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AI Vision

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Our quarterly perspectives on data, innovation, and industry trends in the investments space

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Technology

Your AI Is Only as Good as Your Data

The adage "garbage in, garbage out" rings particularly true in the realm of artificial intelligence (AI).

The rise of what's known as the golden source of data is becoming a beacon for firms striving to capture the full potential of their AI tools. Clean data is at the foundation of a successful AI model.

This involves ensuring robust processes are in place to validate that data entering any AI system is clean, free from mismatches, and devoid of bad patterns. By fixing issues before data is used in AI models, firms enhance the accuracy of their predictions and strengthen the reliability of analytic output.

The Foundation of AI Success

Data quality is what makes or breaks an AI model — low-quality data will breed multiple issues. The system must be trained on high-quality, coherent data to generate precise results.

However, achieving data quality remains a significant challenge for many organizations. According to Wavestone's annual survey of technical and data leaders, only 37% of respondents say they have been able to improve data quality, highlighting the pervasive nature of this challenge.[1]

Without clean and reliable data, AI models are vulnerable to inaccuracies, errors, and just plain falsehoods. In many ways, AI holds the power to create a mind-blowing output.

However, an AI system only manages the information it is fed. An AI tool can't gut-check what it is ingesting, as Microsoft learned in April 2024 when it was forced to pull its newly released WizardLM-2 from the market only hours after release. The culprit was missed toxicity checks that failed to ensure the LLM was safe. In addition to reputational issues, the blunder from the storied technology company also underscores the challenge in controlling digital content after release into public domain.

> "An AI system only manages the information it is fed. The AI tool can't gut-check what it is ingesting."

What Is a Golden Source of Data?

A golden source of data should be normalized and accessible, serving as a clear and unambiguous repository of information for an AI model to train on and pull information from.

A golden source of data is blessed as the single source of truth for your organization's data. Once you've established that source as golden, you can focus on making your repository accessible, accurate, and governed.

As your firm evaluates AI models, consider three essential elements to building a strong data foundation:

1. 2024 Data and AI Leadership Executive Survey, Wavestone, January 2024

Institute a Strong Data Catalog

Data lineage provides the foundation for effective data management, enabling businesses to make informed decisions and drive innovation. However, the complexity of legacy systems often muddies the thread of data provenance, leading to challenges in traceability and accountability.

While data may be present and persistent, its validity is not always guaranteed. Hidden landmines or traps, such as unvalidated data, can render numbers unreliable and undermine the integrity of AI models. A data catalog will flag what information is still subject to change, providing users with transparency into the data's status. By tracing origins and evolution of data and its sources, organizations maintain data integrity and uncover hidden insights and opportunities for optimization. A data catalog can also help firms mitigate the risk of using data not yet finalized. With discoverability and proper tagging further verifying the reliability of data, firms can have confidence their information is trustworthy.

Selecting the right tools for managing the golden source of data is critical for success. Cloud-native systems with API-integration capabilities are compatible with a wide range of tools that can be seamlessly integrated with existing systems. This swift data integration is critical for AI models and is also a key part of fostering interoperability and flexibility across a variety of other use cases for a firm's data.

Enable Data Exploration

The process of data exploration is vital to uncover insights and patterns that can drive business decisions. Publishing vast amounts of data into a centralized repository, often referred to as a data lake, facilitates this exploration.

A structured approach to data discovery enables users to easily find relevant data. Tools such as data catalogs or central repositories can help streamline this process.

AI By the Numbers

The exuberance for AI is evident, with wide ranging predictions of potential impact and capabilities:

- In 2023, funding for generative AI totaled $25.2 billion, nearly nine times the investment in 2022 and 30 times the figure for 2019.[2]
- Gen AI is expected to disproportionately affect industries, with the greatest impact on white collar work. In a recent report by the Burning Glass Institute, investment banking and securities dealing and brokerage ranked #3 in occupational exposure.[3]
- While estimates on productivity vary widely, a recent J.P. Morgan report suggests that AI could eventually increase annual GDP by $7-$10 trillion, or by as much as 10%.[4]

For example, if your system is pulling information from multiple sources and units are incorrect — say metric from one source and imperial in another — mismatches can emerge and erroneous trends can surface. Consistent data flowing into an AI model that's clear, normalized, and unambiguous is what make the tool useable and ensures the output is effective.

2. The AI Index 2024 Annual Report by Stanford University, April 2024
3. Generative Artificial Intelligence and the Workforce, The Burning Glass Institute and SHRM, February 2024
4. Is generative AI a game changer?, J.P. Morgan, February 14, 2024

Empower Data Governance

As institutions pursue that golden source of truth, firms need to make sure they are prioritizing what works best for their needs and preferences. Some organizations may want to designate their own data source with the data platform servicing as a downstream aggregator; others may wish to use a data source held within their own data platform.

