Sema4.ai

Revolutionizing knowledge work through enterprise agents

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Introduction

In today's rapidly evolving technological landscape, artificial intelligence (AI) is transforming how businesses operate and make decisions. Sema4.ai stands at the forefront of this revolution with cutting-edge enterprise AI agents that redefine knowledge work and unlock new levels of productivity. Sema4.ai has built the first platform to produce S.A.F.E. (secure, accurate, fast, and extensible) agents at scale. This whitepaper explores Sema4.ai's innovative platform approach to building, running, and managing enterprise AI agents.

Understanding the need for enterprise AI agents

LLMs, copilots, and RPA (Robotic Process Automation) fall short when it comes to supporting the intricate and dynamic workflows of knowledge workers. Many of these options appear promising initially but fail in practice due to their inability to adapt to real-world changes. Below are just a few reasons why traditional approaches to enterprise automation have missed the mark:

1. **Lack of reasoning and judgment skills**
Legacy automation solutions like co-pilots and RPA struggle with intricate, end-to-end processes that require human-like reasoning, judgment, and flexibility. They excel at repetitive tasks but lack the adaptability needed for dynamic workflows.

2. **Require developers and technical specialists**
Traditional automation solutions are highly technical, demanding specialized IT skills or entire teams to build, maintain, and update code, which limits accessibility for business users.

3. **Not trained on your data**
Many of today's automation tools lack the ability to seamlessly integrate with enterprise data, especially unstructured data like PDFs and emails, thus limiting their capacity to automate knowledge work.

4. **Don't like change and don't learn from their mistakes**
The previous generation of automation solutions have rigid rules that make it difficult and expensive to adapt to the rapid pace of business change. This necessitates rewrites for new workflows and these older technologies do not learn from previous results.

5. **Lack transparency**
Even more modern automation solutions like LLMs are effectively "black-boxes" in terms of visibility into their decision-making. This lack of transparency makes them difficult to implement for mission-critical processes.

Unlike traditional automation technologies and co-pilots, enterprise AI agents can replace human labor, automate end-to-end processes, and deal with ambiguity. Enterprise AI agents use LLMs to provide the natural language understanding and communication capabilities needed for the agent to interact with humans or other applications. These agents can plan, reason, collaborate, and act with or without human supervision. They can analyze situations, identify problems, and devise solutions. Most importantly, Sema4.ai enterprise AI agents actually "do work".

That is why leading researchers, analysts, and consultants believe that we are on the cusp of a massive boom in the world of enterprise AI agents. In fact, Jorge Amar from McKinsey recently stated that "...Gen AI enterprise use cases could yield $2.6 trillion to $4.4 trillion annually in value across more than 60 use cases." Why? It's because "Gen-AI-enabled agents hold the promise of accelerating the automation of a very long tail of workflows that would otherwise require inordinate amounts of resources to implement.

And the potential extends even beyond these use cases: 60 to 70 percent of the work hours in today's global economy could theoretically be automated by applying a wide variety of existing technology capabilities, including generative AI, but doing so will require a lot in terms of solutions development and enterprise adoption."[1]

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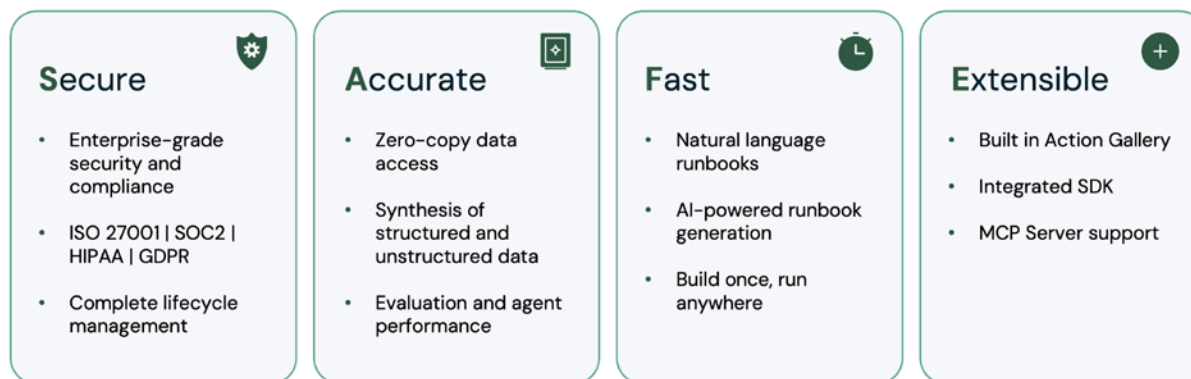
McKinsey & Company

Sema4.ai - vision and purpose

At Sema4.ai, we believe that enterprise agents are the **"killer app" of the AI era** - generating unprecedented breakthroughs in productivity and forever changing how work gets done. We transform how enterprises plan and execute work by empowering **business users, not just developers**, to build and operate AI agents at scale. Our agents can see, act, and learn in ways that were previously unimaginable.

