

Learnings from

IBM fintechx

- Patterns for applying Generative AI

An IBM Innovation Studio initiative

watsonx[™]

IBM



IBM fintechx

Unlocking the potential of Generative AI in Financial Services

#7 fintech companies

across Northern Europe to develop new – or enrich existing – **services with generative AI.**



Local IBM coaches

contribute with **hands-on build support** for validation of generative AI use cases.

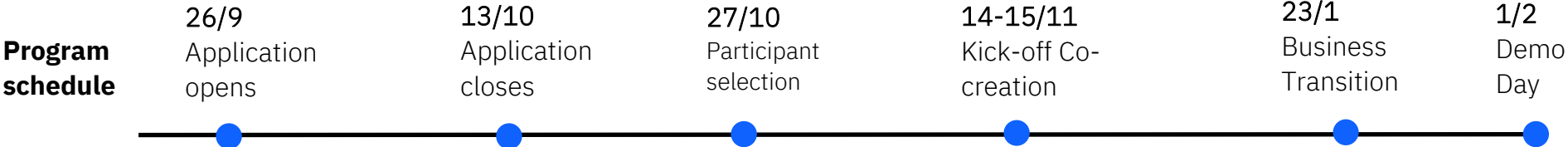


Banking & VC partners

follows the cohort and act as Demo Day panel with **firsthand access to participant solutions.**



A 10-week program designed to accelerate the development, and deployment of AI-powered solutions



Meet the IBM fintechx participants



Digital asset management based on physical assets that includes services for creation, identity management and payments.



Smart cashflow forecasting for SMEs - white labeled through large institutions.



Personalized investment opportunity feed for next-generation financial investors (wealth management).



An investment intelligence platform for improved stock picking + investor relations portal for small cap noted companies.



SME lending through embedded finance analysis + white labeled Risk-as-a-Service to large institutions.



Optimizing AML systems through federated learning

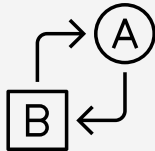


A platform for investment stewardship data management.

There is a lot of words used within AI, today it is most about Generative AI

ChatGPT inspired interest...

Large language model



Great at text

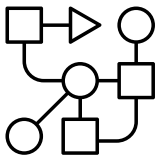


But there is a bigger concept...

