After AI

Reinventing Data, Insights, and Action Amidst the Noise

2025 Trends Companion Guide

Qlik

Foreword

History tells us that with every paradigm shift, there are planned promises and unintended perils.

The automobile enabled freedom, but also urban sprawl; the invention of plastic provided many products but accelerated environmental pollution; and while social media can connect and mobilize us, it has also triggered a mental health crisis.

There is a roiling debate today over where AI takes us. Tech optimists feel that its power holds life-altering promise. Tech pessimists, on the other hand, fear what those unintended consequences of AI will be and how they will affect humanity. How can we be certain — how can even the experts be certain — when the technology is moving so fast that taking your eyes off it for a week renders you behind the times?

One thing is clear. AI is fundamentally reshaping society and business. As data and analytics leaders, we have a critical role in shaping how AI is being — and will be — used. But we can't wait for the tech pundits to settle their debate, because the decisions we make now will determine whether AI fulfills its potential as a positive force or not.

A crucial part of that role is identifying emerging trends and the themes that inform them. With 2025 upon us, we highlight what we believe will shape the conversation around data and AI adoption over the coming year, to help organizations like yours make vital decisions that could have long-term consequences — for the better.

Dan Sommer
Market Intelligence Lead, Qlik

AI COUNCIL TAKE

"AI is moving at break-neck speed: things that would seem almost science fiction a few years ago even to experts in the field are today's reality. This year's Nobel Prizes are evidence that AI is re-writing the rules of what has been considered the hallmark of human ingenuity for centuries: scientific discovery and innovation. Those who embrace this powerful technology will lead, and those who don't are likely to vanish.

I am optimistic about AI as a transformative power for good. AI is not some force of nature but our creation, and we need to shape it for our benefit. It's not about machines replacing humans, but rather amplifying human potential and taking us to the next level, potentially solving some of the key problems humankind faces today: from breakthroughs in medicine and clean energy to new materials that can mitigate global warming.

If there is a lesson to learn from AI breakthroughs so far, it is that in most cases data trumps algorithms. Ensuring data quality standards, reproducibility, and tracking provenance are crucial to developing trustworthy AI systems."

Michael Bronstein
DeepMind Professor of Artificial Intelligence, University of Oxford and Qlik AI Council member

Introduction

As we try to make sense of the impact AI will have in 2025, we see **three major themes emerging:**

Authenticity

The explosion of AI-generated content and data will force businesses to confront a new crisis in data authenticity.

Applied value

Organizations that embed AI with real-world context, enforce cost governance, and shift to conversational interfaces will see AI drive substantial business value.

Agents

Autonomous agents will reshape business operations, but their success will depend on a solid foundation of business intelligence, interconnected data fabrics, and agent-to-agent communication.

Authenticity

Applied value

Agents

These themes do not exist in siloes; they interact with each other. Without authenticity, no value can be realized. Without demonstrable value, the resources required to deploy agents and unlock their huge potential won't be made available.

Nestled within these three themes are specific trends, which, if followed, can drive a positive impact and shape how businesses invest in, deploy, and benefit from AI in 2025.

Authenticity

If something is available online, it has likely been used to train AI models. However, there have been two distinct shifts in the years since OpenAI introduced ChatGPT.

First, AI-generated content is proliferating quickly across the internet. One study estimated that 57% of online content is AI-generated.[1] Amazon is flooded with AI-authored books, YouTube is overwhelmed with videos, and content farms have swapped dollar-an-article writers for GenAI rubbish.

That means that as large language models (LLMs) develop, the data they're being trained on — if just taken from freely available sources — could well be AI-generated in the first place.

And the likelihood of that happening will only increase as businesses remove information from the public domain — another unintended consequence of the AI boom. Unauthenticated access is becoming restricted, with less high-quality content available without at least a registration. Publishers and authors are suing OpenAI, and closed platforms such as Medium and Substack are welcoming an influx of creators. YouTube has stopped regular users from being able to transcribe videos. In fact, an MIT-led research group estimated that 25% of data from the highest-quality sources that appear in three commonly used training sets have been removed.[2]

The result is an authenticity crisis that undermines the quality of LLMs and, ultimately, trust in the models. Some have indicated that it's difficult to evolve the models further without copyrighted materials. In the hunt for authentic data to train the AI, your corporate data IP is next.

As a result, data quality and authenticity will become highly valued — and the demand to prove provenance will soar.

[1] https://arxiv.org/pdf/2401.05749

[2] https://www.dataprovenance.org/consent-in-crisis-paper

AI COUNCIL TAKE

"Generative AI has unleashed an unprecedented tsunami of hyper-realistic content, blurring the lines between authentic and artificial, which could erode information integrity to the point that the internet becomes unusable. To let this happen could be nothing short of catastrophic. Commerce would come to a standstill and global economies would falter.