Generating insights from the golden source enhances the accuracy of AI models and strengthens overall data governance practices. By enabling users to understand what information is critical for decision-making, these tools help organizations uphold data integrity and compliance standards.

AI represents a paradigm shift in how firms are able to leverage data. By prioritizing data hygiene, accessibility, and integration, organizations can capture AI's full potential while mitigating risks and ensuring compliance. As technology continues to evolve, the quest for data quality and accuracy will remain a cornerstone of AI innovation.

Don't Trap Your Data: Choose-Your-Own Tooling Integration

Getting the data right is critical for multiple use cases — whether you're feeding data into an AI model or using it for multiple other use cases.

Flexible tooling integrations are what make it possible to get your data right. Systems that add the most value will make it just as easy to egress raw data as is to input it.

Among these systems are closed platforms known as walled gardens. In tech language, a walled garden is an environment that controls access to content and services. Walled gardens can be risky to use because once you begin using the network-based content, it's hard to get your data out, add new sources, or experiment with any new tools.

Agnostic tools and API integrations that let you decide how to integrate and source your data will help you make the most of an AI model. If you decide to add a new data source or use a different tool, the data available in the agnostic system is still available to you — meaning there is no disruption or limitation to how you use your own data.

You'll want to ensure that every access control, permission, policy, and data catalog item can be integrated into your system. This allows flexibility to integrate your own data catalog, use third-party tools to import data pre-tagged with metadata and descriptions, or use a centralized platform to store your data. User-defined fields and an extendable data model add further flexibility. The elasticity to choose your own golden source of data can make a big difference in ensuring the data your AI model is using is accurate and truthful.

Choosing from this spectrum of strategies lets a business tailor their data playbook, allowing for maximum effectiveness, efficiency, and accuracy.

Cost Considerations

Institutions questioning the idea of sending their proprietary data to another company's models may decide to create their own in-house. However, AI models can be incredibly expensive to create, train, and operate. It's estimated that Open AI's GPT-4 model cost more than $100 million to initially develop and requires about $700,000 a day to run. The International Monetary Fund estimates the typical cost of developing a large AI model may soon be in the billions of dollars.[5]

While your firm may not be planning to create an AI model to compete with ChatGPT, any hefty investment necessitates a solid foundation on which to start. If you are exploring how to implement AI models and other tools, making data quality a top priority also means you will likely avoid the unexpected costs of bad data, including retraining systems.

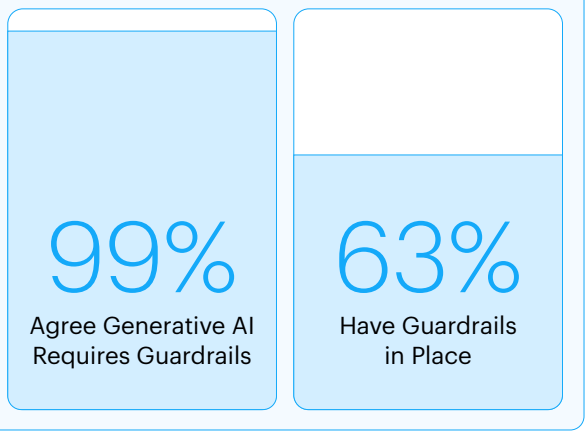
5. The Macroeconomics of Artificial Intelligence, International Monetary Fund, December 2023

Ensuring Responsible AI

As AI continues to evolve, the issues of responsible and ethical AI practices become increasingly important. Practicing responsible AI involves the conscientious design, development, and implementation of technology to empower both employees and businesses, while also promoting a positive and equitable impact on customers and society.

Almost all survey respondents in the Wavestone research (99%) agree that generative AI requires guardrails, yet only 63% have them in place. This gap highlights the need for organizations to integrate ethical considerations into their data strategy and to implement robust frameworks to govern their AI usage. Without adequate safeguards, the potential for unintended consequences such as poor data quality looms large, risking damage to reputation and trust, among other negative outcomes.

Survey Results on Generative AI Guardrails



Managing the Human Side

While technology plays a crucial role in AI adoption, human factors such as culture, people, and process also remain a concern. Three-quarters (78%) of survey respondents in the Wavestone research reported that human factors are a barrier to becoming data-driven. Overcoming these limitations requires more than just technological solutions; it demands a cultural shift, a reimagining of corporate processes, and a commitment to organizational change.

Many people look at AI tools and wonder: are the robots really coming for my job? The short answer is maybe. AI is already performing multiple use cases. But there is still a long list of tasks that a machine can't do, such as providing a nuanced understanding of language, designing products that meet clients' needs, and debating a complex topic in a clear and engaging way.

