
S&P Global

Market Intelligence

S&P Global Market Intelligence: Artificial Intelligence (AI)

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07.05.2024

Observations

AI (genAI) is poised to power the next wave of productivity gains

1st wave most likely to start in compliance, financial crimes, credit risk, data analytics, cyber risk and climate risk

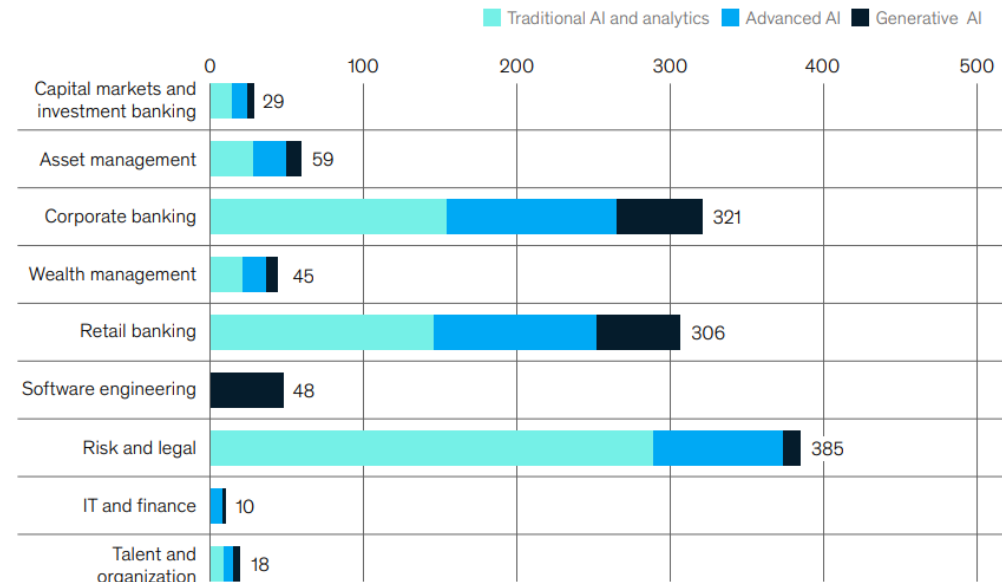
Key considerations:

- Intellectual property
- AI hallucinations & ghost citations
- Malicious use and impaired fairness

Exhibit

Generative AI has the potential to deliver significant new value to banks—between \$200 billion and \$340 billion.

Value created by AI at stake by segment and function,¹ \$ billion



¹Assumes 0% overlap of traditional AI and generative AI (generative AI assumes the lower end of value at stake), top-down estimation based on projected growth and value pools.
Source: *The economic potential of generative AI: The next productivity frontier*, McKinsey Global Institute, June 2023; QuantumBlack, AI by McKinsey traditional advanced analytics and AI analysis

McKinsey & Company

KENSHO

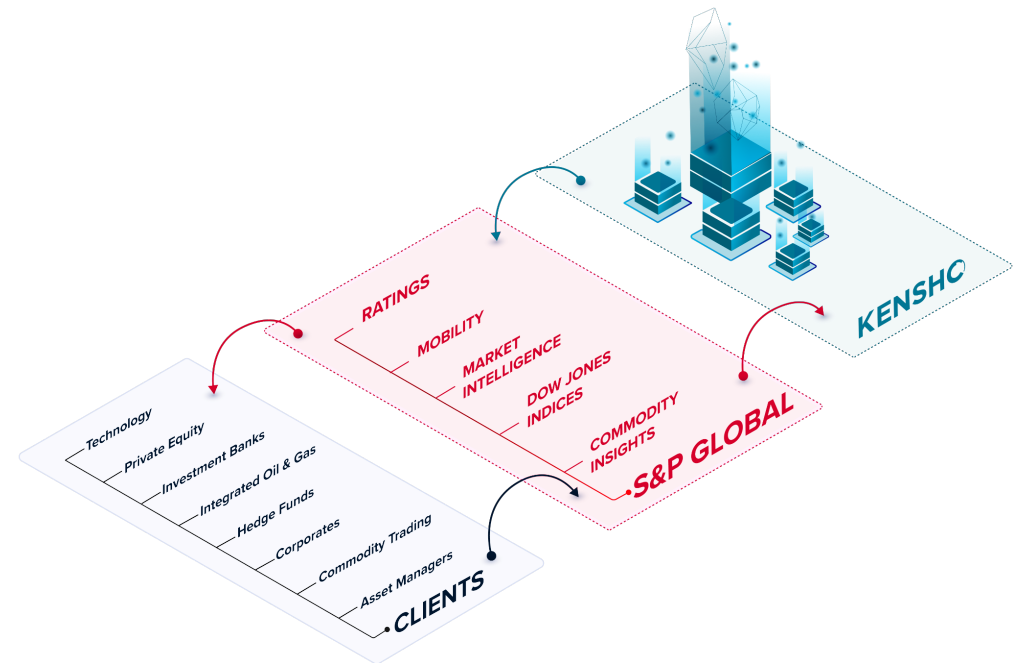
A Company of **S&P Global**

Kensho is the artificial intelligence (AI) innovation hub of S&P Global.

A pioneer in an industry specific AI solutions for the business world, providing reliable, accurate and relevant insights, powered by S&P Global's world class data.