"Model collapse occurs when an AI model stops being usable because it no longer produces useful and representative content. It's imperative that organizations seek trust building and verification of sources, because it is the only way to combat the very real risk of model collapse. That's why authentic output – based on real data produced by real people with real perspectives, rather than artificially generated ones – will be at a premium in the very near future."

Dr. Rumman Chowdhury
CEO and founder of Humane Intelligence and Qlik AI Council member

We believe four trends will shape the need for authenticity in 2025

TREND 01

Trust is your data currency

TREND 02

You need a common language for your data

TREND 03

Shining a light on your dark data will unlock value

TREND 04

Data and AI marketplaces become the place to trade your quality data

TREND 01

Trust is your data currency

Data quality is one of the most important things we must grapple with, but it's getting harder to prove. Efforts like the EU AI Act can help, but more is needed. The current focus is on how a model was created and trained, but we need to be able to signal whether a model can be trusted. An AI Trust Score acts as a filter through which all data should go — establishing provenance, lineage, and ultimately, overall trust. Data profiling markers will become important, particularly discoverability, accuracy, consumability, timeliness, security, and diversity.

"It would be impossible to train today's leading AI models without using copyrighted materials."

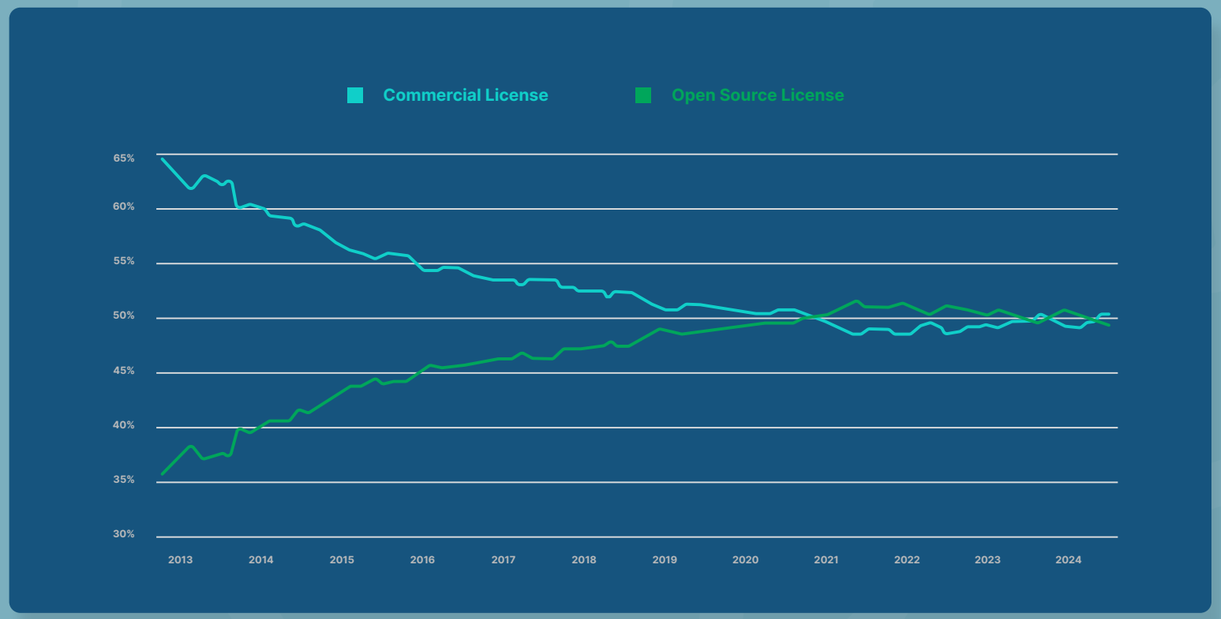
OpenAI

https://www.euronews.com/next/2024/01/09/openai-says-its-impossible-to-train-ai-without-copyrighted-materials

TREND 02

You need a common language for your data

The idea of a single data lakehouse that brings together the best of data lakes and warehouses while supporting multiple use cases has been around for a while. However, a lack of interoperability has restricted this vision to theory. Deploying open table formats, particularly Iceberg, is emerging as a modular format every vendor will accept, as it enables companies to organize their data in any storage, avoiding vendor lock-in. This, in turn, could help reduce costs, boost velocity, and improve governance. But more importantly, it brings interoperability that supports a single view of data. It creates a common language for the entire industry, which will help organizations demonstrate authenticity.



