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Demystifying AI Agents & Agentic AI:

A PRACTICAL INTRODUCTION FOR HEALTHCARE OPERATIONS AND IT LEADERS

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Foreword: The Next Era of AI in Healthcare

The healthcare industry stands at a defining moment in AI adoption. We are witnessing a fundamental shift **from AI as a passive analytics tool** to **AI as an active agent**—one *that synthesizes information, drives decisions, and executes actions in real-time*. This transformation isn't incremental; it's paradigm-altering.

Why This Matters Now

Healthcare's operational and financial pressures are intensifying. **Administrative waste, inefficiencies, and workforce burnout** continue to erode margins and diminish the ability to deliver patient-centric, value-based care. Legacy automation approaches, like RPA and static AI models, have failed to solve these systemic challenges. **AI Agents are emerging as the next frontier—**dynamic, context-aware assistants that can scale decision-making, reduce cognitive load, and enable hyper-efficient operations.

This is *not* about replacing humans—it's about amplifying their effectiveness and productivity. The future of healthcare operations is **AI-driven, orchestrated, and radically efficient.**

But *this is only the beginning*. The Agentic AI Playbook for Healthcare Leaders is a must-read companion to this guide. It goes deeper into execution strategies, governance frameworks, and architecture blueprints to help you move from theory to implementation.

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SECTION 1

What is Agentic AI?

1.1

From Traditional AI to AI Agents

Most AI systems in healthcare today function in a passive, analytical role—they assist with insights and provide recommendations but require human intervention for execution. Agentic AI is different.

AI Agents actively connect, interpret, and automate workflows, which can enable unprecedented optimizations in areas such as claims processing, care coordination, and provider engagement.

Traditional AI models analyze data and predict outcomes, while AI Agents go further—**they plan, act, and integrate external tools, orchestrating decisions across healthcare workflows.**

Example use cases in healthcare:

Claims Processing

AI Agents can assist in reviewing claims, verifying documentation, and resolving discrepancies, potentially reducing approval times by 30%.

Care Coordination

AI Agents synthesize fragmented data, ensuring high-risk patients receive timely interventions and reducing unnecessary readmissions.

Authorization Requests

Agents can analyze eligibility, flag bottlenecks, and expedite prior authorizations, potentially reducing manual review times by 40%.

Let’s Understand the Use of AI Agents in Redefining Healthcare Efficiency

Agents are autonomous or semi-autonomous software that can be designed to assist in the synthesis of healthcare data, decision-support, and routine tasks to deliver faster, smarter member and patient care.

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What Agents Do

Synthesize Data

Gather and synthesize data for real-time insights, empowering teams with actionable information.

Support Decision Making

Provide context-aware recommendations that reduce uncertainty and drive better outcomes.

Execute Tasks

Automate routine tasks, increasing productivity and reducing operational costs.

How They Do It

Agents understand personas and their needs, and should be designed to monitor and sense these needs, utilizing tools and frameworks to aggregate disparate and synthesize into meaningful insight to assist the needs of the personas.

Based on their understanding of needs, AI Agents can tap into customized machine learning models that recommend and aid in speedier and more accurate decision making by personas within key workflows.

Agents can be designed to leverage existing tools like process automation tools and provider/ payer integrations to automate time-consuming tasks as part of orchestrated workflows.

What is Agentic AI?