KENSHO DRIVES INNOVATION AT S&P GLOBAL

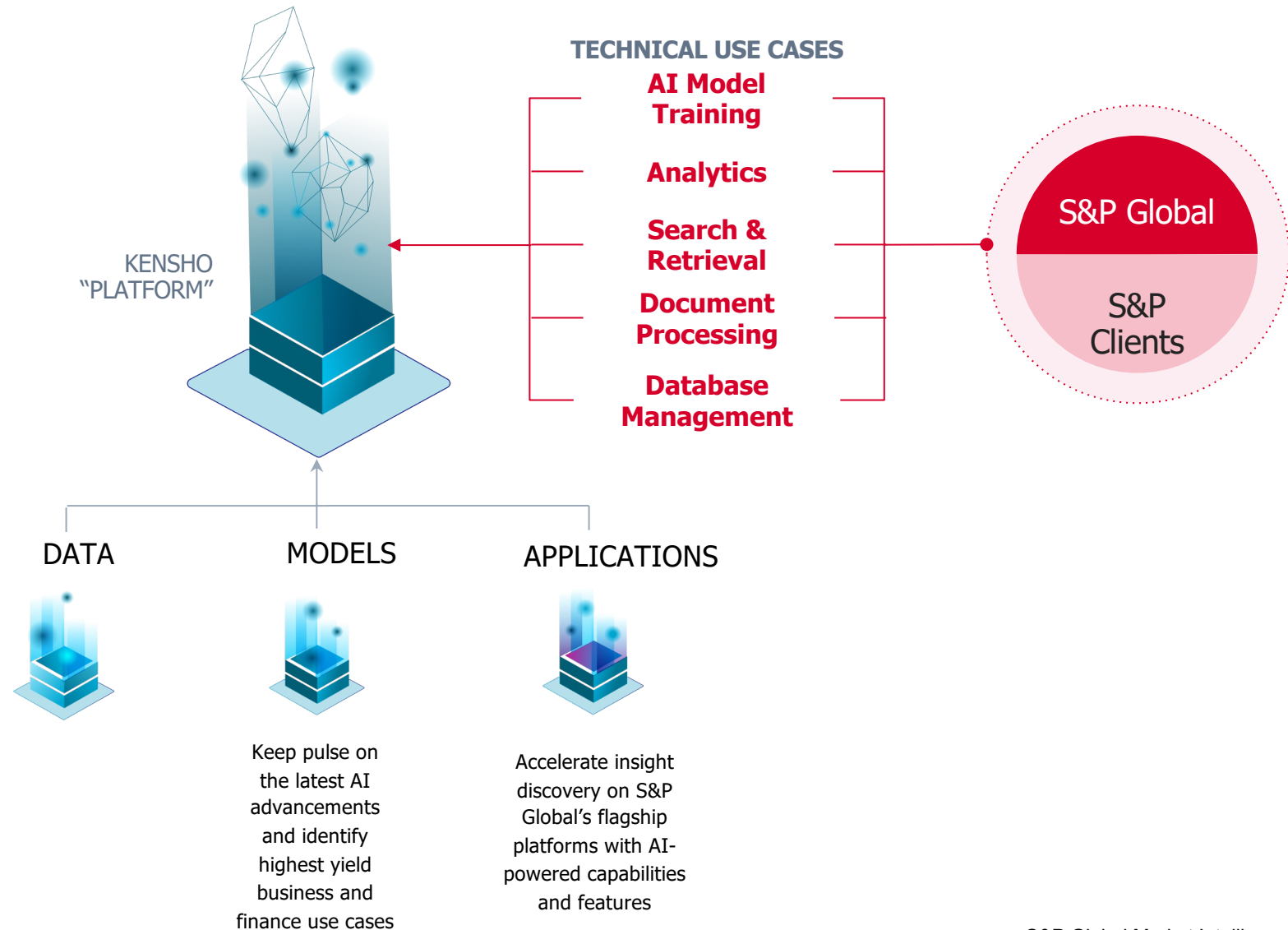
By taking cutting-edge advances in AI and creating the building blocks to enable their adoption across the enterprise and for our customers.



Holistic Platform

KENSHO CONTINUES TO PAVE THE WAY FOR AI

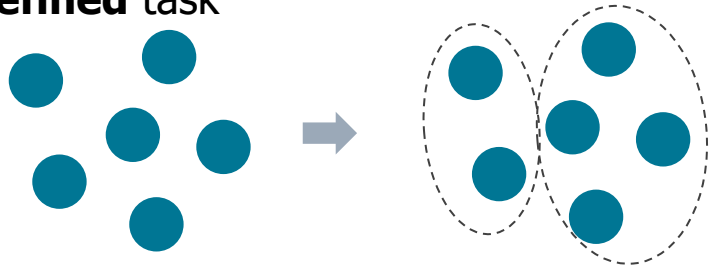
By leveraging experiments in Generative AI and our AI toolkit, Kensho aims to offer S&P Global and its customers an end-to-end enterprise AI enablement suite.



Discriminative AI

→ 2017

Differentiates, identifies, classifies, or transforms **existing** data based on a **narrowly defined** task

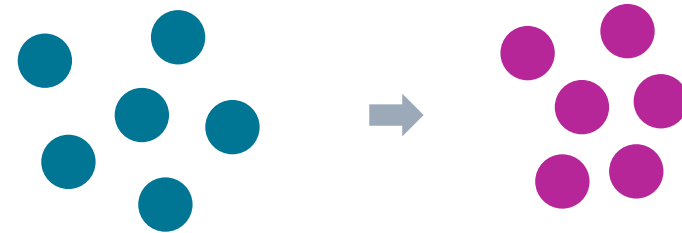


- Named Entity Recognition (NER)
- Named Entity Disambiguation (NED)
- Automatic Speech Recognition (ASR)
- Table Extraction
- Optical Character Recognition (OCR)
- Text Classification
- Summarization
- Entity Linking
- Sentiment Analysis

Generative AI

2017 →

Predicts and creates **new** data based on a **wide-variety** of possible prompts



- Large Language Models (LLMs)

“Attention Is All You Need” (2017) <https://arxiv.org/abs/1706.03762>
(Transformer Architecture Paper, start of LLM arms race)

Business & Finance AI Applications



DATA



MODELS



APPLICATIONS



Available Now

Machine Readable Earnings Call Transcripts

[https://www.marketplace.spglobal.com/en/datasets/machine-readable-transcripts-\(45\)](https://www.marketplace.spglobal.com/en/datasets/machine-readable-transcripts-(45))