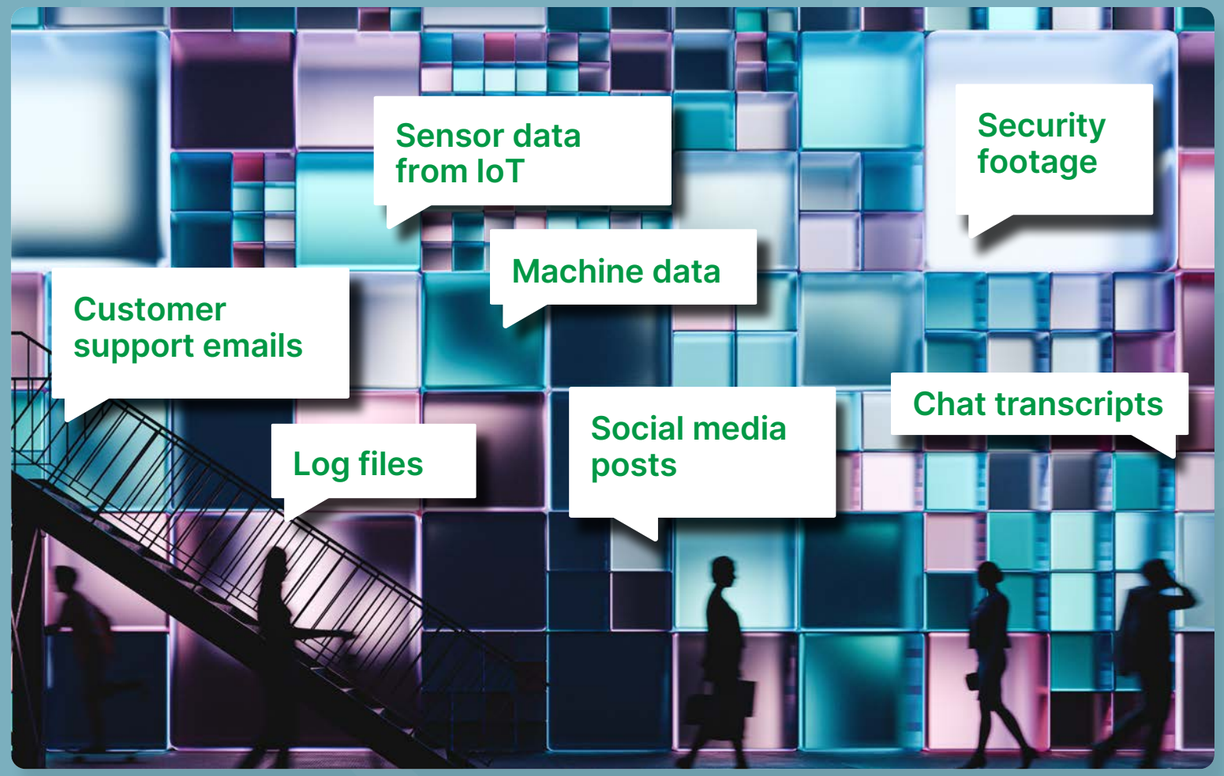
https://db-engines.com/en/ranking_osvsc

A common language for the entire industry will help organizations demonstrate authenticity.

TREND
03

Shining a light on your dark data will unlock value

“Dark data” refers to the vast amount of information collected by organizations that is not actively used or analyzed, leading to missed opportunities for insights. This includes unstructured data, chat transcripts, unused customer information, operational sensor inputs, logs, and IoT data. It was overlooked because it was multi-modal, but that’s no longer an excuse. The race is on to tap into this previously unused data; all of it could hold the gold businesses seek.



Gathered from many places, most organizations’ dark data is an overlooked source of value.

TREND
04

Data and AI marketplaces become the place to trade your quality data

As demand for authentic, high-quality data skyrockets, private data increases in value. This further incentivizes making it a product. This is a concept that resonates. According to BARC, 82% of organizations have already implemented data-as-a-product as a concept or are planning to.[3] Like any product, however, it needs a marketplace where it can be exchanged. According to Gartner®, "By 2028, 40% of AI asset purchases — including models and data by enterprises — will take place via AI marketplace, up from less than 5% today."[4] Vetted domain-specific, ethical, quality-controlled data will be worth gold. It's a win-win for companies — you improve access to new, trusted sources, and set yourself up for a future of internally and externally gaining from the unique data you are producing.

"By 2028, 40% of AI asset purchases — including models and data by enterprises — will take place via AI marketplace, up from less than 5% today."

- Gartner®

[3] BARC Survey "Data Mesh 24" n: 147
[4] Gartner, Emerging Tech: Innovators for AI Marketplace-as-a-Service Unlocking New Revenue Streams, By Nick Ingelbrecht, Annette Zimmermann, Kara Batty, Tuong Nguyen, Aakanksha Bansal, John Santoro, 7 October 2024. GARTNER is a registered trademark and service mark of Gartner, Inc. and/or its affiliates in the U.S. and internationally and is used herein with permission. All rights reserved.

Applied Value

We're at a crossroads with AI — people are growing tired of the hype and need to start seeing results. On a macro level, we are still in a build-out phase. Much of the current investment is going into infrastructure, such as chips, where every unit manufactured is immediately snapped up by a select few with the resources to do so. Sometimes, it can be hard to discern a strategy beyond "If I own it, no one else can."