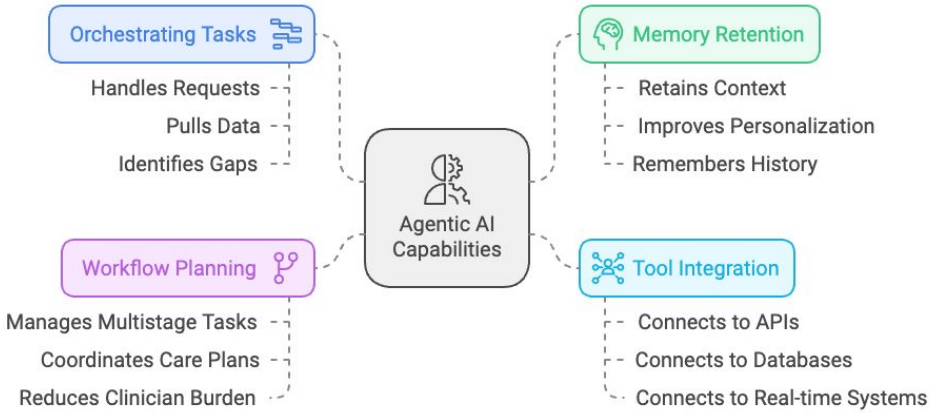
From Agents to Ecosystem: Agentic AI enables multi-agent systems (MAS), where multiple AI Agents collaborate on interconnected tasks—such as coordinating care between payers and providers to reduce hospital readmissions.

Agentic AI Framework:

- **Autonomous or Semi-Autonomous Intelligence**: Agents that act, adapt, and collaborate across workflows with a human in the loop .
- **Scalable Design**: Built for enterprises, supporting single and multi-agent deployments.
- **Seamless Integration**: Connects to data, APIs, and systems for real-time insights and action.

Why It Matters:

- Orchestrates tasks and simplifies complex workflows.
- Retains context for personalized, consistent outcomes.
- Integrates tools and systems for smarter decisions.
- Adapts to evolving enterprise needs with flexibility and scale.



SECTION 2

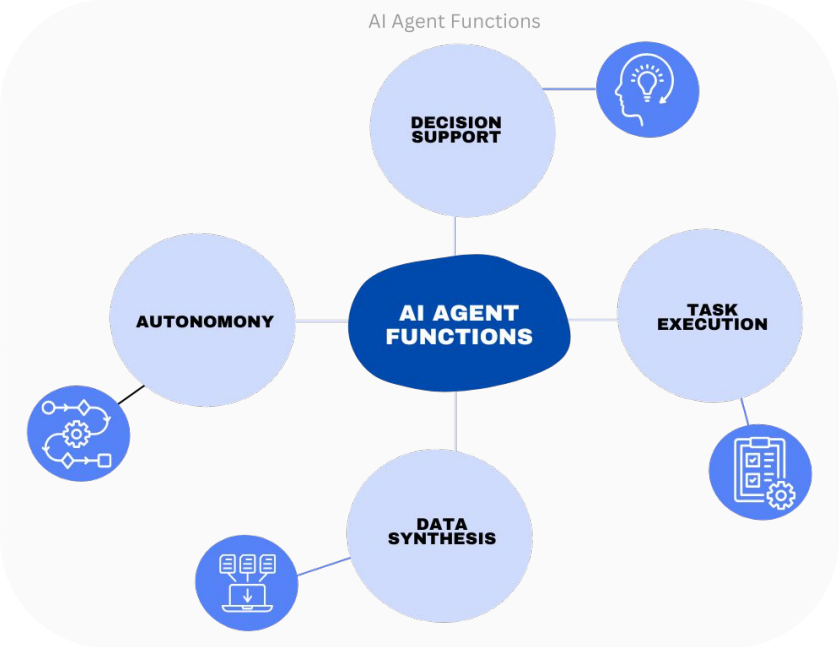
How Agentic AI Works

How Agentic AI Works

AI Agents operate through an orchestration layer, constantly observing their environment, integrating tools, and automating multi-step workflows to streamline decisions.

They achieve this through:

- **Memory Retention:** Unlike traditional AI, which operates in isolated interactions, Agentic AI retains and recalls important information over time—such as patient history and care preferences.
- **Tool Integration:** Agents connect to APIs, databases, and real-time systems, acting as intermediaries between disparate platforms.
- **Workflow Planning:** Agentic AI excels at managing complex, multistage workflows.
- **Task Orchestration:** An agent interprets a request and orchestrates the necessary actions.