Machine Readable Broker Reports

[https://www.marketplace.spglobal.com/en/datasets/machine-readable-broker-research-\(261\)](https://www.marketplace.spglobal.com/en/datasets/machine-readable-broker-research-(261))

Machine Readable Regulatory Filings

[https://www.marketplace.spglobal.com/en/datasets/machine-readable-filings-\(197\)](https://www.marketplace.spglobal.com/en/datasets/machine-readable-filings-(197))

Market Intelligence News Feed

[https://www.marketplace.spglobal.com/en/datasets/market-intelligence-news-\(228\)](https://www.marketplace.spglobal.com/en/datasets/market-intelligence-news-(228))

Textual Data Analytics

[https://www.marketplace.spglobal.com/en/datasets/textual-data-analytics-sentiment-scores-behavioral-metrics-\(36\)](https://www.marketplace.spglobal.com/en/datasets/textual-data-analytics-sentiment-scores-behavioral-metrics-(36))

Kensho Scribe

[https://www.marketplace.spglobal.com/en/solutions/kensho-scribe-\(51a74428-4e26-49cb-9039-3c47116aaeb6\)](https://www.marketplace.spglobal.com/en/solutions/kensho-scribe-(51a74428-4e26-49cb-9039-3c47116aaeb6))

Kensho Extract

[https://www.marketplace.spglobal.com/en/solutions/kensho-extract-\(8fc3daba-d0c2-42e6-b19b-01818e0461bc\)](https://www.marketplace.spglobal.com/en/solutions/kensho-extract-(8fc3daba-d0c2-42e6-b19b-01818e0461bc))

Kensho NERD

[https://www.marketplace.spglobal.com/en/solutions/kensho-nerd-\(dad93a3c-bc57-4533-ab4b-c65f7346db6b\)](https://www.marketplace.spglobal.com/en/solutions/kensho-nerd-(dad93a3c-bc57-4533-ab4b-c65f7346db6b))

Kensho Classify

[https://www.marketplace.spglobal.com/en/solutions/kensho-classify-\(eb7d19f2-1e87-42bd-ad2c-501ac524899d\)](https://www.marketplace.spglobal.com/en/solutions/kensho-classify-(eb7d19f2-1e87-42bd-ad2c-501ac524899d))

Kensho Link

[https://www.marketplace.spglobal.com/en/solutions/kensho-link-\(2d7177f8-ada7-4c1c-b360-b33951f57248\)](https://www.marketplace.spglobal.com/en/solutions/kensho-link-(2d7177f8-ada7-4c1c-b360-b33951f57248))

Capital IQ Pro - Document Viewer

<https://www.capitaliq.spglobal.com/apisv3/docviewer/documents>

Capital IQ Pro - Sentiment Analysis Chart Builder

<https://www.capitaliq.spglobal.com/web/client?auth=inherit&overridecdc=1&%20#charbuilder>

S&P Global Marketplace Search

<https://www.marketplace.spglobal.com/>

Coming Soon

S&P Global LLM Training Data Set



Transactions Dataset "LLM-Ready" API Beta



kFinance "LLM-Ready" API Beta



Kensho Classify Out-of-the-Box Concept Sets

Capital IQ Pro - Chat IQ



AI Toolkit

Automatic Speech Recognition (ASR)



Extraction & Key Value Extraction



Natural Language Processing (NLP)

