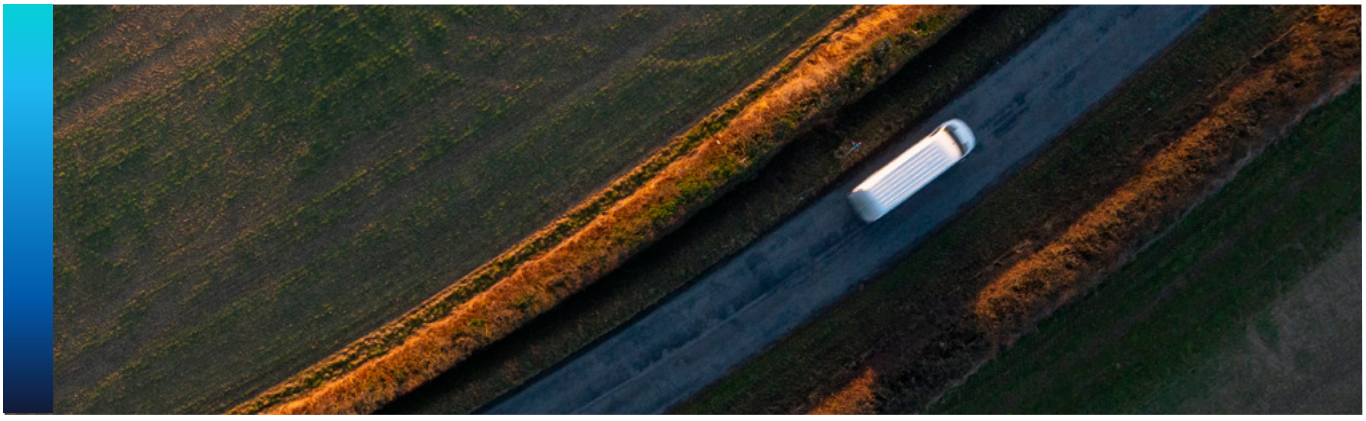
Escalating cost pressures:
Cost-to-serve optimization is a strategic priority, with 65 percent of executives anticipating rising supply chain costs over the next two years.

Limited customer segmentation and personalization:
Most organizations have yet to achieve true hyper-personalization, resulting in overserved or underserved customer segments and inefficient resource allocation.