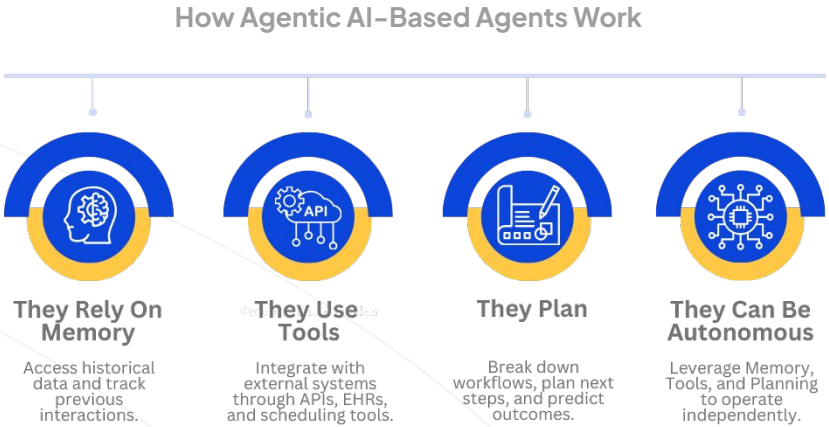
Agentic AI Adoption

AI Agent adoption follows a maturity curve:

01. **Task Automation** (Basic): AI-driven assistants that automate repetitive, rules-based workflows.

02. **Context-Aware Agents** (Intermediate): AI Agents that retain memory, learn from interactions, and adapt decisions dynamically.

03. **Multi-Agent Systems (MAS)** (Advanced): Coordinated AI Agents that collaborate across teams, systems, and decision layers.



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SECTION 2.1

Agentic AI as an Orchestrator

Agentic AI orchestrates AI Agents, enabling workflow automation in an autonomous or semi-autonomous approach.

Example

In care coordination, an AI Agent can gather data from multiple sources, identify care gaps, and schedule follow-ups to ensure timely interventions.

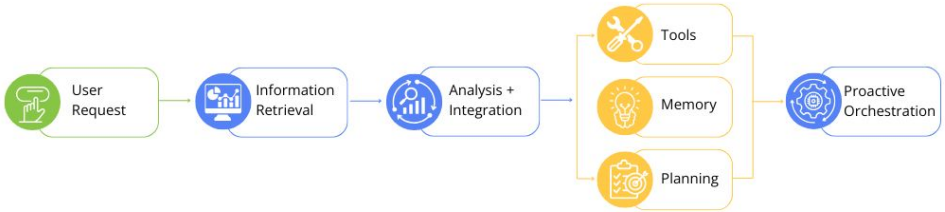
In claims management, an AI Agent can automatically validate claims, identify missing documentation, and trigger resolution workflows.

Traditional AI

Provides reactive insights, requiring humans to initiate actions.

Agentic AI

Proactively orchestrates workflows by using AI Agents to process data , recommend actions, and execute tasks.



This proactive approach reduces manual effort, ensures compliance, and improves speed-to-resolution.

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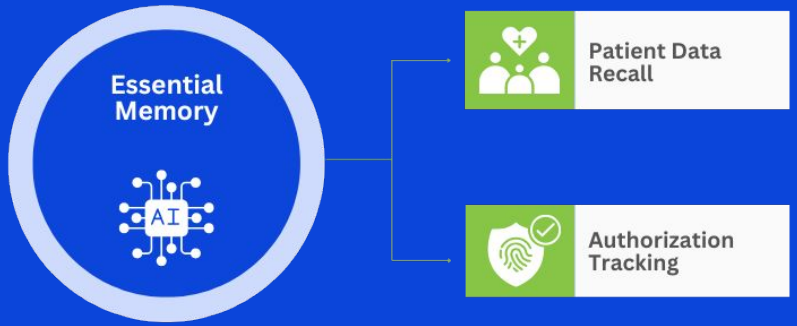
SECTION 2.2

AI Agents Have Memory and Context Awareness

Unlike traditional AI, which operates in isolated interactions, AI Agents retain context over time.

Example

In chronic disease management, an AI Agent can recall a patient's previous care adjustments and automatically suggest next steps for case managers, ensuring personalized care continuity.



AI Agents leverage memory and context-awareness, ensuring they track ongoing workflows, patient histories, and claim statuses. This enables seamless transitions between tasks, such as automatically verifying patient eligibility or adjusting care plans based on real-time updates.