The S.A.F.E. approach to enterprise AI agents

Sema4.ai's enterprise AI agents are sophisticated AI-powered applications capable of handling complex, high-value tasks that traditionally required human intervention. These agents go beyond simple automation, exhibiting human-like reasoning, collaboration, and judgment to autonomously execute work. Our agents run autonomously, involving humans only for approvals and exceptions. They also perform all of these tasks with unprecedented levels of accuracy and efficiency.

Secure

- Enterprise-grade security and compliance
- ISO 27001 | SOC2 | HIPAA | GDPR
- Complete lifecycle management

Accurate

- Zero-copy data access
- Synthesis of structured and unstructured data
- Evaluation and agent performance

Fast

- Natural language runbooks
- AI-powered runbook generation
- Build once, run anywhere

Extensible

- Built in Action Gallery
- Integrated SDK
- MCP Server support

The core of Sema4.ai's platform is built around the **S.A.F.E. framework**, ensuring that AI agents are:

- **Secure and Governed:** Security and governance of AI is essential. Sema4.ai ensures AI agents operate within your existing enterprise security boundaries, with robust compliance certifications like ISO 27001, SOC 2, HIPAA, and GDPR. This means sensitive data remains protected, and agents adhere to established governance policies, providing peace of mind and control over AI operations. Your security teams can confidently adopt AI without compromising their existing perimeter. Sema4.ai Agents authenticate and operate securely on behalf of users and also run safely inside your VPC or Snowflake environment.

- **Accurate and Explainable:** Sema4.ai Agents deliver highly precise results by accessing and understanding all your enterprise data, from structured sources to complex documents. Sema4.ai Agents access data securely using audited and tested queries to ensure accuracy. The platform also prioritizes transparency, enabling you to understand the reasoning behind agent decisions and actions. This explainability builds trust, prevents errors, and ensures that your AI performs reliably and predictably.

- **Fast and Easy**: Sema4.ai Studio empowers business users to quickly build, deploy, and manage AI agents using natural language. If you can describe the problem, you can build the agent to solve it. With features like Sai, an AI-powered Runbook builder, and one-click deployment to environments like Snowflake, organizations can rapidly integrate AI into their operations without extensive coding or technical expertise. This accelerates time-to-value and makes AI accessible to a wider range of users.

- **Extensible and Adaptable:** Sema4.ai Agents seamlessly connect with your existing enterprise applications and data sources through a comprehensive integration framework. The Sema4.ai platform also includes a robust Action Gallery for pre-built integrations with common apps, a complete SDK for custom integrations, and full support for MCP (Model Context Protocol). This adaptability allows agents to leverage your full data ecosystem and fit into existing workflows, ensuring they can evolve and scale with your business needs.

The Sema4.ai Enterprise AI Agent Platform

Sema4.ai's platform is designed to support the entire lifecycle of AI agent development, deployment, and management. The portfolio is comprised of 5 core components:
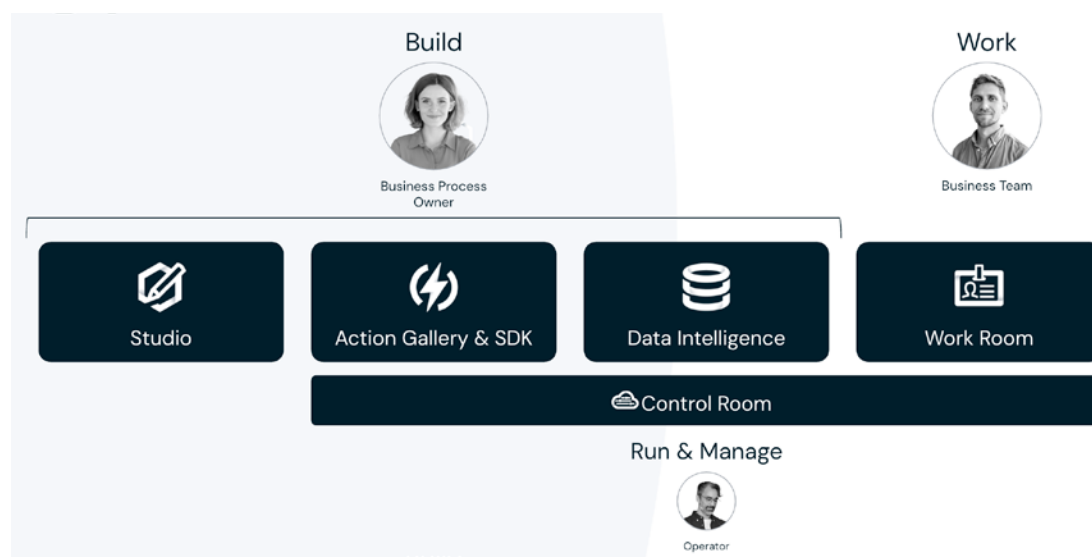
Sema4.ai Studio:

Enables business teams to turn ideas into ready-to-deploy AI agents faster than ever. Studio uses natural language Runbooks to define agent workflows and connect them to enterprise apps with pre-built actions for tools like SharePoint and HubSpot, or create custom actions with our SDK. Agents can be built in a secure, isolated environment with seamless OS integration. Studio utilizes leading LLMs, including OpenAI, Microsoft Azure, and Amazon Bedrock, to tailor performance to specific business requirements. Studio empowers business users to build and test agents locally, and then share them seamlessly with their teams.
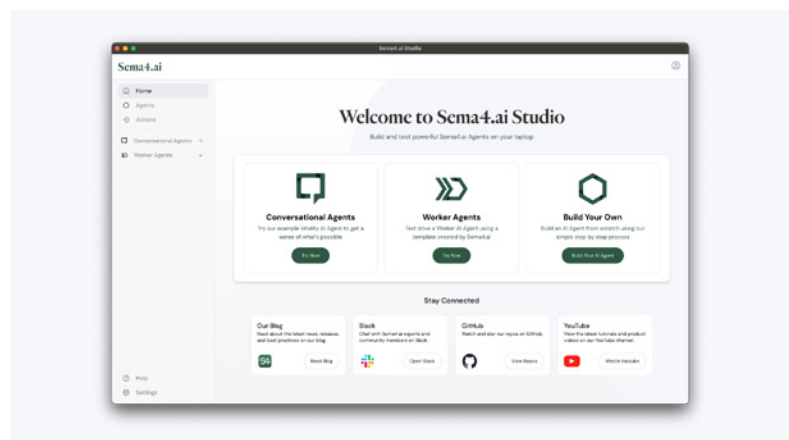
Sema4.ai Control Room:

Designed for enterprise needs, Control Room offers robust security, seamless scalability, and complete lifecycle management for your AI agents. It is built from the ground up for the enterprise, ensuring that all data remains within your AWS VPC or Snowflake security boundary, providing maximum security and compliance. It also integrates with your existing identity management system for seamless SSO access and offers real-time observability with tools like Splunk and Datadog. With Control Room, businesses gain full control over their AI agents, ensuring they operate securely and efficiently within your IT infrastructure.

Sema4.ai Action Gallery:

Offers a robust and flexible framework for integrating AI agents with enterprise apps. Sema4.ai Actions enable connections to common business platforms like SharePoint, custom enterprise apps like SAP, ServiceNow, and Workday, or even APIs, browsers, and existing RPA bots. The Action Gallery offers a curated library of pre-built actions for quick integration without writing a line of code. Optionally, customers can connect their AI agents to any enterprise application using our Model Context Protocol (MCP) implementation or use our complete automation-as-code framework to create custom integrations.
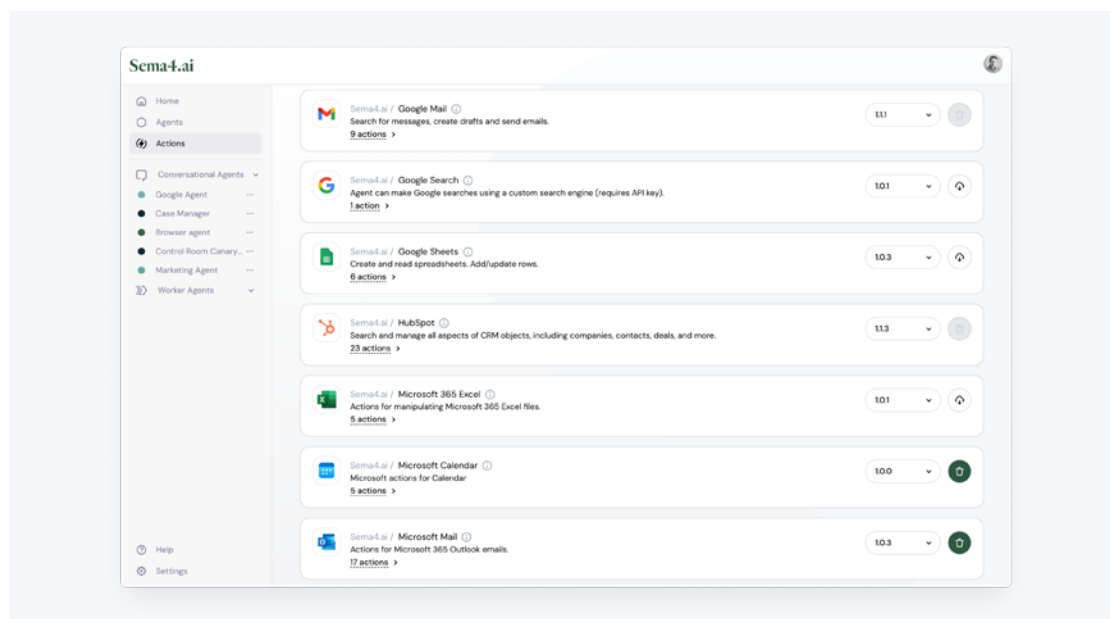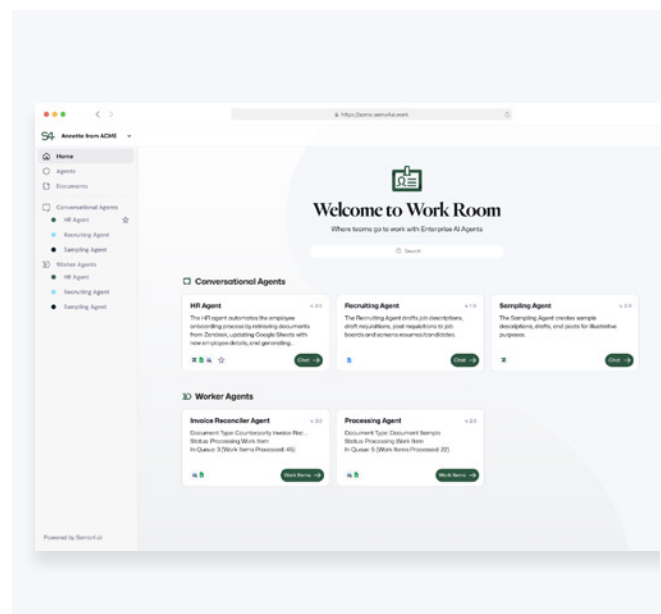
Sema4.ai Data Intelligence:

Empowers agents to seamlessly access the lifeblood of your enterprise—data—without creating new silos. With zero-copy access to past, present, and future data, agents gain the complete context needed for smarter decision-making and in-context responses. DDX supports over 100 data sources, ensuring agents can interact with structured enterprise data efficiently and securely. By integrating with the Sema4.ai SDK, Dynamic Data Access facilitates collaboration between business users and data developers, enabling the creation of powerful, data-driven agents. This comprehensive approach enhances operational efficiency and drives innovation across your organization.

Sema4.ai Work Room:

Unlike other agentic platforms, Sema4.ai has designed a Work Room, purpose-built for business users, making it easy to quickly find and work with the agents they need. Work Room provides a secure, transparent collaboration environment for users to work with agents. Simply put, Work Room provides a secure and transparent human-AI collaboration portal. The intuitive design ensures a seamless user experience, enhancing productivity and efficiency. It also integrates with your existing SSO solution and provides role-based access control so users only see the agents they have access to.


Sema4.ai Team Edition:

Sema4.ai Team Edition is an AI agent platform that allows organizations to build and deploy intelligent AI agents directly within their Snowflake environment, ensuring data security by keeping all operations within Snowflake's boundary and leveraging Snowflake Cortex AI for accurate data access and analysis. This platform enables one-click deployment from Sema4.ai Studio to Snowflake, transforming data into actionable intelligence without requiring extensive coding or disrupting existing workflows. It provides features like zero-copy data access for comprehensive insights across various data sources, integration with existing applications through an Actions Gallery and SDK, and allows collaboration with AI agents via Work Room or tools like Slack. Available in the Snowflake Marketplace, it offers a 30-day free trial to help businesses quickly adopt AI agents for automated workflows and immediate business value.

What makes a good use case for AI agents?

