AWS re:Invent

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AIM233

Introducing Amazon SageMaker Canvas

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Product Owner – AI Platform
BMW Group

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Agenda

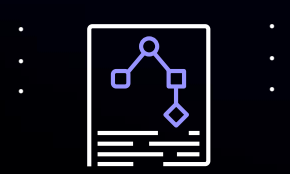
1. Current State & Issues with ML Value Creation Today
2. How Can You Scale ML Value Creation by Enabling Analysts
3. Amazon SageMaker Canvas
    - Features
    - Use Cases
    - Live Demo
4. Customer Showcase: BMW Group
    - ML Journey
    - Approach in Scaling ML Initiatives
5. How to Get Started with Canvas
6. Q&A (About 15 Mins)

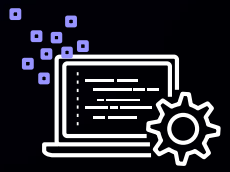
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How ML Drives Value Creation Today

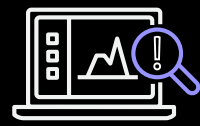
Inventory Forecasting

Churn Prediction Sales Conversion









Prioritized Use Cases

Step	**Business Requirements**	**Data Preparation & Feature Engineering**	**Model Development, Training, and Tuning**	**Model Deployment & Monitoring**
Owner	Business Leads, Domain Experts, and Business Analysts	Data Engineers and Data Scientists	Data Scientists and ML Engineers	ML Engineers

Usually takes from weeks to months

primarily solving for the prioritized use cases

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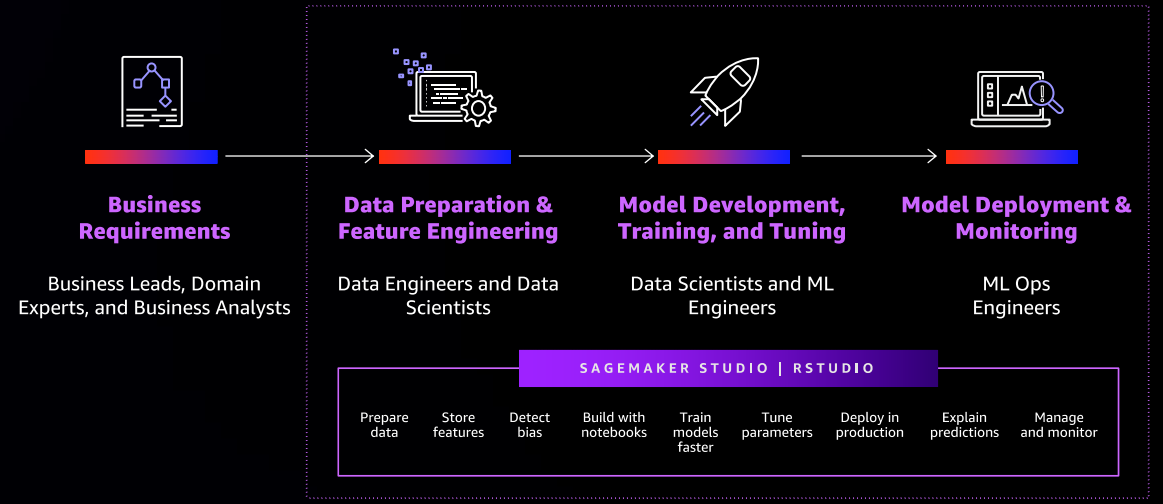
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How Can You Scale ML Value Creation?

1

Enhance ML Team Productivity

Leverage the most complete, end-to-end ML service and increase productivity by 10x



2

Expand Your ML Development Team

Grow your technical teams in proportion of your needs, but ML talent is in high demand

+74% annual compound growth in past 4 years

2x the demand growth of any other emerging job role

3

Democratize ML Innovation

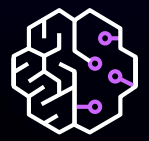
Enable more groups of people, including business analysts to build ML models

How about helping business analysts make smarter decisions by building and leveraging their own Machine Learning models?