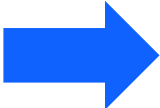
Foundation model



Transformer



Unlabeled data



Which will change business

Generative AI

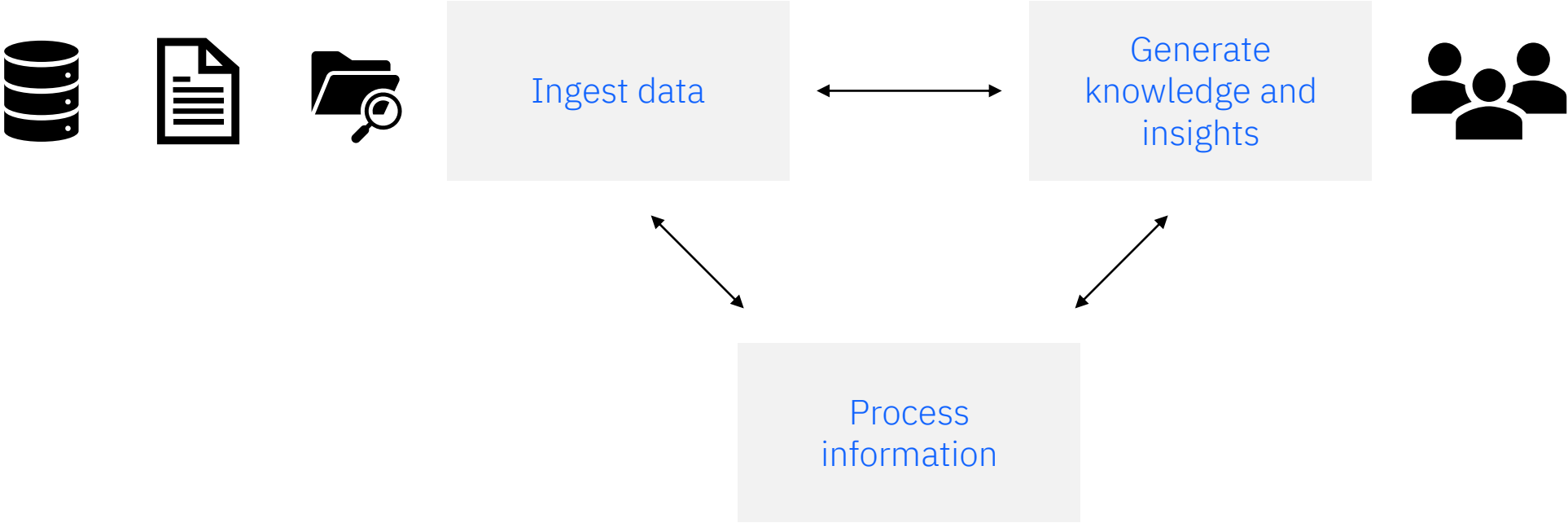


Anything that creates new content

What did we learn about Generative AI, that we can apply to other solutions?



Starting from the top: where to apply AI

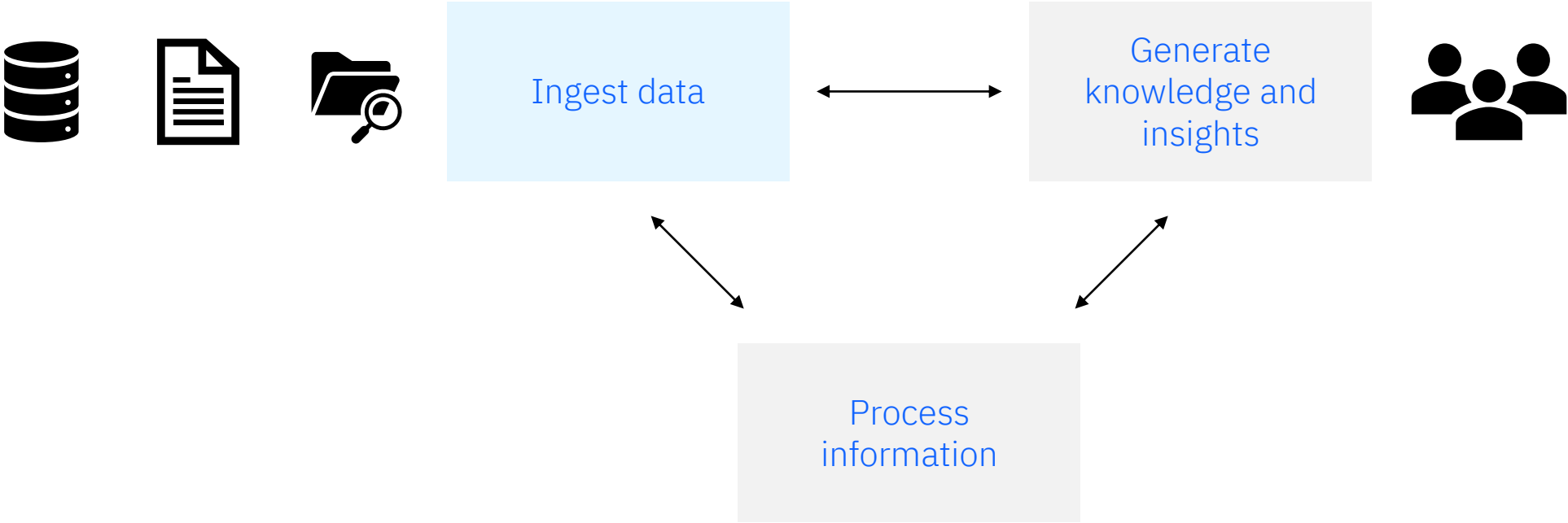


“The journey of a thousands miles begins with a small step”

- Lao Tzu

	Step 1	Step 2	Step 3
Stage	Initial PoC	Pilot deployment	Deployment at scale
Goal	<i>Prove the use case with minimal effort</i>	<i>Reduce costs as permitted within PoC duration</i>	<i>Maximize ROI</i>
Recommendations	Use the largest model and minimal labeled data . Create labeled test dataset to measure model accuracy.	Prompt engineer or prompt-tune a medium-size model . You may need to gather additional labeled data as examples or for tuning.	Fine-tune a small model for the specific use-case. Use additional training data gathered to fine-tune a model.
Inference costs	\$\$\$	\$\$	\$

Starting from the top: where to apply AI



Ingest data - challenges

Unstructured **data is abundant**, such as customer emails, call center transcripts, social media posts and all document's employees create.

Unstructured **data is often noisy, inconsistent, and incomplete**, making it difficult to extract useful information.

Traditional methods of extracting insights from unstructured data **require manual effort**, which is time-consuming and error-prone.