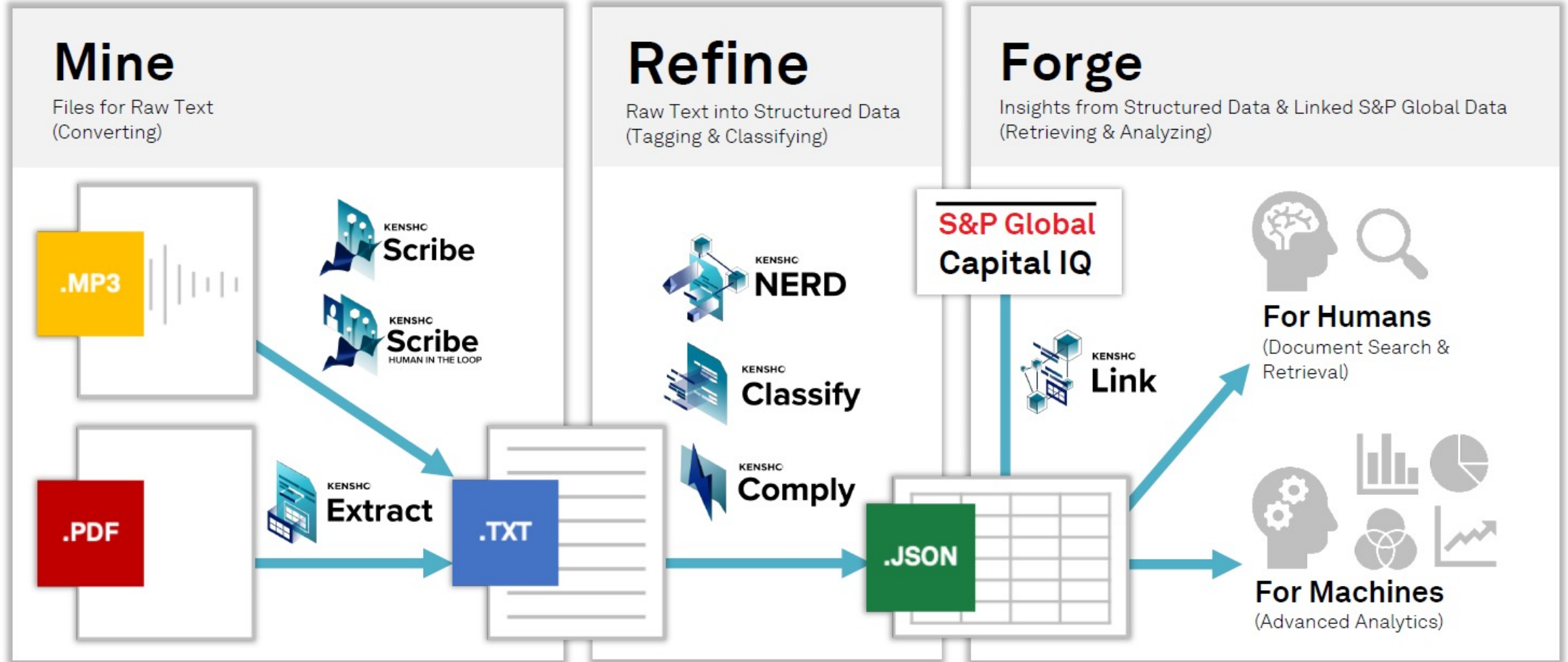


Database Reconciliation



Tools to Build a Pipe

| End-to-end Artificial Intelligence Pipeline powered by S&P Global Data



Capital IQ Pro Desktop Value Proposition

Brings together our data with analytics and visualizations to power financial market workflows


S&P Capital IQ

Workflow

Analytics

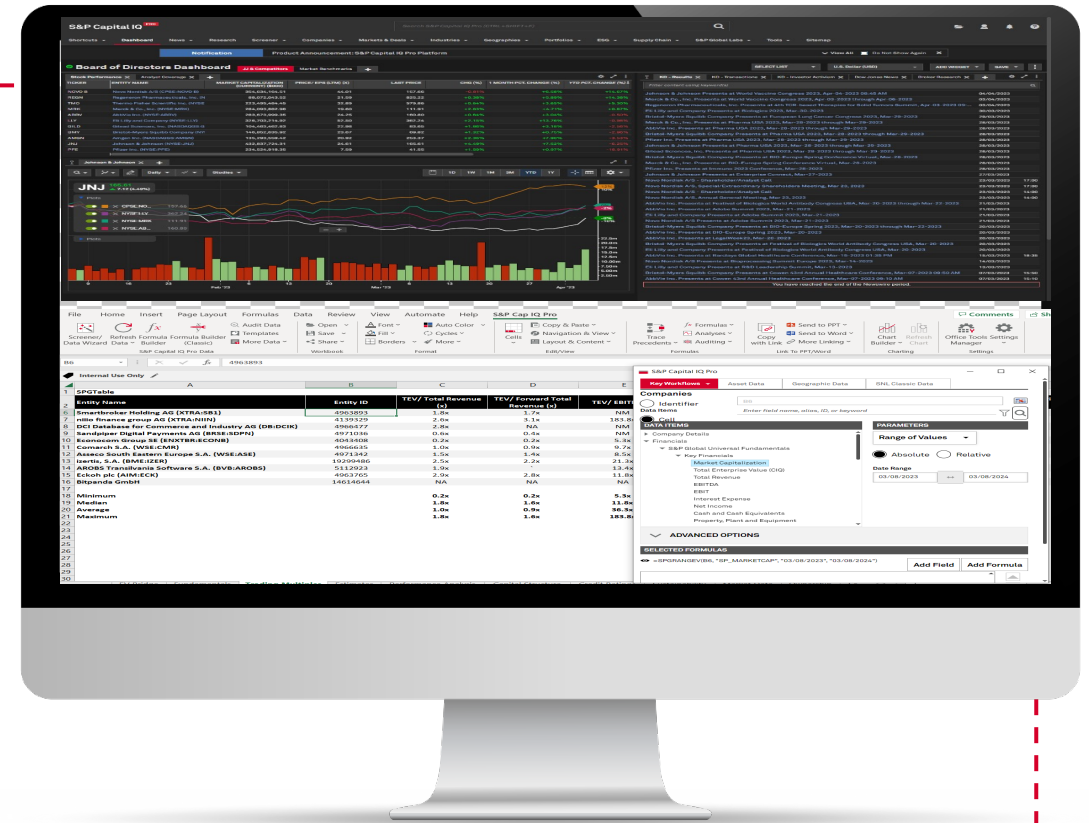
Visualizations

Data

Web 

Microsoft Office plugins

 Mobile app



S&P Capital IQ Pro – AI Adoption Journey

Leveraging AI on the back and front end to advance value proposition

1

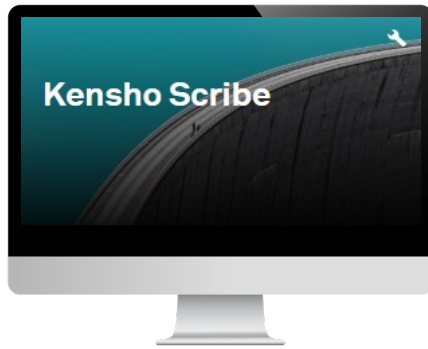
Kensho Link



- ✓ **Machine learning model for entity matching** which minimizes the time it takes to on-board new datasets
- ✓ **As a result of Kensho Link, we now have 52m private cos. incl. 13m with financials.**

2

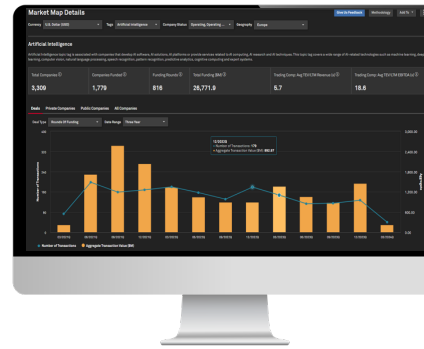
Kensho Scribe



- ✓ **Fully-automated transcription service for financial audio.** Build on deep learning models trained on 100,000+ hours of earnings calls
- ✓ **As a result of Kensho Scribe, we've expedited delivery of our earnings call transcripts**

3

Topic Tags



- ✓ **New industry taxonomy spanning 276 niche industries** (e.g., Cryptocurrency) generated through an AI-based model analyzing business description.