AI agents can solve a wide array of complex business problems.
Below are a few key parameters and evaluation criteria to consider:

Parameters to consider	Evaluation criteria
Does it solve a real urgent problem vs a nice-to-have issue?	Unless you are saving money, improving efficiency, and solving a well-understood, acknowledged problem, even a successful solution will not translate into adoption gains.
How frequently are humans required to execute this business process?	Processes (like compliance at banks) have to be done continuously. Infrequent processes are less likely to translate into real gains.
Does 24*7 execution make the business more responsive?	If you can resolve a problem faster or get paid quicker or make decisions faster using agents, then it is a good candidate. Also, if demand fluctuates and you need to auto-scale, that is an even better candidate.
Is the problem repeatable across business divisions?	Solving repeatable mainstream problems will amplify adoption as subsequent efforts become easier.
Does the problem align with key imperatives of your organization?	If your CEO can talk about this on their earnings call, then it is definitely worth automating.
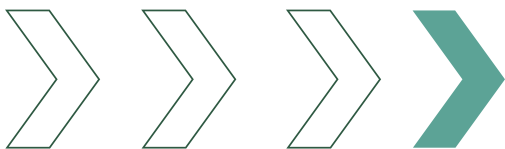
Examples of common use cases for enterprise AI agents

Compliance

Compliance is a critical area for many industries, and Sema4.ai Agents can help ensure that your organization stays up-to-date with the latest regulations, avoiding costly penalties and reputational damage. These agents produce timely reports on changes in regulatory updates, such as export controls, and allow users to query them. Agents with continuous learning capabilities are ideal for compliance tasks. These agents can maintain up-to-date models of regulatory requirements and organizational processes. The benefits of compliance agents include:

- Real-time monitoring

- Predictive risk assessments

- Decreased costs of compliance management

- Automated reporting

- Enhanced audit trails and transparency

Invoice reconciliation

Complex invoice reconciliation work has rules and standard operating procedures that can be turned into agent workflows. Manually scrutinizing a 30-page invoice and matching it against internal systems might take hours for a human, but agents can free up this time for more productive work. Worker agents with advanced pattern recognition capabilities are ideal for finance tasks. These agents can adapt to changing financial conditions and improve their accuracy over time. The benefits of invoice reconciliation agents include:

- Automated invoice processing

- Rapid, accurate handling of invoices and payments

- Fraud detection

- Predictive financial modeling

Customer support

Customer support operations teams are always challenged when it comes to getting a 360-degree view of the customer. Regardless of the CRM they are using, there are multiple facets of customer knowledge siloed across different systems of record, making it difficult for them to make effective conversations and decisions. A conversational AI agent can support backend processes allowing teams to get a holistic view based on the latest data or context from different systems of record and suggest the next best action. It can summarize incoming customer issues/tickets, perform context lookups across enterprise knowledge bases, and suggest optimal solutions and next steps. The benefits of customer support agents include:

- 24/7 availability

- Managing multiple customer interactions simultaneously

- Faster ticket resolution

- Continuous learning

- Reduced costs

The future of work with Sema4.ai

Sema4.ai is shaping a future where enterprise AI agents are seamlessly integrated into every facet of knowledge work. These agents will automate tasks, provide intelligent insights, and facilitate collaboration. By embracing Sema4.ai's breakthrough platform, businesses can embark on a transformative journey, unlocking unprecedented levels of productivity, efficiency, and innovation. As AI continues to evolve, Sema4.ai remains committed to shaping the future of work, driving innovation and empowering businesses to thrive in the age of intelligent automation.

Additional considerations:

- **Customer success:** Sema4.ai prioritizes customer success, providing comprehensive support and guidance to ensure businesses achieve their desired outcomes with our enterprise AI agents.

- **Open source collaboration:** Sema4.ai actively contributes to and leverages open-source technologies, fostering a collaborative ecosystem for agentic AI innovation.

- **Ethical AI:** Sema4.ai is committed to developing and deploying AI responsibly, ensuring fairness, transparency, and accountability in all its solutions.

1 – The promise and the reality of gen AI agents in the enterprise – McKinsey, May 17, 2024

Explore the transformative potential of Sema4.ai's enterprise AI agents and embark on your journey to redefine knowledge work and achieve unprecedented levels of productivity and innovation. Contact Sema4.ai today to learn more about how their solutions can empower your business to thrive in the age of AI.

RECOMMENDED RESOURCES:

Sema4.ai Blog   **Sema4.ai Platform**

Sema4.ai

At Sema4.ai, we're helping customers build, run, and manage intelligent AI agents that combine actions, intelligence, and enterprise context to automate complex human workflows.