

# Validated Report by GROK AI

[https://grok.com/share/c2hhcmQtMg%3D%3D\\_01221d4a-1122-411d-9d3c-9b50bbe13806](https://grok.com/share/c2hhcmQtMg%3D%3D_01221d4a-1122-411d-9d3c-9b50bbe13806)

**Executive Summary:** Added to the introduction, summarizing market size, key drivers, players, trends, and recommendations.

**Discrepancies Corrected:** Refined the \$190 billion AI software estimate with specific AI agent figures (USD 7.63–7.92 billion in 2025).

**Gaps Addressed:** Included voice AI, multi-agent systems, ethical considerations, and supply chain use cases.

**Speculative Claims:** Dismissed X posts claiming a \$100 billion market by Q1 2025 as unsourced.

**Limitations:** Paywalled sources (e.g., Research and Markets) were summarized; cost analyses and regulatory details need further exploration.

## AI Agent Industry Report (2025)

### 1. Industry Overview

#### Definition and Scope:

AI agents are software systems that autonomously or semi-autonomously perceive environments, process data, and execute actions to achieve predefined goals. They leverage machine learning (ML), natural language processing (NLP), and decision-making algorithms for adaptive, context-aware interactions. Unlike traditional rule-based systems, modern AI agents use large language models (LLMs) and generative AI, enabling dynamic workflows.

#### Types of AI Agents:

- **Rule-based agents:** Follow predefined scripts for predictable tasks (e.g., basic chatbots).
- **Learning-based agents:** Use ML to adapt and personalize (e.g., GitHub Copilot).
- **Hybrid agents:** Combine rule-based reliability with learning-based flexibility, dominating modern applications.
- **Multi-agent systems:** Collaborative frameworks where multiple agents coordinate (e.g., ServiceNow's AI Agent Orchestrator).

**Validation:** The definition aligns with industry standards, as outlined in [DeepLearning.AI's course on Building Systems with LLMs](#). The rise of **agentic AI**—focused on autonomous decision-making—is a key 2025 trend, per [CB Insights' 2025 AI Trends](#).

**Critique:** The original report omitted multi-agent systems, which are critical for collaborative workflows, as noted in [Forbes' article on AI agents](#).

#### Supporting Articles:

- [DeepLearning.AI: Building Systems with LLMs](#) – Overview of agent architectures.
  - [Forbes: AI Agents – What They Are and Why They Matter \(Oct 2024\)](#) – Discusses agent autonomy and collaboration.
  - [CB Insights: AI Trends 2025](#) – Highlights agentic AI and multi-agent systems.
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## 2. Current Scope, Market Size, and Key Players

### Scope and Adoption:

AI agents are transforming industries:

- **Customer Service:** Automating inquiries (e.g., Salesforce's Agentforce, Intercom).
- **Healthcare:** Supporting diagnostics and patient engagement (e.g., PathAI, Aidoc).
- **Finance:** Enhancing fraud detection and wealth management (e.g., Bank of America's Erica).
- **Software Development:** Streamlining coding (e.g., GitHub Copilot, Cursor).
- **Manufacturing:** Optimizing supply chains (e.g., Siemens' AI-driven predictive maintenance).
- **Retail:** Driving personalization, with 69% of retailers reporting revenue growth ([Salesforce, 2024](#)).

### Market Size:

The original report cited McKinsey's 2024 estimate of the AI software market reaching \$190 billion by 2025. More specific data includes:

- The global AI agents market was valued at USD 5.1–5.43 billion in 2024, projected to reach USD 7.63–7.92 billion in 2025, with a CAGR of 38.5–46.3% through 2030–2035, reaching USD 47.1–236.03 billion ([Research and Markets, 2024](#); [Market Research Future, 2024](#)).
- The **agentic AI market** is expected to hit USD 7.28 billion in 2025, growing at a 41.48% CAGR to USD 41.32 billion by 2030 ([Verified Market Research, 2024](#)).
- North America holds 38–41% market share, while Asia-Pacific grows fastest at a 49.5% CAGR ([Statista, 2024](#)).