Ingest data

- available patterns

Named Entity Recognition (NER): Using LLMs to extract entities such as names, organizations, and locations from unstructured text.

Sentiment Analysis: Using LLMs to determine the emotional tone of unstructured text and extract insights about customer sentiment.

Text Classification: Using LLMs to automatically categorize text data into predefined categories.

Data Preprocessing: Using LLMs to clean, normalize, and transform unstructured data into a structured format that can be easily processed (example json format).



Ingest data - examples

A use-case is often using a mix of patterns:

A bank uses LLMs to **extract information from customer emails** and automatically route them to the appropriate department for handling.

An insurance company uses LLMs to **analyze call center transcripts** and identify common customer complaints and issues.

A financial services firm uses LLMs to **monitor social media** posts and identify potential risks to their brand reputation.

Bonus:

Anyone that want to capture data from **pdf files...**

Digital asset management based on physical assets that includes services for creation, identity management and payments.

Targeted Use-Case:
Dynamic valuation of real-estate assets.

Make a “financial twin” of an asset and make impact analysis of news/changes in monitored data streams.

Ingested information from websites and documents.

Also add possibility to ingest news and events video, by transcribing into text.

<https://www.ibm.com/case-studies/trust-anchor-group>

Dynamic Asset Valuation using IBM watsonx.ai

Based on a digitalized asset, we are able to:

- find **RELEVANT** events
- **SUMMARIZE** the events
- **UNDERSTAND** the events
- **IDENTIFY** the possible **IMPACT/OPPORTUNITY**
- provide suggestions how to manage the impact in **REAL-TIME!**



+



Events can be a notification, news feed, weather forecast, financial report, news conference, web page, press release and ... video streams!



Ingest data – have in mind

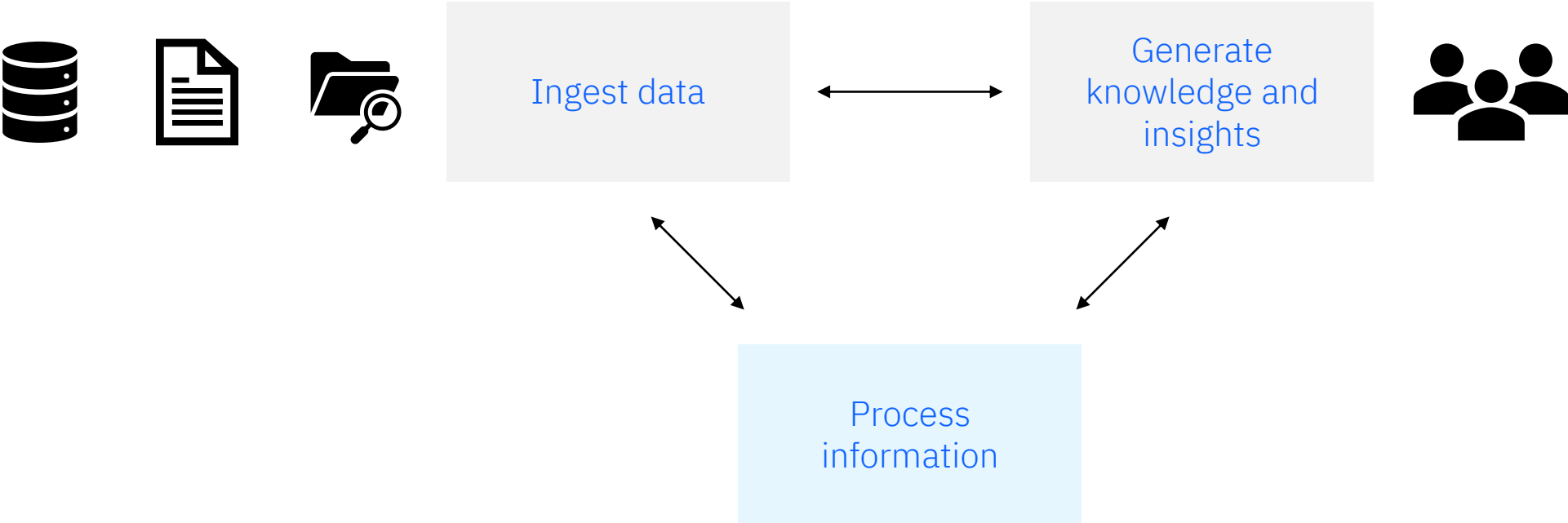
Quality of Data: Ensuring that the unstructured data being ingested is of high quality and relevant to the problem at hand.

