



# The AI Fabric – How Gen AI reshapes Enterprise AI

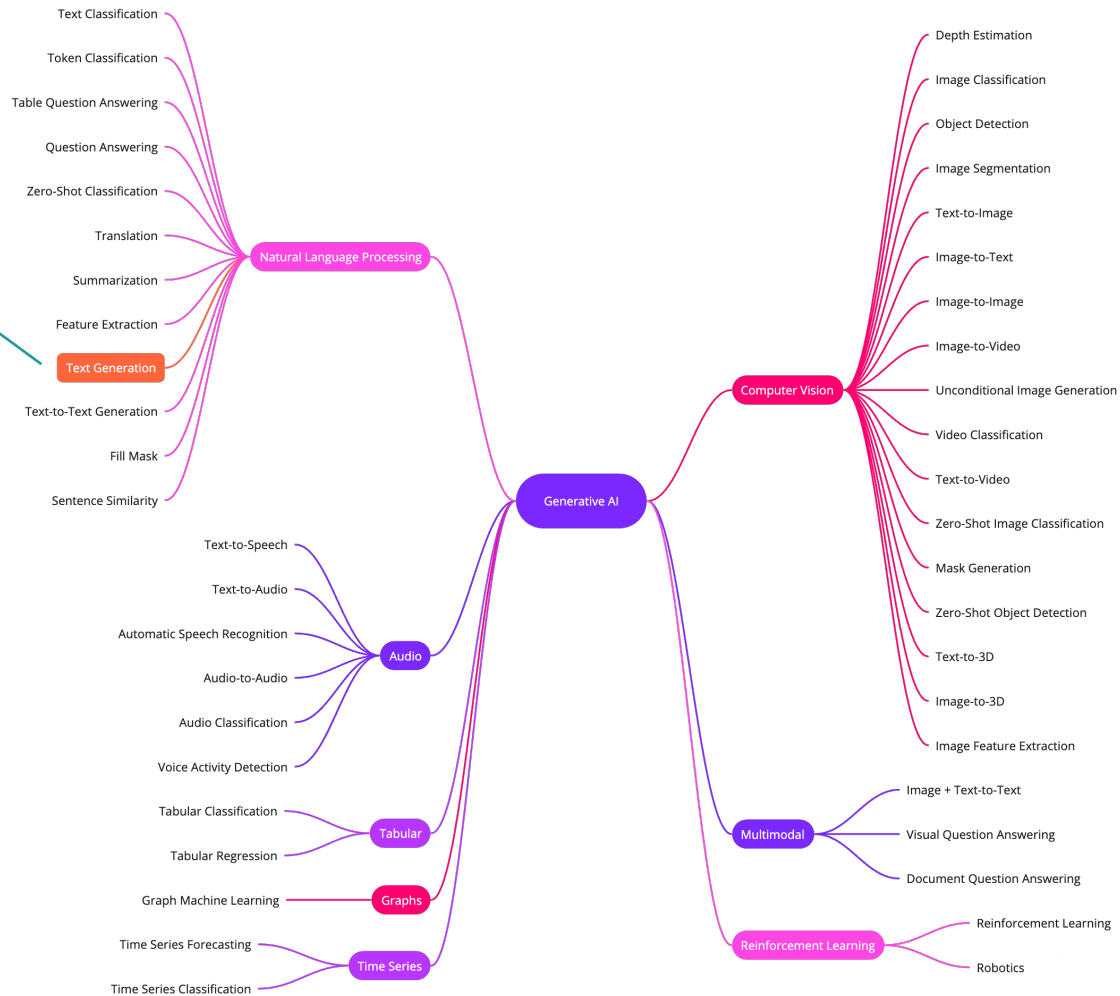
Tobias Malbrecht, VP Product Management | Integral Data Talks | Sept 24, 2024



Hello!  
How can I assist you today?

AI

Chatbots are not even the only use case for this!



