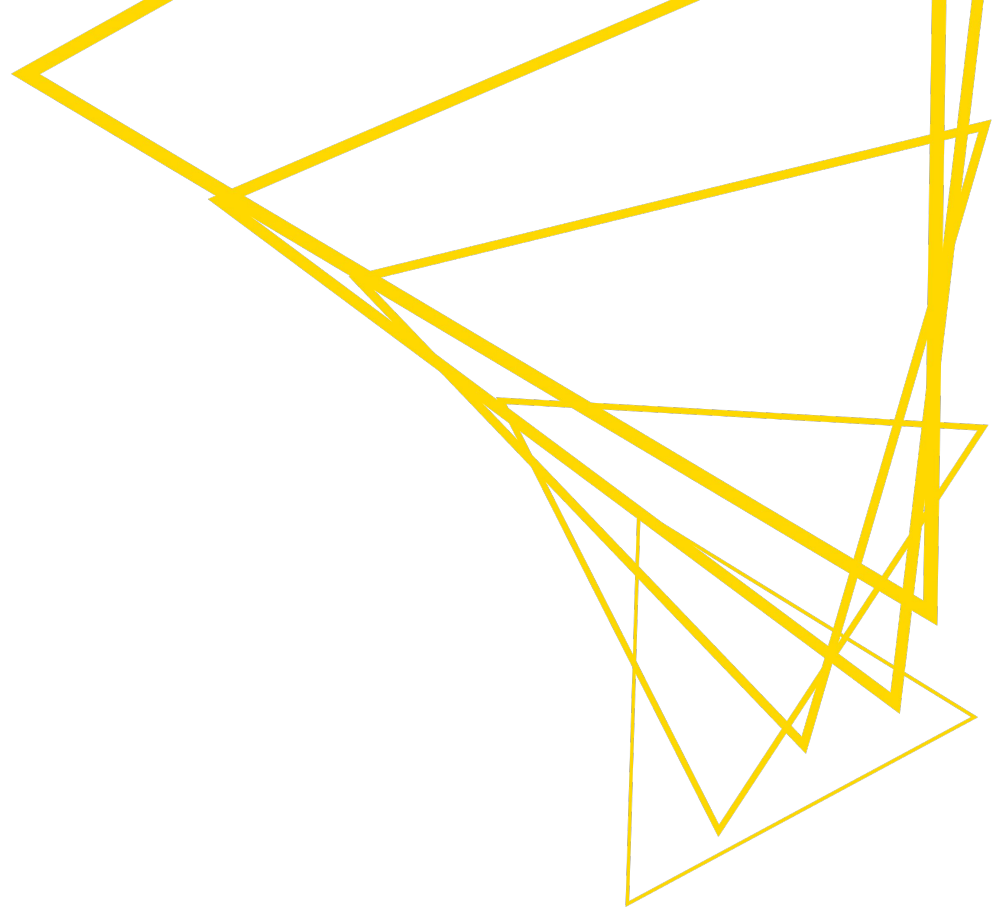









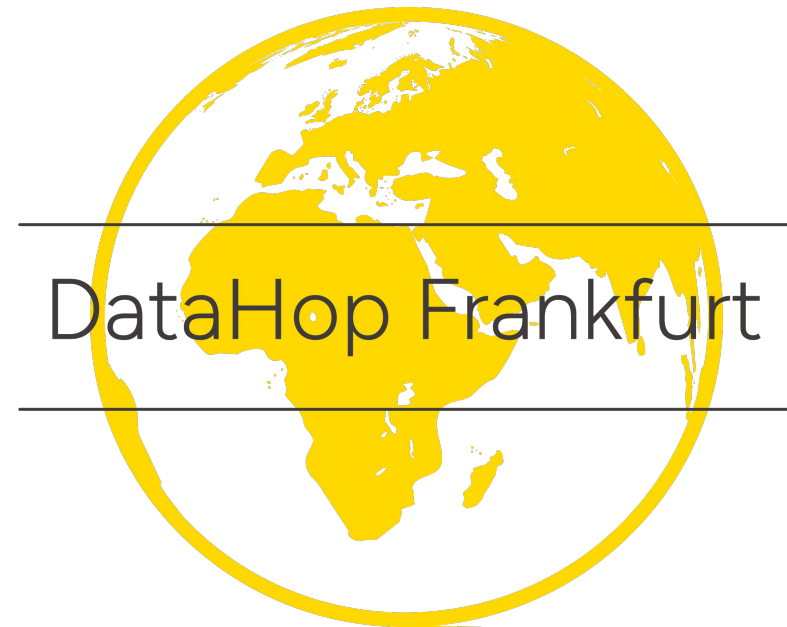
KNIME, GenAI, and Visual Programming

Michael Berthold

DataHop Frankfurt. July, 25, 2024



9:30 - 10:15 AM	Check-in / Morning Tea Level 6	
10:15 AM - 12:15 PM	KNIME Workshop 1 Enrich data analytics with GenAI	Level 4
	KNIME Workshop 2 Deploy a GenAI enriched workflow on KNIME Business Hub	Level 5
12:15 - 1:30 PM	Lunch (+ workflow doctor) Level 6	
1:30 - 2:00 PM	 Welcome. Data Science & GenAI Michael Berthold	
2:00 - 2:30 PM	 There is no fraud risk management program without a data analytics program anymore Michael Drechnowicz	
2:30 - 3:00 PM	 Optimizing supply chain analysis with KNIME: geodata enrichment and distance calculation Elena Schliefer Volkswagen Group Services	
3:00 - 3:30 PM	Afternoon tea (+ workflow doctor) Level 4	
3:30 - 4:00 PM	 Using KNIME at KNIME Iris Adä KNIME	
4:00 - 4:30 PM	 Optimizing data processing with KNIME at Deutsche Pfandbriefbank Nikola Petkov Deutsche Pfandbriefbank	
4:30 - 5:00 PM	 How Adidas migrated from Alteryx to KNIME to push beyond ETL for HR analytics Ahsan Shahid Adidas	
5:00 PM	 Closing Michael Berthold KNIME	
5:00 - 6:00 PM	Networking reception (+workflow doctor) Level 6	