Data Privacy: Ensuring that sensitive information is not inadvertently extracted or shared.

Data Accuracy: Ensuring that the information generated by the LLMs are accurate and reliable.

Scalability: Ensuring that the solution can handle large volumes of unstructured data in a timely and efficient manner.

Starting from the top: where to apply AI





Process information - challenges

Unstructured data, such as text data, can be **difficult to transform** into a structured format that can be easily analyzed.

Structured and semi-structured data in fintech **can be voluminous and complex**, making it difficult to process and analyze.

Traditional methods of processing data require **manual effort** and are time-consuming, which can delay decision-making.

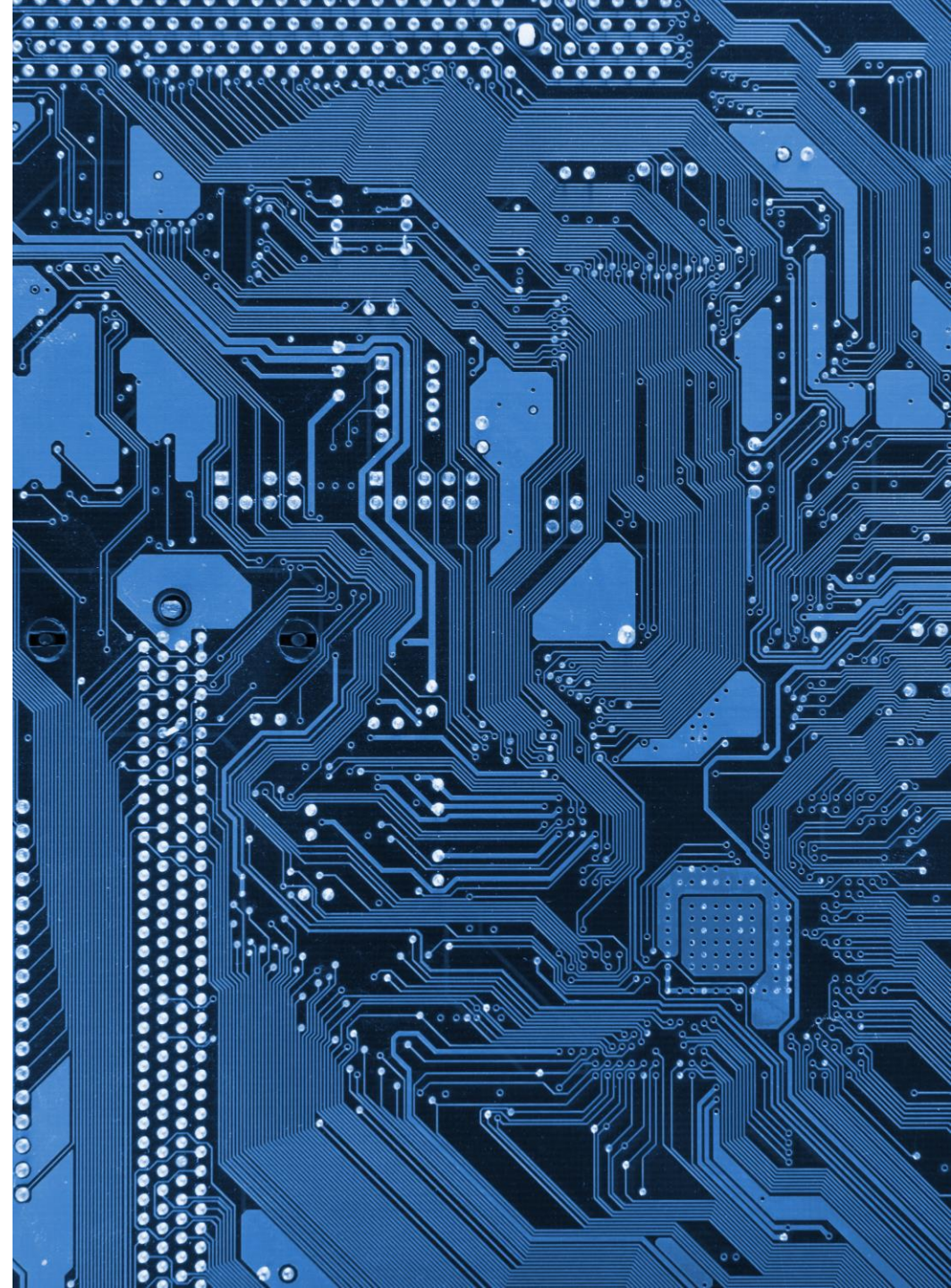
Process information - available Patterns

Text Transformation: Using LLMs to transform text data into a desired structure that can be easily processed and analyzed. (content, style, language)

Summarization: Using LLMs to generate summaries of large volumes of text data, providing stakeholders with key insights in a concise and digestible format.

