

Reimagining SDLC with GenAI

Design Patterns for Next Generation Software Development

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Agenda

Reimagining SDLC with GenAI

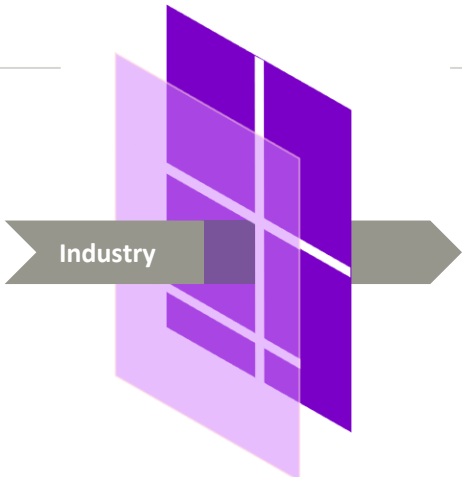
- 01** Introduction to Accenture IndustryX
- 02** State of Foundation Models for SDLC
- 03** Key Market Dynamics shaping the AI SWE market
- 04** Why GenAI for SDLC ?
- 05** What are Agents ? Design patterns for GenAI Apps.
- 06** GenAI design patterns for SDLC
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Accenture

Accenture at-a-glance

 <p>\$64.9 billion In annual revenues in FY24</p>	 <p>799,000 Employees 10,000+ Accenture leaders</p>
 <p>40+ Industries served</p>	 <p>150+ Powerful alliance network of market leaders and innovators</p>
 <p>200+</p>	Locations with 50+ delivery centers across five continents and 100+ innovation locations offering services in 39 languages
 <p>9,000+ Clients</p>	<ul style="list-style-type: none"> Partnered with top 100 Clients for 10+ years 310 Diamond clients

End-to-end service portfolio

Markets		Services
<ul style="list-style-type: none"> Europe Growth markets* North America 		<ul style="list-style-type: none"> ➤ Strategy & Consulting ➤ Industry X • Song • Technology • Operations
<p>Industry, functional, applied intelligence, and innovation across all dimensions</p>		

*Growth Markets-
SEA, ANZ, India, Africa,
Middle East, Greater
China, Japan, LATAM

Responsible business recognition

- Ethisphere World's Most Ethical Companies
- Dow Jones Sustainability North America Index

Global quality accreditations

- ITIL/ISO® 20000, ISO® 22301, ISO® 27001, ISO 14001, OHSAS 18001
- BS 25999, CMMI®, SSAE16/ISAE3402

Global corporate recognition

- No. 10** on Great Place to Work® World's Best Workplaces™
- No. 20** on BrandZ Most Valuable Global Brands
- No. 33** on FORTUNE World's Most Admired Companies
- No. 211** on FORTUNE Global 500

Annual revenues

- FY24 – US\$64.9B
- FY23 – US\$64.1B
- FY22 – US\$61.6B
- FY21 – US\$50.5B



**at IndustryX,
we use the power of data and digital
to help our clients reimagine
the products they make
and how they make them ...**

... so they can achieve greater productivity, resilience, sustainability and drive growth.

SUPPORTED BY A SUITE OF OFFERINGS



Digital Engineering and R&D

Digitizing the R&D process to help clients lower their development costs and get new products to market faster.-- to bring **breakthrough product development**



Smart Connected Product Design & Development

Creating smart-connected products that provide vital digital intelligence and drive organizational change.-- to bring **hyper-personalized experiences**



Capital Projects

Managing and digitizing large infrastructure projects to deliver assets of the future while bringing them in on time and budget.-- to bring **efficient asset intensive, capital portfolios**



Production & Operations

Reinventing a step change in production asset and operational performance -- to bring **unprecedented production optimization and agility**



Product Platform Engineering & Modernization

Bringing new ideas, products and services to market with increased efficiencies and speed.-- to bring **value to outcome, at speed**



Product-as-a-Service Enablement

Enhancing clients' revenue streams by helping them adapt to as-a-service businesses -- to bring **proactive, connected product and platform behavior and performance**



Intelligent Asset Management

Increasing asset reliability through self-optimizing operations -- to bring **improved profitability and reduced risk**