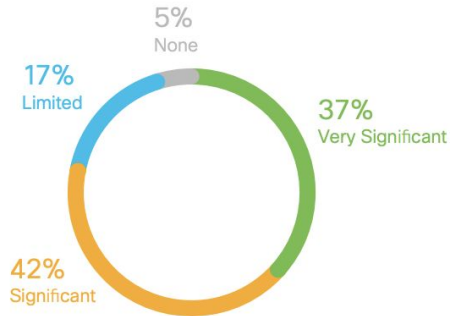


Desire to Apply GenAI ... Battles the Pressure to Govern It



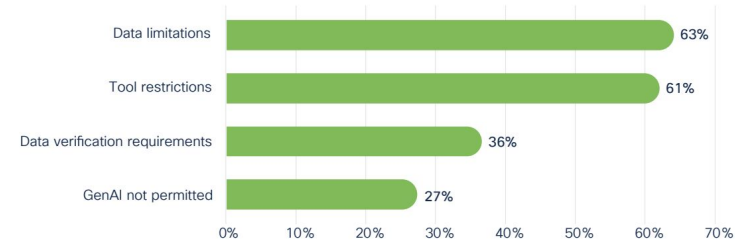
Drive up GenAI adoption

79% perceive significant value from GenAI adoption¹



Drive down GenAI risk

27% of organization have an outright ban on GenAI usage¹



source: [Cisco 2024 Data Privacy Study](#)

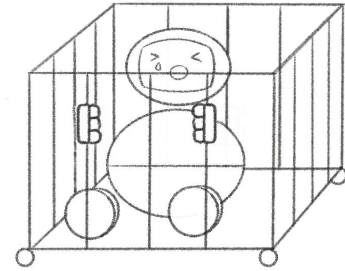
GenAI: Opportunities and Risks

- Massive impact on “mundane” tasks
 - Creating new content
 - Optimizing existing content
 - Gathering & summarizing information
- Broad userbase & applicability
 - Experimenting with different models
 - Exploring data & information
 - Applying large scale models easily
 - Integrated into daily work everywhere
- Need for (quality) checking
 - Copyright
 - Sloppy/faulty quality
 - Unethical outcomes
 - Fake outcomes
- Governance requirements
 - Which AI?
 - Privacy / confidential data leakage
 - Skyrocketing consumption
 - Regulation & risk management

Positive impact is blocked...

...by fear.

If GenAI can't be trusted,
what can we do?



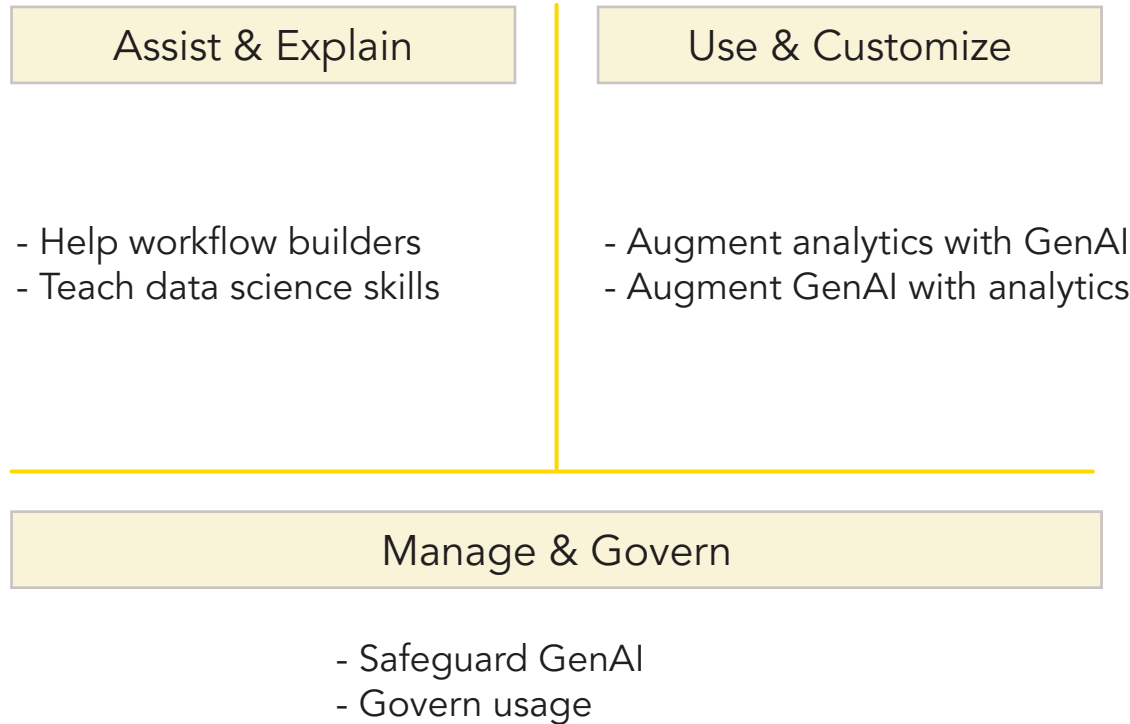
Take (& expand) governance tools proven with leading orgs