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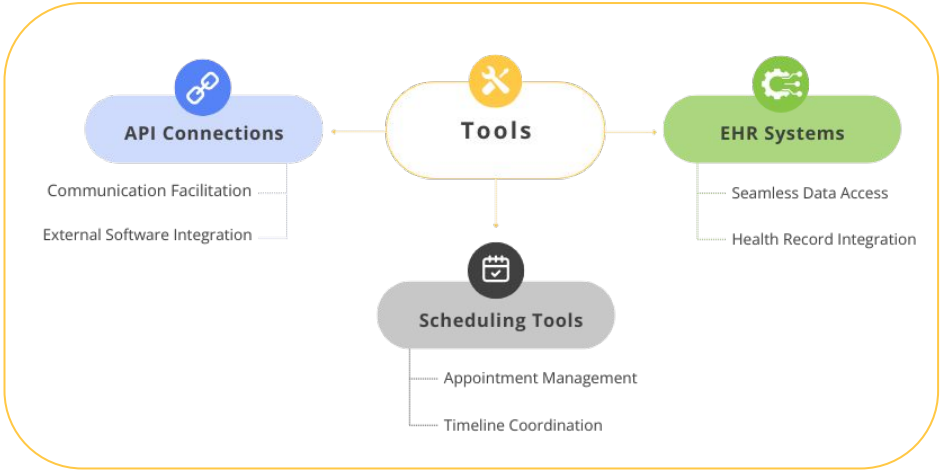


They Connect to Tools and Systems

AI Agents dynamically integrate with APIs, databases, and EHRs, selecting the appropriate tools in real-time to automate workflows, retrieve missing data, and optimize decision-making.

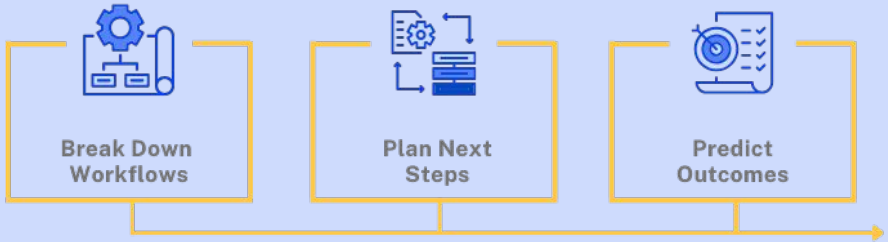
Example

An AI Agent in prior authorization workflows can automatically pull data from EHRs, validate medical necessity, and generate a compliant pre-authorization request—without human intervention.

By maintaining memory, AI Agents reduce redundant processes, prevent information loss, and enhance coordination across teams.

They Handle Complex, Multi-Step Planning

AI Agents don't just automate single tasks; they coordinate multi-stage workflows by breaking complex processes into structured, manageable steps.



Example

In post-discharge care management, an AI Agent can:

- Schedule follow-ups with primary care providers.
- Track medication adherence based on pharmacy refill data.
- Notify care managers of potential readmission risks.

This structured orchestration ensures care teams remain proactive rather than reactive.

2.5

How Agentic AI Utilizes Large Language Models (LLMs)

While LLMs (Large Language Models) enhance AI Agents, they are not what makes an AI system "Agentic." Instead, LLMs serve as enablers for AI Agents by processing unstructured data and generating insights that inform workflows.

AI Agent Component	How LLMs Enhance Functionality
Orchestrator	LLMs interpret unstructured text (e.g., physician notes, claims disputes) and inform AI Agent workflows.
Memory	LLMs help AI Agents retain long-term context, ensuring past interactions influence future decisions.
Tools	LLMs assist AI Agents in navigating multiple data sources, making workflows more adaptive.
Planning	LLMs improve AI Agents' ability to predict workflow dependencies and sequence tasks accordingly.

Example Use of an LLM

In claims processing, an LLM-enhanced AI Agent can interpret clinical documentation, extract relevant information, and ensure coding accuracy—reducing denials.