# Why Generative AI will Change EVERYTHING



## Disruption of Analytics

Generative AI completely changes how analytics is being done, enabling new use cases, fast-tracking results, and replacing traditional ML methods.



## AI Democratization

Generative AI accelerates AI democratization through conversational analytics and new user experiences that enable broader and faster adoption of AI.



## Data + AI Symbiosis

Generative AI augments knowledge graphs and both become cornerstones of the AI Fabric, turning raw, siloed data into pervasive business insight and understanding.

A futuristic white drone with six rotors is flying over a city skyline at sunset. The drone is positioned in the upper right quadrant of the frame, with its rotors illuminated by the low sun. The city buildings are silhouetted against the bright sky, and a large sun is visible in the upper left corner. The overall scene is a blend of technology and urban environment.

# DISRUPTION OF ANALYTICS

# Data Analytics: Three Examples for the Disruption



## Data Quality

Use of Generative AI models to identify and fix data quality problems, also based on information from a world model.



## Data Engineering

Use of Generative AI models for data enrichment, i.e., for adding additional information from the world model to your existing data sources.



## Machine Learning

Use of Generative AI models not only for all new use cases, but also for traditional ML tasks – with much less need for training data thanks to the world model.

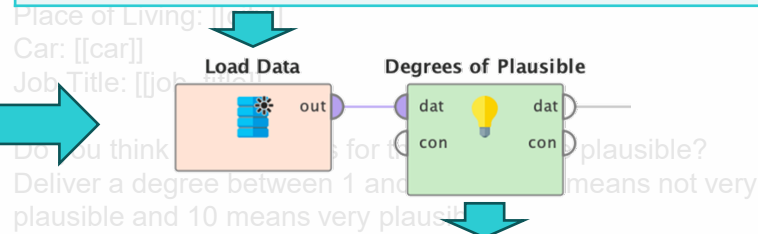
# Example: Outlier Detection with Generative AI

## Data

salary	city	car	job_title
450,000	New York City	Porsche	CEO
45,000	Los Angeles	Ferrari	Software Engineer
60,000	Los Angeles	Volkswagen	Janitor
...	...	...	...

## Dynamic Prompt Injection

salary	city	car	job_title
450,000	Menlo Park	Porsche	CEO
45,000	Los Angeles	Ferrari	Software Engineer
...	...	...	...



salary	city	car	job_title	plausibl.
450,000	Menlo Park	Porsche	CEO	10
45,000	Los Angeles	Ferrari	Softw. Eng.	3
...	...	...	...	...

# Why Generative AI Will Disrupt Analytics

- Generative AI is so much more than chat bots. Among other things, it will completely change the way how we are doing data analytics
- There are hundreds of thousands of new use cases which can be solved – including those which have been covered with ML before (for structured data)
- The key advantage: no or much less need for training data – huge cost saving
- We will get data science and analytics results 10x faster thanks to Generative AI





## AI DEMOCRATIZATION



# Co-Pilot for Code Development

Write me some sas code that creates a random dataset of 1000 rows and 20 variables then runs a proc summary