Govern data sent to models	Govern access to technology	Govern output & quality of models	Govern regulatory compliance
<ul style="list-style-type: none">• KNIME workflows• KNIME components• KNIME Hub Permissioning• Anonymization Components• KNIME Hub GenAI Gateway• Presidio integration	<ul style="list-style-type: none">• KNIME workflows• KNIME components• Trusted Extensions• Customization of KNIME Analytics Platform• KNIME Scripting Nodes• LLM integrations (Huggingface, etc)	<ul style="list-style-type: none">• KNIME workflows• Explainable AI Components• Model Factory Framework• Continuous Deployment for Data Science (CDDS) extension• Giskard integration	<ul style="list-style-type: none">• KNIME workflows• KNIME components• KNIME Hub Versioning• Continuous Deployment for Data Science (CDDS) extension• Metadata mapping• AI Workflow Explainer

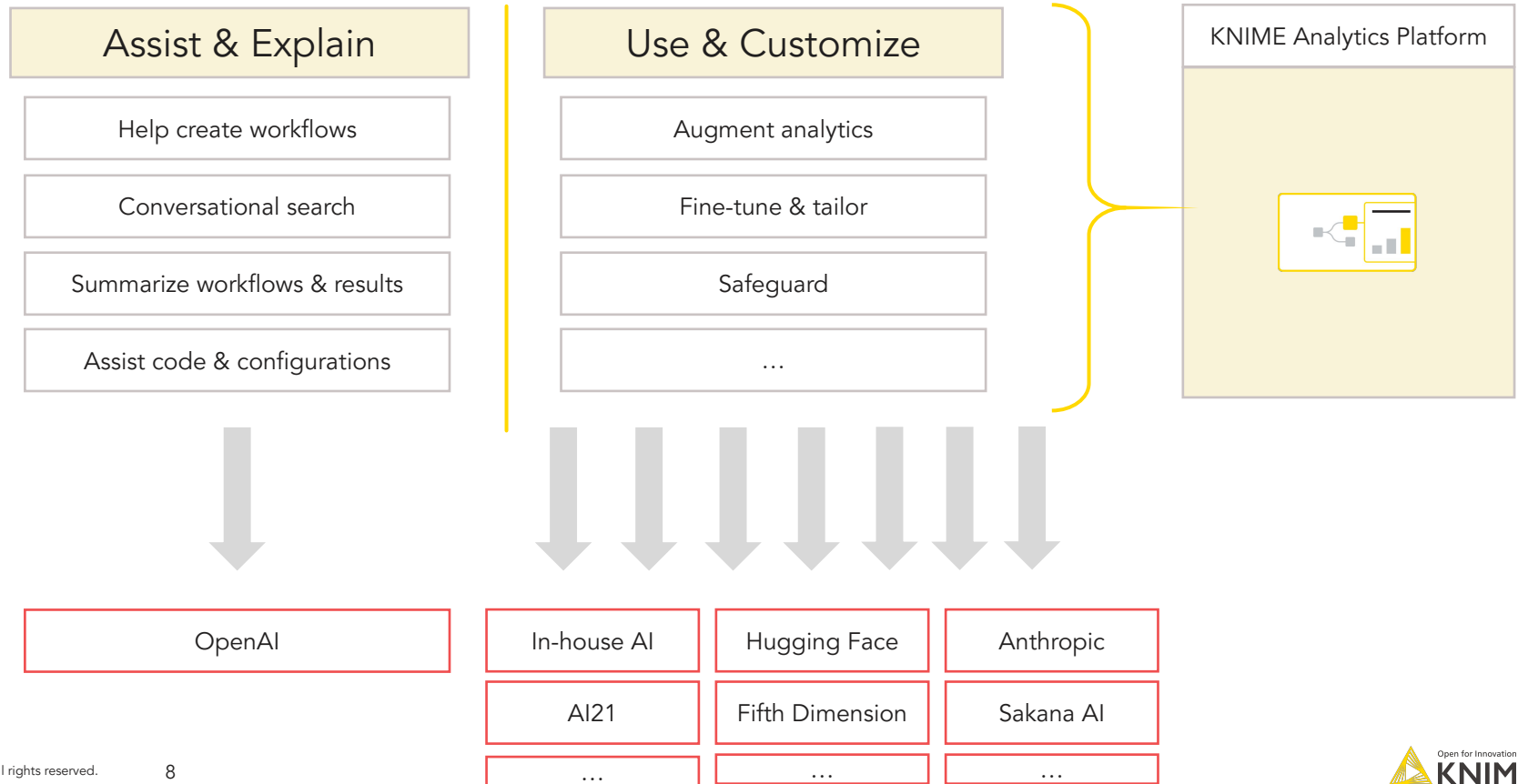


Controlling models we don't understand isn't new.
It's just now top of everybody's mind.