Data Expansion: Using LLMs to expand existing structured data into natural language, making it easier for stakeholders to understand and interpret.

Feature Engineering: Using LLMs to identify and extract relevant features from structured and semi-structured data.





Process information - examples

A financial services firm uses LLMs to **translate text** data from customer emails and call center transcripts into one common language, enabling them to analyze customer sentiment and identify common issues.

A credit card company uses LLMs to **generate summaries of large volumes of transaction data**, providing stakeholders with key insights into spending patterns and fraud trends.

A bank uses LLMs to **expand structured data from credit reports into natural language**, making it easier for loan officers to understand and interpret.

Process information – have in mind

Language Complexity: Ensuring that the LLMs being used can handle the complexity and nuances of financial language and terminology.

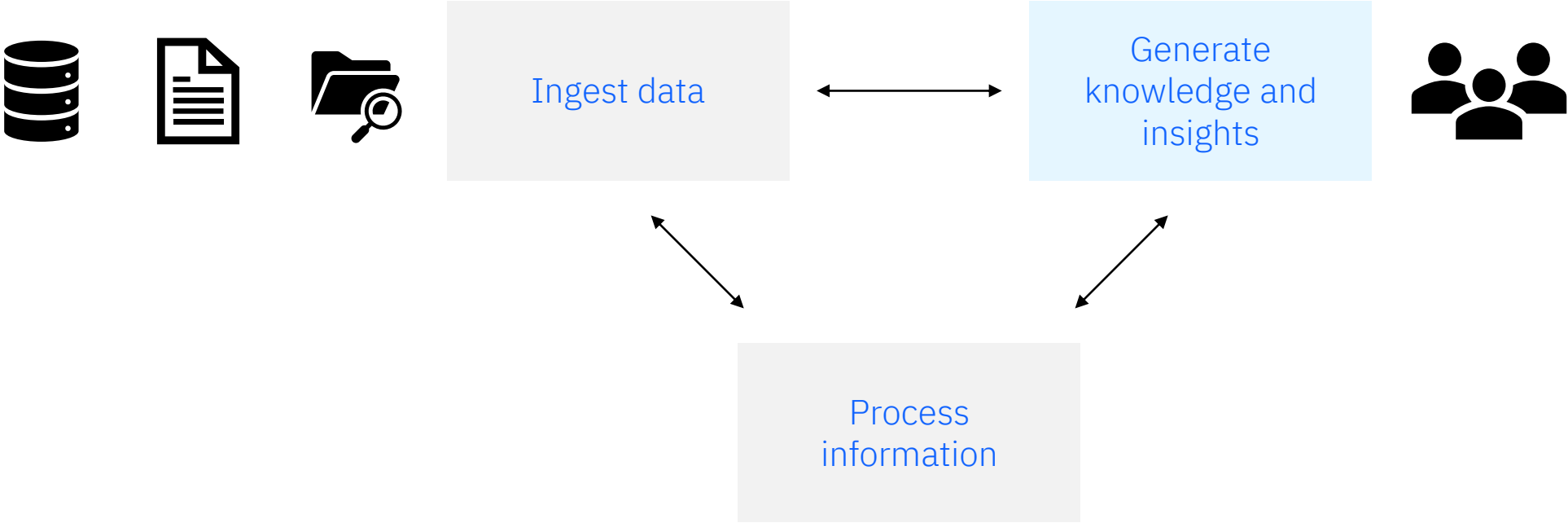
Bias in Models: Ensuring that the LLMs being used do not perpetuate biases or discrimination in the data.

Data Security: Ensuring that sensitive data is protected and not accessed or shared inappropriately.

Data Evaluation: How do the output to be evaluated when processed, and how is the usage monitored?