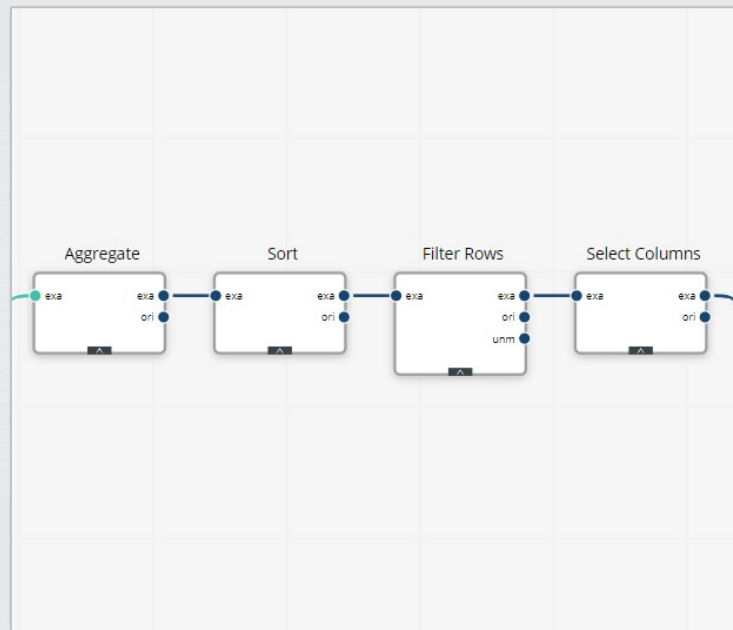
```
/* Create a random dataset with 1000 rows and 20
variables */
data random_data;
  do id = 1 to 1000;
    array vars[20] var1-var20;
    do i = 1 to 20;
      vars[i] = rand("Uniform");
    end;
    output;
  end;
  drop i;
run;

/* Run PROC SUMMARY to get summary statistics */
proc summary data=random_data;
  var var1-var20;
  output out=summary_stats mean= mean std= std min=
min max= max;
run;

/* Print the summary statistics */
proc print data=summary_stats;
run;
```

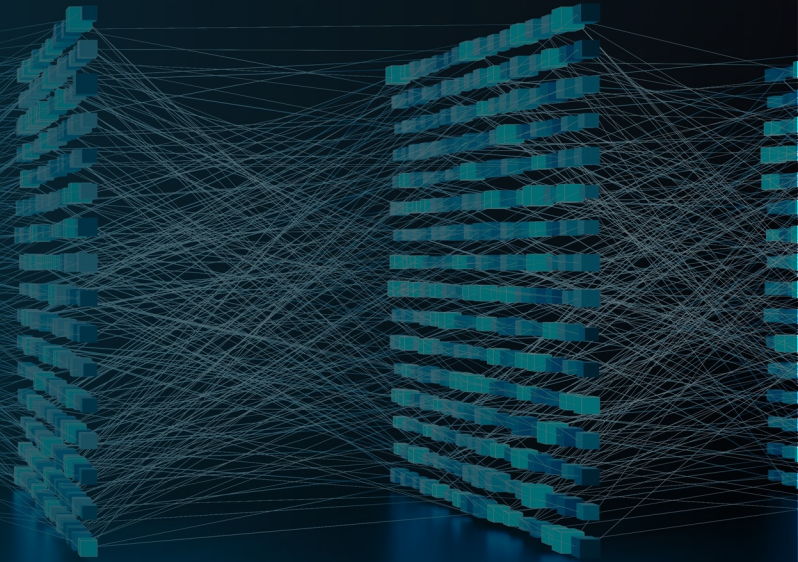
# Co-Pilot for Workflow Creation


Which store has the most revenue?



# Why Generative AI Will Accelerate AI Democratization

- Generative AI removes the burden for users to learn how to use data and analytics tools by allowing users to interact in their natural language
- Conversational interaction improves all existing AI authoring modalities – from code to workflows to automated AI, accelerating productivity
- Conversational analytics will bring up entirely new modalities simplifying data analysis that will significantly further adoption
- While the current focus of Co-Pilots is on AI authoring, we will see approaches for all phases along the AI value chain (think: MLops, etc)