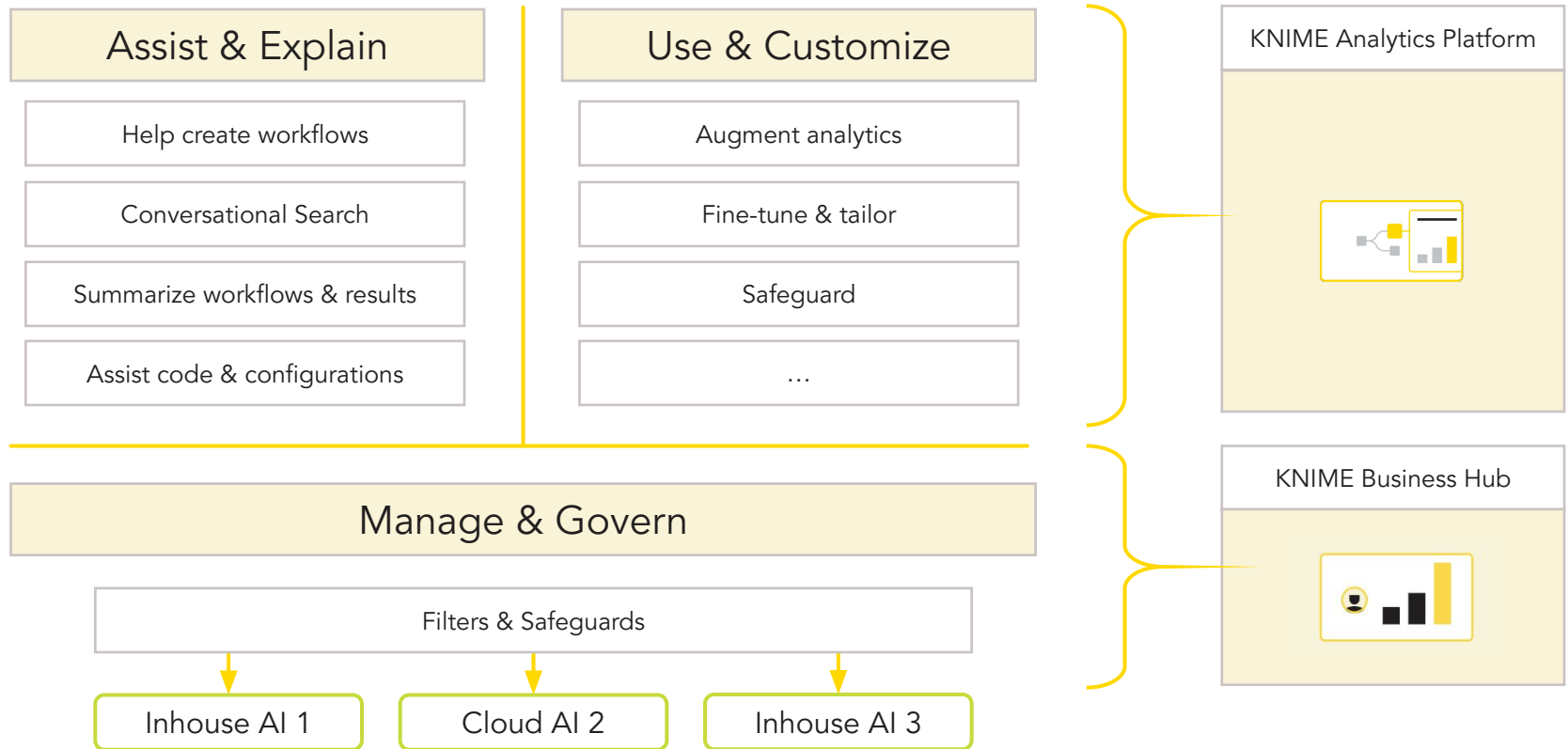
Data Science and GenAI



GenAI for everybody: Flexibility



GenAI in the Enterprise: Flexibility & Governance



Assisting and Explaining

K-AI: Q&A and Build mode

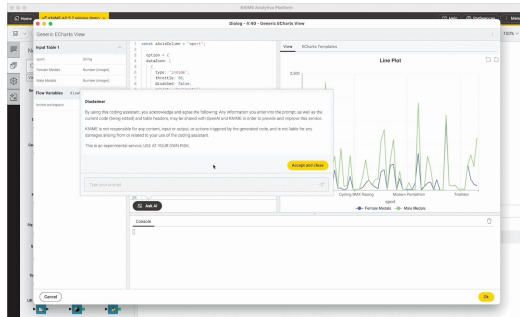
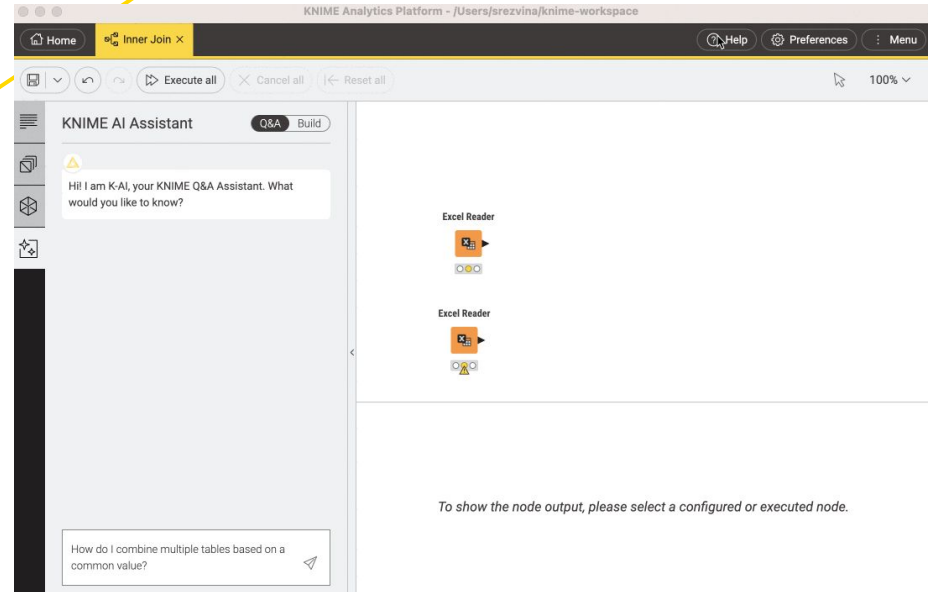
Assist & Explain

Help create workflows

Conversational search

Summarize workflows & results

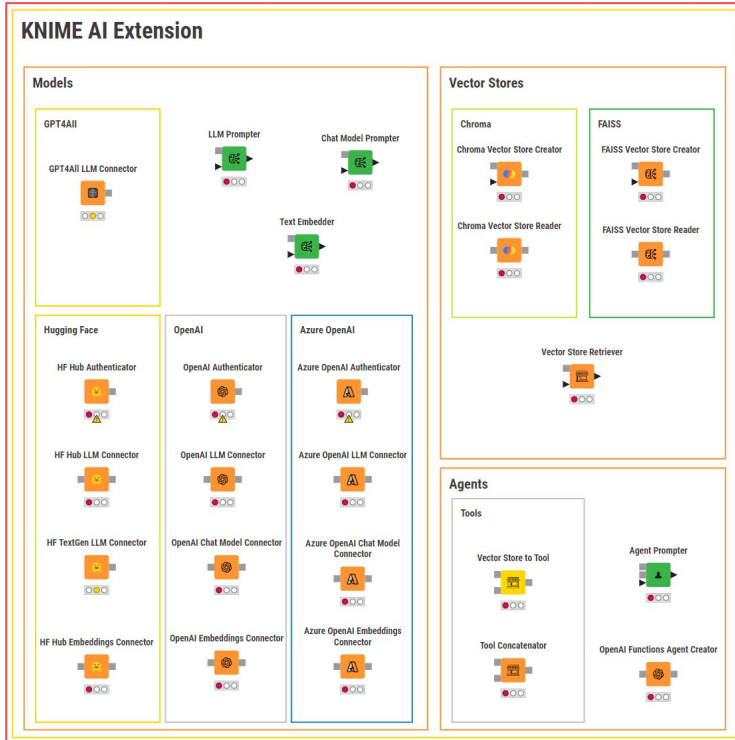
Assist code & configurations



Copilots for Python, eCharts, Expressions
[tbdev: R, SQL, ...]

Using and Customizing

GenAI Extensions



Use & Customize

Augment Analytics

Fine-tune & Tailor

Safeguard

...

AI Extension Example Workflows

Home

- 1) Large Language Models
- 2) Chat Model
- 3) Vector Stores
- 4) Agents

Managing and Governance

KNIME Dev Business Hub > Hub administration > GenAI Gateway

KNIME Business Hub administration

- License
- Users
- Teams
- Execution resources
- GenAI Gateway**

GenAI Gateway

Name	Type	Description
hugging face embeddings	embedding	-
bedrock	chat	-
OpenAI GPT-3.5-turbo	chat	The latest version of GPT-3.5-turbo hos...
OpenAI Embeddings	embedding	The small OpenAI embeddings model (...)
Mistral Embedding	embedding	-
Mistral Chat	chat	-
Claude Chat	chat	-
Azure GPT-4	chat	-

building, and scripting nodes such as Python and Echarts.