### Key Players:

- **Tech Giants:** Google (Gemini, Google Assistant), Microsoft (Azure AI, Copilot), Amazon (AWS, Alexa), IBM (Watson), Salesforce (Agentforce), NVIDIA, Apple (Siri).
- **AI Innovators:** OpenAI (ChatGPT, Operator), Anthropic, Cohere, Mistral, DeepMind.
- **Infrastructure Providers:** LangChain, AutoGPT, AgentOps, Hugging Face, VoiceFlow.
- **Startups and SMEs:** Cognigy, Aisera, Fluid AI, Stability AI, Cognosys.

**Validation:** The listed players are accurate but miss emerging leaders like **Kore.ai** (no-code platforms) and **Cognigy** (voice AI), noted in [Gartner's 2025 AI Hype Cycle](#). The market size

aligns with [Statista's broader AI market projection of USD 243.7 billion for 2025](#). X posts claiming a \$100 billion market by Q1 2025 lack credible sources and are speculative.

**Critique:** The original report underestimates the market's growth and omits niche players. It also lacks specificity on AI agents' market share within the broader AI ecosystem.

#### Supporting Articles:

- [Research and Markets: Global AI Agents Market 2024–2030](#) – Market size and growth projections.
  - [Market Research Future: AI Agents Market \(2024\)](#) – Regional and sector insights.
  - [Statista: AI Market Size Worldwide \(2024\)](#) – Broader AI market context.
  - [Gartner: Hype Cycle for AI 2024](#) – Emerging players and trends.
  - [Salesforce: State of Commerce \(2024\)](#) – Retail adoption data.
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### 3. Future Potential

#### Key Drivers:

- **Efficiency:** Cloud computing and LLMs enable 24/7 operations, with 92% of service teams reporting cost savings ([Zendesk, 2024](#)).
- **Personalization:** Agents leverage data for tailored experiences, with 91% of consumers preferring personalized brands ([Salesforce, 2024](#)).
- **Innovation:** Solving complex problems in healthcare (90% hospital adoption by 2025, [Salesforce, 2024](#)) and finance (38% profitability increase, [McKinsey, 2024](#)).
- **Adaptability:** Continuous learning improves performance, as seen in tools like Microsoft Copilot.

**Validation:** The drivers align with [McKinsey's 2024 AI report](#), which notes 20–40% productivity gains. Personalization trends are supported by [Harvard Business Review's 2024 study on AI engagement](#).

**Critique:** The report overlooks **ethical AI** and **regulatory compliance**, critical for adoption in Europe (GDPR) and healthcare (HIPAA), as highlighted in [Forbes' AI ethics discussion](#).

#### Supporting Articles:

- [McKinsey: The State of AI in 2024](#) – Productivity and innovation data.
  - [Salesforce: State of the Connected Customer \(2024\)](#) – Personalization and healthcare adoption.
  - [Harvard Business Review: How AI Can Change Your Business \(2024\)](#) – Engagement and retention insights.
  - [Forbes: The Rise of AI Agents \(Sep 2024\)](#) – Ethical considerations.
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### 4. Predicted Trends and Opportunities

## Trends:

- **Autonomous Decision-Making:** Agentic AI like OpenAI's Operator (planned for 2025) will handle complex tasks ([CB Insights, 2024](#)).
- **Multi-Agent Collaboration:** Systems like ServiceNow's AI Agent Orchestrator enable coordinated workflows ([ServiceNow, 2024](#)).
- **Edge Deployment:** Real-time processing for IoT and smart cities ([Gartner, 2024](#)).
- **Domain-Specific Agents:** Specialized solutions for legal, medical, and educational sectors ([Forbes, 2024](#)).

## Opportunities:

- **Agent-as-a-Service Platforms:** No-code solutions like Kore.ai ([Kore.ai, 2024](#)).
- **Enterprise Integrations:** Salesforce, SAP, and Microsoft embedding agents ([Salesforce, 2024](#)).
- **No-Code Builders:** Tools like Dialogflow and VoiceFlow for SMBs ([Google Cloud, 2024](#)).
- **Regulatory Compliance:** Agents for auditing in finance and healthcare ([Deloitte, 2024](#)).

**Validation:** Trends align with [CB Insights' 2025 forecast](#). The rise of no-code platforms is supported by [ServiceNow's AI Agent Studio](#). X posts indicate 85% enterprise adoption by 2025, though unsourced.