Gaining employee buy-in for change can be difficult. One of the things that can drive innovation is when people find that, as a result of new processes or tools, they can perform tasks on their own. For example, if they understand what their data means or can access it on their own. With new capabilities such as self-service tools or new skills, users are in a stronger position to put their golden source of data to use.

Seizing the Opportunities Ahead

There's no denying the promise AI. There's also no denying its potential pitfalls. AI models must be trained on accurate and clean data. This golden source serves as the foundation, providing organizations with reliable data necessary to fuel innovation.

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Data Governance

The Intersection of Data Integrity and AI

Applications of AI within investment funds are widespread, ranging from automating routine tasks to making data-driven investment decisions. Investment firms have been leveraging AI algorithms to analyze historical trading data or identify patterns in their data for a while now. Others have their sights set on using AI to predict trends and, perhaps, most ambitiously on creating a model to "beat" the market.

By automating tasks once performed manually by financial experts, funds envision using advanced technology to streamline operations, reduce costs, and gain that much-sought-after competitive edge.

AI brings a seduction unmatched in recent years. But behind those AI ambitions lies the critical aspect of data governance.

Simply having an AI model is not a short cut to the finish line. Clean, reliable data is what will fuel an AI model's ability to generate accurate predictions and insights. Investment firms must prioritize data governance efforts to ensure data quality, consistency, and compliance with regulatory standards. This involves establishing protocols for data collection, storage, processing, and usage, as well as implementing rigorous quality checks and audit trails to maintain data integrity.

When accuracy is paramount and decisions are made in split seconds, the intersection of data quality, governance, and AI becomes crucial.

The Challenge of Data Security and Trust

As investment managers embrace advanced technologies, safeguarding sensitive data while harnessing the predictive power of an AI model can pose a challenge. Data security measures must be implemented to protect proprietary information and prevent unauthorized access or misuse.

Establishing trust in AI models requires transparency and accountability on the data used to train and prompt the models. This necessitates governance frameworks that swiftly verify and authenticate datasets without compromising confidentiality.

By prioritizing data governance, implementing robust security measures, and exploring innovative solutions, investment firms can leverage AI to drive operational efficiency, mitigate risks, and unlock new avenues for growth.

The 2017 introduction of Transformer, a deep learning model, was an inelegant, brute force type of algo. But it quickly became fundamental in natural language processing and gained popularity with the rise of cheaper compute and better chips. The 2022 launch of ChatGPT is what catapulted AI to the forefront of innovation and captured attention from the masses with its user-friendly features and wide accessibility. Early estimates projected that generative AI tools could boost employee productivity by as much as 40%[1] and increase global productivity by US$3-4 trillion. More recent studies are putting a damper on the optimism, however.

A June 2024 survey from Goldman Sachs[2] questions the hype, enormous capital expenditures, and rising number of unknowns around AI. Skeptics are even equating today's

1. How generative AI can boost highly skilled workers' productivity, MIT Management Sloan School, October 19, 2023
2. Gen AI: too much spend, too little benefit?, Goldman Sachs, June 27, 2024

excitement around AI to the dot com bubble in the early aughts. Concerns around trust also persist as users navigate issues like privacy, intellectual property rights, and misinformation.

As companies weigh the decision to develop their own gen AI tools or opt for ready-made solutions, they must carefully consider the costs, risks, and complexities associated with training AI models in a landscape where data privacy and individual rights are paramount.

The hype around AI is real — bearing both pitfalls and opportunities. At times, it can feel wildly unpredictable what use cases will surface next. The most sound step a firm can take is to recognize that no matter their approach to new technology, the data piece is what they can control.

Given the challenges of building trust in AI tools, how can companies enhance their processes to intersect data quality with data governance?

Cryptographic Solutions for Data Integrity

In the quest for data integrity and trustworthiness, emerging solutions such as cryptography offer promising avenues for innovation. The cryptographic technique of zero-knowledge proofs enables firms to validate the authenticity of datasets without revealing the contents of the data.

Cryptographic technology, which securely communicates information so that only the intended recipient can read it, holds the potential to revolutionize data sharing and collaboration, allowing hedge funds to prove the validity of their AI models while preserving data privacy and confidentiality.

Building Your Data Foundation

Data quality serves as AI's foundation.

Aspects like accuracy, completeness, consistency, and reliability serve as the cornerstone of all data-driven applications, shaping the efficacy and accuracy of AI models. High-quality data is imperative for generating a coherent and valuable output, as errors or inconsistencies in the data can lead to inaccurate or harmful information.