**DATA + AI SYMBIOSIS**

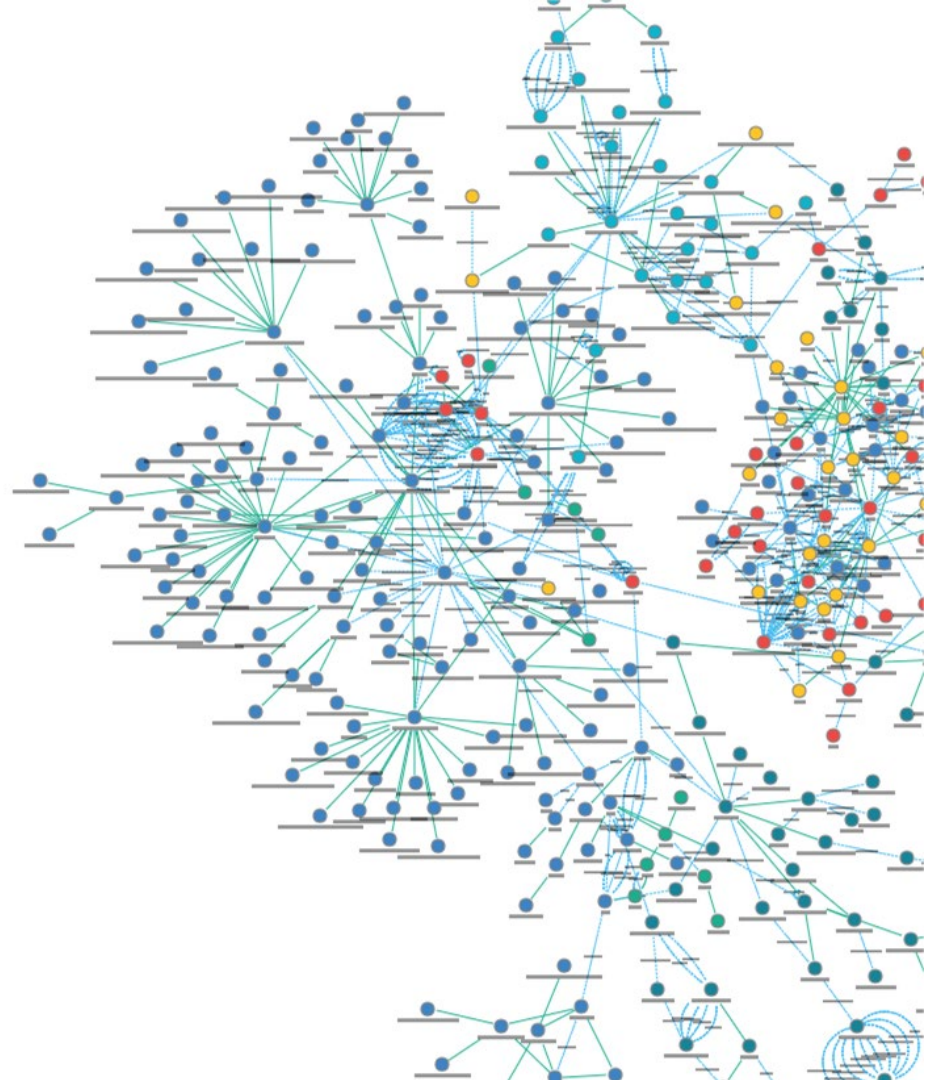
# What is a Knowledge Graph?

## Ontology

- Semantic model for a domain (e.g. film industry) to reference entities and their relationships, containing
  - **Classes** – e.g. Actor, Film, Director
  - **Relationships** – e.g. acted in, directed
  - **Attributes** – e.g. name, year of release

## Knowledge Graph

- Real-world implementation of an ontology with real-world data
- Example data: Tom Hanks – acted in – Splash



# Benefits of Knowledge Graphs

**Connect data** from different sources, removing data siloes

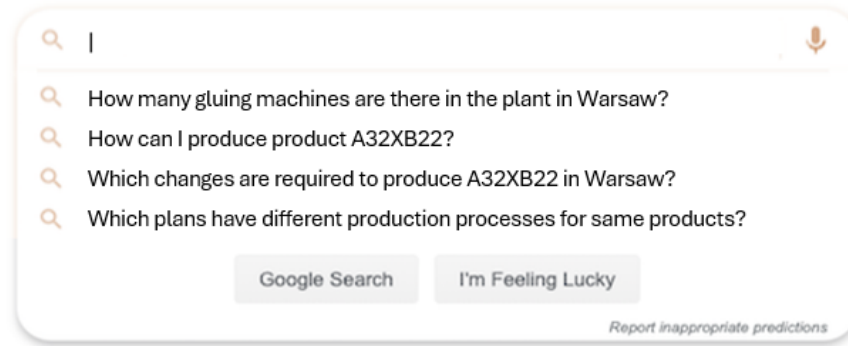
**Simplify access** to complex data, both structured and unstructured