**Critique:** The report misses **voice AI agents**, projected to reach USD 47.5 billion by 2034 (CAGR 34.8%, [Market Research Future, 2024](#)). It also underplays AI agents addressing labor shortages (55% of companies, [McKinsey, 2024](#)).

## Supporting Articles:

- [CB Insights: AI Trends 2025](#) – Autonomous and domain-specific agents.
- [ServiceNow: AI Agent Orchestrator \(2024\)](#) – Multi-agent systems.
- [Google Cloud: Dialogflow \(2024\)](#) – No-code platforms.
- [Market Research Future: Voice Assistant Market \(2024\)](#) – Voice AI growth.
- [Deloitte: AI Regulations \(2024\)](#) – Compliance opportunities.

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## 5. Use Cases

### Key Applications:

- **Customer Support:** Automating 95% of routine inquiries ([Zendesk, 2024](#)).
- **Healthcare:** Diagnostic support and patient engagement (90% hospital adoption, [Salesforce, 2024](#)).
- **Education:** Personalized tutoring (e.g., Khan Academy's AI tools).
- **Enterprise Productivity:** Automating workflows (e.g., Microsoft 365 Copilot).
- **Software Engineering:** Code generation and debugging (e.g., GitHub Copilot).
- **Supply Chain:** AI-driven logistics (e.g., Amazon's supply chain optimization).

**Validation:** Use cases are accurate, with [Salesforce's 2024 report](#) confirming retail and healthcare adoption. GitHub Copilot's impact is noted in [Stanford Business Review, 2024](#).

**Critique:** The report omits **smart city applications** (e.g., South Korea's traffic management, [Forbes, 2024](#)) and **supply chain optimization**, critical growth areas.

**Supporting Articles:**

- [Zendesk: Customer Service Trends \(2024\)](#) – Customer support automation.
  - [Salesforce: State of the Connected Customer \(2024\)](#) – Healthcare adoption.
  - [Stanford Business Review: How Generative AI is Changing Work \(2024\)](#) – Software engineering impact.
  - [Forbes: AI Agents \(Oct 2024\)](#) – Smart city applications.
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## 6. Five Key Tasks Where LLMs Excel

1. **Knowledge Retrieval and Summarization:**
  - **Implementation:** RAG pipelines ([LangChain Docs, 2024](#)).
  - **Impact:** Reduces research time by 70% ([McKinsey, 2024](#)).
  - **Example:** LexisNexis Protégé for legal research.
2. **Customer Interaction Automation:**
  - **Implementation:** LLMs trained on FAQs (e.g., Salesforce Agentforce).
  - **Impact:** Boosts satisfaction by 20–30% ([Salesforce, 2024](#)).
3. **Text-to-Code Translation:**
  - **Implementation:** GitHub Copilot, Cursor.
  - **Impact:** Accelerates coding by 126% ([Stanford Business Review, 2024](#)).
4. **Sales and Marketing Personalization:**
  - **Implementation:** LLMs with CRM data ([Salesforce, 2024](#)).
  - **Impact:** Increases conversions by 20–30% ([Harvard Business Review, 2024](#)).
5. **Content Creation and Curation:**
  - **Implementation:** Automated blogs and scripts (e.g., Jasper).
  - **Impact:** 10x output ([Forbes, 2024](#)).

**Validation:** Impacts are supported by cited sources. [McKinsey](#) and [Salesforce](#) confirm productivity and satisfaction gains.

**Critique:** The report could include **fraud detection** (38% profitability increase, [McKinsey, 2024](#)) and **predictive maintenance** (40% downtime reduction, [Deloitte, 2024](#)).

**Supporting Articles:**

- [LangChain Docs: RAG Pipelines \(2024\)](#) – Retrieval-augmented generation.
  - [Salesforce: Agentforce Overview \(2024\)](#) – Customer interaction and personalization.
  - [Stanford Business Review: Generative AI \(2024\)](#) – Coding efficiency.
  - [Harvard Business Review: AI and Business \(2024\)](#) – Marketing personalization.
  - [Deloitte: AI in Manufacturing \(2024\)](#) – Predictive maintenance.
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## 7. Supporting Data & Insights

### Key Insights:

- **McKinsey Global Institute:** AI automation boosts productivity by 20–40% ([McKinsey, 2024](#)).
- **Harvard Business Review:** Personalized AI improves engagement ([HBR, 2024](#)).
- **MIT Technology Review:** Medical imaging agents reduce diagnostic time ([MIT Tech Review, 2024](#)).
- **Investment Trends:** Sequoia Capital, a16z, and CB Insights invest in agent orchestration ([CB Insights, 2024](#)).
- **Job Creation:** AI expected to create 97 million jobs by 2025 ([World Economic Forum, 2024](#)).

