



# Enabling AI-Powered Transformation in Life Sciences



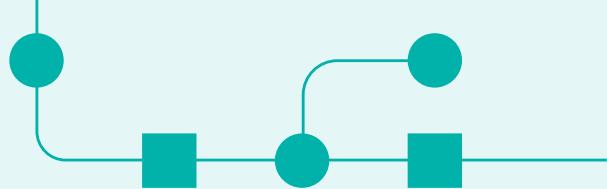
**Kelci Miclaus, PhD**

Head of AI Solutions, Health &  
Life Sciences @ Dataiku

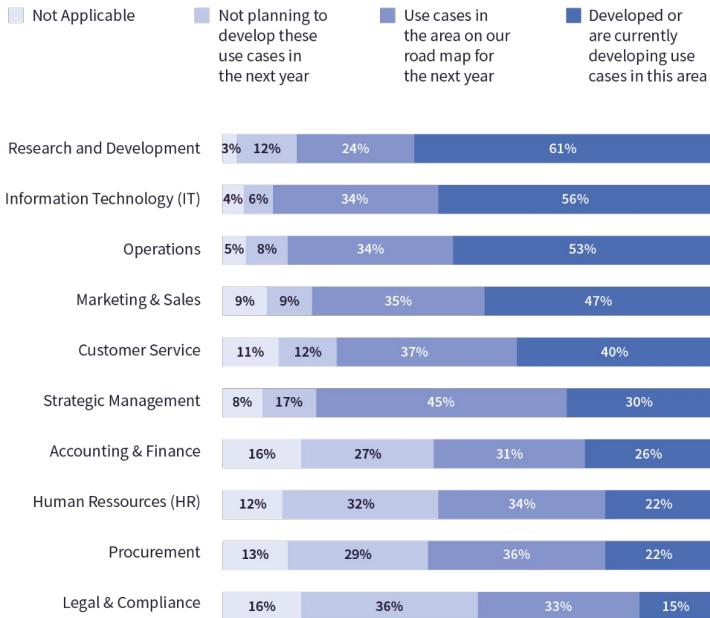


# The State of AI in HCLS

2023 Industry Survey



## Top AI Use Cases in Healthcare and Life Sciences



## Intention with Generative AI in the Next Year



of data leaders in healthcare & life sciences plan to leverage Generative AI for their business in the next year. This is higher than the...



of respondents across all industries that plan to do so.

# Data, science, and technology is fueling transformation and innovation



## Complex and Growing Data

30% of **All Data** is Health Related  
with a CAGR of 36% by 2025\*



\*6% faster than manufacturing, 10% faster than financial services, and 11% faster than media & entertainment



## Technology and (Data + Life) Science to Deliver Value

Insights impact relies on modern data architectures and novel modeling applications

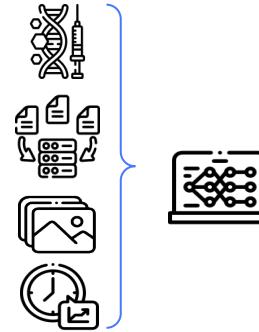
### Composable Data

Data fabric

Data Mesh

...