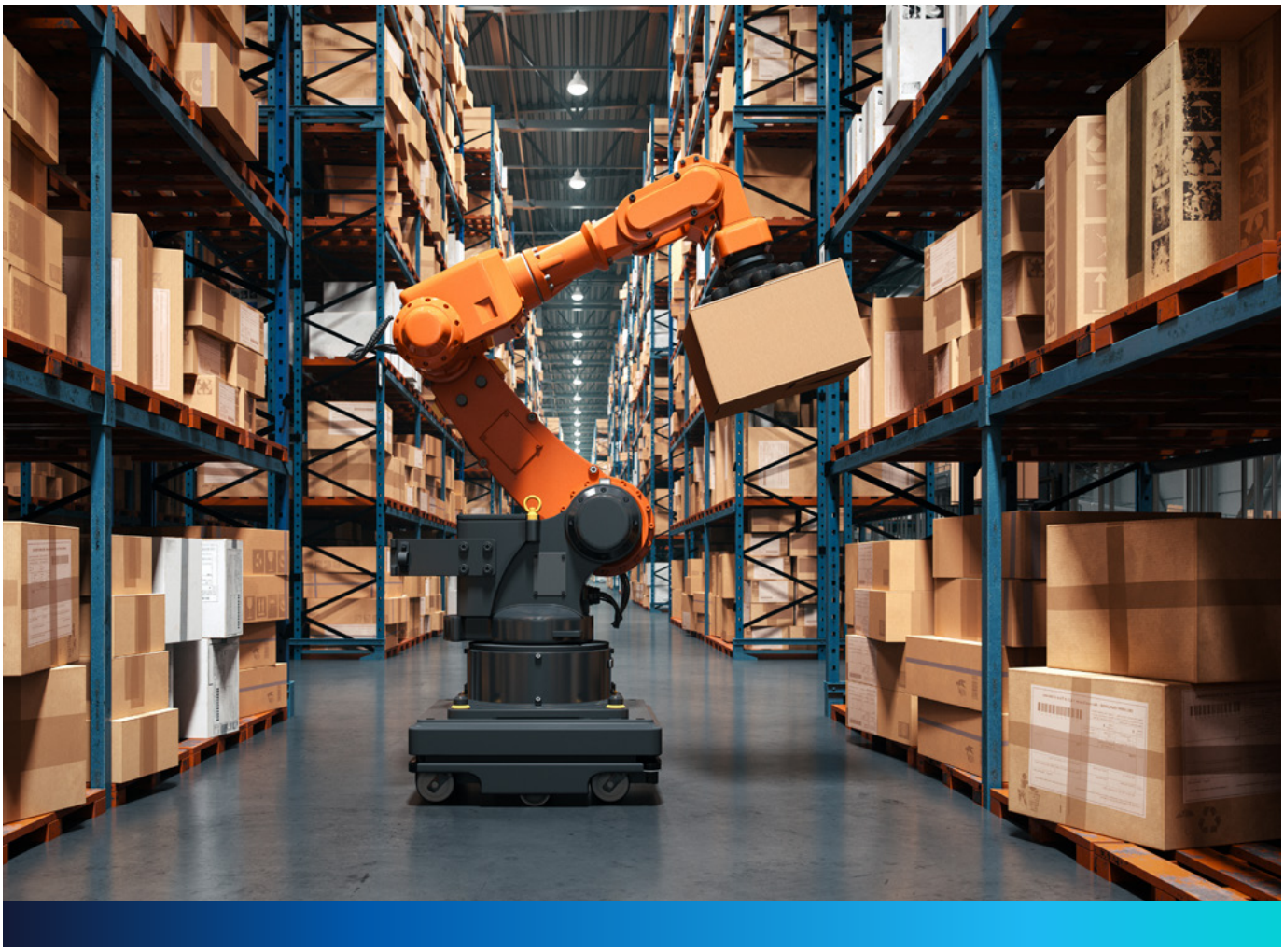
Reactive communication and problem solving:
Traditional end-to-end supply chain operations are often designed to respond to disruptions after they occur, rather than anticipating and preventing them. This reactive posture leads to delayed resolution times, increased operational costs, customer dissatisfaction, and limited scalability.

Legacy infrastructure:
Outdated systems hinder agility, scalability, and integration with modern technologies.

These constraints highlight the need for a more intelligent and adaptive approach, which agentic AI is well positioned to provide.



Introducing *agentic AI* in O2D



Unlike conventional automation, which relies on rule-based outputs, workflow engines, and predefined decision trees suited for structured and predictable tasks such as inventory checks, stock allocation rules, and routine status updates, agentic AI introduces goal-driven behavior with its perceptive, autonomous, and real-time learning capabilities. This enables AI agents to plan, execute, and adapt O2D workflows based on outcomes rather than predefined tasks. Within O2D operations, agentic AI delivers distinct value in dynamic scenarios that require balancing multiple variables, such as making intelligent decisions, handling exceptions proactively, and making complex trade-offs around margin, speed, and sustainability based on real-time data and differentiated service levels. It enables better decision-making and proactively manages anomalies like order fallouts, stockouts, and delivery delays.

Its ability to learn and adapt makes it particularly effective in navigating complexity and uncertainty. Crucially, agentic AI draws from a vast and diverse set of data sources, integrating structured and polystructured information across systems to inform decisions. This breadth of input allows it to autonomously resolve challenges that traditionally required human judgment, driving smarter, faster, and more resilient operations.

The *advantage* over traditional automation

Today's top-performing enterprises already process over 90 percent of their orders without human intervention. The remaining orders typically require manual handling due to complex exceptions, such as pricing discrepancies, customer-specific terms, incomplete information on customer orders, stock allocation decisions, credit risk assessments, and compliance checks. These scenarios resist traditional automation because they demand nuanced judgment.

This is precisely where agentic AI can create additional value. By learning from historical human decisions, it can resolve exceptional cases on its own, transforming previously manual interventions into intelligent, self-directed actions, including interactions with internal and external stakeholders. The result is a breakthrough in operational efficiency, extending automation into the most complex areas of fulfillment.