The Hidden Cost of Bad Data

As you consider building an AI model or working with a partner to integrate an AI model into day-to-day processes, thoughtfully consider what data you're feeding your models. Whether your firm is using natural language processing, classification schemes, or predictive AI schemes, a synchronized, golden source of data is essential.

Estimates from MIT Sloan suggest that bad data is the norm for many institutions, costing firms anywhere from 15% to 25% of their revenue.[3]

Erroneous information can harm your business. Accurate information can also make or break your AI model. Advanced techniques for data governance enable you to ensure you know what you're feeding your AI models. For example, zero-knowledge proofs enable you to show when datasets are used within a given model letting you prove your model consumed the data you said it would.

Data freshness also plays a crucial role in ensuring models reflect the most up-to-date information. For instance, while LLMs are not continuously learning with real-time data, staying abreast of the latest updates is essential to align model behavior with current trends and events.

3. Seizing Opportunity in Data Quality, MIT Sloan Management Review, November 27, 2017

Creating Your Data Framework

If data quality is the foundation of AI, data governance acts as the structure that supports the technology. Effective governance ensures that AI uses data securely and complies with regulatory standards.

Unique data is instrumental in creating distinct outputs that set a company apart from its competitors. However, AI and ML tools may overlook critical elements, underscoring the importance of robust data governance and discoverability in AI models. To thrive in this domain, enterprises must seamlessly integrate data governance, cataloging, and lineage into the lifecycle of their AI initiatives.

The Six Dimensions of Data Quality

- **Accuracy:** Does the data reflect reality?
- **Completeness:** Do the datasets have all the required information?
- **Consistency:** Is data synchronized across the organization?
- **Timeliness:** Is data available when users need it?
- **Validity:** Is the data in a specific format, does it follow specific business rules, and can it be used with other sources?
- **Uniqueness:** Is data only recorded once in the dataset?

With recent regulatory developments like safeguards from the Executive Office of the United States President, which emphasize safety, security, equity, and transparency, ad-hoc AI practices are gradually giving way to a more regulated landscape. Governance ensures that only authorized individuals and programs access data, while lineage facilitates easy tracking of a model's sources to identify and address unusable data.

> “If data quality is the foundation of AI, data governance acts as the structure that supports the technology.”

Putting It All Together

A purpose-built tool that incorporates data quality and governance into its design offers a competitive edge by instilling confidence in the process of building AI models. This integrated approach is pivotal as the demand for AI grows in lockstep with concerns about potential misuse. By integrating data quality with data governance, companies bolster confidence in their AI tools, safeguard sensitive information, and preserve trust with stakeholders.

In an era where data reigns supreme and AI holds transformative potential, prioritizing data quality and governance is paramount. By embracing data principles, companies can harness the power of AI while mitigating risks associated with its misuse. A strong foundation and framework empower firms to navigate the realm of AI with assurance, unlocking new possibilities and driving innovation.

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Private Markets

Using Clean Data to Elevate AI's Potential

It's become increasingly clear that AI is not just a passing trend; it's a transformative force reshaping the landscape of the financial industry.

As firms in the private markets manage the complexities of their investments, AI has emerged as an opportunity to improve efficiency, gain new insight, and spur innovation. The potential for instant access to crucial information, immediate feedback, and real-time decision-making is a game-changer for fund managers — all thanks to AI.

The features and accessibility of tools such as generative AI led to its almost immediate popularity. Recent estimates for productivity gains as measured by GDP are staggering. Rough calculations suggest generative AI boosts employee productivity by 40-60%; more complex tasks bring even larger gains.[1] Additional estimates project that global productivity could increase by 7%[2], which translates to roughly US$3-4 trillion[3].

Visions of powerful algorithms that can sift through massive datasets to pinpoint lucrative investment opportunities and optimize portfolios dance through the minds of fund managers and investors alike. The promise of speed and accuracy from AI tools to analyze financial statements, legal documents, and market trends hold unparalleled opportunities.

However, behind every successful AI model lies a crucial element: clean and reliable data.

The 4 Types of Artificial Intelligence

1 Reactive

Reactive machines respond to identical situations in the same way — every time. Commonly the first stage for an AI system, it's important to note that a reactive AI model cannot function beyond the tasks for which it was designed. Examples include:

- IBM's Deep Blue chess-playing supercomputer
- The recommendation feature of your favorite streaming platform
- Basic customer service chatbots

2 Limited Memory

Observing actions or data, limited memory AI models use historical data and pre-programmed information to make predictions and perform complex classification tasks. Examples include:

- Autonomous vehicles
- Large language models and text generation tools

1. AI Improves Employee Productivity by 66%, July 16, 2023, NN Group.
2. How Generative AI Can Boost Highly Skilled Workers' Productivity, October 19, 2023, MIT Management Sloan School.
3. Economic Potential of Generative AI, June 14, 2023, McKinsey Digital.

