Introduction

Dear Innovators,

We're thrilled to kick off the Disrupted newsletter - a space where forward-thinking CIOs and CTOs like you can stay ahead of the curve. Our mission and goal with this new communication channel? To bring you actionable insights, demystify emerging technologies, and spark meaningful conversations that empower your business strategies. Let's face it: the tech landscape moves fast, but navigating it doesn't have to feel overwhelming.

More than just a newsletter, Disrupted is a platform for fostering an open dialogue one that reflects our commitment to your success and highlights how Hitachi Digital Services can help you achieve your strategic objectives. Grab a coffee, settle in, and let's disrupt the status quo - together.



Welcome to the

Age of Al Agents!

Soon, we'll all be living in our own Matrix - with agents handling our work. Let's just hope they're nothing like Agent Smith. Jokes aside, Al agents are fast becoming digital colleagues, ready to take on roles within organizations. These aren't just your typical chatbots; they're designed as digital twins of employees, tackling everything from managing workflows to assisting in decision-making.

In this edition, we're breaking down the anatomy of Al agents and exploring the trends that are shaping their evolution. From autonomous and multimodal agents to open-source and edge-ready ones, we'll dive into what makes these digital teammates tick and the challenges they still face on their journey to becoming truly reliable, adaptable partners.

Let's not just focus on the tech side; let's talk about impact. Across industries, from healthcare to logistics, Al agents are enhancing productivity, cutting response times, and enabling better decision-making. These are agents with impact - driving measurable gains in efficiency, accuracy, and customer satisfaction. Yet, Al agents are only as valuable as they are trustworthy. And while the potential is huge, adopting these systems requires more than just flipping a switch. For CIOs and CTOs, security and governance are nonnegotiable when it comes to deploying autonomous agents. We can't have Al agents making decisions in a black box and they should be designed with built-in explainability (we're getting there). For businesses working in regulated industries, this also means compliance checks to ensure AI use

aligns with privacy laws, industry

standards, and ethical guidelines.

The Anatomy of Al Agents Glad you stayed until now with us! Let's dissect a bit more these agents. It's true that Large Language Models have been the only buzz in tech since ChatGPT's release back in November 2022. Only two years in this journey and in the same timeframe a lot have been developed and released. This year alone the tech world has been discussing the Agentic approach to all of that. How can we build autonomous agents, not the ones from the Matrix, but something more harmful and useful to organizations and productivity.

But what is an Agentic System

So, to build a shared understanding of agentic systems, it's essential to clarify their structure and functionality. In essence, agents are Al systems capable of making independent decisions and taking actions based on



They typically consist of 4 main components

- 1. Large Language Model (LLM): This core component interprets the user's intent and creates an action plan based on the objectives and
- available tools. 2. **Tools:** These enhance the agents' abilities beyond the LLM itself, enabling functions such as web search, document retrieval, code execution, and database integration. Tools might also include other AI models, empowering the agent to perform tasks like generating documents, running database queries, or creating
- charts. 3. **Memory:** Memory includes longterm access to databases and other relevant information, as well as short-term memory that helps the agent retain specific information across multiple steps needed to complete an action plan.
- 4. Reflection and Self-Critique: Advanced agents can identify and correct errors during execution, enabling them to adjust priorities and refine their action plans as needed.

But the evolution of Al agents has been remarkable; moving from basic copilots that handle simple, one-off tasks to sophisticated, autonomous systems capable of orchestrating complex workflows. These copilots gained the ability to combine various functions, performing tasks that require more than one skill, such as analysing data and generating reports. Now, we're seeing a new breed of agents that operate almost like digital project managers - they can plan, sequence, and execute tasks autonomously, adapting their approach based on objectives and available resources. At the last stage, multiple agents collaborate, each specializing in a different aspect of a goal. They communicate and learn from each other to complete complex tasks, like a fleet of agents.

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LLM Copilots

with tools

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This evolution isn't without challenges; as agents become more powerful, they need advanced memory, the ability to self-correct, and robust security to perform reliably and safely. In short, they are maturing from simple assistants to dynamic digital collaborators, ready to take on increasingly complex roles in business and beyond.

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LLM Copilots with

Which begs the question; if agents are so good, why aren't we using them more?