**Validation:** Sources are reputable and align with industry data. X posts on job creation are consistent with WEF's findings but often lack specificity.

**Critique:** The report omits **ethical concerns** (44% of CEOs cite data privacy issues, [Deloitte, 2024](#)).

### Supporting Articles:

- [McKinsey: The State of AI in 2024](#) – Productivity gains.
  - [MIT Technology Review: AI in Healthcare \(2024\)](#) – Diagnostic improvements.
  - [World Economic Forum: Future of Jobs 2024](#) – Job creation data.
  - [Deloitte: AI Regulations \(2024\)](#) – Ethical concerns.
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## 8. Real-World Agent Comparison: Rule-Based vs. Modern Agents

### Rule-Based Agents:

- **Flow:** Trigger → Keyword matching → Fixed script → Predefined reply.
- **Limitations:** Rigid, lacks context.
- **Example:** Basic FAQ chatbots ([Zendesk, 2024](#)).

### Modern Agents:

- **Flow:** Natural language → NLP + sentiment + intent detection → Contextual decision → Personalized response → Feedback loop → CRM/DB integration.
- **Advantages:** Adaptive, scalable.
- **Example:** Salesforce Agentforce ([Salesforce, 2024](#)).

**Validation:** The comparison reflects industry shifts, as noted in [Forbes' AI agents article](#).

**Critique:** The report could address **cost differences** (rule-based agents are cheaper but less effective) and **scalability challenges** for modern agents in high-demand settings.

### Supporting Articles:

- [Salesforce: Agentforce Overview \(2024\)](#) – Modern agent capabilities.
  - [Forbes: AI Agents \(Oct 2024\)](#) – Agent evolution.
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## 9. Building Your Own AI Agent

### Step-by-Step Guide:

1. **Define Objective:** Identify use case (e.g., support, research).
2. **Choose Tools:** Python (LangChain, Hugging Face), no-code platforms (Dialogflow, VoiceFlow).
3. **Design System:** Input → Processing → Decision → Output.
4. **Collect Data:** Use public datasets (e.g., [Kaggle](#)) or proprietary data.
5. **Build & Train:** Start with pre-trained models, iterate with feedback.
6. **Deploy & Monitor:** Integrate with workflows, monitor performance.

### Recommended Resources:

- [DeepLearning.AI: Building Systems with LLMs](#).
- [LangChain Documentation](#).
- [a16z: AI Canon](#).
- [OpenAI Cookbook](#).

**Validation:** The guide is practical and aligns with [LangChain's documentation](#). No-code tools like Dialogflow are widely adopted ([Google Cloud, 2024](#)).

**Critique:** The report should emphasize **ethical considerations** (e.g., bias mitigation) and **data privacy** for regulated industries ([Deloitte, 2024](#)).

### Supporting Articles:

- [LangChain Documentation](#) – Agent-building tools.
  - [Google Cloud: Dialogflow \(2024\)](#) – No-code platforms.
  - [Deloitte: AI Regulations \(2024\)](#) – Ethical and privacy concerns.
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## 10. Final Thoughts

AI agents are transforming industries, with a market projected to reach USD 47.1–236.03 billion by 2030–2035. Businesses, developers, and policymakers must embrace automation, personalization, and ethical AI to capitalize on this growth.

### Recommendations:

- **Businesses:** Invest in enterprise integrations and domain-specific agents ([Salesforce, 2024](#)).
- **Developers:** Use open-source tools like LangChain and focus on compliance ([LangChain Docs, 2024](#)).



- **Policymakers:** Develop ethical AI frameworks ([Deloitte, 2024](#)).

#### Actionable Next Steps:

- Explore no-code platforms ([Kore.ai](#), [ServiceNow](#)).
- Monitor startups like Cognigy and Aisera ([Gartner, 2024](#)).
- Stay updated via [CB Insights](#) and [a16z](#).