In many ways, this is a throwback to the early days of the Internet boom, where companies over-invested in infrastructure. It took some time, but eventually led to the ability to innovate at a much lower cost.

None of that will stop people from asking where the value is. "At least 30% of generative AI (GenAI) projects will be abandoned after proof of concept by the end of 2025, due to poor data quality, inadequate risk controls, escalating costs, or unclear business value, according to Gartner, Inc."[5] A lack of clarity around business value is chief among the reasons for this.

So, the focus moving forward is on achieving applied value. It's hard to demonstrate that from infrastructure alone — that's more of a long-term benefit. **In the short term, the emphasis is on practical applications.**

[5] Gartner Press Release, "Gartner Predicts 30% of Generative AI Projects Will Be Abandoned After Proof of Concept By End of 2025", 29 July 2024. https://www.gartner.com/en/newsroom/press-releases/2024-07-29-gartner-predicts-30-percent-of-generative-ai-projects-will-be-abandoned-after-proof-of-concept-by-end-of-2025

AI COUNCIL TAKE

"We have passed the initial excitement that came with the breakthrough of generative AI, and we are now in a space of figuring out its practical applications. I think we can all agree that we are not yet using AI to its full potential, but through awareness, education, and careful stewardship, we will work toward that in the year ahead.

"The first step for businesses requires balancing market trends with organizational needs. They must make internal assessments about their own needs and requirements so they can deploy AI in the areas where it can make a real difference—because there are opportunities out there. Take the academic space, which was initially hesitant to use AI, but now researchers are learning how it can assist with brainstorming, writing, and research. This trend will only expand as people see the practical benefits of AI in their work."

Kelly Forbes
Co-Founder and Executive Director of the AI Asia Pacific Institute and Qlik AI Council member

Four trends could help accelerate this.

TREND 01

Co-pilots need further calibration

TREND 02

Cost governance will drive sustainable practices

TREND 03

Context becomes imperative to optimize framing of AI

TREND 04

Chat to data evolves

TREND 01

Co-pilots need further calibration

Co-pilots can help users become more efficient and grow usage to more people who might not otherwise touch analytics. But their value is increasingly being questioned, especially as some slap on a hefty fee for this service. One organization has canceled its co-pilot program with a large stack vendor because it offered what the customer CIO described as "middle-school level content."[6] Clearly, more can be done. Co-pilot deployments need to understand use cases better, be more proactive to fetch anomalies, and focus on solving fewer problems with more depth and relevance.

"Despite its expensive price tag, the technology is nowhere near where it needs to be in order to be useful."

Jim Covello
Head of Stock Research, Goldman Sachs

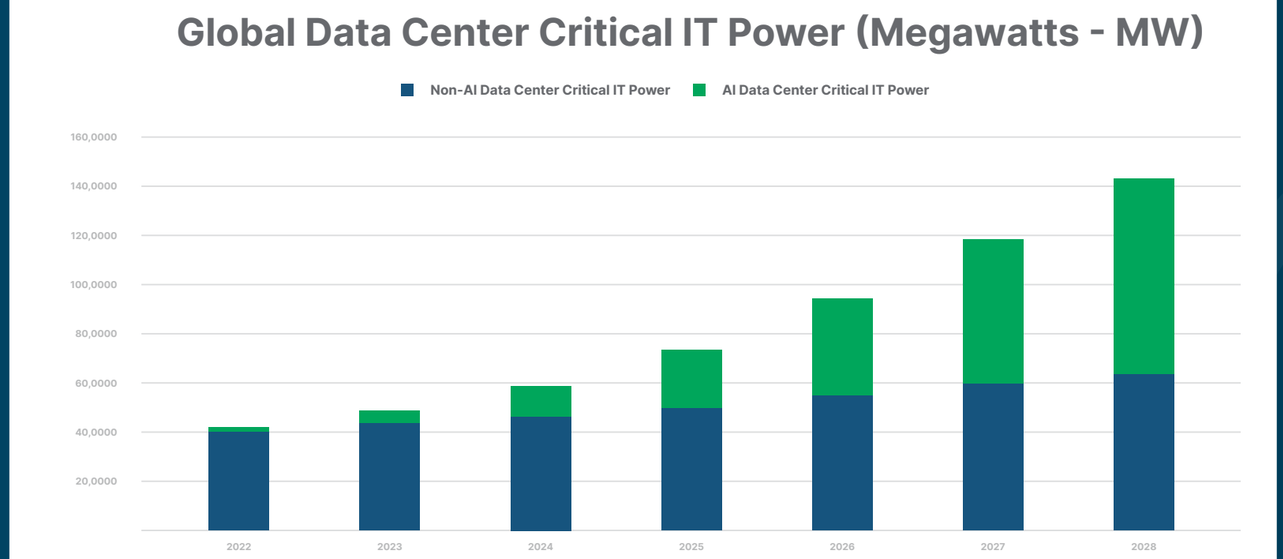
[6] https://www.ciocoverage.com/pharma-company-drops-microsoft-copilot-ai-due-to-high-costs-and-limited-value-sparking-industry-concerns/

https://www.washingtonpost.com/technology/2024/07/24/ai-bubble-big-tech-stocks-goldman-sachs/