Starting from the top: where to apply AI





Generate knowledge and insights - challenges

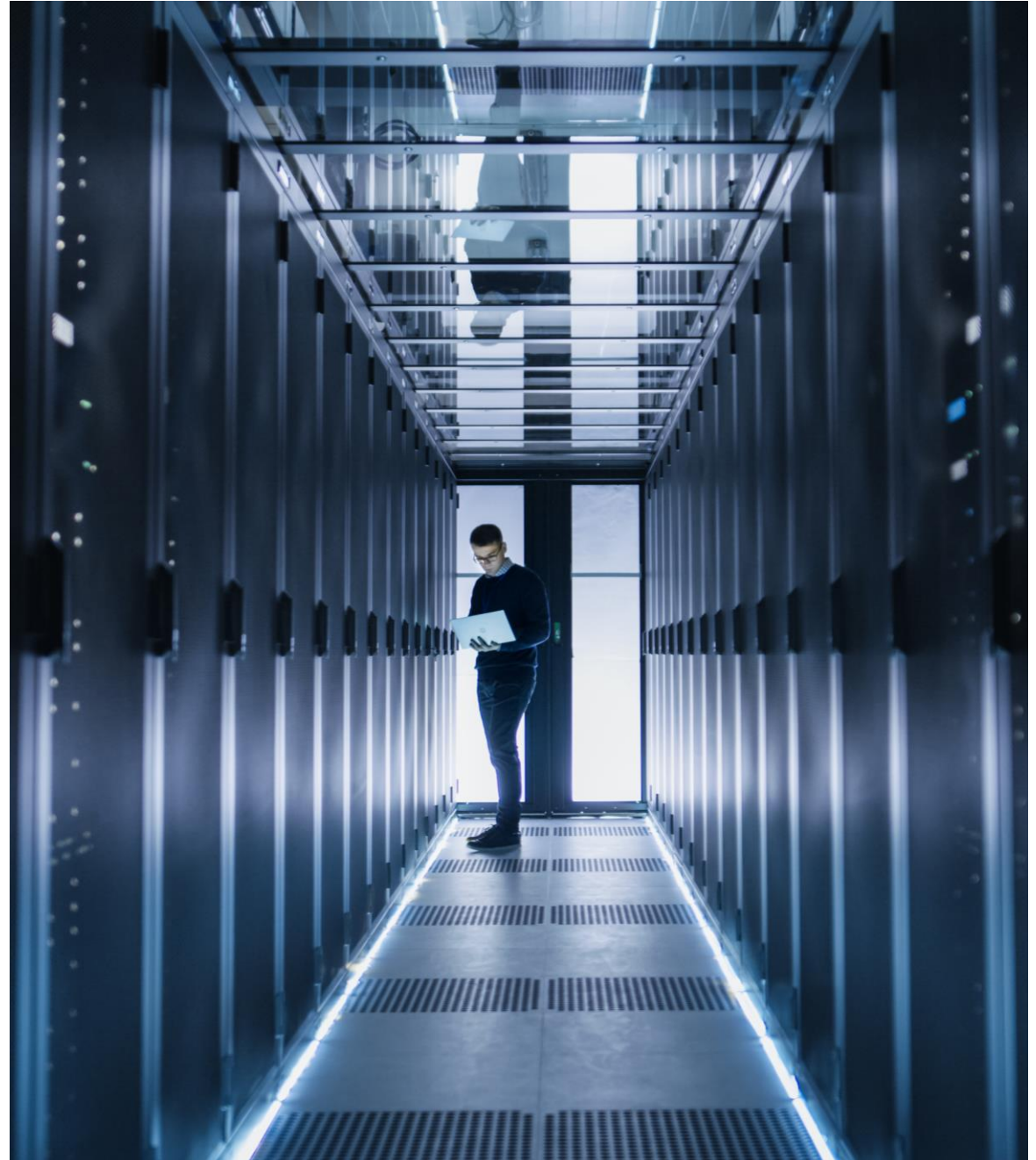
Stakeholders may **not** have the technical **expertise** to analyze complex data and extract insights.

Traditional methods of presenting data and insights to stakeholders, such as **dashboards and reports**, can be **difficult to interpret** and may not provide a complete picture of the situation.

“Thus great data science products are built but their true impact is lost through often irrational, biased, and difficult-to-predict humans who are tasked with using them.”