#### Supporting Articles:

- [Salesforce: Agentforce Overview \(2024\)](#) – Enterprise integrations.
- [Gartner: AI Hype Cycle 2024](#) – Emerging startups.
- [CB Insights: AI Trends 2025](#) – Market trends.

## MASTER PROMPT TO GENERATE THE REPORT

"Generate a detailed and up-to-date report on the current and future scope of the AI agent industry. The report should be structured with: (1) an industry overview, (2) current scope, market size, and key players, (3) future potential, (4) predicted trends and opportunities, (5) use cases, (6) five key tasks where LLMs excel with their implementation and impact, and (7) supporting data from authoritative sources including market research blogs, analyst reports, and videos. Integrate insights from McKinsey, Gartner, CB Insights, Sequoia Capital, Andreessen Horowitz (a16z), and other AI-focused publications. Use RAG to pull in information from various sources and synthesize findings into each section clearly. Present the report in a professional format, ready for business or investor use."

### AI Agent Industry Report: Current & Future Scope (2025 Edition)

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#### 1. Industry Overview

Tool used - Perplexity

<https://www.perplexity.ai/search/give-me-a-2025-overview-of-the-H8Fi.LzzS.GKXwSsQgU4MA>

AI agents are autonomous software systems that can perceive environments, reason, plan, and act on tasks with or without continuous human input. These agents, often powered by large language models (LLMs) such as GPT-4, Claude, and Gemini, are being deployed in diverse areas like customer support, software development, marketing, and healthcare. As digital workflows become more complex, AI agents are emerging as critical building blocks of intelligent automation and enterprise transformation.

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#### 2. Current Scope, Market Size & Key Players

Tool used - Perplexity



<https://www.perplexity.ai/search/what-is-the-current-global-mar-aT7tpd11RUOihOsm24nSYA?0=r>

#### Market Size:

- Gartner estimates the AI agent market to be worth \$4–6 billion in 2025, with a projected CAGR of ~25% through 2030.
- CB Insights and Sequoia Capital report over \$1 billion in cumulative funding for AI agent startups in the past two years.

#### Key Players:

- **OpenAI:** ChatGPT agents with browsing, code interpretation, and tool use.
  - **Anthropic:** Claude 3 models offer agentic features such as memory and task management.
  - **Google DeepMind:** Gemini platform enabling agent-like task orchestration.
  - **Microsoft:** Integrated AI agents into Office (Copilot) and Azure cloud.
  - **Emerging Startups:** Adept (developer agents), Inflection.ai (Pi assistant), Rewind.ai (memory agents).
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### 3. Future Potential

Chatgpt

According to McKinsey and Gartner:

- By 2030, 70% of digital businesses are expected to use AI agents for customer service, internal support, and analytics.
  - LLM agents could unlock hundreds of billions in productivity savings in knowledge work.
  - New agent ecosystems (app-like marketplaces) are forming, creating business opportunities for specialized agent providers.
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### 4. Predicted Trends & Opportunities

1. **Agent-Orchestration Platforms:** Tools for building, coordinating, and deploying agent workflows without coding.
  2. **Verticalized Agents:** Domain-specific agents for finance, legal, healthcare, etc.
  3. **Agent Marketplaces:** Ecosystems where users can install or subscribe to agents.
  4. **AI Governance & Regulation:** Emphasis on transparency, explainability, and risk mitigation.
  5. **Human-Agent Collaboration:** Hybrid systems for decision support, task sharing, and feedback loops.
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## 5. Use Cases

Domain	Use Case	Impact
Customer Support	Auto-triage & resolution	Cost reduction, improved satisfaction
Sales & Marketing	Personalized outreach agents	Higher conversion rates
Software Development	AI code assistants	Faster delivery, better quality
Data Analysis	Automated reports and summaries	Real-time insights, reduced workload
Personal Productivity	AI scheduling and email handling	Time-saving, less context switching

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## 6. Five Key Tasks Where LLM Agents Excel

- Chaining Multi-Step Reasoning**  
*AutoGPT-style agents decompose complex tasks into sub-tasks, improving workflow automation.*
  - Live Data Retrieval**  
*Agents equipped with browsing or API capabilities access real-time data for decisions or reporting.*
  - Coding Assistance**  
*AI agents write, debug, and review code; useful for developers and IT teams.*
  - Contextual Dialogue Management**  
*Maintain long-term conversations across sessions—key in customer service and healthcare.*
  - Document Understanding**  
*Scan, extract, and summarize legal or financial documents; reducing turnaround time and errors.*
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## 7. Supporting Data & Insights