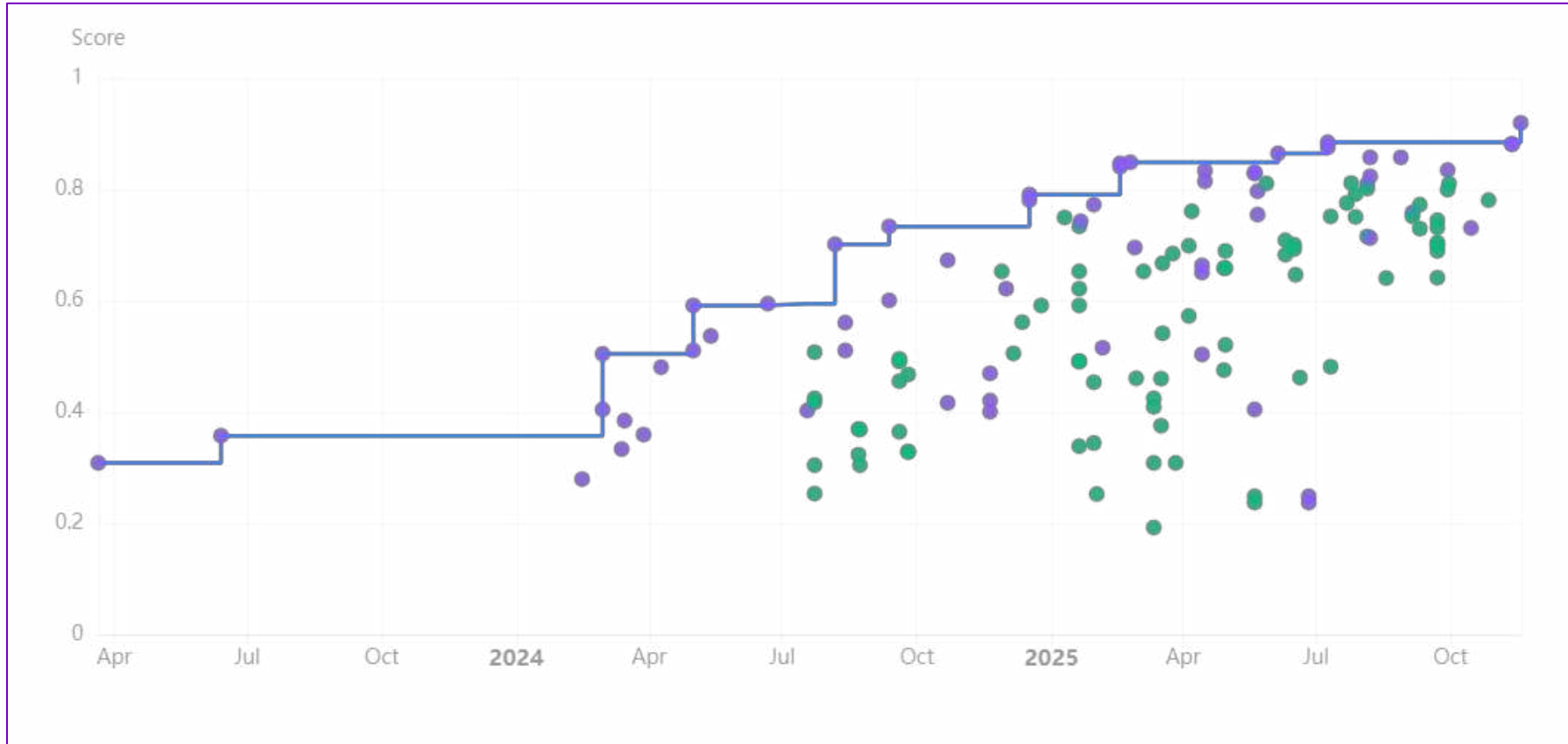
Digital Industrial Workforce

Autonomous Robotic Systems

Sustainability | Cloud | Security | Applied Intelligence | Innovation

State of Foundation Models – benchmarks that matter for SDLC General Reasoning Capability : GPQA

A challenging dataset of 448 multiple-choice questions written by domain experts in biology, physics, and chemistry. Questions are Google-proof and extremely difficult, with PhD experts reaching 65% accuracy.