4

Document Analysis



- ✓ **AI underpinned Document Viewer** supporting:
 - Links to text
 - Named Entity Recognition
 - Disambiguation
 - Language Analytics
 - Table Extraction

5

Smart Search

Document ID	Company	Country	Industry	Revenue (USD)	Market Cap (USD)	Employees	Website
0000000001	Renewable Energy	France	Renewable Energy	1.2B	2.5B	1500	www.renewableenergy.com
0000000002	Green Power	Germany	Renewable Energy	800M	1.8B	1000	www.greenpower.com
0000000003	Solar Solutions	Spain	Renewable Energy	600M	1.2B	800	www.solarsolutions.com
0000000004	Wind Energy	Denmark	Renewable Energy	500M	1.0B	700	www.windenergy.com
0000000005	Hydro Power	Sweden	Renewable Energy	400M	800M	600	www.hydro.com

- ✓ **AI Smart Search** tool supporting synonyms, enhanced results relevancy and light screening

Business Application: genAI Search Use Case

S&P Capital IQ PRO

ChatIQ STATUS: IN TRAINING Feedback

MH What are the core drivers of market growth for the EV market and Auto Industry as a whole?

ChatIQ

1. Government incentives and policies: Governments around the world are offering incentives and policies to encourage the adoption of EVs, such as tax credits, rebates, and subsidies for the purchase of EVs, as well as mandates for automakers to sell a certain percentage of EVs.
2. Decreasing battery costs: The cost of batteries is decreasing rapidly, making EVs more affordable and competitive with traditional gasoline-powered vehicles.
3. Environmental concerns: There is growing concern about the environmental impact of traditional gasoline-powered vehicles, leading to increased demand for more sustainable and environmentally friendly alternatives.
4. Improving charging infrastructure: As the demand for EVs grows, there is a need for more charging stations and infrastructure to support the growing number of EV owners.
5. Autonomous vehicles: Autonomous vehicles are expected to play a significant role in the future of the automotive industry, and many companies are investing heavily in the development of autonomous EVs.
- 6.

Source Documents ← *Avoidance of ghost citations*

DOCUMENT	DATE
Phoenix Motor Inc. 10-K 2022 Q4	12/31/2022
Nuvve Holding Corp. 10-K 2022 Q4	12/31/2022
EVgo, Inc. 10-K 2022 Q4	12/31/2022

Ask a Question Generate Response

ChatIQ: Enhancing the Capital IQ Workflow

Specialised GenAI tools will be integrated within relevant CIQ Pro platform pages directly

Financial Q&A

'Summarize...'

'Visualize...'

'Build me...'

Search

Screener

Doc Viewer

Chart Builder

Report Builder

CIQ Pro Help

CIQ PRO INTEGRATION

- CIQ Pro Platform pages are enriched with GenAI tools that can accelerate specific workflows and meet user expectations of natural language interfaces
- Leverages the ChatIQ language modelling capabilities
- Designed to help users accelerate specific 'jobs to be done' within Screener, Charting, Report Builder, Search, etc

Business Application: Discriminative AI Search Use Case

The screenshot displays the S&P Capital IQ interface. On the left, there are search filters including 'Exxon Mobil Corporation', 'Industries (MI)', 'Geographies', and 'Date'. The main content area shows search results for 'Carbon Credit' with 7 items. An 'Entities' dropdown menu is open, listing various organizations with their respective scores. The background text is a transcript snippet from Exxon Mobil Corporation.

Entities List:

Organization	Score
Pioneer Natural Resources Company	43
Exxon Mobil Corporation	18
Denbury Inc.	3
JPMorgan Chase & Co.	2
The Goldman Sachs Group, Inc.	2
Sanford C. Bernstein & Co., LLC., Research ...	2
Wolfe Research, LLC	2
Evercore ISI Institutional Equities, Researc...	2
Morgan Stanley, Research Division	1
BofA Securities, Research Division	1
UBS Investment Bank	1
Truist Securities, Inc., Research Division	1
Scotiabank Global Banking and Markets, R...	1
Wells Fargo Securities, LLC, Research Divis...	1
Piper Sandler & Co., Research Division	1

Transcript Snippet:

Consistent with our capital allocation strategy, we... This morning, we were pleased to announce a 4% increase in our 41st consecutive year of annual dividend increases... highly.

We continue to strengthen our portfolio of business... investing businesses that are no longer a strategic... bringing our year-to-date cash proceeds from assets... close of the refinery sale in Italy.

Recently announced acquisitions are great examples... essential products and reducing emissions. Acquiring... in hard-to-decarbonize industries, which today have... with the capacity to reduce the nation's carbon emissions... agreements with CF Industries, Linde and Nucor... equivalent to replacing 2 million cars with EVs, roughly... expect to close the transaction in early November...

Earlier this month, we signed an agreement to acquire... combination will further strengthen our already... shareholders of both companies. Together, we will realize... impact.

We plan to accelerate Pioneer's Permian net zero... recycling. This deal is a win any way you look at it... economy and good for U.S. energy security. Neil will...

We're also continuing to drive profitable growth... refinery throughput on record driven by our Beaumont... this project is providing 250,000 barrels per day of...

In addition, we recently started up our Baytown chemical... 750,000 tons per year of new performance chemical... entry into this growing market.

We delivered another quarter of strong operational... from operations of \$16 billion. These results reflect... several years as we've improved our mix of assets and... focus on industry-leading safety and reliability.

We lowered our structural cost by \$9 billion since the... fourth quarter. We continue to identify opportunities... maintenance and turnaround processes, strengthening... Our year-to-date production of 3.7 million oil equivalent...

Screening: Enhancing Capital IQ Workflow

Natural Language Screening

Build complex screens in seconds.