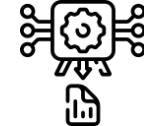
### Multimodal Models



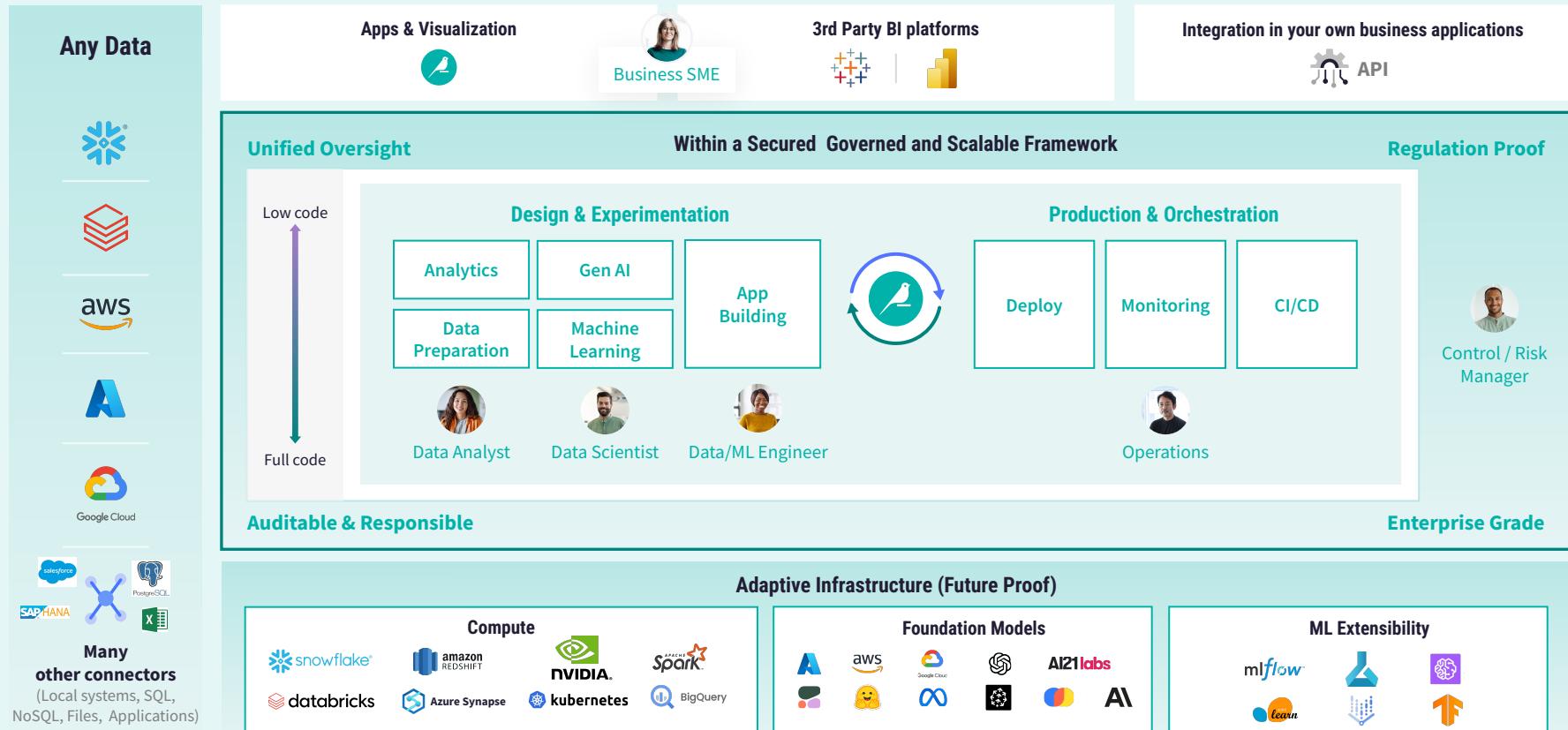
### Causal Machine Learning



### Generative AI

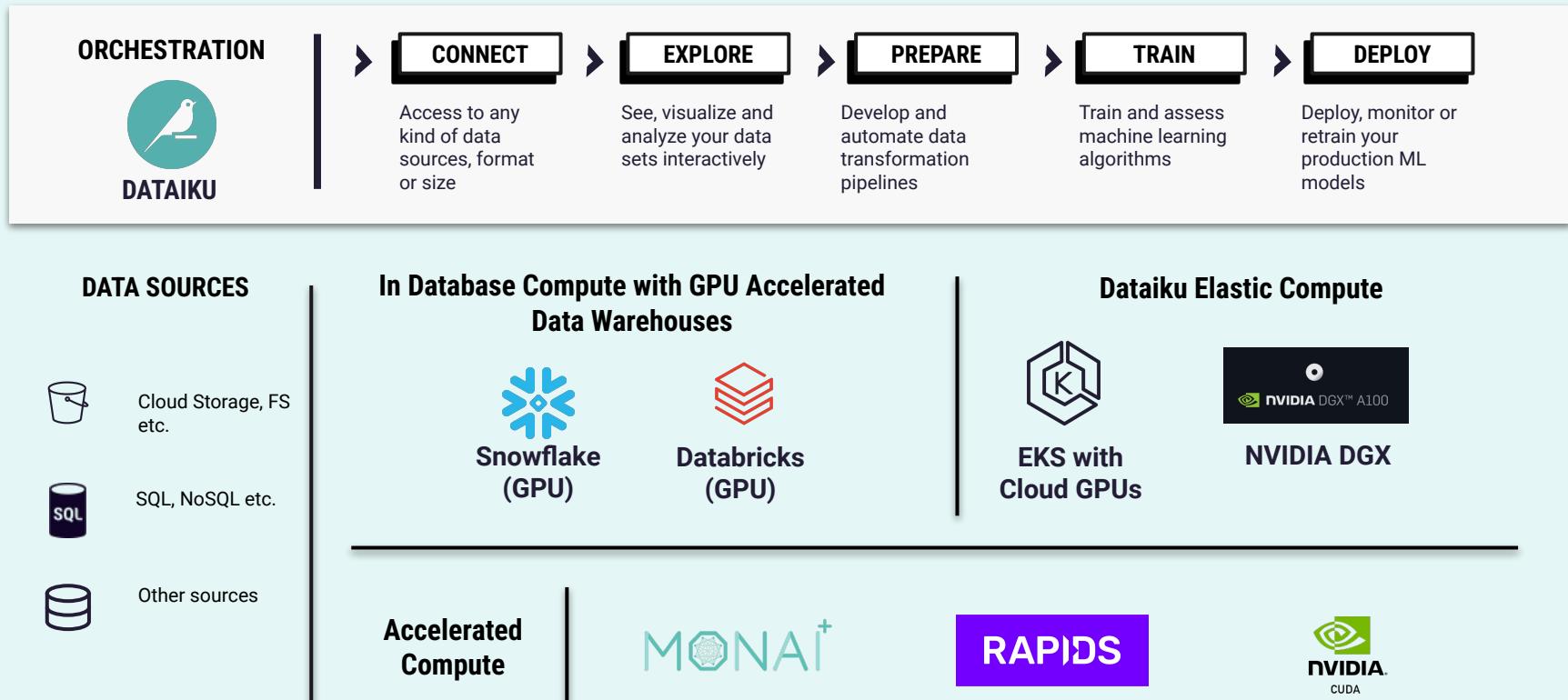


# Dataiku - Horizontal, Open, Interoperable, and Fully Integrated in your Tech