Brandon Cosley

*Human-centered data science,
towardsdatascience.com*



Generate knowledge and insights

- available patterns

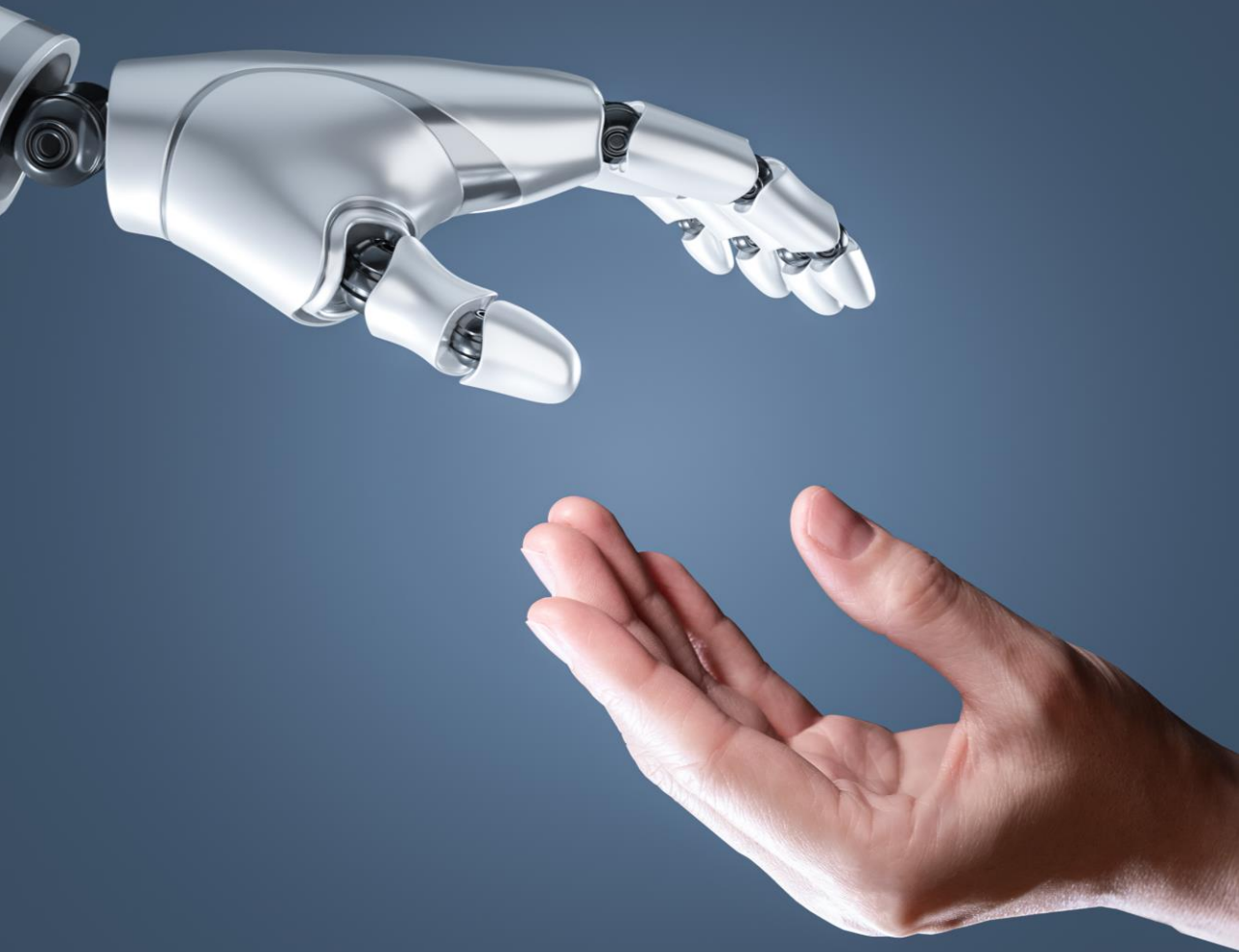
Natural Language Generation (NLG): Using LLMs to automatically generate natural language reports and insights that are easy for stakeholders to understand.

Personalized Recommendations and Advice: Using LLMs to provide personalized recommendations and advice based on individual user profiles and behaviors.

Data Visualization: Using LLMs to generate interactive data visualizations that enable stakeholders to explore data and discover insights.

Storytelling: Using LLMs to create data-driven stories that communicate complex ideas in a clear and engaging way.





Generate knowledge and insights - examples

A financial services firm uses LLMs to **generate personalized investment recommendations** based on individual client profiles.

An insurance company uses LLMs to **create interactive dashboards** that enable stakeholders to explore claims data and identify trends.

A retail bank uses LLMs to **generate natural language reports** that summarize key financial metrics and trends.

A wealth management firm uses LLMs to **create data-driven stories** that help clients understand the performance of their investments.

OXIDE.AI[®]

OXOGEN - a personalized investment opportunity feed for next-generation financial investors.