3 Theory of Mind

Dubbed the next frontier in AI, the theory of mind model is when a machine is able to acquire true decision-making capabilities, understand and remember emotions, and then apply what it learned or adjust its behavior to interact with people. Examples include:

- MIT's Kismet robot head, developed by Professor Cynthia Breazeal, that recognizes emotional signals on human faces and replicates those emotions on its own face.
- Humanoid robot Sophia, developed by Hanson Robotics in Hong Kong, can recognize faces and respond to interactions with her own facial expressions.

4 Self-Aware

The most sophisticated category, the vision of self-aware AI is a model that recognizes its own emotions, desires, and needs and the feelings of those around them. While far from every-day use, the goal is to develop and instill a level of sentience similar to human beings.

- A machine that can hold meaningful conversations — think of the 2013 film *Her*
- Columbia University's early-stage development of a robot arm shown to demonstrate a "sense of self"

How Private Markets Firms Are Using AI

AI's capabilities are remarkable, a bit humbling, and it's not a stretch to call the most advanced tools intimidating. But the truth is, AI is a work in progress and the models are only as good as the data foundation they're built on. So as institutions get deeper into incorporating AI into their daily tasks and even explore building their own models, it is key to start from a strong base.

AI's integration in the private markets is impressive but not expansive.

While Excel has long been the primary tool in private markets, AI technologies now streamline data processes by automating tasks like the creation of data pipelines, as well as data entry, validation, and transformation. The ability of AI to extract and understand high volumes of structured and unstructured data enhances efficiency and revolutionizes operations. By simplifying data entry, reporting, and analytics, advanced AI tools can empower firms to explore their data in innovative ways.

Let's consider an example of a fund manager using AI to underwrite a private credit investment. The ability to assess, price, and customize risk can significantly impact the value of a loan. AI can enable an analyst to verify data, analyze information in real time, assess post-investment performance, and adhere to compliance standards — helping to shorten the time to market and speed up decisions. This due diligence is critical as a firm decides where to make an investment and allows an organization to analyze how its portfolio is performing.

Begin With a Strong Foundation

Well-governed data that securely flows to upstream and downstream users and enables effective decision-making is the backbone of a strong data strategy. That foundation is what lets you effectively deploy AI and manage the frequency and volume of data entering your systems.

Just as a car needs high-quality fuel to run smoothly, AI models require accurate data. At its core, it's all about ensuring data entering the AI structure is clean. Our engineers think of it as maintaining good health for the data flowing through your systems. Data must undergo rigorous checks to promote data quality and gathering. Ultimately, the goal is to fix mismatches or bad patterns before it enters AI models to ensure data is normalized and accurate.

Creating a common data model also helps to improve information management. Data mapping connects attributes and values between sources to develop databases that talk to each other. With a data-rich, domain-aware foundation, systems automatically recognize relationships between datasets.

If unified data platforms are the road to better performance and portfolio management for fund managers, a golden source of data is the key to high-functioning AI tools. By enabling users to understand which information is critical for decision-making, sophisticated tools empower organizations to uphold data integrity and compliance standards. A golden source of data not only enhances the accuracy of AI models but also strengthens a firm's overall data governance practices.

> “At its core, it's all about ensuring data entering the AI structure is clean.”

Structure and Enrich Data

Once you capture and store data, the next step is integrating it into proprietary and third-party systems. Robust pipelines and models to streamline processes and organize coherent datasets go a long way in your quest to enrich data. Organized sources, tags, and user-defined fields make the data easier to find and highly usable. Sending information downstream to internal and external systems further enables data to play a vital role — whether your firm is still working to unify data or is contemplating how to integrate an AI model.

Data exploration is another crucial aspect the golden source of data helps facilitate. With vast amounts of data being published into centralized repositories known as data lakes, tools like data catalogs provide a structured approach to discovering relevant information.

Hidden landmines can lurk beneath the surface, threatening to undermine the integrity of AI models. Unvalidated data poses a significant risk that could make the numbers generated by AI models unreliable. Solutions like a data catalog help mitigate this risk by flagging data still subject to change and providing users with transparency regarding its status.