- **Gartner (2025):** Predicts agent platform maturity by 2027; AI agent hype is peaking.
- **McKinsey:** 60% of executives are investing in agent technologies for productivity gains.
- **CB Insights:** AI agent startups raised ~\$500 million in Q1 2025 alone.
- **a16z:** Emphasizes rise of low-code orchestration and agent marketplaces.
- **Sequoia Capital:** Agents dominate AI startup investments in 2024–25.
- **Videos/Webinars:** a16z webinar "Agents, Bots & RPA" (May 2025) demonstrated real-world use cases in live enterprise environments.

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## Strategic Takeaways

- **AI agents are transitioning from innovation to implementation.**
  - **Early adoption** in customer support, internal knowledge management, and code generation is delivering real ROI.
  - **Opportunity for investors** lies in infrastructure (platforms), vertical solutions, and governance tools.
  - **Governance and ethical safeguards** will be central to scale deployments.
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## Final Thoughts

The AI agent industry is at an inflection point. With robust funding, proven use cases, and maturing technologies, agents are poised to become a cornerstone of digital transformation over the next five years. Businesses and investors should prepare to engage now—before the next wave of automation becomes mainstream.

<https://chatgpt.com/canvas/shared/684816c3bbc88191aede70b38d6d7bdf>

# AI Agents Explained: The Technology That's Changing Everything (2025 Guide) & How to Build Your Own

<https://www.youtube.com/watch?v=BiN-NTTQ7tc&t=620s>

### Notegpt youtube video summariser

00:00:00      today we're diving into the fascinating world of AI agents which is a technology that's not only reshaping Industries but also impacting our daily lives and jobs in the next few minutes I'm going to explain to you what AI agents are their impact compare modern agents with earlier AI systems and outline a research back approach to building your own questions that I had and I really wanted to fully understand I mean even as someone who is very technical and has been in AI for a while now consults

00:00:30      companies on AI builds videos on AI goes to school getting my postgrad in AI I still couldn't I had some issues challenges let's say wrapping my head around what are AI agents and why are they such a big deal and that's what we're going to cover today so when you leave this video you can easily explain what they are and how to build your [Music] own so what exactly is an AI agent at its core an AI agent is a software system designed to perceive its environment process information and take actions to achieve specific goals

00:01:05        imagine it as an intelligent assistant that works independently handling tasks without needing constant human oversight okay but it brings up the question then why what makes AI agents so exciting today well it's their ability to learn adapt and integrate seamlessly with other Technologies which is really transforming the way we work live and interact with the world now there are two broad categories that you really need to know about one is rule-based based agents these follow predetermined rules and are excellent for simple

00:01:34        repetitive tasks for instance many customer support chatbots operate on predefined scripts to handle FAQs their responses are fixed making them reliable for routine queries but they can only handle what's being explicitly programmed to them and this is where learning based AI Agents come in these leverage machine learning to adapt over time they improve by analyzing data from past interactions this is similar to the recommendation engine on services such as Netflix and Spotify instead of sticking to a fixed script they learn to

00:02:05        recognize patterns and nuances allowing them to deliver more personalized and context aware responses now let's combine though the best of both world and this is exactly what many modern AI agents do today that I found really interesting they use a hybrid approach so they use rule-based for predictability for tasks that require consistency where rules are well defined the rule-based component can ensure reliable operation and then there's machine learning for adaptability the learning based component can handle

00:02:33        things such as variability adapts to new information and personalized interactions but it brings up the question why are they such a big deal in 2025 everywhere you look you see them AI agents have reached a new level of sophistication and integration this year Well it feels like this year anyways because it's everywhere you look in the news one is unprecedented efficiency thanks to advancements in machine learning and increased computational power I mean especially through cloud computing AI agents can now handle complex

00:03:03        datadriven tasks Around the Clock boosting productivity and reducing human error another reason they're so popular right now is enhanced personalization I mean we have vast amounts of data available and improved algorithms so AI agents can offer personalized experiences whether it's tailoring recommendations optimizing business processes or enhancing customer service the ability to learn from Individual interactions is revolutionizing how business business and services operate and this brings us to our third one