Granularity: Daily

Apply time range

Metrics split by K-AI mode

15507 #Prompts

4011 #Unique conversations

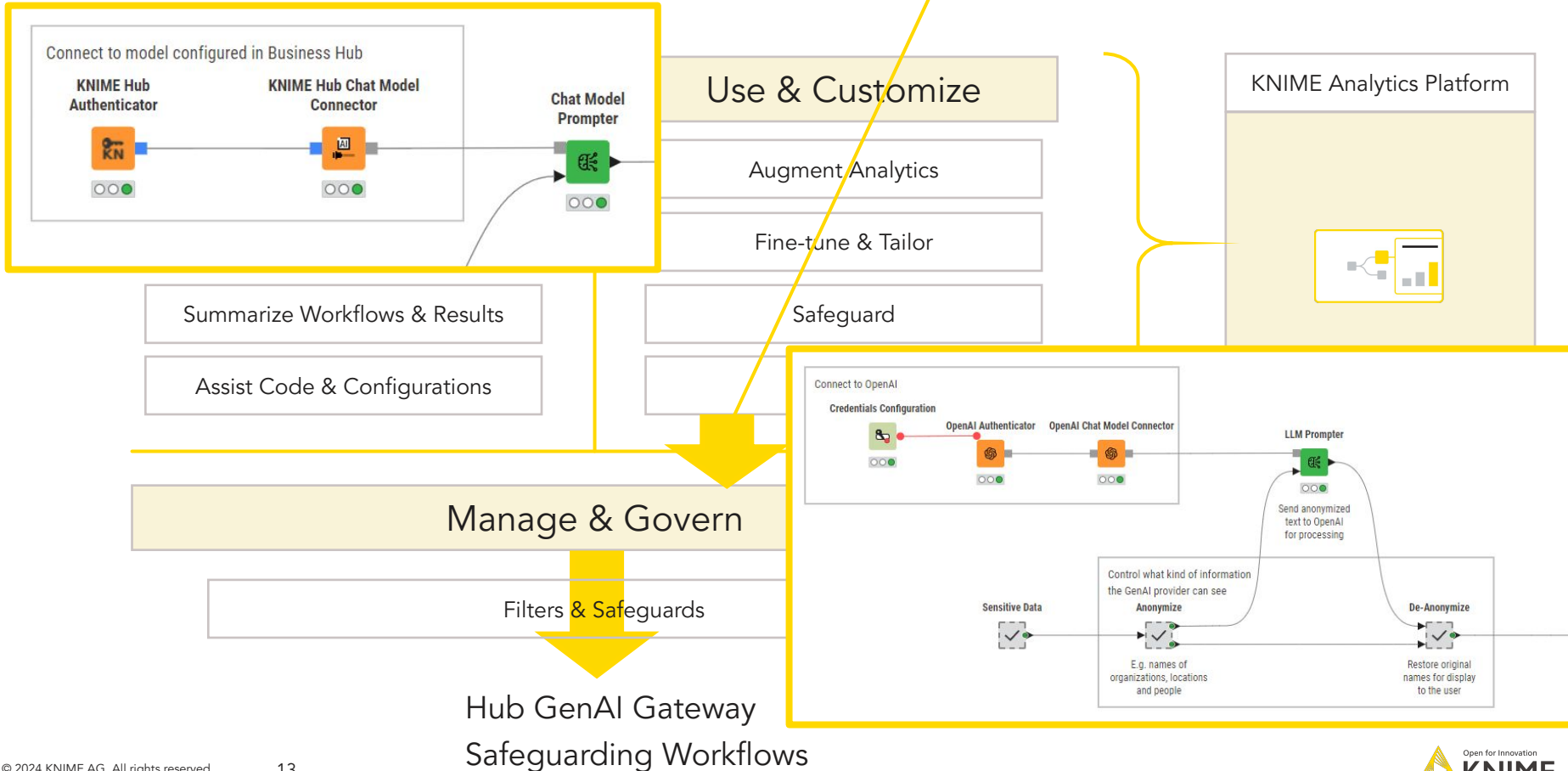
Filters & Safeguards

Hub GenAI Gateway

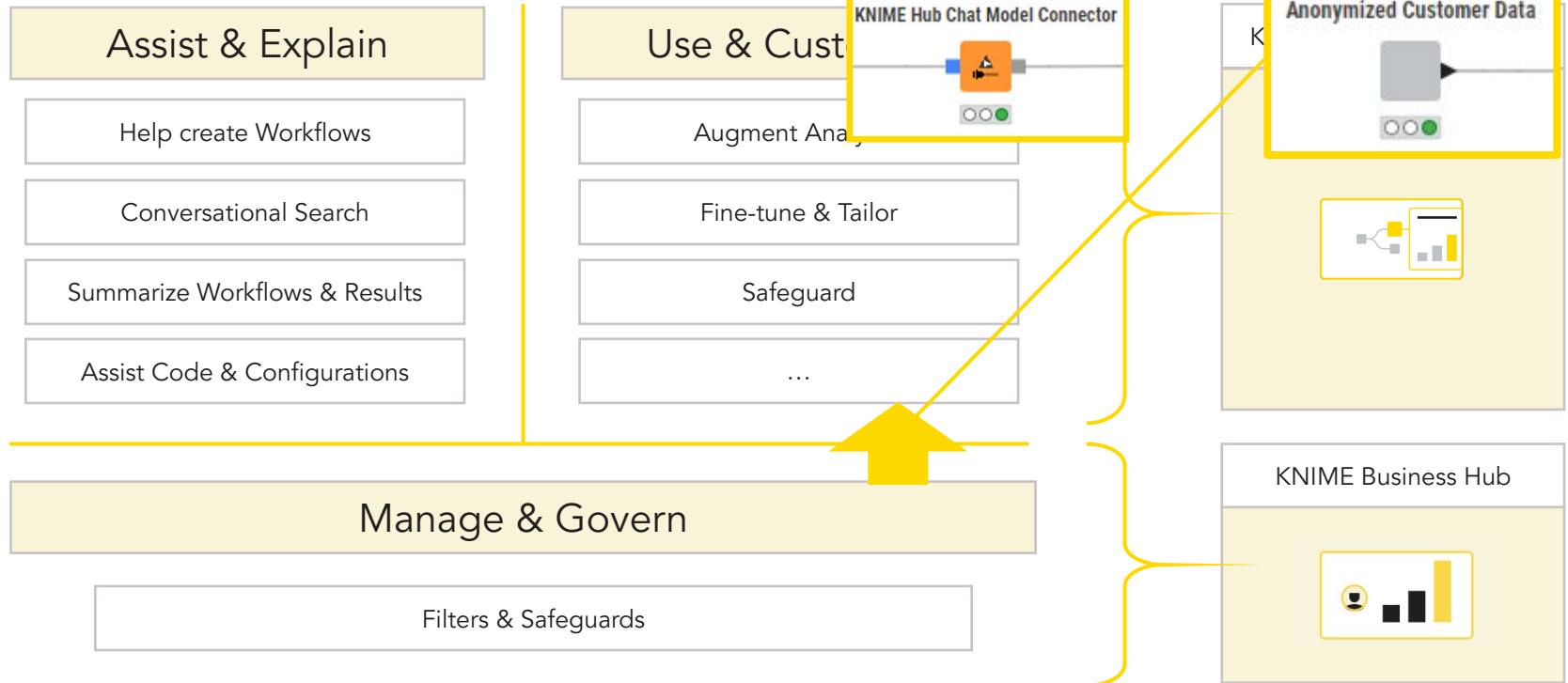
Date	build	echarts	python	qa	Total
2024 Feb 17	50	50	50	150	300
2024 Feb 21	50	50	50	250	400