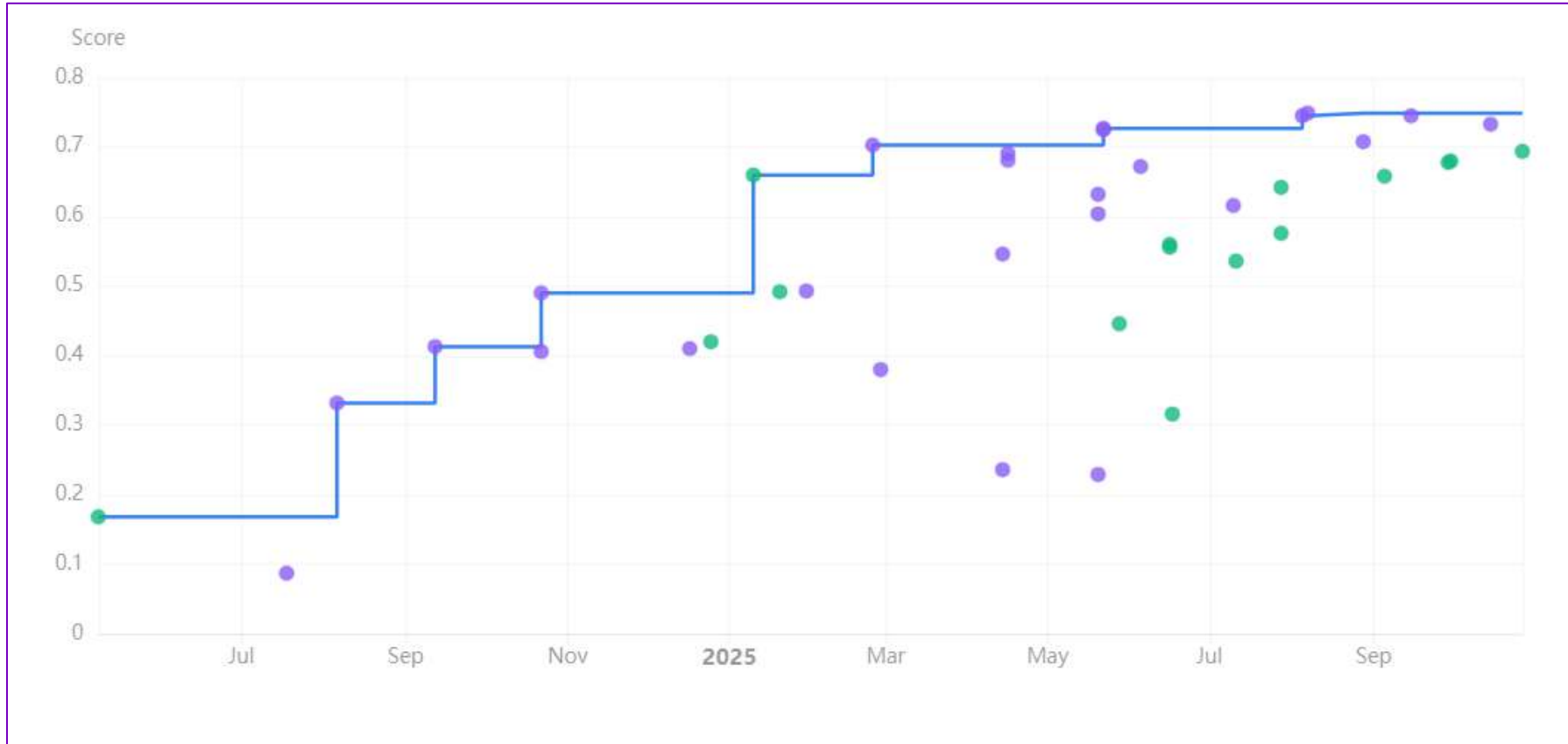


RANK	MODEL	SCORE ↓
1	Gemini 3 Pro NEW Google	0.919
2	Grok-4 Heavy xAI	0.884
3	GPT-5.1 Thinking NEW OpenAI	0.881
3	GPT-5.1 Instant NEW OpenAI	0.881
5	Grok-4 xAI	0.875
6	Gemini 2.5 Pro Preview 06-05 Google	0.864
7	Grok 4 Fast xAI	0.857
7	GPT-5 OpenAI	0.857
9	Claude 3.7 Sonnet Anthropic	0.848
10	Grok-3 xAI	0.846

<https://llm-stats.com/benchmarks/gpqa>

State of Foundation Models – benchmarks that matter for SDLC Software Engineering Capability : SWE-Bench Verified

SWE-Bench Verified is a verified subset of 500 software engineering problems from real GitHub issues, validated by human annotators for evaluating language models' ability to resolve real-world coding issues by generating patches for Python codebases.