TREND
02

Cost governance will drive sustainable practices

Cloud data efforts turned out to cost a lot more than many had expected, especially when direct-querying large amounts of data. Now every GenAI prompt costs more than a normal search query, thanks to the required investment in back-end compute and chips — a cost increasingly being passed on to users. This will increase with new reasoning models and it's expected that AI will use more power than other IT-related initiatives by 2027.[7] Businesses must now factor in both the expense and what the energy requirements mean for their sustainability initiatives. Cost governance will be key to keeping track of expenses without compromising the use of models. Tactics include packaging answers to reduce query volume, separating training and inference, deploying open table formats, and using smaller distributed models for specific tasks.



https://semianalysis.com/2024/03/13/ai-datacenter-energy-dilemma-race/

It's expected that AI will use more power than other IT-related initiatives by 2027.

[7] https://www.semianalysis.com/p/ai-datacenter-energy-dilemma-race

TREND 03

Context becomes imperative to optimize framing of AI

There have been huge advances in improving outputs thanks to extensive RAG and fine-tuning work, and 2025 will bring even more innovation: knowledge graphs, ontologies, and bigger context windows, surpassing a million tokens. AI understanding of your specific use cases will improve. But one size doesn't fit all — with accuracy critical to unlocking value, the right approach must be matched with the right data, be it graph, vector, or relational.

RAG CHEAT SHEET

	Relational	Graph	Vector
Semantics			X
Ontology		X	
Facts	X		

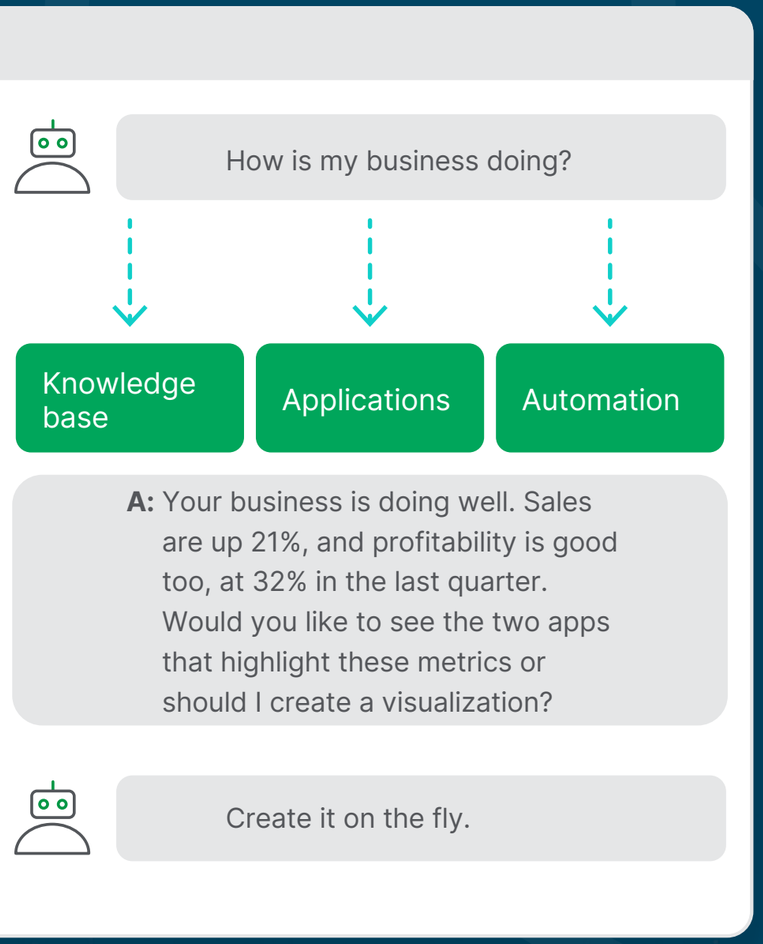
BARC Mastering the Open-Book Test. Why and How Retrieval-Augmented Generation Improves GenAI Outcomes. October 2024

The right approach must be matched with the right data.

TREND
04

Chat to data evolves

Despite repeated efforts to democratize access, analytics has rarely reached more than 25%-30% of users. GenAI-powered conversational interfaces added to business intelligence tools can help reach the remaining 70-75%, giving more employees access to insights. Other approaches will exist, but it will increasingly become the dominant way to interact with data. A well-designed interface hides complexity. It connects the tasks to the tools in the platform underneath: fetching answers from a knowledge base, getting a data point from an existing dashboard, and starting automation.