2024 Feb 25	50	50	50	150	300
2024 Feb 29	50	50	50	250	400
2024 Mar 02	50	50	50	250	400
2024 Mar 06	50	50	50	350	500
2024 Mar 10	50	50	50	250	400

Managing and Governance

Hub GenAI Connector



Managing and Governance

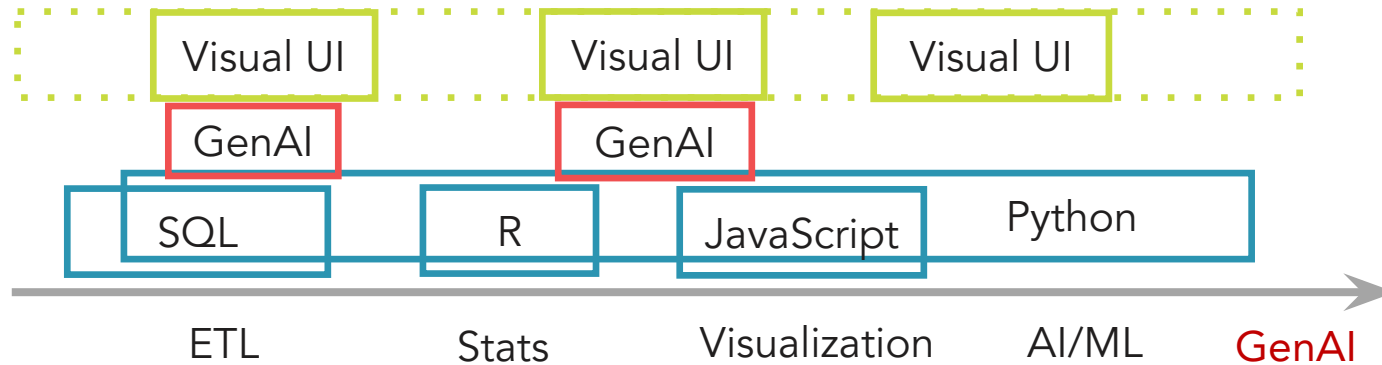


Data Science & GenAI:
How does Low Code & Visual
Programming fit in?