Despite their impressive capabilities, Al agents still face significant barriers that limit widespread adoption. First, the technology is complex to many and often yet costly to implement. Many organizations underestimate the infrastructure, data preparation, and processing cost required to get these systems up and running effectively. Second, the talent shortage in AI expertise means there aren't enough skilled professionals available to build, manage, and optimize these agents at scale. Third, issues with reliability and explainability remain - agents can "hallucinate" or make errors that are difficult to trace, making them risky for high-stakes tasks without careful oversight. Finally, integrating agents into existing workflows, especially in legacy systems, presents a real technical challenge. As a result, while the potential is huge, practical hurdles still stand in the way, keeping AI agents from becoming as ubiquitous as their capabilities would suggest.

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How can Al help you

Let's bring to the table a couple of articles from Miguel Gaspar, our Al & Data Lead:

- He talks on how to unlock the full potential of GenAl agents, where businesses should shift from static document-based chatbots to dynamic, multi-platform integrations, enabling richer, more flexible, and engaging user experiences that drive competitive advantage.
- But multi-agent systems are a transformative approach in Generative Al! It allows enterprises to overcome limitations of singleagent setups through collaborative automation, dynamic decisionmaking, and enhanced productivity while addressing ethical considerations in Al deployment.
- He finishes with a very useful guide that outlines essential steps for preparing your business for the GenAl revolution and autonomous agents. It's all about adapting your architecture, experimenting with emerging technologies, prioritizing future-proof skills, and implementing guardrails for safe use, positioning your enterprise to lead in a transformative tech landscape.

All of the above aligns with what we're achieving through our new framework, R2O2, launched just a few weeks ago. Designed to support the rapid development, scaling, and operation of trustworthy AI models, R2O2 leverages over two decades of Al implementation experience and a robust library of more than 25 custom models. The framework is engineered to streamline your journey from concept to production, cutting deployment times from months to weeks.

What does R2O2 mean for your organization?

Accelerated Deployment: Fast-track Al solutions with a tested framework that minimizes development time, moving models from pilot to production faster.

- Built-in Trustworthiness: R2O2 is designed around the pillars of reliability, responsibility, observability, and optimization, ensuring models are not only effective but also ethically sound and robust.
- Scalable Model Library: Access a suite of proven models adaptable to your unique business needs, reducing time spent on custom development.
- Proactive Governance: R2O2 addresses critical business challenges with built-in observability and governance, helping maintain compliance and trust across your Al initiatives.

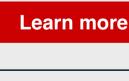


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Healthcare "Al and GenAl holds immense potential to revolutionize healthcare by addressing

critical challenges and improving patient experiences. While focusing on administrative tasks currently, the technology is evolving to assist with clinical decision support and workflow optimization. Ethical considerations, data privacy, and responsible implementation are crucial to ensure patient safety and trust. The future of Al-driven healthcare envisions a more proactive, personalized, and efficient system that empowers both patients and healthcare professionals." GenAl Beyond the buzz, Responsible Al

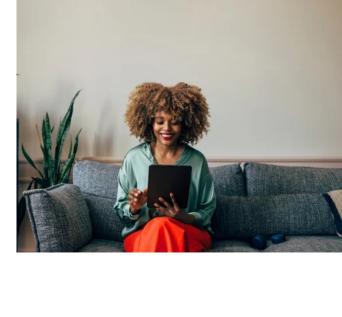




GenAi Beyond the Buzz Hitachi Digital Services is the digital and innovation arm of Hitachi, supporting

both other Hitachi companies and external clients in their digital transformations. Hitachi Digital Services works with several recognizable UK brands, often behind the scenes as a strategic partner. Examples include Tesco Clubcard data insights, technology support for Nissan's Sunderland manufacturing facility, and digital and data partnerships with hospitality groups like Mitchells & Butlers.

Learn more



Next up... We're gearing up for the next edition of Disrupted, dropping in February perfect timing for everyone to dive back into the tech world!

We're calling it the Disrupted Radar 2025, and it'll be packed with our latest insights on where tech is headed, the trends we're keeping an eye on, and a few bold predictions (and maybe a couple of hilariously off-the-mark ones, too). Hope that you can tell by now that this isn't just another newsletter. Hitachi Digital Services Disrupted will bring you both the deep dives and the big-picture trends. We'll always give you a heads-up on what's interesting, disruptive and our approach to it.

Accelerating your journey **Share this on** in \chi 🗅 to tomorrow with us. © Hitachi Digital Services, LLC 2025. All Rights Reserved. If you have questions or comments, please contact us at d Hitachi Digital Services, LLC, 2535 Augustine Drive, Santa Clara, CA 95054