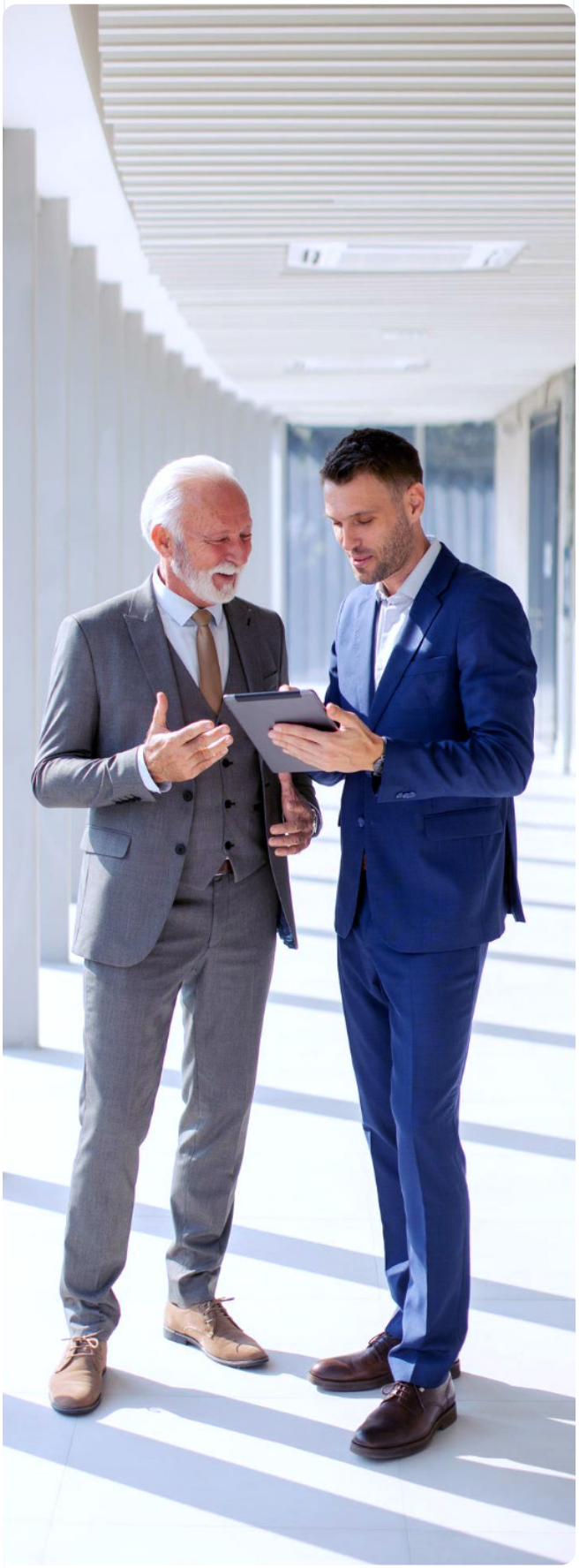
Selecting the right tools to manage the synchronized source of data is crucial for success. Cloud-native technology can connect you to robust data management capabilities while an API-first approach ensures compatibility with a wide range of tools. By integrating seamlessly with existing systems, unified systems enable private markets managers to ingest data into their overall landscape, fostering interoperability and flexibility.

Private Markets Future Vision

From initial deal sourcing to final exit strategies, AI has the potential to help firms make decisions with an unparalleled depth of analysis and foresight. Investment teams, supported by AI, can focus on the human elements of business: building relationships, understanding client needs, and driving strategic discussions. AI will handle the data, but people will continue to drive the vision and strategy. The opportunities for innovation, efficiency, and growth are limitless.

Private markets investors and manager are reaching an inflection point. Leading firms are raising assets, launching new products, and diversifying strategies to capture unique investment opportunities.

As firms collide with an explosion of data, error-prone processes, and costly, fragmented systems, sophisticated tools such as AI offer an allure hard to ignore. However, advanced tools only work when information is accurate and useable. To get there, it starts with a powerful data foundation that's accessible, clean, and trustworthy.



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Capital Markets

Modeling AI's Banking Revolution

AI may not yet run the world, but its influence on shaping the future is undeniable. The buzz around AI's capabilities — and its associated risks — has reached a fever pitch in recent years.

Banks, ever cautious but equally aware of AI's transformative potential, are beginning to integrate AI into their operations.

Most banks are currently in the early stages of their AI journey, focusing on education, strategy formation, and small-scale pilot implementations.

A measured approach allows institutions to navigate the complex landscape of AI while addressing potential risks and challenges. This cautious approach also reflects a broader trend: only 37% of banks are actively implementing AI technology, with the bulk of this activity occurring in larger institutions with the resources to invest in advanced technology.[1]

A Slow, Steady March Toward AI

Large institutional banks have trillions of dollars on their balance sheets and hundreds of millions of data points that need to be ingested almost daily to generate good, quality data output.

While banks are treading carefully, larger institutions — often the ones with the leeway and capital — are in the early stages of familiarizing themselves with generative AI, forming strategies, and piloting small-scale implementations. This measured pace is driven by concerns over accuracy, ethical implications, and the potential loss of the personal touch that has traditionally characterized banking relationships. Yet, AI's momentum — and its potential — is hard to ignore.