While adoption is still emerging, the momentum is clear: 27 percent of organizations already have dedicated agentic AI teams, and nearly one in ten are deploying multi-agent systems. However, successful integration requires more than technical capability – it demands robust data governance, redesigned workflows, and thoughtful human-agent collaboration.

Will this work perfectly from day one? No – and that is by design.

Just like a new employee starting a new role, an agentic AI solution needs initial guidance and oversight. Early on, human checks are essential to ensure accuracy, alignment, and trust. Over time, as the system learns and matures, these safeguards can be gradually reduced, allowing the AI to operate with greater autonomy. This phased approach ensures reliability while unlocking the full potential of agentic AI.

Moving beyond the hype: How to *succeed with agentic AI*

Transforming workflows in O2D entails a comprehensive redesign of process landscapes. This includes establishing strong foundations and ensuring that automation is aligned with business rules, compliance checks, and governance structures.

The financial aspect is also vital. According to Gartner, by the end of 2027, more than 40 percent of agentic AI initiatives are expected to be discontinued, primarily due to rising implementation costs, ambiguous business outcomes, and insufficient risk management frameworks. A report from MIT that surveyed 153 business leaders and over 300 AI initiatives found that 95 percent of examined companies have seen zero return on investment so far.

Investing in agentic AI without proper guidance and support is a gamble, and most companies cannot afford a poor ROI. A one-size-fits-all approach is therefore ineffective; each initiative must be critically evaluated for its relevance, economic feasibility, and adaptability to specific use cases.

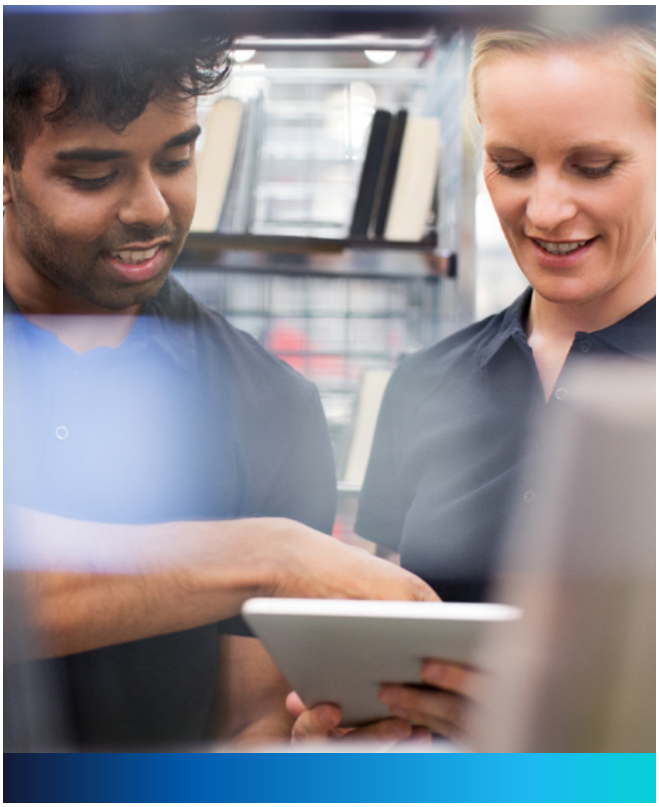
Where to start: Eight core principles for agentic O2D transformation

1) Business impact
The identified agentic AI use case needs to deliver measurable value, aligned with strategic goals, beyond what RPA or process reengineering solutions can provide. The total costs of developing, running, and maintaining the agentic AI solution must also be covered. A return on investment is essential, and it must outperform traditional solutions.

2) Process re-architect
Realizing the full potential of agentic AI requires clear processes. Otherwise, deep process reengineering and erasing of dysfunctional processes will be required, because layering a new technology on top of a chaotic process environment will not deliver the expected business impact. In this case, redesigning and re-architecting legacy workflows, eliminating inefficiencies, and creating modular agent-ready architectures is necessary. Companies will often need to untangle decades of operational complexity in their processes as a first step.