ScreenIQ leverages Generative AI to construct complete sets of Screener criteria in response to user-entered text prompts

SCREEN 1

Criteria

Q *crypto companies with revenue over a million*

ScreenIQ

Company Type in Public Company; Private Company

[Company Details] / [General Business Details]

and **Business Description** includes crypto OR digital currency OR bitcoin

[Company Details] / [General Business Details]

or **Topic Tags** in Cryptocurrency; Decentralized Finance

[Company Details] / [General Business Details]

or **Crunchbase Categories** includes cryptocurrency

[Company Details] / [General Business Details]

and **Total Revenue (\$000) Last Twelve Months** > 1,000

[Financials] / [S&P Global Universal Fundamentals] / [Key Financials]

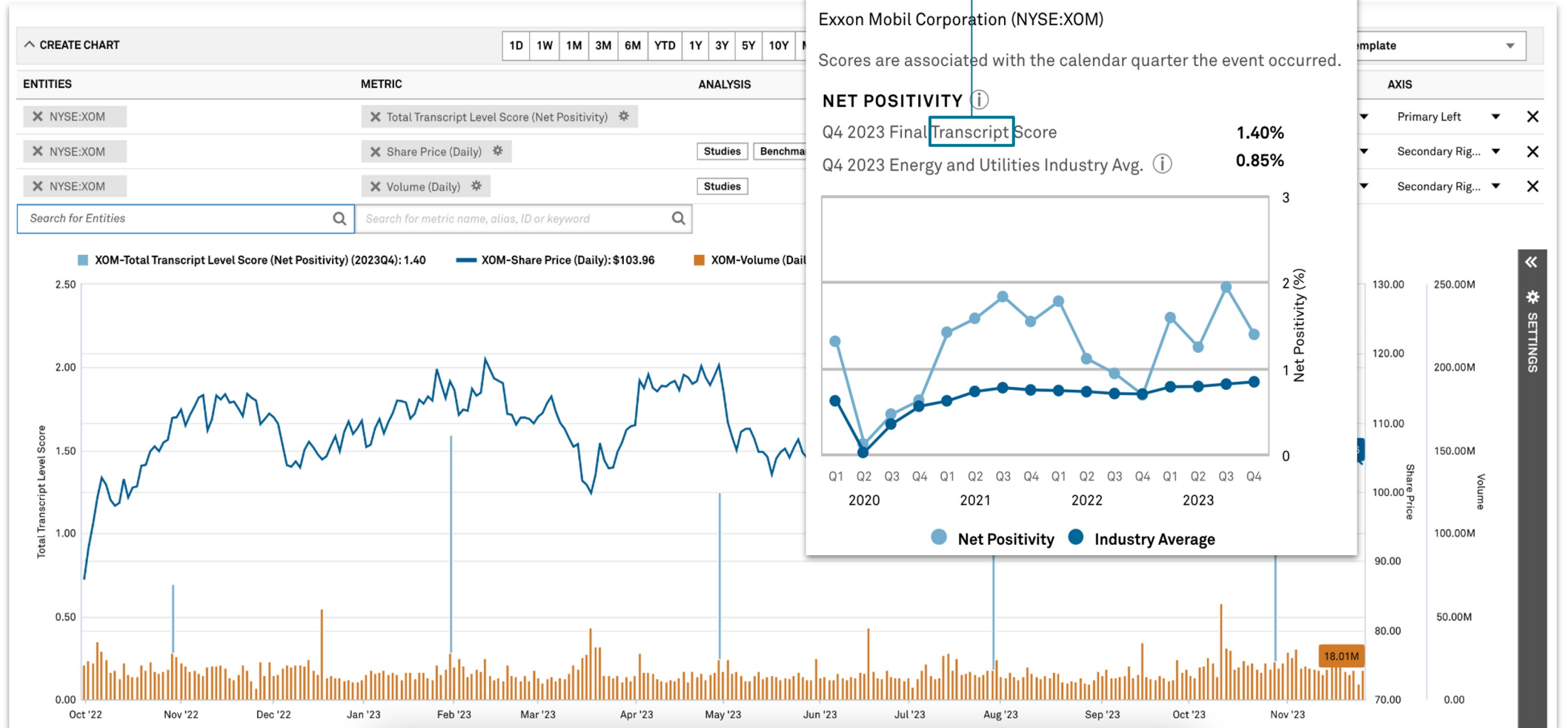


"Tech companies with a female CEO"

"European companies with a post money valuation of over 1 billion"

"Companies trading on LSE that reached their 52-week high in the last 7 days"

Business Application: Analytics Use Case



Business Application: Analytics Use Case



TRADITIONAL SENTIMENT ANALYSIS

While revenue has declined from last quarter, we believe that our large language model applications will result in long term profitability for Microsoft.

ASPECT-BASED SENTIMENT ANALYSIS

While revenue has declined from last quarter, we believe that our large language model applications will result in long term profitability for Microsoft.

● Negative ● Positive ● Neutral

The screenshot displays the S&P Global Market Intelligence interface. On the left, a dark sidebar contains a search bar, a company name field with 'S&P' entered, and a market sentiment indicator showing 'Positive' with a red line graph. The main content area shows a news snippet titled 'S&P Global Transformation with AI on 10/04/2023 at 9:00 AM GMT'. The snippet text is: 'As we've delivered these results, we've continued to invest for future growth and productivity. In 2018, we continued to invest in technology and data. We acquired world-class artificial intelligence and machine learning technology with Kensho, unique technology and supply chain data with Panjiva; differentiated banking data with RateWatch; and in the fourth quarter, certain index intellectual property rights. In addition to these acquisitions, we invested in companies pioneering new technologies.' The interface highlights specific terms with colored boxes: 'artificial intelligence' (green), 'Kensho' (green), 'unique data' (yellow), 'world-class data' (green), 'million in internal investments' (green), 'Kensho' (green), 'Panjiva, RateWatch, ESG and China' (green), 'pioneering new technologies' (green), 'investment strategy' (green), 'deal announcements' (green), 'Ratings' (red), and 'free cash flow' (green). To the right of the snippet, a list of aspects is shown: 'Artificial Intelligence' (green), 'pioneering new technologies' (green), 'Kensho' (green), 'unique data' (yellow), 'Kensho' (green), 'word class data' (green), 'deal announcement' (green), 'investment strategy' (green), 'deal announcements' (green), and 'Ratings' (red).