00:03:33        which is transformative Innovation Industries like healthc care Finance retail and even Transportation are leveraging AI agents to solve problems that were once honestly considered intractable couldn't be solved from early disease detection to real-time fraud prevention these agents are driving Innovation delivering Real Results and the fourth one is adaptability in what feels like a really quickly changing World in a rapidly evolving Global land apape the ability of AI agents to adapt to new data and

00:04:03        continuously improve makes them invaluable they're not just tools for today they are platforms that grow smarter over time which is something really important to know

and this really helps us meet challenges we might not even realize exist yet so when you think of AI agents think about them for automating routine tasks but also which is very important they are Central to transforming and enhancing our daily lives they embody the convergence of robust rule-based systems we spoke about to more Dynamic and machine learning

00:04:31 way Progress Way progress that didn't really make sense but today's AI agents can often combine both approaches and that is key rule-based for Logic for predictable tasks and machine learning for adapting to new complex scenarios but okay great now you understand what these agents are but why do they matter so much why is everywhere you look people speaking about it that's what I really wanted to understand well a McKenzie Global Institute report highlighted that AI driven automation could boost productivity from 20 % to

00:05:00 40% in many Industries AI agents work 24/7 they handle tasks such as scheduling data analysis and customer inquiries freeing up human resources for more strategic roles another reason is enhanced personalization kind of spoke about this earlier and Harvard Business Review really really did a good study on this they showed that personalized experiences powered by AI can dramatically improve customer engagement this is a really good example AI systems that product that recommend products based on your previous Behavior can

00:05:32 significantly increase customer satisfaction and drive sales and I'm sure you've been there before another way is innovative problem solving let's talk about Healthcare AI agents are now analyzing medical images and assisting with early diagnoses MIT tech review recently showcased AI tools that can help detect conditions like cancer at early stages supporting Physicians with more accurate data I hope when you're listening to some of these findings anyways they confirm that these AI agents aren't just these futuristic

00:06:00 Concepts they're here and they're transforming tools driving efficiency personalization and Innovation so okay here is another thing I wanted to understand is how AI agents work from basic to Advanced so let's walk through this is what really got nailed at home for me let's walk through a typical flow of an AI agent in action let's go through a basic flow so kind of old school rule-based approach if you will and then let's go through an AI agent approach today so the basic flow starts with a trigger or initiation a customer

00:06:31 visits a website and clicks on the chat icon then we have input processing the chat bot receives a greeting and looks for keywords like support or billing next up is decision-making based on the predefined rules the chatbot identifies the issue for example selects a scripted response and then we have response generation the chatbot then replies and says something like I see you're having billing issues can you provide your account the conversation follows a fixed path if the customer deviates the system

00:06:59 might struggle or escalate to a human agent and that is where Advanced AI Agents come in where I think they're so fascinating anyways and this is a small example remember we're just talking about customer support but when you think of this on a larger scale helping you code helping make decisions it's pretty wild so first we start with trigger

initiation again a customer starts the conversation via the chat interface then we have input and processing so the AI agent then uses Advanced natural language processing to

00:07:26 understand not just key words but also context sentiment and intent it can detect if the customer is frustrated or confused which is pretty cool then we have Dynamic decision- making rather than following a fixed script which we just spoke about the rule-based uh agent would follow this agent dynamically decides the next steps it may greet the customer ask clarifying questions and then analyze historical interaction data to predict the issue accurately lastly we have response generation the AI agent

00:07:56 then generates a personalized response that is unique or personalized such as I noticed you have a billing issue it appears you might have been charged twice is this correct so this response is based on learned patterns and user history then we have learning and adaptation after each interaction the system isn't done there it collects feedback either via direct ratings or by measuring resolution success and uses this data to redefine or refine its future responses and then we have one more we're almost there system

00:08:25 integration the advanced agent might also integrate with CRM systems or databases to retrieve detailed customer histories enabling even more tailored interactions so you can see there's a lot more steps in this one to make it really personalized modern AI agents enhance the rule-based Flow by incorporating context continuous learning and realtime integration which no surprise results in a more effective and personalized user experience okay but then brings up one more question which is how does this differ from past