Stack

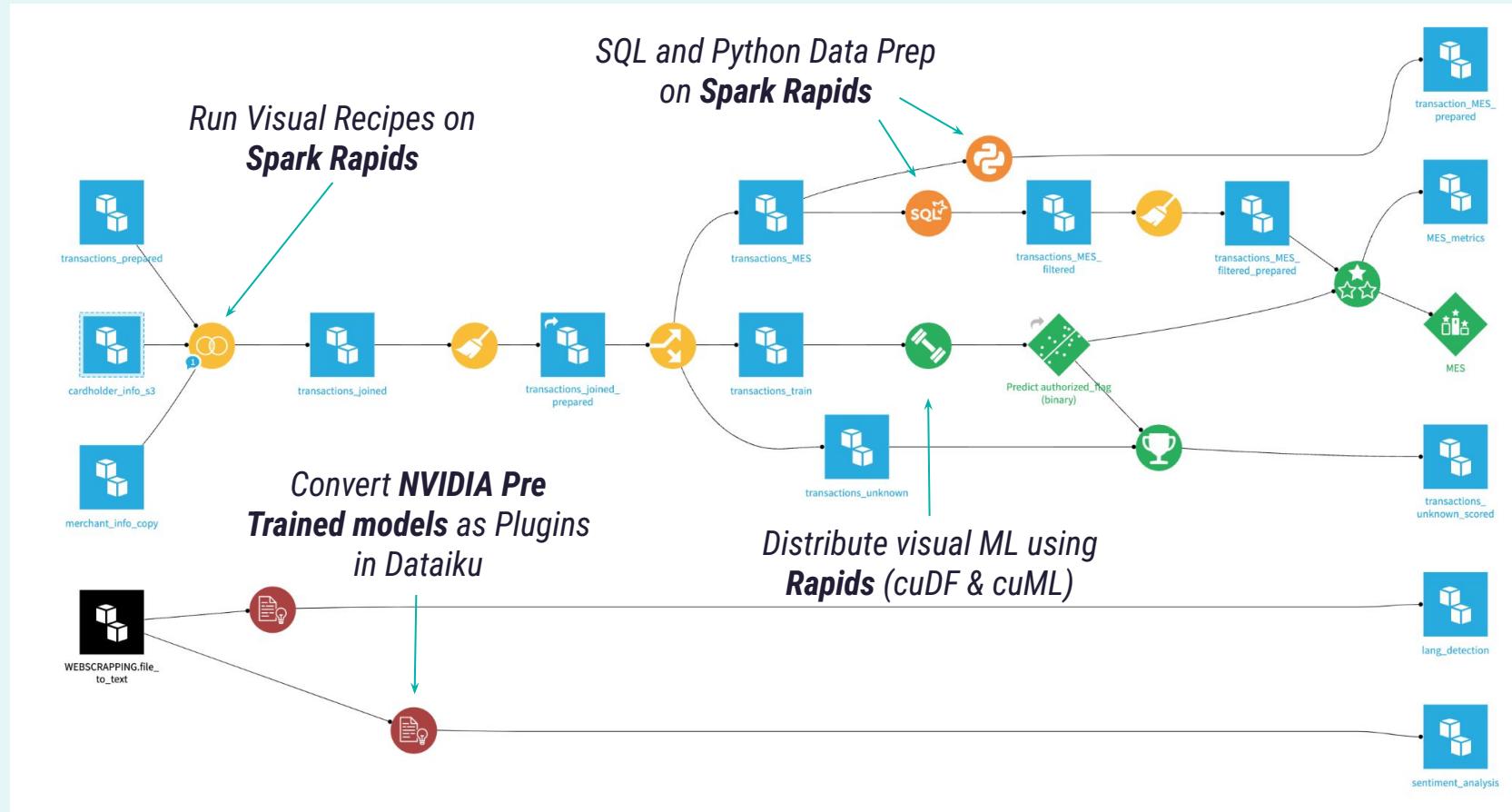


# Dataiku and NVIDIA Reference Architecture

Seamless integration and orchestration across the full data lifecycle

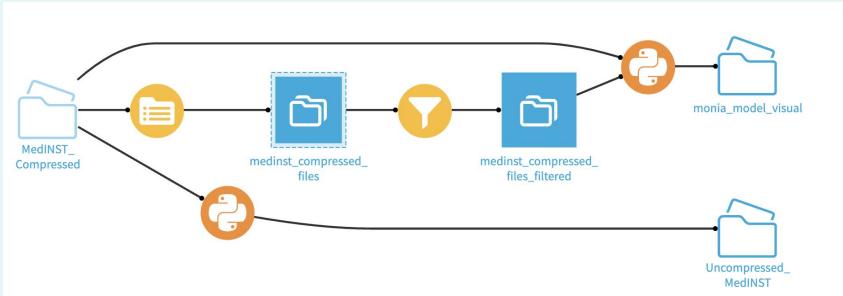


# Dataiku Flow Powered by NVIDIA

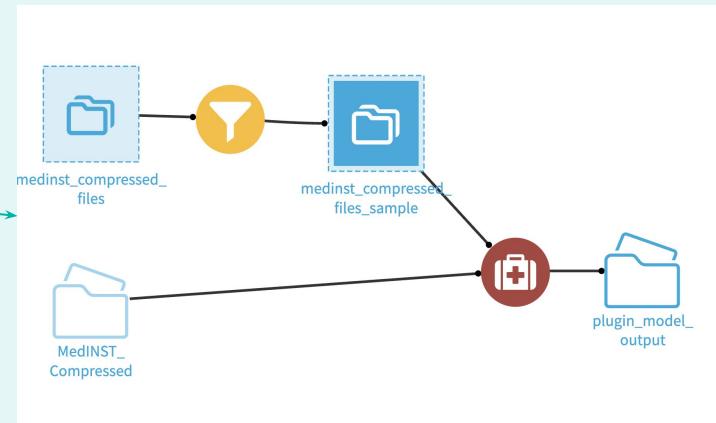


# NVIDIA AI Services in Dataiku - MONAI Plugin

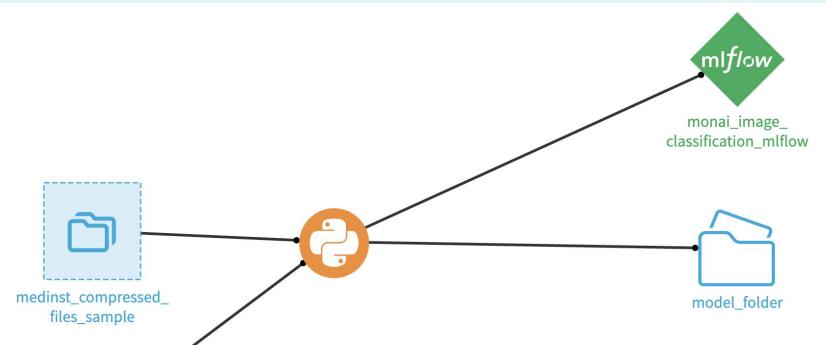
Scalable processing with NVIDIA Suite of GPU Accelerated Software Libraries



Work with **Monai** using **Dataiku Python recipe** in combination with **Visual Recipe** to prep Image Data