Homegrown Solutions and Use Cases

As banks venture into the AI realm, there's a growing consensus that homegrown solutions will dominate the landscape. This trend is driven by the unique needs and data structures of financial institutions, as well as the desire to maintain control over sensitive information and proprietary algorithms. Ensuring AI applications are tailored to their specific needs and regulatory environments also adds to the appeal of an in-house solution.

The use cases for AI in banking are broad and varied, encompassing:

- **New product development:** Banks are already experimenting with AI models that analyze market trends and customer data. Many are now on the hunt for the next level of insight that will help them predict market trends, identify opportunities for new financial products, and more.
- **Balance sheet optimization:** Scenario analyses can help ensure optimal funding through multiple funding environments and allow teams to gauge potential shocks to the wholesale funding markets.
- **Risk oversight:** By monitoring vast amounts of data in real time, AI can help banks detect and mitigate risks more effectively.

1. Unleashing the Power of AI, American Banker, March 19, 2024

- **Customer-facing tools:** AI-powered chatbots and virtual assistants can enhance customer service by providing instant, accurate responses to inquiries.
- **Fraud prevention:** AI can analyze transaction patterns to detect and prevent fraudulent activities.
- **Operational efficiency:** AI can automate time-consuming tasks such as coding, preparing pitch book drafts, and summarizing regulatory reports.

Data Models and AI Initiatives

While AI holds immense potential — and much hype if we're being honest — banks must be prioritizing data quality as they work to build and implement their AI models. Success hinges on the ability to feed good data into an AI engine. The integrity and accuracy of this data are paramount for firms seeking to generate reliable AI outputs.

Getting the data model right involves creating robust data lakes within an extract, transform, load (ETL) framework. By leveraging data lakes within an ETL layer, along with powerful financial models and instruments, banks will be in a stronger position to use AI to support general ledgers, subledgers, collateral management, security mastering, and other critical components of the banking ecosystem.

Navigating the Challenges

Despite the potential benefits, banks are grappling with the complexities of building effective financial models. A prime example is firms in the midst of overhauling their infrastructure or data lake — ambitious projects that underscore the challenges and long-term commitment required to harness AI's full potential.

Another challenge banks must carefully consider is that regulators have been aggressive in handing out fines for lack of data integrity. Courts have come down hard on institutions whose AI models have produced errant outcomes that impacted consumers.

As banks continue to explore AI, they must balance innovation with caution. This involves not only addressing technical challenges but also navigating ethical considerations and maintaining customer trust.

Key steps banks can take to successfully integrate AI into their operations:

- **Invest in data infrastructure:** Building robust data lakes and ensuring data quality is the foundation of any successful AI initiative.
- **Develop ethical guidelines:** Establishing clear ethical guidelines for AI use can help mitigate risks and build trust with customers.
- **Pilot small-scale projects:** Starting with small-scale implementations allows banks to test AI applications and refine them before scaling up.
- **Educate and train staff:** Equipping employees with the skills and knowledge to work with AI technologies is essential for smooth integration.

The Path Forward

The integration of AI in banking is a paradigm change in how financial services are delivered and managed. Banks that can successfully navigate this transition will be well-positioned to lead in an increasingly digital and data-driven world. By focusing on data quality, compliance, ethical considerations, and strategic implementation, banks can harness the power of AI to transform their operations and deliver enhanced value to their customers.

As the financial sector moves cautiously, yet steadily, into the AI era, one thing is clear: AI is set to revolutionize banking in ways we are only beginning to understand. Whether through improved risk management, innovative new products, or enhanced customer service, banks that embrace technology will be the ones that define the future of finance.

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Industry Perspectives

Where Are We on the AI Hype Cycle?

Immeasurable computing power. Concerns about data privacy and security. Trust deficit. Those are just some of the phrases the industry is using to describe the powers and pitfalls of AI.

So where exactly is the industry when it comes to leveraging AI's power?

And is the advanced technology hype or just hyperbole?

In this interview, we connect with generative technology leader, David Neigler, for his insights on integrating AI and creating a golden source of data.

Question: Creating a strong data foundation is the golden rule when it comes to AI. Where should firms start?

David Neigler (DN): There are a few areas where firms should be zeroing in. The first is on modeling your business. You can think of this in layers — there's the industry broadly, a level at which general purpose pre-trained models will have context. Then there's the specialized domain where your firm competes, which is much more specific — how you generate revenue and evaluate success. Beyond that is your company's domain, the institutional identity that a general purpose model is not aware of. You'll want to consider how your company operates, its account structures, conventions, and workflows. Having those data layers is how you'll get to a place where AI can help.