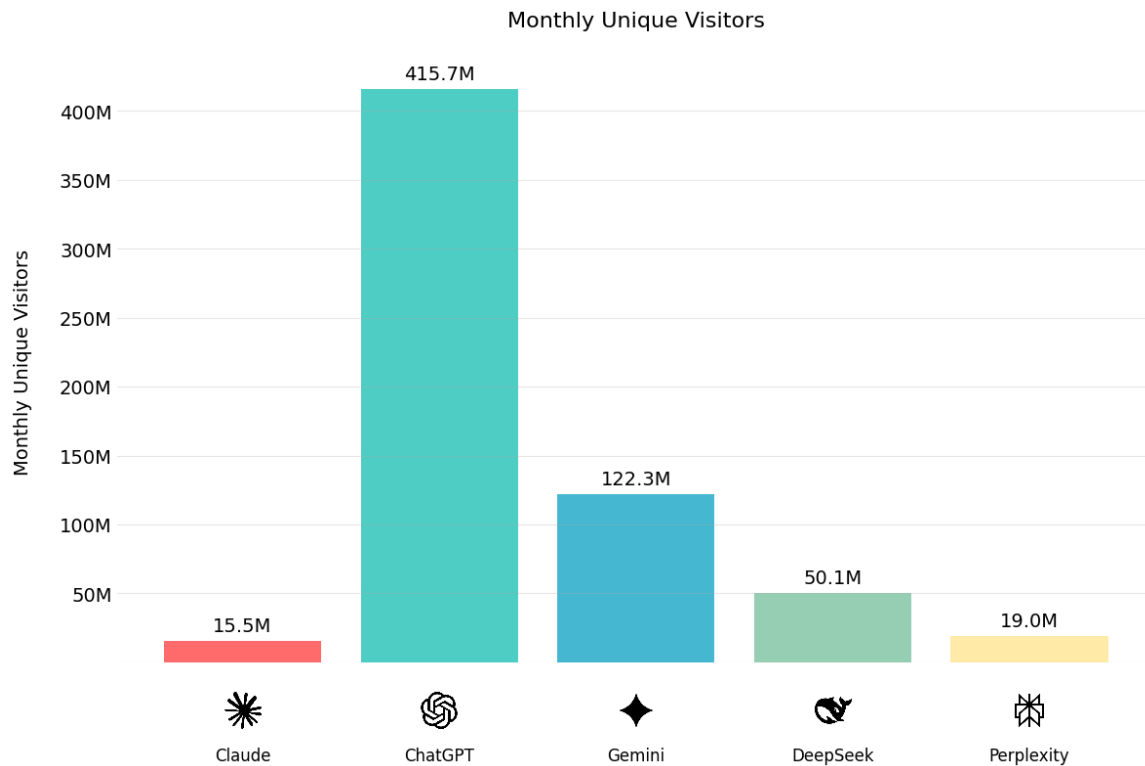


RANK	MODEL	SCORE ↓
1	GPT-5.1 Instant NEW OpenAI	0.763
1	GPT-5.1 Thinking NEW OpenAI	0.763
3	Gemini 3 Pro NEW Google	0.762
4	GPT-5 OpenAI	0.749
5	GPT-5 Codex OpenAI	0.745
5	Claude Opus 4.1 Anthropic	0.745
7	Claude Haiku 4.5 Anthropic	0.733
8	Claude Sonnet 4 Anthropic	0.727
9	Claude Opus 4 Anthropic	0.725
10	Grok Code Fast 1 xAI	0.708

<https://llm-stats.com/benchmarks/swe-bench-verified>

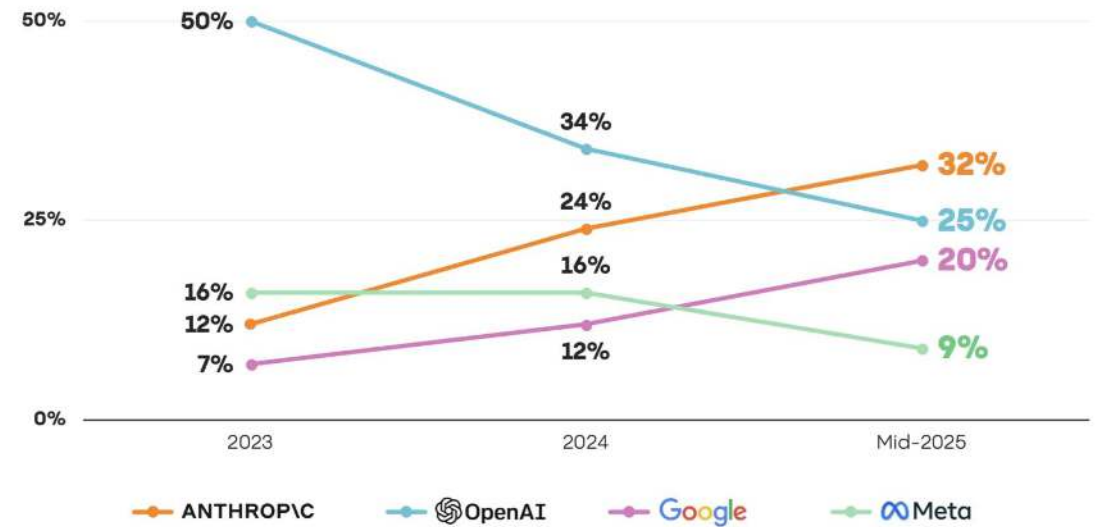
Key Market Dynamics shaping the AI SWE market

OpenAI is the clear market leader in GenAI adoption.