**Improve communication** within enterprises and across ecosystems

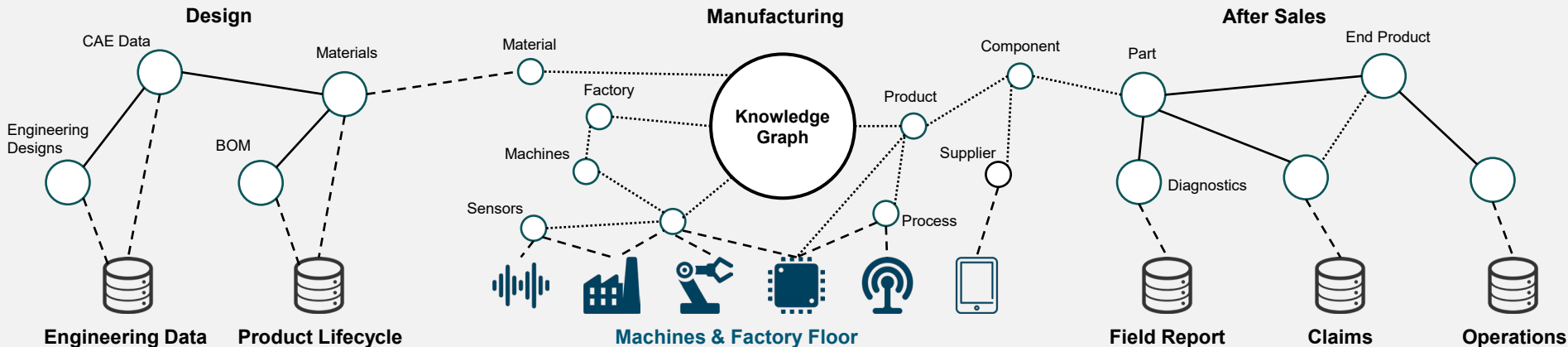
**Find complex patterns** that are involved in many business questions

**Ground AI** and large language models (LLMs) in context to increase the precision of their output

# Knowledge Graphs Turn Siloed Data into Business Understanding



## Connected Enterprise Data





Show Debug

Response mode  
Run server requests

Graphmart  
Film Data Graphmart

### Timeline of previous chats

+ NEW CHAT

- Jul 23, 2024 7:18 PM
- Jul 23, 2024 7:14 PM
- Jul 23, 2024 7:03 PM
- Jul 23, 2024 6:33 PM
- Jul 22, 2024 1:00 PM
- Jul 22, 2024 12:00 PM
- Jul 22, 2024 11:00 AM
- Jul 22, 2024 10:00 AM



System Administrator

7:19:23 pm

Can you show me the details of a specific movie? 2001: A Space Odyssey



Altair Copilot

7:19:23 pm

This query retrieves detailed information about the movie titled '2001: A Space Odyssey'. It includes the title, genre, runtime, trailer, ranking, budget, release date, and image. <>

Here are the details for the movie '2001: A Space Odyssey':

- **Title:** 2001: A Space Odyssey
- **Genre:** Adventure, Airplanes and airports, Roadshow theatrical release, Science fiction
- **Runtime:** 141 minutes
- **Trailer:**
- **Ranking:** 128
- **Budget:** \$10500000
- **Release Date:** 1968-04-06
- **Image:**

List me the actors who performed in this movie. Also show some details about each actor.