3) Data-driven optimization
High-quality data is instrumental. Poor data quality can affect critical areas, such as decision-making and autonomy, integration and orchestration, compliance and trust, and scalability and innovation – all of which can impair the ability of agents to understand situations and make the best possible outcome-based decisions. AI models have struggled with accuracy, some showing an error rate of 60 percent. Better data will provide a stronger contextual understanding, helping to mitigate so-called hallucinations. Data quality and governance must therefore be prioritized, with policies, constraints, and feedback loops – especially human oversight for exceptions – to maintain control and traceability. Agentic AI itself can uplift data quality and leaders in this field have already deployed effective solutions.

4) Technology integration
As O2D operations evolve toward dynamic, self-learning ecosystems, integration becomes the backbone for multi-agent orchestration, scalability, and agility. Technology integration enables agents to access real-time data, trigger workflows, and collaborate across systems, turning isolated intelligence into actionable outcomes. Without integration to core systems (e.g., ERP, TMS, WMS, customer portals), even advanced AI agents could remain disconnected. Equally important is IT convergence, which acts as a unifying layer that helps to manage complexity and reduce operational costs.



5) Customer-centricity
A customer-centric approach is essential. Organizations must prioritize speed, accuracy, and transparency at every touchpoint. Hyper-personalization enables tailored O2D processes for distinct customer segments, balancing cost-to-serve, operational complexity, and financial risk. This approach supports dynamic service models that adapt to customer needs while maintaining profitability and competitive differentiation. The same principles used to scope different customer requirements can also be applied to define differentiated service levels, aligned with strategic, foundational, and tactical parameters across customer segments.

6) Human-AI collaboration
Human factors play a central role in successful transformation. Driving adoption, managing change, and fostering collaboration between humans and agents are key to building trust and ensuring long-term success. Human involvement should be maintained for strategic oversight and to manage exceptions, ensuring compliance and contextual decision-making.

7) Governance and continuous improvement
Establishing a central hub for performance monitoring and root cause analysis enables agile responses and iterative enhancements. Auditability and transparency are critical; every agentic decision and action must be traceable to support compliance and continuous improvement.

8) Talent evolution
As automation deepens, skill gaps must be addressed through targeted training and a shift toward more specialized roles. Managing complex exceptions beyond agentic AI's reach requires advanced qualifications and deep process insight. Employees must understand how AI models work and be able to adjust them when needed. Some will become citizen developers, using low-code/no-code tools to refine workflows and boost AI performance.

Turning vision into value: Agentic AI in action

The following use cases demonstrate how agentic AI can reshape core business processes while empowering the workforce to concentrate on more strategic, value-adding areas.

1. Order capture and order check
When receiving orders, AI agents can retrieve incoming orders from multiple channels (e.g., email, EDI, supplier portals) and extract key details such as order number, quantities, and pricing without manual intervention. In case a validation of the order against the ERP system is leading to unclear or incorrect data points (e.g., wrong article number or SKU size, which cannot be ordered from the customer), an agentic AI solution could request the correct data from the customer via email. The revised order with the correct details could then be retrieved again by the agent and the order could be adjusted and corrected autonomously.

2. Intelligent stock optimization and quota management
Supply disruptions and inconsistent stock allocation often result in both underserved and overserved customers. Agentic AI addresses this by dynamically analyzing shortages, customer segmentation, contribution margins, and guaranteed service levels (e.g., potential penalties, minimum rest shelf times) to optimize inventory allocation. It factors in ATP, cost-to-serve, and SLA commitments and compliance constraints, ensuring that stock is distributed in a way that improves profitability and customer satisfaction.

The system can even automatically trigger the delivery capability of alternative suppliers and execute procurement actions when shortages arise. This intelligent rebalancing reduces penalties, minimizes waste from aging inventory, and ensures that high-value customers receive higher service levels. The result is a more resilient supply chain and a smarter, margin-oriented approach to inventory management.

3. Proactive claims management
Leading organizations are increasingly adopting structured automation and workflow tools to streamline their claims processes. Building on this foundation, agentic AI introduces a new paradigm: the capability to autonomously verify claims,

ingest and act upon track and tracing transport data, monitor SLAs, and initiate customer communication proactively, without relying on predefined triggers. Beyond structured workflows, agentic AI also offers the capability to interpret unstructured inputs – like customer emails and chat transcripts – to assess intent, tone, and behavioral signals. It determines the next best action autonomously, such as escalating to human agents when appropriate, based on customer segmentation and interaction history. This enables a responsive, personalized experience that evolves and learns with each interaction. In addition, credit notes can be issued instantly based on commercial rules, while the system dynamically adapts to evolving conditions, such as margin erosion risks from negotiated rebates. Although earlier disbursements may affect free cash flow, agentic systems can strategically time actions to mitigate financial impact.