<https://gptrends.io/blog/mid-2025-ai-chatbot-scorecard/>

Anthropic Claude leads the Enterprise LLM market

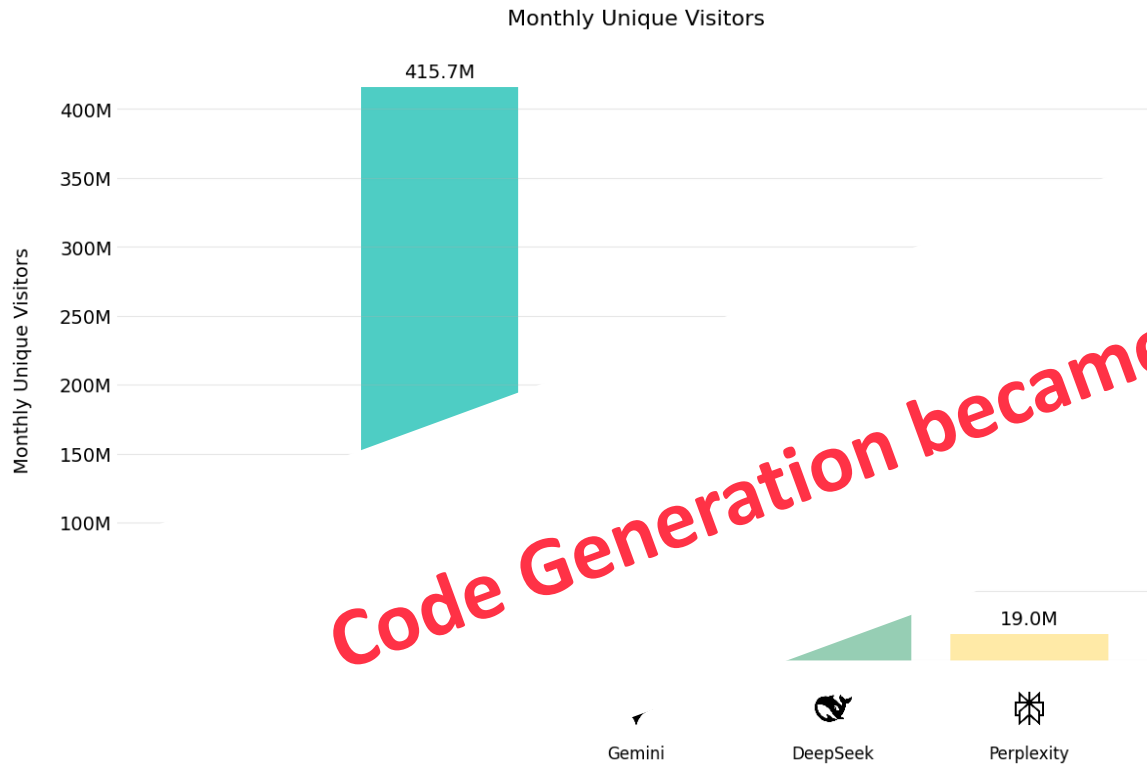


<https://menlovc.com/perspective/2025-mid-year-llm-market-update/>

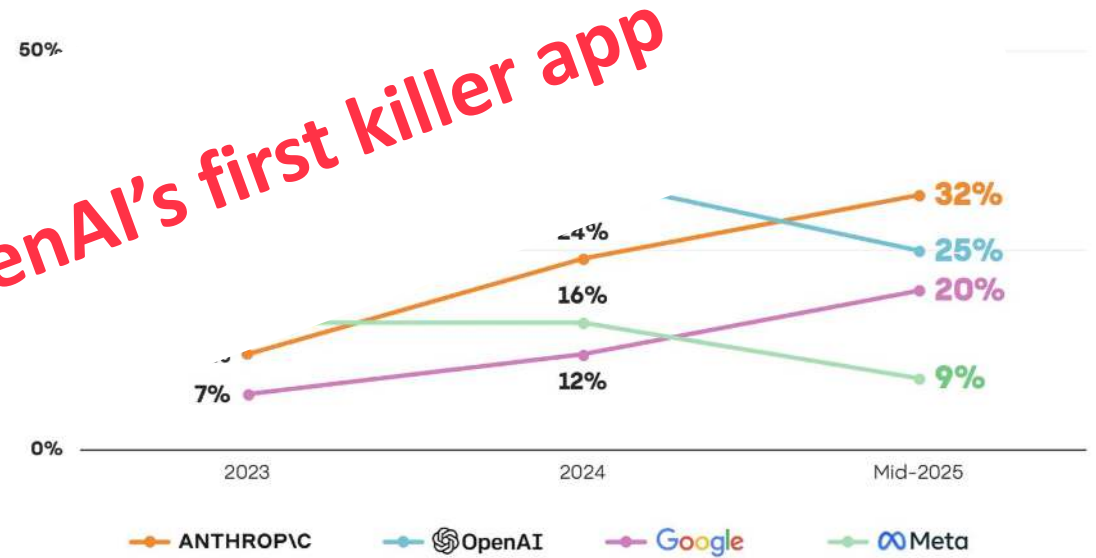
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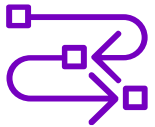
Anthropic Claude leads the Enterprise AI market.



Code Generation became GenAI's first killer app



Why GenAI for SDLC ?



Key Use cases

Code Generation & Modernization

AI writes, transforms, optimizes, and documents code across languages.