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Jul 23, 2024 7:03 PM



Jul 23, 2024 6:33 PM



Jul 22, 2024



Jul



Jul



Jul



List me the actors who performed in this movie. Also show some details about each actor.



## Altair Copilot

7:20:31 pm

This query retrieves the actors who performed in the movie '2001: A Space Odyssey' along with their details such as name, nationality, place of birth, date of birth, and gender. <>

Actor Name	Nationality	Place of Birth	Date of Birth	Gender
Margaret Tyzack	United Kingdom	Essex	1931-09-19	Female
Margaret Tyzack	England	Essex	1931-09-19	Female
William Sylvester	United States		1922-01-31	Male
Keir Dullea	United States	Cleveland	1936-05-30	Male
Vivian Kubrick	United States	Los Angeles	1960-08-05	Female
Douglas Rain	Canada	Winnipeg		Male
Sean Sullivan				
Robert Beatty	Canada	Hamilton	1909-10-19	Male
Leonard Rossiter	United Kingdom	Liverpool	1926-10-21	Male
Gary Lockwood	United States	Van Nuys		Male

Rows per page 10 1-10 of 13

Please enter a request



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Jul 23, 2024 7:18 PM



Jul 23, 2024 7:14 PM



Jul 23, 2024 7:03 PM



Jul 23, 2024 6:33 PM



Jul 22, 2024



Jul



Jul



Jul



Margaret Tyzack	England	Essex	1931-09-19	Female
Daniel Richter	Germany			Male
Margaret Tyzack	United Kingdom	Essex	1931-09-19	Female
Leonard Rossiter	United Kingdom	Liverpool	1926-10-21	Male
William Sylvester	United States		1922-01-31	Male
Keir Dullea	United States	Cleveland	1936-05-30	Male
Vivian Kubrick	United States	Los Angeles	1960-08-05	Female
Gary Lockwood	United States	Van Nuys		Male

Rows per page 10 1-10 of 13



**System Administrator**

7:22:18 pm

Please compute the average age for these actors.



**Altair Copilot**

7:22:18 pm

This query calculates the average age of the actors who performed in the movie '2001: A Space Odyssey'. The age is computed based on the current date and the date of birth of each actor.

The average age of the actors who performed in '2001: A Space Odyssey' is 93.14285714285714 years.



Please enter a request

# How Generative AI will Help with Data Understanding

- Knowledge graphs allow semantic modeling of data and easy access to *all* data within enterprises
- Knowledge graphs provide context to Generative AI and LLMs to help them answer the specific questions enterprises have
- Generative AI again further simplifies accessing data from knowledge graphs through Co-Pilot interfaces and by generating queries against the knowledge graph
- Generative AI and knowledge graphs become cornerstones of the AI Fabric, turning raw, siloed data into pervasive business understanding.

The unification of a

**Data Fabric** +

The acceleration of an

**AI Platform** =

The next evolution.

**AI Fabric**



### ETL/ELT.

Move and manage data at scale.



### Unstructured activation.

Activate under utilized document, image and text data.



### Access.

Universal data access and discovery.



### Knowledge Graph.

Describe data in terms the business understands.



### Code-first Development.

Powerful IDEs for Python, R, SQL, SAS, and OML.



### Code-optimal development.

Visual pipelines, AutoAI, and grid-based transformation tools.



### Business Intelligence.

Drag and drop dashboards with unlimited scale and speed.



### MLOps.

Monitor, test and improve your AI workloads at scale.



### Universal governance.

One governance model for data, AI, and analytics.



### Deep collaboration.

Data stakeholders of all skill levels working together, how they prefer.



### Unparalleled ease-of-use.

Connectivity, discovery, access, development, and deployment all in one place.



### Trustworthy copilots.

Conversational interfaces that know the data, can make predictions, and output usable pipelines.



# THANK YOU

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#ONLYFORWARD