GenAI-powered conversational interfaces added to business intelligence tools can help give more employees access to insights.

Agents

We are entering the Agent Systems Era. Now that AI has started to surpass human performance across benchmarks including image classification, visual reasoning, and English understanding,[8] deploying agent-based systems that can independently execute tasks and adapt to feedback is both feasible and critical in unlocking economic value.

But it's only possible by establishing data authenticity and taking steps to secure applied value. Together, they provide the foundation upon which agent systems can be deployed successfully.

This foundation needs to be in place for companies to enjoy increasingly sophisticated agentic support in the future. Massive context-windows, improved chat interfaces with text-to-action capabilities, and improved reasoning models will enable agents to solve problems on humans' behalf beyond what most of us can grasp today.

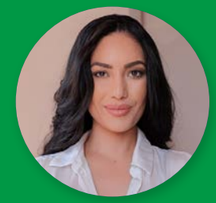
And opportunities for agent systems cover both organizational and individual use cases. Corporate agents may become as much a face of business as a website or app, while all employees could soon access smart personal assistants, helping them in their daily roles. We're already seeing role-based agents emerge rapidly in industry-specific domain areas, but also in areas more widely applicable, like programming and customer-service.

[8] https://aiindex.stanford.edu/report/

AI COUNCIL TAKE

"Do I think that agents and multi-agent architecture is going to become the de facto reality to deal with complex workflows? Absolutely. As intelligence becomes more sophisticated, both by default and design, these agents will start working and competing with one another to undertake complex workflows. And unlike people, they're not going to get sick, or tired.

"For businesses that's tremendously exciting. It won't happen next year, but by 2030, multi-agent architectures won't be revolutionary; it'll be ordinary. Businesses, from Fortune 500 giants to two-person startups, will harness this intelligence at their fingertips."



Nina Schick
Author, Advisor, world-leading authority on GenAI and Qlik AI Council member

Four trends influencing the rollout of agent systems.

TREND 01

Multi-agent architectures are arriving

TREND 02

Rethinking applications in the agent era: buy, build, intelligent

TREND 03

Real time is crucial

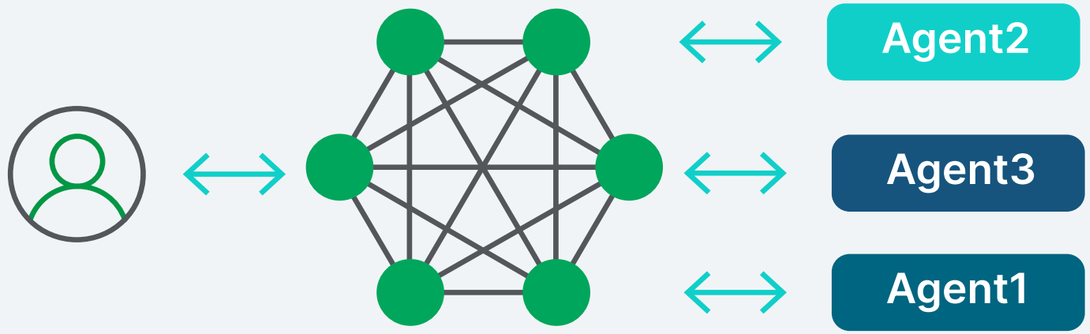
TREND 04

Process intelligence and automation are critical for agent-to-agent interaction

TREND 01

Multi-agent architectures are arriving

Just as there are competing cloud environments and AI foundation models, expect to see multiple agentic architectures co-existing. Interoperability and avoiding vendor lock-in will be critical to realizing the full potential of agentic reach and value. Some agents will be good at data integration, others at schema cleaning, text-to-SQL generation, automation, or building dashboards. Over time, these agents will learn to interact with one another. But humans must stay in the loop, or at least "over the loop", for surveillance and governance.



"In the next year, you're going to see very large context Windows, agents, and text action that, when they are delivered at scale, are going to have an impact on the world at a scale no one understands."