Convert **Monai models** into **Visual plugins**(no code recipes) in **Dataiku** using **Python**



Use **Dataiku-mlflow integration** to enable **Visual Explainability and Performance features** on **Monai Models**

# Life Sciences Use Case Snapshot

- Enhanced diagnostics and disease detection with **MONAI**
- Regulatory intelligence, patient safety reporting and signaling

## Patient Engagement and Medical

- **GPU-accelerated** modeling flows with **RAPIDS** to handle vast RWD datasets

## Market Access and Commercial



## R&D

- Hypothesis generation of AI-designed molecules with **BioNeMO**
- **LLM-powered** novel target patent discovery and market intelligence

## Clinical Trials and Operations

- Early efficacy in oncology trials with **MONAI**
- Auto-generation of clinical protocol drafts in medical writing and clinical feasibility

# Microscopy Imaging in Formulations Development

The example of scientific quality inspection at Regeneron Pharmaceuticals

REGENERON



data  
iku

## Challenge

Detecting Subvisible Particles (SVPs) in injectables is critical to **ensure patient safety** and **regulatory quality inspection criteria are met** in formulations development in biomanufacturing.

The objective is to improve the ability to **process and classify high-res microscopy images** and apply deep learning to detect anomalous levels of **unseen drug contaminants** in injectables.

Domain | R&D Quality & Manufacturing

Delivered by | Image Science Team

For the team | Formulation Dev. Scientists

Health & Life Sciences

## How to?

### Inputs:



**Microscopic Flow Imaging (MFI)**  
files of injectables

### Model:

**Unsupervised learning** to categorize datasets for model training

**Deep Learning** for Image Analysis

### Results:



Providing dashboards and metrics to **Scientists to determine whether the injectables are anomalous** (above quality limits for subvisible particulates)

## Value

### → Improved product operational quality and patient safety

94% PPR to detect silicon and protein SVPs, preventing both operational down-the-line process failures as well as potential patient safety immunogenicity adverse events

### → Increased Collaboration

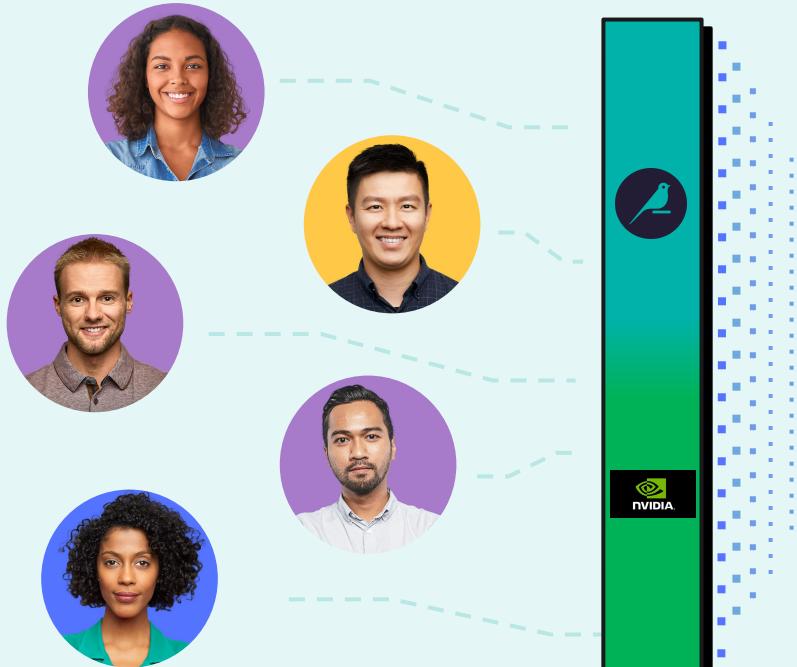
Engaged wet-lab formulation scientists, data & computer scientists to deliver outcomes

### → Increased Efficiency

High throughput MFI runs in **NVIDIA GPU** parallelized compute in **less than 15 minutes**

# Find Us at Dataiku Booth 1704

In the MLOps & LLMOps Pavilion Area



Unlock the Full Potential of your AI Workflows with Dataiku and NVIDIA RAPIDS

NVIDIA GTC March 18-21

 Shashank Gaur  
Senior Partner Sales Engineer @ DATAIKU



**Connect to all your data sources.**

**Scale data and machine learning**

with Dataiku elastic compute using NVIDIA DGX

**Speed up time-to-value**

with Rapids-Spark, Rapids ML, MONAI, etc.

**Democratize analytics and AI**



DGX-Ready Software