Enhanced Code Quality & Reliability

Continuously review, test, and auto-fix code to deliver cleaner, safer, and more stable software.

Autonomous SDLC

Automate builds, releases, incidents, and documentation across the SDLC.

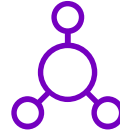


Business Value

Massive Industry Spend ~29–30M software engineers globally ; \$2–3T total developer labor market.

Exploding Tooling Opportunity Software engineering tooling TAM is \$100–120B, with AI enablement accounting for <10% today.

Agentic AI Market Growth Agentic AI projected to grow from \$7.29B (2025) to \$88.35B (2032) (CAGR ~45%)



Tech. & Eco-system

Data Play

Foundation models trained on tens to hundreds of billions of open-source code tokens far larger than any enterprise dataset.

Rich Open & Closed Model Ecosystem

Rapid growth of models optimized specifically for code generation (incl. on-prem deployment).

Rise of Agentic Frameworks

New frameworks enable autonomous, multi-agent workflows for accelerated software development.



User Adoption

Lowest Barrier in the Enterprise

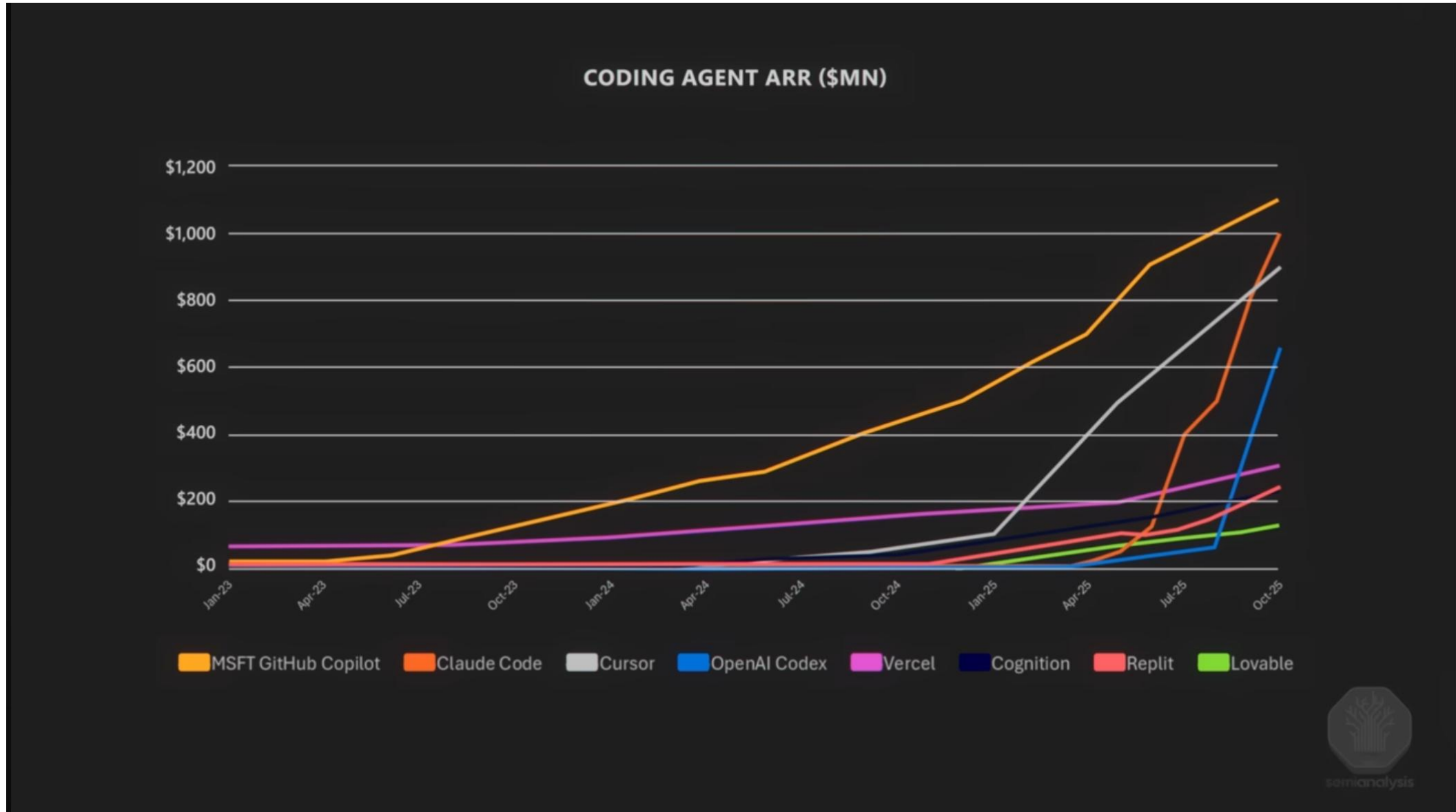
Developers love automation; adoption is frictionless and immediate.