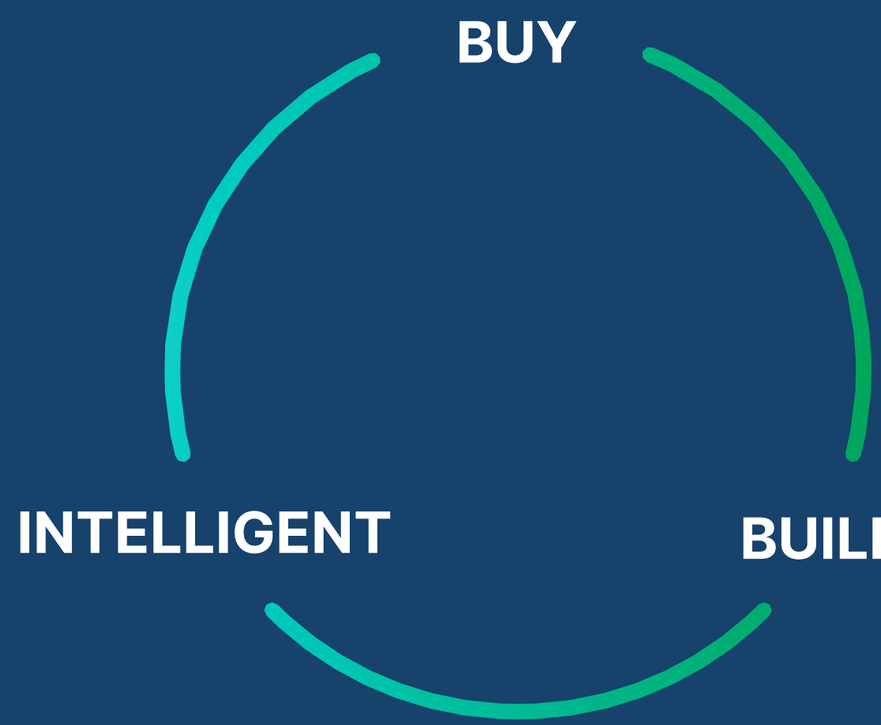
Eric Schmidt
Former CEO, Google

https://www.mi-3.com.au/09-09-2024/eric-schmidt-who-built-google-global-powerhouse-says-ais-impact-over-2-years-will-be

TREND
02

Rethinking applications in the agent era: buy, build, intelligent

A world with agents forces us to re-think applications. Sometimes, we don't need applications, as agents can fetch the answers we are looking for. Other times we will want to buy pre-packaged applications for expediency and domain-specific logic. The combination of text-to-action, large context windows, and agents will also enable us to build more apps in-house. As applications become more dynamic and intelligent, they'll morph into alignment with our changing needs and learn from new data to deliver more personalized, predictive, and context-aware experiences.

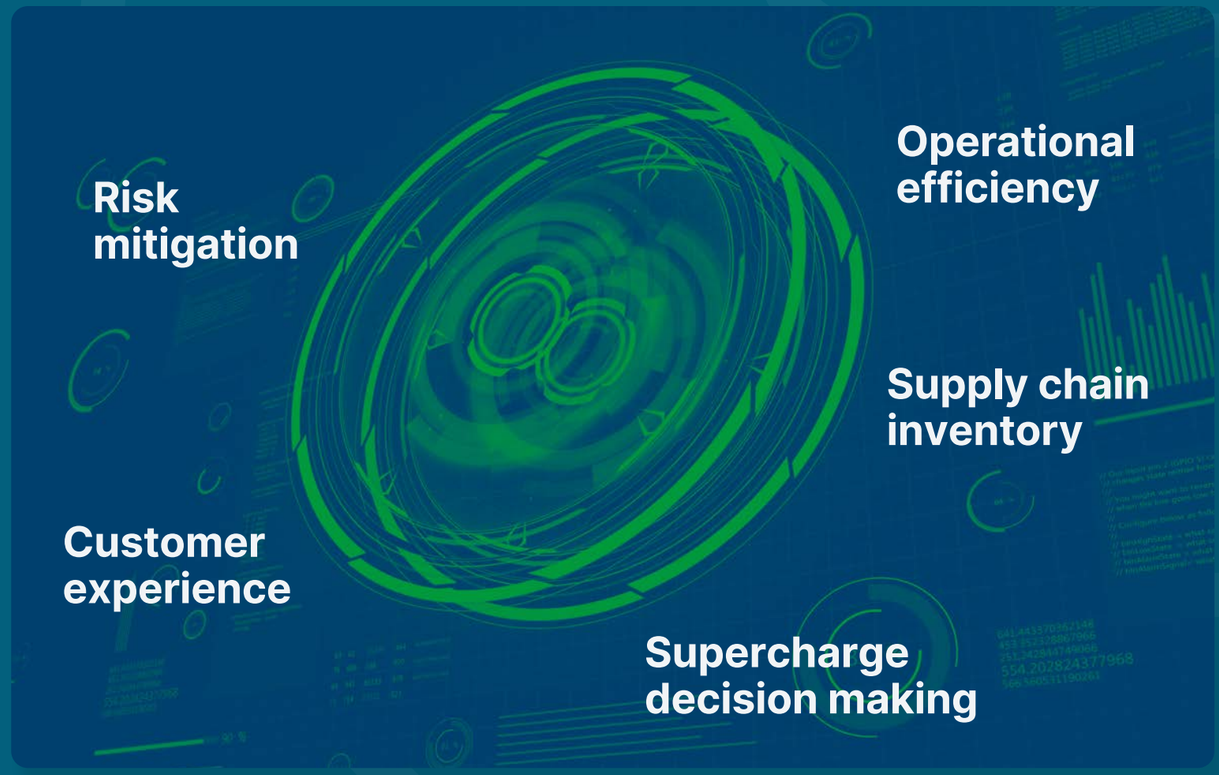


The mix of applications is changing to buy – build – intelligent.