Business Application: Data Management Use Case

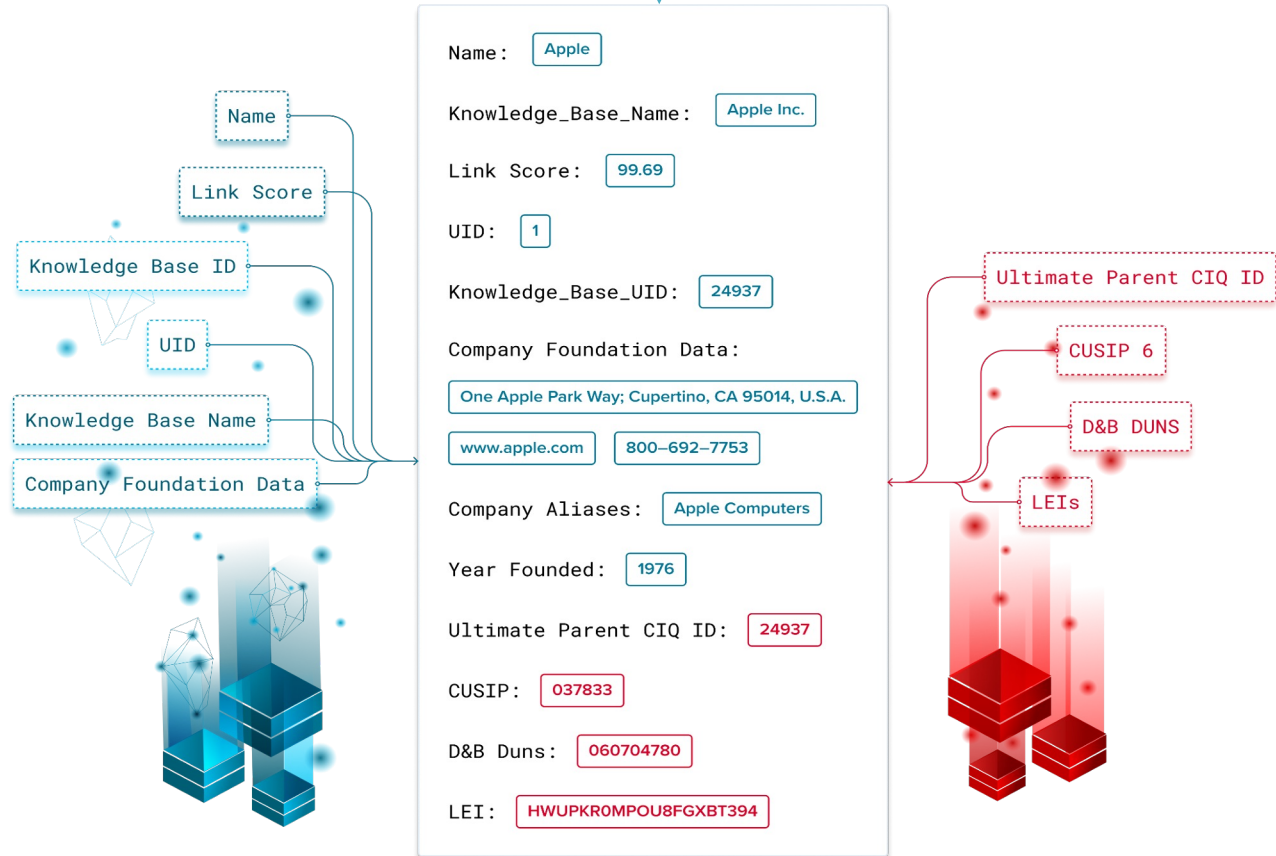
Tabular Data

Company Name	Legal Entity Name	Company ID
Apple	?	?



+

S&P Global
BECRS
(Business Entity Cross Reference Service)



Business Application: Data Management Use Case

Textual Data – Future State

The screenshot displays the KENSHC Extract application interface. On the left, there is a sidebar with filters for 'Lease Commencement Date' (December 15th, 2022 - High; November 15, 2022 - Med) and 'Land Owner Name' (Rath Greens Company, LLC). The main content area shows a document titled 'COMMERCIAL LEASE' with several sections highlighted in purple: 'This Lease Agreement (this "Lease") is dated as of November 15, 2022, by and between Rath Greens Company, LLC ("Landlord"), and McGlynn, Berge and Collier ("Tenant").', 'PREMISES. Landlord, in consideration of the lease payments provided in this Lease, leases to Tenant a 3,000 square foot building in the Wellington Plaza (the "Premises") located at 4202 South Industrial Avenue, Sacramento, CA 54321-1234.', 'TERM. The lease term will begin on December 1~~st~~st 2022 and will terminate on November 30, 2023.', 'POSSESSION. Tenant shall be entitled to possession on the first day of the term of this Lease, and shall yield possession to Landlord on the last day of the term of this Lease, unless otherwise agreed by both parties in writing. At the expiration of the term, Tenant shall remove its goods and effects and peaceably yield up the Premises to Landlord in as good a condition as when delivered to Tenant, ordinary wear and tear excepted.', 'USE OF PREMISES. Tenant may use the Premises only for Business The Premises may be used for any other purpose only with the prior written consent of Landlord, which shall not be unreasonably withheld. Tenant shall notify Landlord of any anticipated extended absence from the Premises not later than the first day of the extended absence.', and 'EXCLUSIVITY. Landlord shall not directly or indirectly, through any employee, agent, or otherwise, lease any space within the property (except the Premises herein described), or permit the use or occupancy of any'. A dropdown menu for 'Land Owner Name' is open, showing 'Rath Greens Company, LLC' as the selected option.