In this use case, agentic orchestration is exemplified by a supervisory agent that oversees the claims process, acting as a "chief" agent that coordinates specialized agents responsible for transport data ingestion, SLA monitoring, and customer communication – ensuring synchronized execution and adaptive decision-making across the entire workflow.

4. Correct invoicing
Pricing errors are a common source of customer dissatisfaction and operational inefficiency. Agentic AI can continuously monitor customer interactions (e.g., in CRM systems) and pricing agreements to ensure that correct prices and rebate agreements are applied at the point of invoicing. If discrepancies arise, it could proactively engage sales representatives to clarify terms, prices, and rebates for correct invoicing. This reduces complaints, shortens resolution times, and prevents revenue loss due to delayed price adjustments. By automating this process, businesses not only improve customer satisfaction but also reduce manual workload and protect margins.

5. Freight cost auditing
Agentic AI can revolutionize freight cost auditing by automating complex validations and reducing manual effort. The challenge with manual auditing stems from navigating multiple data sources, intricate tariff structures, and frequent errors that make it slow and unreliable. With agentic AI, autonomous agents can extract invoice data, validate rates and surcharges against contracts and operational data (e.g., tracking and timestamp checks), handle exceptions dynamically, and integrate seamlessly with ERP and finance systems. This can achieve remarkable accuracy in validation and significantly reduce the need for manual checks, leading to faster approvals and improved compliance through complete audit trails.

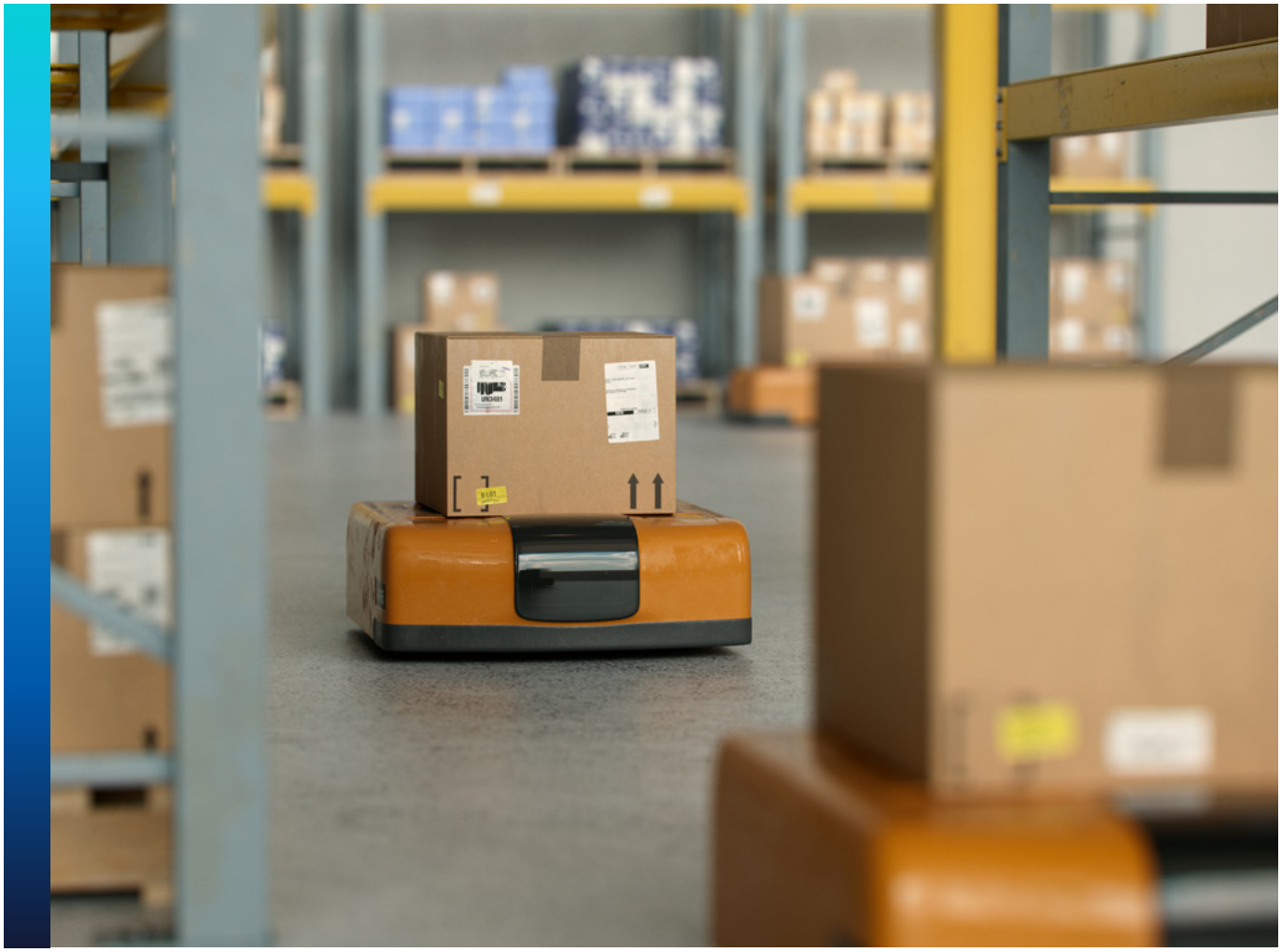
6. Cash Collection and Dunning
Agentic AI can significantly enhance cash collection and dunning processes by introducing adaptive, intelligent automation. It can analyze payment behaviors and segment customers based on risk profiles, enabling dynamic prioritization of overdue accounts. By leveraging real-time data, Agentic AI can personalize reminder strategies—choosing the right tone, timing, and channel for each customer—to maximize engagement and recovery rates. Additionally, it can predict potential delays before they occur, trigger proactive outreach, and optimize workflows by reducing manual intervention. This results in faster collections, improved working capital, and a more customer-centric approach to credit management with a benefit on DSO and bad debt rate.