Abstract geometric lines in the top right corner, consisting of several overlapping, thin white lines forming a complex, angular shape against the yellow background.

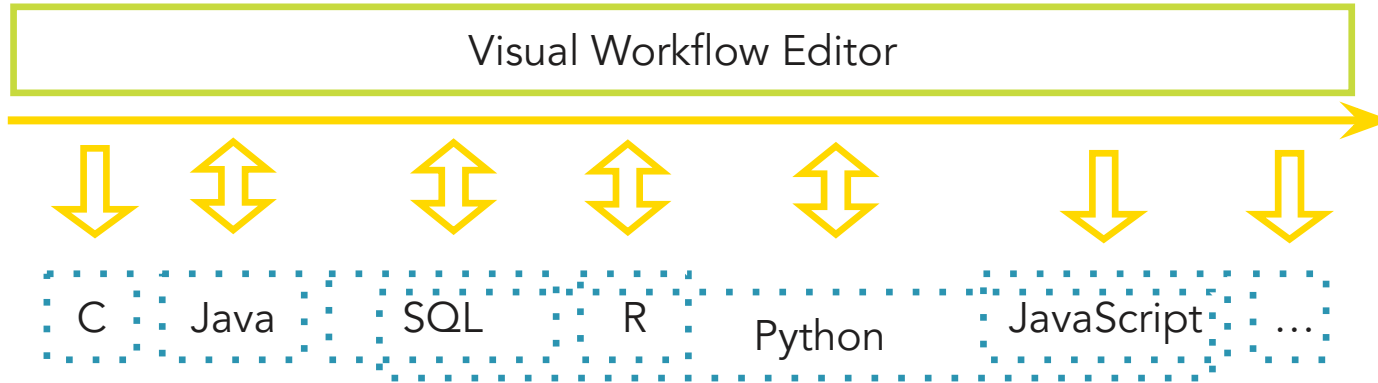
Low Code for Data Science: Wizards & Helpers

(Partial) No-Code on top of code-based programming languages



- visually create standard parts of a solution
- automatically translated to code
- more complex functionality requires adding/editing code

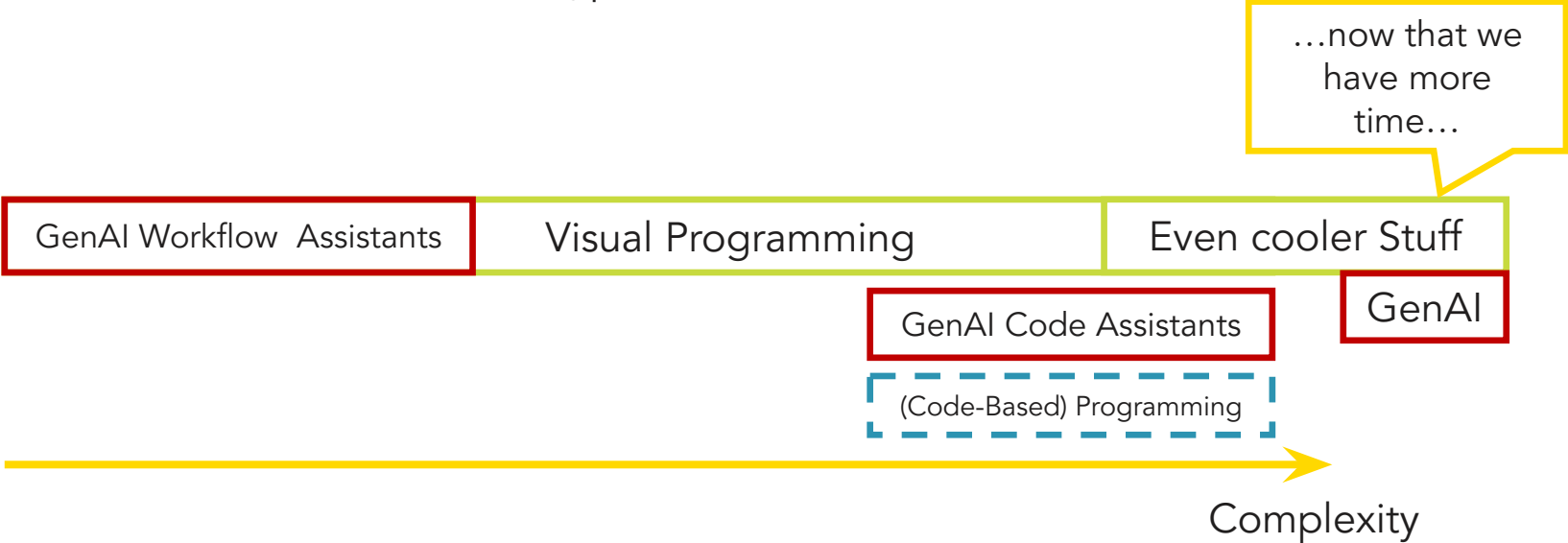
Low Code for Data Science: Visual Workflows



- Visual Workflows are the programming language
- abstracts implementations in various technologies
- allows to embed code snippets

With GenAI:

GenAI assisted Low Code for all types of Problems:



Thank You.