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Challenges Analysts Face in Building ML



Analysts lack deep ML expertise, and learning curve is steep

- Need to build understanding for ML concepts across data preparation, model development, and optimization
- Need expertise in choosing the right combination of feature engineering, type of model, and optimization technique
- Learning to write or decipher code is usually needed



Business needs explainability and validation from experts

- Analysts prefer to partner with data scientists in order to learn and build trust in the process, but data scientists' time is limited and typically devoted to a few key ML projects
- Analysts need to be able to explain ML model predictions to business executives



Available no-code ML tools tend to lack transparency and have upfront fees

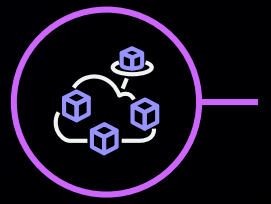
- Many no-code ML options lack code-level transparency making it difficult to inspect and productionalize models
- The UX for analysts and data scientists tends to be the same, requiring analysts to know the ML concepts and jargon
- Frequently, no-code ML tools come with licensing fees, so experimentation requires upfront investment

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Amazon SageMaker Canvas

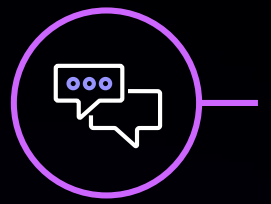
Build ML models and generate accurate predictions—no code required