LLMs alone do not make AI “Agentic.” Instead, they are one component in a larger ecosystem that enables AI Agents to process complex information and trigger appropriate actions.

AI Agents don't replace existing AI and automation—they make them work smarter.

What's New?

AI Agents coordinate tasks, retain context, and enable real-time decisioning—bridging the gap between AI insights and enterprise execution.

LLMs → **From Static to Actionable**

- LLMs generate insights but lack memory and execution.
- AI Agents add structure, persistence, and automation, turning insights into action.

RPA → **From Rigid to Adaptive**

- RPA bots break when workflows change.
- AI Agents add reasoning, making automation dynamic and exception-aware.

ML Models → **From Passive to Operationalized**

- ML models predict but often don't drive real-time actions.
  AI Agents integrate ML into workflows, enabling automated, intelligent decisions.

Orchestration → **From Rules-Based to Intelligent**

- Traditional orchestration lacks adaptability.
  AI Agents enable real-time, multi-agent collaboration, optimizing workflows autonomously.

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AI Agents: The Evolution of Orchestration, Not a Revolution

Enterprises have long relied on BPM, workflow engines, and ML-driven decisioning, yet personalization, activation, and automation at scale remain unfulfilled promises. Why? Existing orchestration is static—rule-based, siloed, and unable to adapt in real time.

- Agentic AI fixes this by making orchestration intelligent, adaptive, and dynamic.
- Where BPM follows static rules, AI Agents adjust autonomously.
- Where ML models predict, AI Agents execute insights into action. Where RPA automates tasks, AI Agents optimize workflows end-to-end.

For companies struggling with real-time decisioning, AI activation, and intelligent automation, Agentic AI isn't new—it's the missing intelligence that finally makes AI work as intended.

Agentic AI is an evolution of orchestration, but instead of being predefined and static, it's dynamic, adaptive, and AI-powered.

+ **Personalization has been limited because activation is broken.** AI Agents can synthesize real-time data across systems and trigger actions automatically.
+ **Automation has been limited because workflows are static.** AI Agents replace predefined paths with real-time, intelligent decisioning.
+ **Decisioning has been limited because AI insights don't execute.** AI Agents operationalize AI, ensuring insights lead to actions in real time.

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2.6

Agentic AI and Multi-Agent Systems

A compelling application of Agentic AI is in multi-agent systems (MAS), where multiple AI Agents collaborate on separate but interconnected tasks.

Example

With millions fewer physicians expected by 2030, AI Agents can alleviate labor pressures by automating routine tasks and supporting clinical teams.

By deploying multi-agent systems, healthcare organizations can:

- Break down operational silos.
- Ensure workflow consistency across departments.
- Optimize efficiency without requiring massive system overhauls.

For more detailed examples of multi-agent use cases in healthcare, see:

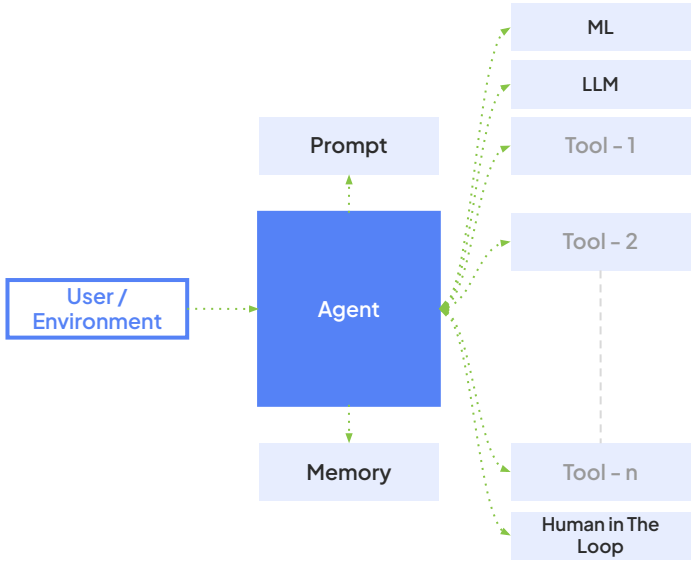
USE CASE GUIDE
How Agentic AI Can Drive Innovation for Value-Based Care