TREND
03

Real time is crucial

Up-to-date data is critical to trust agents. A customer service agent can't make a decision or give advice based on stale inventory data. Real-time data not only gives an immediacy advantage but reduces the chance of it being stale, irrelevant, or incorrect. The need for real time is leading to a substantial evolution in architectures. Technically, we're reaching an inflection point where ingestion and transformation of data can be done in real time, and hybrid transactional and analytical data can be stored and processed in the same place.

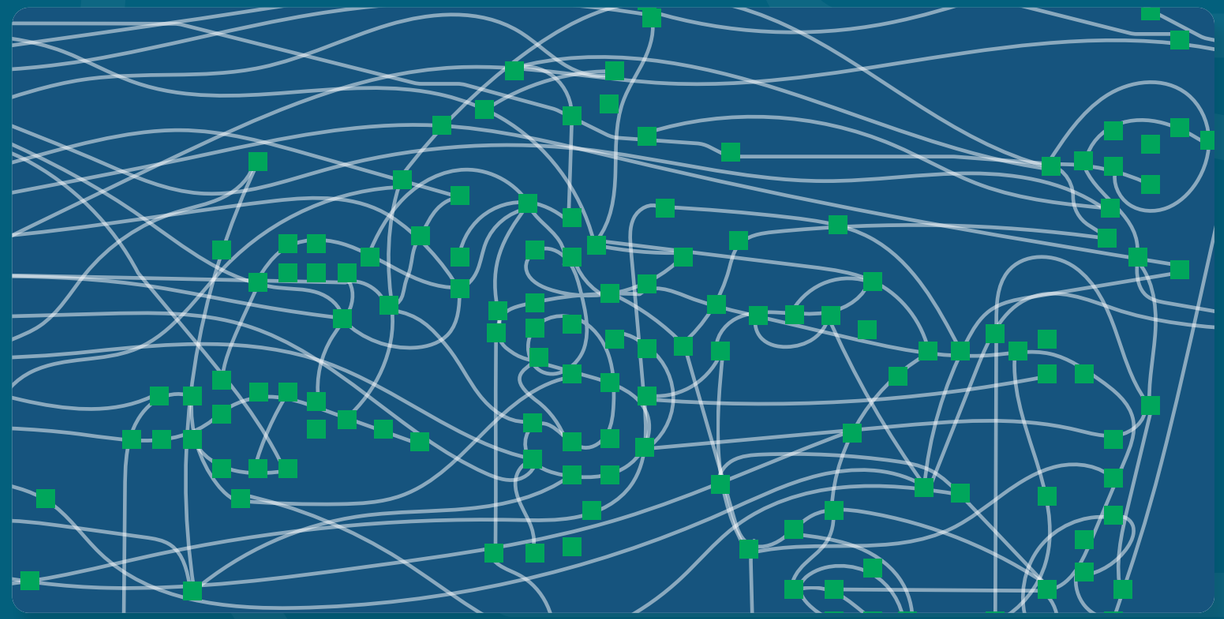


Real-time data not only gives an immediacy advantage but reduces the chance of it being stale, irrelevant, or incorrect.

TREND
04

Process intelligence and automation are critical for agent-to-agent interaction

Bad processes that have been automated are still bad processes. In a world of autonomous agents, it's vital that process flows are understandable, and don't look like spaghetti. Use process mining and analytics to optimize what workflows should look like. This will act as a highway for agents. Automations are then the transportation vehicle of the agents on that highway, safely connecting applications, facilitating them talking to one another, driving agent-to-agent interactions and actions.



In a world of autonomous agents, it's vital that process flows are understandable, and don't look like spaghetti.

Conclusion

The future doesn't exist. It depends on you — as a key stakeholder — leaning forward and shaping it today. While the path can sometimes seem unclear and the conversations chaotic, there is great value to be realized if we can steer AI in the right direction for data, analytic insight, and action.

As you head into 2025, use the themes and trends we've identified as a guide. Remember that they are not siloed; they interact and depend on each other. To cut through the ambiguity, businesses must build authenticity, deliver applied value, and accelerate into the agentic systems era.

Are you ready? Let us help you harness AI.

Learn more

Qlik

About Qlik

Qlik transforms complex data landscapes into actionable insights, driving strategic business outcomes. Serving over 40,000 global customers, our portfolio leverages advanced, enterprise-grade AI/ML and pervasive data quality. We excel in data integration and governance, offering comprehensive solutions that work with diverse data sources. Intuitive and real-time analytics from Qlik uncover hidden patterns, empowering teams to address complex challenges and seize new opportunities. Our AI/ML tools, both practical and scalable, lead to better decisions, faster. As strategic partners, our platform-agnostic technology and expertise make our customers more competitive.

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