The future of O2D is *agentic*

Supply chains are transitioning from rigid, uniform models to dynamic ecosystems focused on customer value. Agentic AI enables autonomous decision-making across order-to-delivery processes, proactively resolving issues and optimizing trade-offs between cost, speed, and margin. Additionally, by adopting hyper-personalization, organizations can segment customers more effectively and tailor workflows to meet specific needs.

These capabilities enhance communication, automate troubleshooting, and improve customer satisfaction. A more efficient and responsive supply chain reduces cost-to-serve, improves margins, and strengthens brand loyalty, positioning supply chains as strategic differentiators. But to realize the benefits of agentic AI, companies must establish strong data foundations, clear governance, and focus more on the customer experience and business impact. Evaluating the tangible value of agentic AI against implementation costs is essential for informed investment decisions.

The path forward begins with identifying high-impact use cases where agentic AI can deliver measurable results. Organizations should pilot these initiatives with clear KPIs, refine models based on performance insights, and scale successful implementations. Equally important is fostering human-AI collaboration; employees must be trained to supervise agents, manage exceptions, and evolve workflows using low-code tools. Strategic oversight and continuous improvement mechanisms must be embedded to ensure transparency, compliance, and adaptability.



Achieving *impact and ROI* **at scale**

Ultimately, operationalizing agentic AI requires a shift in mindset, from prioritizing task automation to redesigning decision-making and value delivery. This calls for a comprehensive transformation of O2D processes.

Capgemini's integrated capabilities across data, governance, process transformation, and AI engineering means that we can bring all the critical enablers needed to make agentic AI both operationally and financially successful. Our frameworks such as D-GEM and ESOAR provide a structured foundation, ensuring that automation is applied to streamlined, standardized processes, while identifying agentic opportunities across enterprise functions, enabling scalable and governance-ready environments for AI agents.

By aligning transformation strategy with execution, we help companies to build intelligent, adaptive systems that elevate sales, improve margins, and enhance the customer experience – ensuring that the agentic transformation delivers measurable impact at scale.

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