KENSHC

Extract

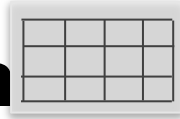
Key	Value
Lessor	Rath Greens Company, LLC
Lessee	McGlynn, Berge and Collier
Lease Payments	\$1,500.00
Commencement Date	December, 01, 2022
Termination Date	November 30, 2023
Premises	3,000 square feet

Challenges with AI & the Path Forward



Challenges with AI as a Vendor and our Path Forward: LLM-unfriendly data

AI-Ready **Tabular Data**



"LLM-Ready" Dataset APIs

Dataset-Specific LLM Prompt Libraries

API "LLM-Readiness" Assessment Tooling



Enables LLM to Query **Complex datasets**
(more than 2 SQL JOINS) and **Source Code Review**

AI-Ready **Textual Data**





Workflow Specific Metadata Taxonomies

"Vector-Ready" Text Data

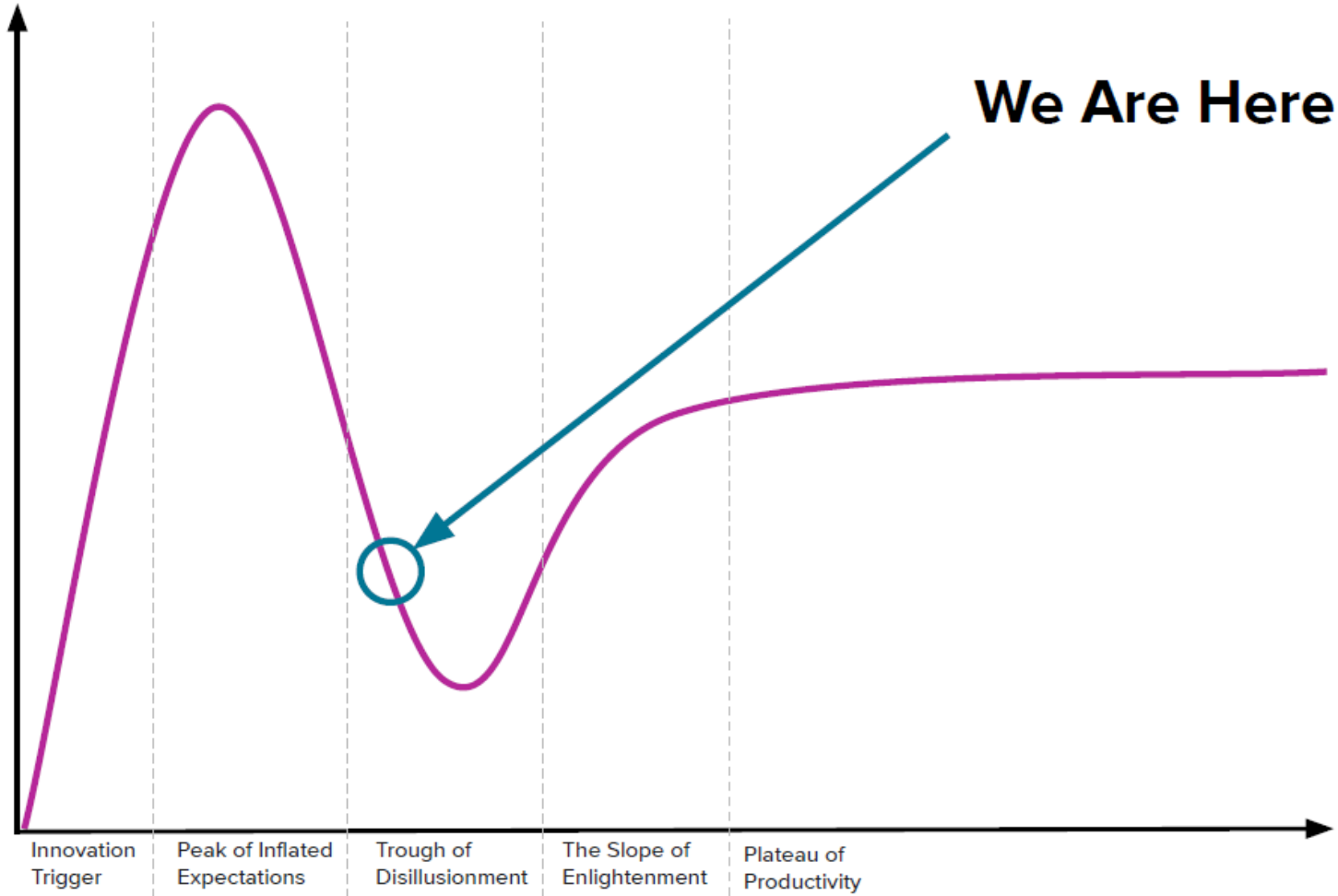


Enables Paragraph-Level **Source Traceability**
and Increases **Accuracy & Precision** of LLM
Answers via metadata pre-filtering

Challenges with AI as a Vendor and our Path Forward: Trustable Data

Example LLM Prompts	Feasibility	Explanation
<p>Draft an email to [Vendor X] thanking them for fulfilling our request for [feature Y]. Sign-off that they met the requirements.</p>	 'Easy'	<ul style="list-style-type: none">- Pure text generation- Prompt contains all context- Compatible with LLM training
<p>What mergers or acquisitions has [company] completed in the last 20 years? How many were there in total by industry?</p>	 Very Hard	<ul style="list-style-type: none">- Needs accurate, trusted ground truth- Quantitative reasoning- Time sensitive

GenAI Hype Cycle



GenAI Hype Cycle