USE CASE GUIDE
How to Transform Care Transitions with Multi-Agent Systems

USE CASE GUIDE
How to Transform Revenue Cycle Management with Agentic AI

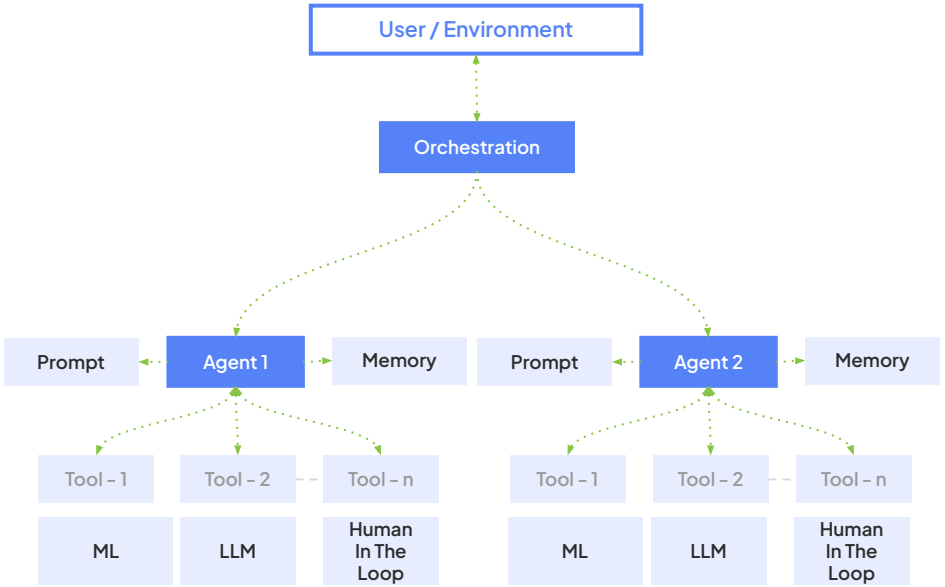
Single Agent & Multi Agent Systems

A Single Agent System



Single-agent systems: Best for automating standalone processes (e.g., claims pre-validation, appointment reminders).

A Multi-Agent System



Multi-agent systems: Necessary for complex workflows requiring coordination across multiple teams and systems (e.g., end-to-end care transitions involving hospitals, payers, and community health teams).

2.7

Agentic AI Governance

AI Agents require careful governance to ensure ethical use, data security, and compliance with healthcare regulations.

AI governance in healthcare must ensure:

Human-in-the-Loop (HITL) Oversight:

AI Agents should recommend actions but allow human decision-makers to validate critical steps (e.g., care plan modifications, prior auth approvals).

Explainability & Transparency:

AI-driven recommendations must be interpretable, so clinicians, case managers, and claims processors can see and understand why an AI Agent made a decision.

Bias & Fairness Audits:

Continuous monitoring to prevent AI bias in claims processing and clinical workflows.

Auditability & Compliance:

AI-driven processes should generate automated audit trails to ensure regulatory compliance with HIPAA, CMS, and payer-provider contracts.