Cultural Fit in Engineering Teams

Engineering already embraces “new tech” , significantly lower organizational resistance.

AI-enabled IDEs are Mainstream Explosive growth in AI copilots, AI coding IDEs, and automated SWE platforms accelerates adoption.

Explosion in growth of Agentic coding platforms

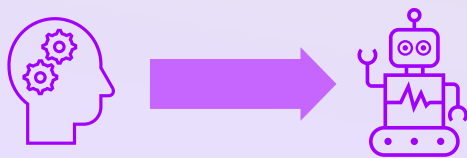


AI Agents are the next logical progression for AI landscape



Autonomous Agents are AI programs that perceive their environment, understand intention, and take actions to achieve its goals.

Language is the new API, amplified by LLM's reasoning capability.



Moving from thought to action



Gen AI



Agentic

Large language models

Autonomous Agents

Generate new content from learned patterns

Plan and executes actions to achieve specific long-term goal

Respond to user prompts without an intrinsic goal

Minimal human intervention needed, self-initiate actions, and adapt strategies

Produces usually static outputs like insights or reports

Evolving results that change based on feedback loops and goal requirements

Interactions limited to content creation or Q&A

Integrate with external tools, APIs or devices to act in real world or virtual environments

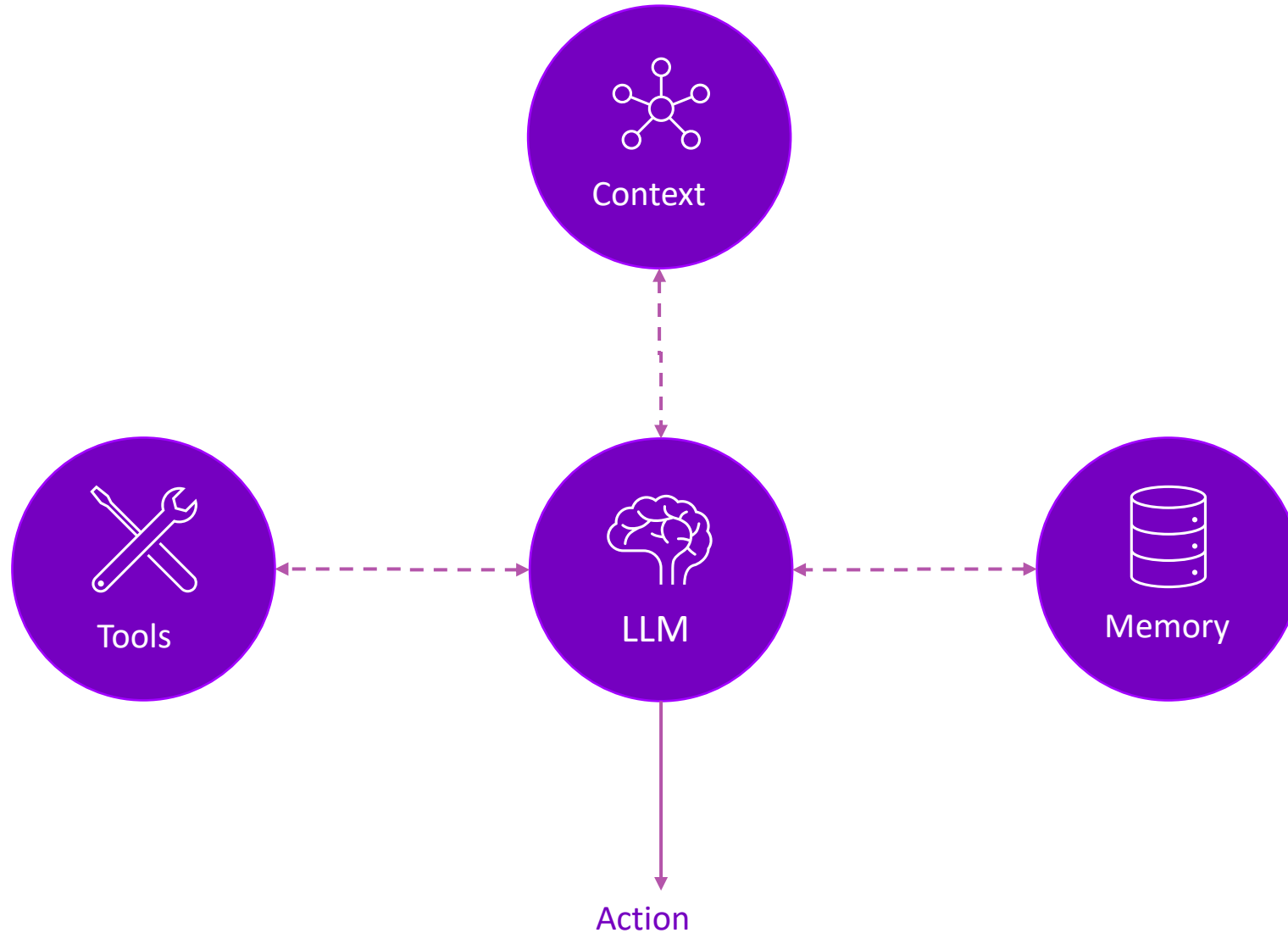
Reinventing tasks

Reinventing entire processes or functions

AI agents provide a powerful new way to scale operations - an army of agents that can work 24/7, augmenting human teams
Embracing Agentic AI can multiply the ROI - turning AI from a purely analytical tool into an operational actor

What is an Agent ?