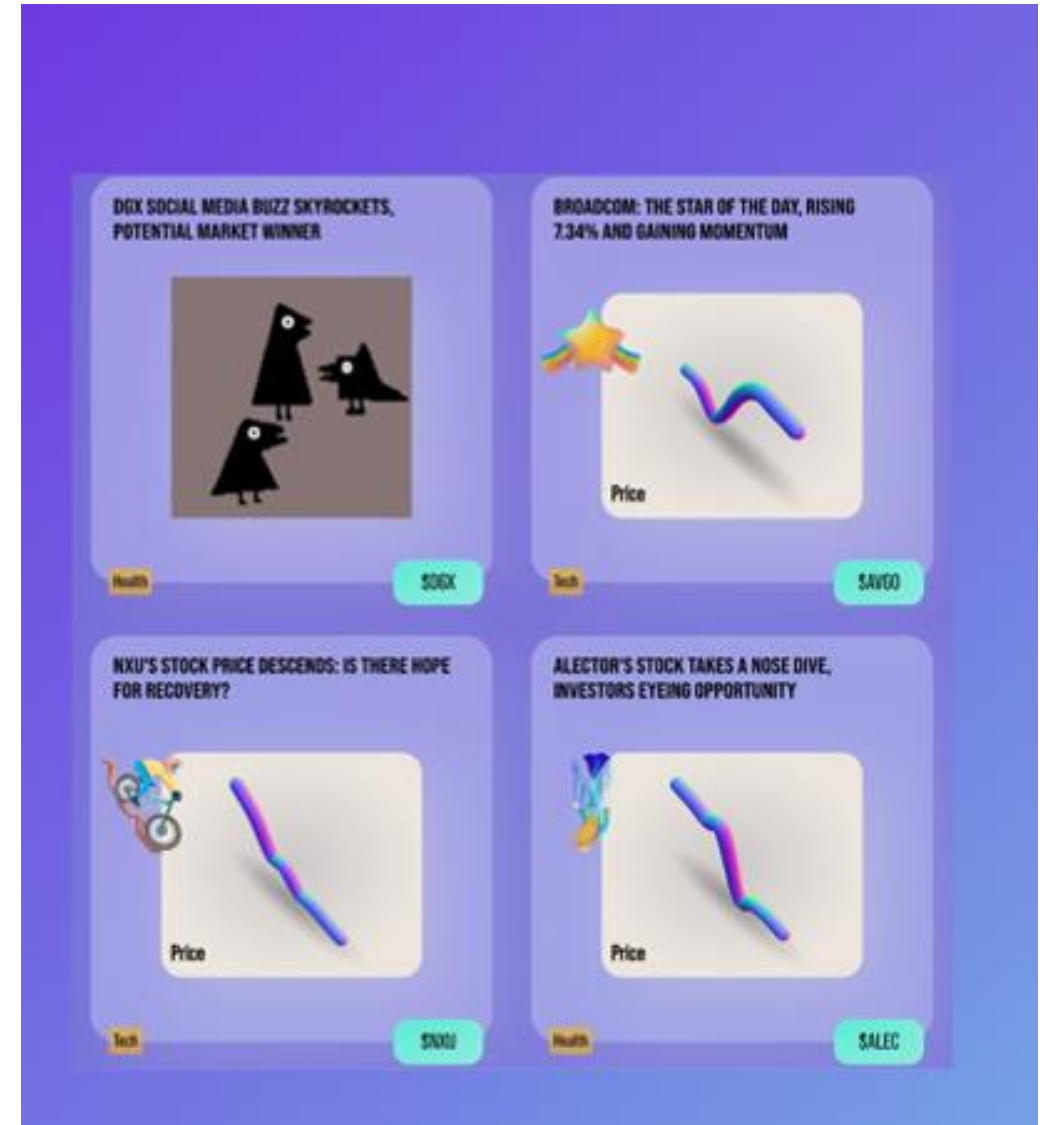
Targeted Use-Case: “now casting” of market information

Elevate confidence in both content validation and content generation from existing data sources.

Generation of content went from static templates to dynamic context aware texts.

Information is also personalized to “user groups”/personas.

<https://www.ibm.com/case-studies/oxide-ai>



Generate knowledge and insights - have in mind

User Experience: Ensuring that the outputs generated by the LLMs are intuitive and easy to use for stakeholders.

Model Interpretability: Ensuring that the models being used are transparent and can be easily interpreted by stakeholders.

Integration: Ensuring that the LLMs can integrate with existing systems and data sources.





Short summary

Use Generative AI to:

- get useful information from unstructured data
- transform structured data and information into knowledge and insights
- create natural language user experiences, that delivers value