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SECTION 3

Practical Use Cases of AI Agents in Healthcare

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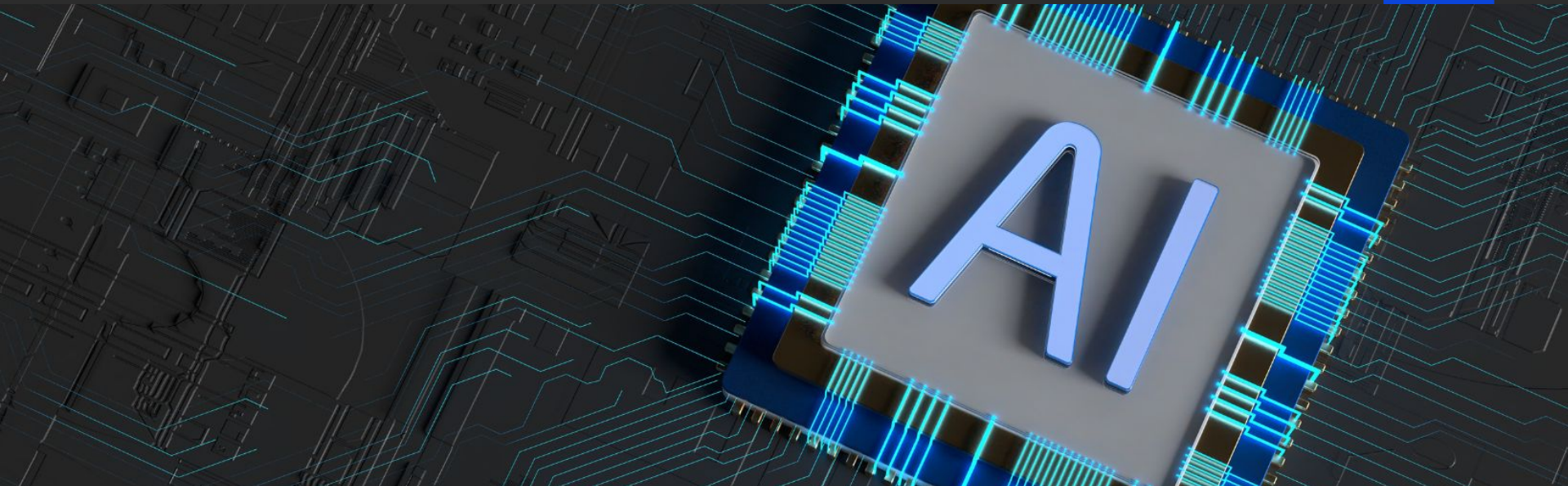

Payer Use Cases

Operational Area	Admin Burden Challenge	Why Traditional Approaches Are Broken	How Agentic AI Fixes It
Claims Management	Claims adjudication is slow, error-prone, and highly manual, leading to high administrative costs and provider dissatisfaction.	Rules-based automation (RPA) lacks adaptability, requiring manual intervention for exceptions; AI models predict fraud but don't act.	AI Agents orchestrate claims workflows end-to-end, dynamically handling exceptions, reducing manual reviews, and optimizing claims routing for faster adjudication.
Utilization Management	Prior authorization delays care, increasing costs and reducing member satisfaction.	Legacy rule-based systems lack real-time decisioning; providers experience friction in obtaining approvals.	AI Agents drive real-time, context-aware approvals, streamlining pre-auth workflows by integrating medical necessity, provider inputs, and claims data dynamically.
Member Engagement	Member outreach lacks personalization, leading to poor engagement and STAR rating impacts.	CRM-driven engagement is static, relying on predefined segmentation; AI-driven insights aren't activated in workflows.	AI Agents continuously adapt outreach strategies, automating intelligent member nudges, recommendations, and proactive interventions based on real-time member context.
Risk Stratification	Identifying and acting on high-risk members is inefficient, delaying interventions.	Predictive models sit in dashboards, requiring manual interpretation and follow-up by care teams.	AI Agents close the loop—triggering automated outreach, assigning care tasks, and escalating interventions based on real-time clinical and behavioral signals.
Payment Integrity	Fraud, waste, and abuse detection requires intensive audits and retrospective corrections.	AI models predict anomalies but don't drive action; rules-based fraud detection misses complex patterns.	AI Agents autonomously trigger audit workflows, refine fraud detection dynamically, and auto-correct payments in real time.
Care Transitions	Poor coordination between care teams leads to readmissions and gaps in care.	Workflow tools don't integrate across care settings; task handoffs are manual and inefficient.	AI Agents facilitate real-time coordination, ensuring seamless transitions across inpatient, outpatient, and post-acute settings, automating next-best actions.