Below are the core atomic elements of an agent and how they interact; all other capabilities are emergent from these foundations.



Design patterns for Gen AI Apps

1.

Reflection

Self-critique, iterative improvement, verification loops. Agents critique their own reasoning and outputs, identify errors, and refine results through iterative self-review loops.

2.

Tool Use

Agents autonomously execute code, run tests, scan quality, and orchestrate builds and deployments using real development and DevOps tools.

3.

Memory

Agents retain project context across sessions, code conventions, past fixes, design decisions, and ongoing tasks to ensure consistency and long-horizon reasoning.

4.

Retrieval (RAG)

Grounding responses in source-of-truth: codebase embeddings, API specs, architecture docs, issue logs.

5.

Planning

Agents break down large software tasks into executable steps, subgoals, and tool sequences.

6.

Multi-agent

Different agent roles (Planner, Coder, Reviewer, Tester, Security, Release Engineer) coordinate in parallel.

7.

Code Graph

A structural and semantic map of the entire codebase functions, classes, modules, data flows, and dependencies. Agents use this graph to understand how code connects and behaves.

8.

HITL

Humna-in-the-Lop (HITL) is human oversight checkpoints embedded across the agent workflow to review, approve, or override actions when stakes, uncertainty, or risk are high. Not intrinsic to the agent but a must in solution dev.

GenAI design patterns for SDLC

<p>1.</p> <h2>Planning</h2> <p>Define the project vision, scope, goals, timelines and resource needs. Gather initial high-level requirements from stakeholders, customers, and market research.</p> <p><i>Retrieval (RAG), Memory, Reflection, HITL</i></p>	<p>2.</p> <h2>Analysis</h2> <p>Evaluate technical, financial, and operational feasibility. Conduct detailed requirements analysis, risk assessment, and confirm constraints.</p> <p><i>Retrieval (RAG), Tool Use, Reflection, Memory, HITL</i></p>	<p>3.</p> <h2>System Design</h2> <p>Translate requirements into a architectural and design blueprint. Define system architecture, data design, UI/UX design, integrations, and technology choices.</p> <p><i>Retrieval (RAG), Tool Use, Reflection, Memory, Code Graph, HITL</i></p>	<p>4.</p> <h2>Implementation</h2> <p>Develop the application based on the approved design. Write, integrate, and review code using best practices, standards, coding principles.</p> <p><i>Retrieval (RAG), Tool Use, Reflection, Memory, Code Graph, Multi-agent, Agent Planning, HITL</i></p>
<p>5.</p> <h2>Testing</h2> <p>Validate the software through unit, integration, system, performance, and user acceptance testing. Resolve defects to ensure quality, reliability, and usability.</p> <p><i>Retrieval (RAG), Tool Use, Reflection, Memory, Code Graph, Multi-agent, Agent Planning, HITL</i></p>	<p>6.</p> <h2>Deployment</h2> <p>Release the software to the intended environment beta, pilot, or full production rollout. Ensure smooth adoption via release management and deployment strategies.</p> <p><i>Retrieval (RAG), Tool Use, Reflection, Memory, Code Graph, Multi-agent, Agent Planning, HITL</i></p>	<p>7.</p> <h2>Maintenance</h2> <p>Provide ongoing support, bug fixes, optimizations, compliance updates, and new feature enhancements. Ensure long-term reliability, security, and relevance of the software.</p> <p><i>Retrieval (RAG), Tool Use, Reflection, Memory, Code Graph, HITL</i></p>	

Key Takeaways

1



Human-in-the-Loop Is Non-Negotiable

Safety and oversight are essential for high-stakes autonomy.

2



Build Your Workflows, Build Your Evals, Iterate Relentlessly

Agentic systems succeed through engineering rigor, not vibes. AI slop can make you less productive.

3



Don't Forget FinSecOps

Model security, cost control, provenance, and compliance from day one.

4



Know Model Capabilities & Limitations — Automate Where Reliable

Use foundation models where they excel; gate where they fail.

5



Data and Knowledge Management Are the Real Foundation

Clean, structured, retrievable engineering knowledge drives correctness and reduces hallucinations.



Questions ?