00:08:54 AI systems like what makes it so special I need to I need to really understand that now let's see what exactly makes today's AI agent so revolutionary one is static versus dynamic system so in the past static rulebase systems as we spoke about early AI was predominantly rule-based with fixed scripts covered this throughout the video so it should be hammered in pretty good now these systems could only handle inputs that match predefined patterns and couldn't adapt without manual updates today we

00:09:21 have Dynamic adaptive systems so modern agents combine rule-based logic with machine learning as I mentioned earlier they use NLP natural language processing for contextual understanding and adapt their responses over time by learning new from new data and this approach allows them to handle a broader range of scenarios and continue to improve number two is limited versus personalized interactions so in the past obviously it was very limited traditional systems offered more of a one-size fits-all

00:09:51 response with no regard for individuals and their data they couldn't store user history or provide personalized experiences today obviously are very personalized current AI agents tailor interactions based on user data and past behavior and this personalization means that every user can receive a more relevant and engaging experience which is similar to the personalization recommendations that we kind of spoke about earlier on whether it's through chatbots or systems like Netflix or even Spotify all right let's talk about

00:10:21 building your own AI agent this is something that whether you're technical or not you should do and just as a side note I'm going to share with you kind of a step-by-step

approach but after after this I will share with you some courses that can help guide you so if you're not super technical you can still follow along first is you need to Define your objective figure out the problem decide what problem you want your AI agent to solve for example do you want it to answer customer questions or recommended

00:10:44 products or maybe you want it to code certain parts of your code for you next you need to choose the right tools so programming Basics 101 let's get into it many developers use obviously python it has so many tools modules libraries that can be associated with it that's my favorite language there are special libraries too such as hugging faces Transformers that help the AI understand and work with the human language there's also some no code options so if you're not comfortable with coding you can use

00:11:11 user-friendly platforms like Google's dialogue flow IBM's Watson assistant to build your agent which is pretty fun too leave in the comments if you want us to build an AI agent number three is designing your own system so you have to break it down think of it as your project and it has different parts to it so input how the AI receives information like text or speech processing how the AI makes sense of that information and then decision- making how it decides what to do then the last step of course

00:11:39 is output how does it respond you also need to plan your data flow plan how you will collect and prepare the information the AI needs clean and organized data works better obviously with the AI which brings us to step four collect and prepare data and one just a little tip if you're not super technical or nearer to the space look for data sets in places like k uh that's where I always find my data stats and there's so many options there that can help match your objective then step five is build and train your model

00:12:07 so you have to pick the right method choose an approach or algorithm that fits to what you're trying to do and there are simple methods for basic tasks and more complex ones for more advanced tasks okay there are a ton more steps in the nitty-gritty of it if you will I'm going to share with you some courses up here that I really love uh for building your AI agent but also understanding how this works I mean I hope when you leave this video you feel like you really are prepared to explain what ai ai agents

00:12:34 are and even how to build your own even if you're a non-technical person I think it's important to understand the steps taken to building one but these courses I mentioned are really great especially for learning more and building your own and once again I think even if you're not looking to become an AI engineer just learning how to build some of these things really offers a great way to feel comfortable with talking about these topics and and understand what they're capable of so let me know in the

00:13:00 comments if for the first AI agent we build together should it be one that has coding involved with python should it be a no code AI agent we build leave in the comments and I'll I'll I'll do whatever video uh people vote on the most I just want to leave you with some closing thoughts so AI as we know is transforming our daily lives and AI agents are a really big part of that next step and what it means to have these as we mentioned at the beginning of this video These assistance that can really help us with our daily lives



00:13:29 lives with our coding our emails our workflows and while they're still relatively new as far as what's available for us to and users to use we're going to see that explode this year so having an understanding of them are super important I hope this video has provided you both with inspiration maybe to build your own and maybe if you're interested in growing growing your career in AI you can do so or if you're on the business side just understanding what it is make sure to subscribe for more videos that are

00:13:56 backed by research real world applications covering topics such as AI coding and future Tech in general I think it's the only way to stay up to date and prepared is by taking a few minutes listening to some of these videos and understanding it more and just staying curious make sure to hit that Subs I just said that okay no more coffee for me today thank you all for watching I'll see you soon [Music]

## What Is Agentic AI, and How Will It Change Work?

<https://hbr.org/2024/12/what-is-agentic-ai-and-how-will-it-change-work>

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