Provider Use Cases

Operational Area	Why It's Broken Today	How Agentic AI Fixes It
Revenue Cycle Management	Claims, billing, and payments are fragmented, causing denials and revenue leakage.	AI Agents automate claims routing, denial prevention, and payment reconciliation in real time.
Patient Engagement	Outreach is inconsistent and generic, leading to low engagement.	AI Agents personalize messaging, automate reminders, and optimize patient interactions across channels.
Marketing & Patient Outreach	Campaigns lack real-time targeting and personalization.	AI Agents dynamically adjust outreach based on patient behavior, preferences, and clinical data.
Clinical Operations	Scheduling, documentation, and resource allocation are inefficient.	AI Agents optimize scheduling, automate documentation, and improve care team coordination.
Care Coordination	Poor handoffs and disconnected workflows lead to delays and readmissions.	AI Agents automate care transitions, flag high-risk patients, and streamline team collaboration.
Workforce Management	Scheduling and resource allocation are manual, leading to inefficiencies.	AI Agents automate staffing adjustments, burnout monitoring, and real-time workforce optimization.
Population Health	Risk stratification insights sit in dashboards instead of driving action.	AI Agents trigger proactive interventions, outreach, and follow-ups for at-risk populations.
Supply Chain & Logistics	Inventory and resource tracking is reactive, causing stockouts and waste.	AI Agents automate inventory predictions, surgical kit prep, and vendor coordination.
Community Engagement & Public Health	Limited coordination weakens outreach to underserved populations.	AI Agents integrate SDoH insights and automate community-based interventions.
Patient Access & Navigation	Appointment scheduling and referrals are complex and manual.	AI Agents streamline scheduling, automate referrals, and assist in care navigation.
Facilities Management	Resource allocation and maintenance scheduling are inefficient.	AI Agents optimize space utilization, predictive maintenance, and energy management.

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Taking the Next Steps

Take the first step in deploying AI Agents at scale

- Identify workflows costing your organization millions in inefficiencies.
- Map AI adoption pathways aligned with your business strategy.
- Get a tailored AI roadmap with ROI-driven opportunities.

Schedule today

Agentic AI Playbook for Healthcare Operational and IT Leaders

Actionable blueprint for adopting Agentic AI effectively.

Download

AI Agent Accelerators

Discover pre-built solutions for claims, care coordination, and engagement.

Explore

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Resources for Every Step of Your Agentic AI Journey:

Introduction to AI Agents, Agentic AI, and Healthcare Use Cases

USE CASE GUIDE

How Agentic AI Can Drive Innovation in Value-Based Care

Strategic insights and actionable uses cases for leveraging Agentic AI to optimize operations and patient engagement.

Download →

USE CASE GUIDE

How to Transform Care Transitions with Multi-Agent Systems

A deep dive into how multi-agent systems streamline healthcare transitions through strategic coordination.

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USE CASE GUIDE

How to Transform Revenue Cycle Management with Agentic AI

See how Agentic AI can reduce administrative burdens, improve cash flow, and empower your RCM teams.

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Resources for Every Step of Your Agentic AI Journey:

An Example in Practice

CLIENT CASE STUDY

Transforming Utilization and Care Management with Agentic AI

See how a leading national healthcare payer partnered with Productive Edge to leverage Agentic AI to tackle operational inefficiencies within utilization management and care management and achieve rapid, measurable ROI.

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Resources for Every Step of Your Agentic AI Journey:

Deploying AI Agents in Your Organization

MARKET RESEARCH REPORT

Navigating the Rapidly Emerging Agentic AI Vendor Solutions Landscape

Actionable insights and use cases to help healthcare leaders evaluate, adopt, and scale Agentic AI to rapidly tackle costs.

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GUIDE

Agentic AI Playbook for Healthcare Operational and IT Leaders

A strategic roadmap to adopting Agentic AI effectively, prioritizing high-impact use cases and turning existing investments into tangible value.

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SOLUTION

AI Agent Accelerators

Explore our portfolio of AI Agent Accelerators built for rapid adoption and quick results in claims, prior authorization, and more.

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FREE WORKSHOP

AI Action Planning Workshop

Identify your biggest cost inefficiencies and get a tailored AI roadmap with ROI-driven opportunities.

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