The second element is inventorying your assets. Data is consumed at massive rates. But often companies don't know about all the data they consume — where it is, the sources, history, governance, constraints, accuracy — making it hard to know what data they have to work with.

Digitizing the knowledge of your key people and challenging assumptions on how data is ingested and used are also key elements at the foundational level. Ten or twenty years ago, it was common for companies to talk about reducing data duplication. Today's portfolio managers may rely on certain data points they don't want to overwrite.

Question: How can firms make AI systems more transparent and explainable, especially in critical applications?

DN: AI is an effective search mechanism and will certainly become better over time. But gen AI goes beyond its potential as a search engine. To an extent, gen AI can reason on a large core set of data. Retrieval augmented generation, the RAG method, has become more commonly used where relevant information is included in search prompts — enabling the AI to return results based on your data and not just the data it was trained on. This method is one way the industry will reduce hallucinations and start to unlock what gen AI can really bring us.

As a knowledge base, AI has limitations because it's only trained to a certain point in time and is incentivized to please us — which is not actually all that helpful!

As you think about using AI models, don't assume one model is the way to go. Fact check across models by running the same prompt between a few providers. Then feed it back to the model you're using as the governor to understand what similarities or conflicting information you should consider.

Question: In your opinion, what are the most significant limitations or challenges facing current AI technologies?

DN: The first is around sentiment. I think we've all heard people say, well, AI is not that good because I asked it a simple question and it gave me an incorrect answer or an obviously incorrect answer.

> "For AI to improve us, we need to embrace it, learn its limitations, and understand how to work with it."

I don't expect that skepticism to win, but it is something to watch out for. It will also be very important for companies to position AI as something that will ultimately have a lasting impact on productivity and a tool that employees must leverage however they can.

The second challenge I'll mention is around token size and relevance of results. As an example, we posit AI will be able to take a large code base — written over decades, in multiple languages, or that uses several approaches to development — and rationalize and rewrite it either in the same code base or perhaps a new one. So maybe you have a million lines of legacy code base written in C and C++ with lots of bugs. At some point, AI will be able to come up with a more concise code base, identify duplications, and write the code all in a new language or standard. As accuracy and token size improves, we'll get closer to achieving this and creating a smarter enterprise code base.

Question: How do you envision the relationship between human intelligence and AI developing in the coming decades?

DN: I think the term 'co-pilot' is a great way to describe how humans and AI can work together.

Demands on people aren't necessarily going to be less as AI evolves. But expectations will be higher because we're going to be able to operate in a different way. The creative aspect is still something that is very human. Humans are still the trigger coming up with the ideas of what to explore or where opportunities are. AI will take on rote tasks and probably even elements of quantitative intelligence, much like how calculators reduced our need to perform manual calculations.

AI's success will be how we work together. It will almost be like making AI a member of the team. Philosophically, one of the greatest threats to humanity during this transition will be humanity; not AI.

Question: Where do you see an AI spend returning the most benefit?

DN: Two of the most important things are to keep exploring and to enable usage.

I don't think we're at a point where we know the best use cases for AI. The interesting thing about generative AI is its reach — a lot like the dot com boom when the Internet was just starting. People didn't know where it was going; they just knew the Internet would be impactful. We're at the same place here.

Departments like technology, compliance, and risk need to work together to come up with a strategy that enables safe, wide-spread exploration. That often means deciding which engines the firm uses and how data is sent to the engines. It also means cultivating how systems can be integrated or used.

Don't look at AI as a way to get rid of your technologists — you need them more than ever. Give your teams the freedom and the time to focus on the AI tools available and how they can apply to your business.

Question: What makes you excited or more hesitant about AI?

DN: I think ultimately the operating model of society is going to shift over time with AI. What we expect of our leadership will also change. There are different qualities we'll need to accentuate, such as how we handle education. I think great things can happen from this if we embrace the opportunity and the uncertainty that goes hand in hand with it.

There's a great book called *Scary Smart* by Mo Gawdat. It's an interesting read because the book talks about how AI could be a wonderful or a terrible thing for people. Part of how we'll get ready is embracing AI; not resisting it.

I think we've really lived in a world where we kind of burn ourselves out, but still don't produce at our maximum potential because we're in this mode of having to do everything. For me, one of the most fulfilling moments is when I'm producing something that has a direct, tangible impact. It's exciting to think about the rate of progress if humanity is focused on these creative endeavors.

Question: Do you think AI will change recruiting or influence team dynamics?

DN: Absolutely. People who have a growth mindset and who are willing to diverge from the traditional template of how things have traditionally been done will be critical.

We're in this world where exploration is the point. Productivity gains are only going to come through that exploration.

Curious, growth-minded people will always be essential.

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