Quickly access and prepare data for Machine Learning



Built-in AutoML to build models and generate accurate predictions



Share ML models and collaborate with data science teams

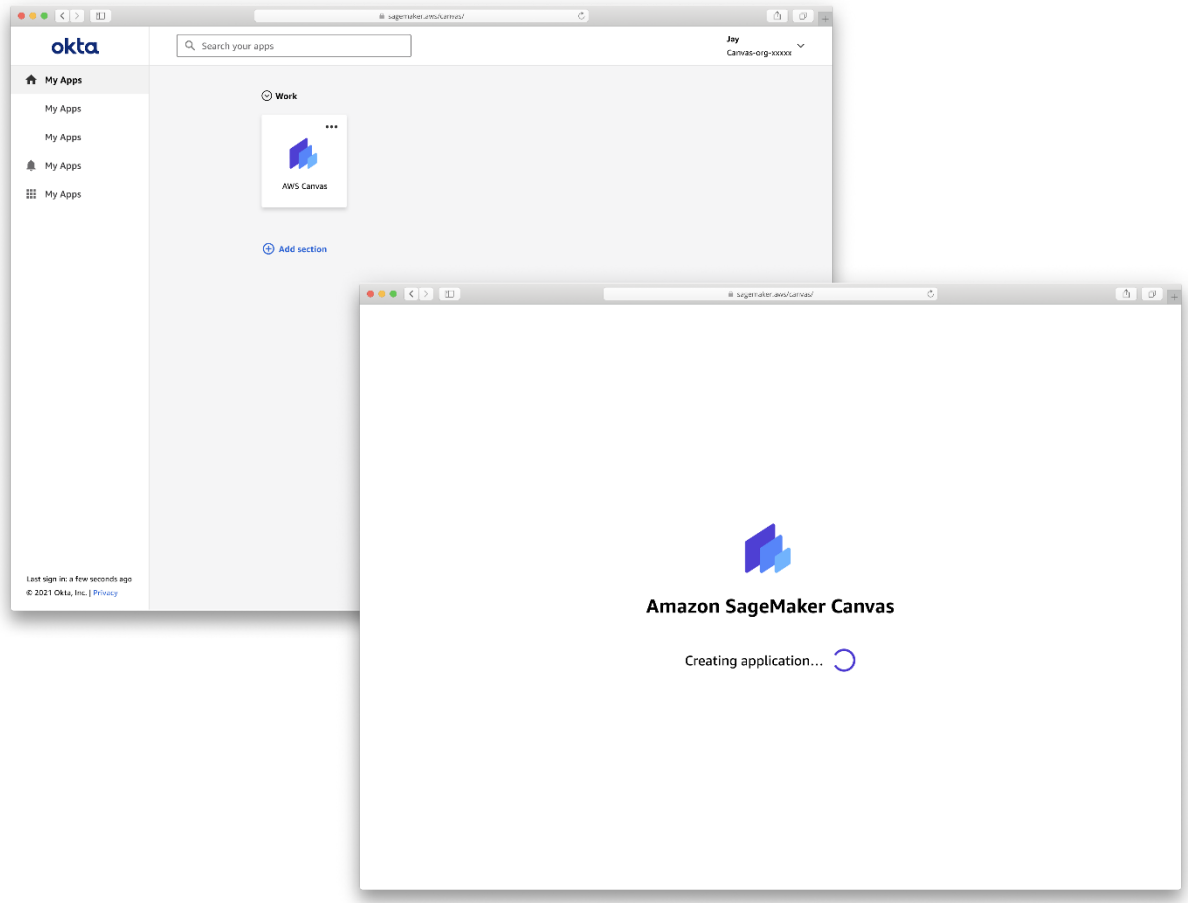


Usage-based pricing to avoid licensing fees and reduce TCO

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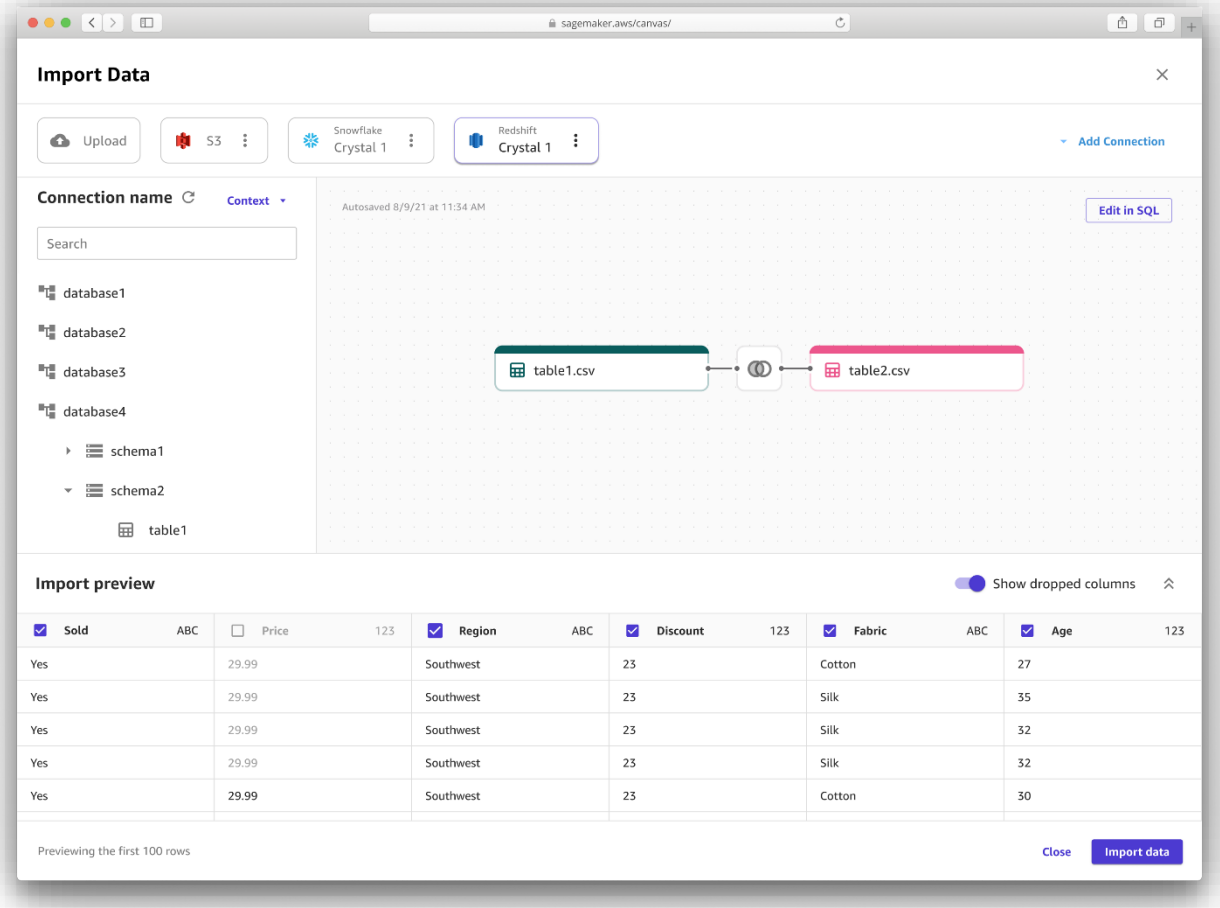
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Self-service access to a business-friendly tool for Machine Learning, outside of the AWS console

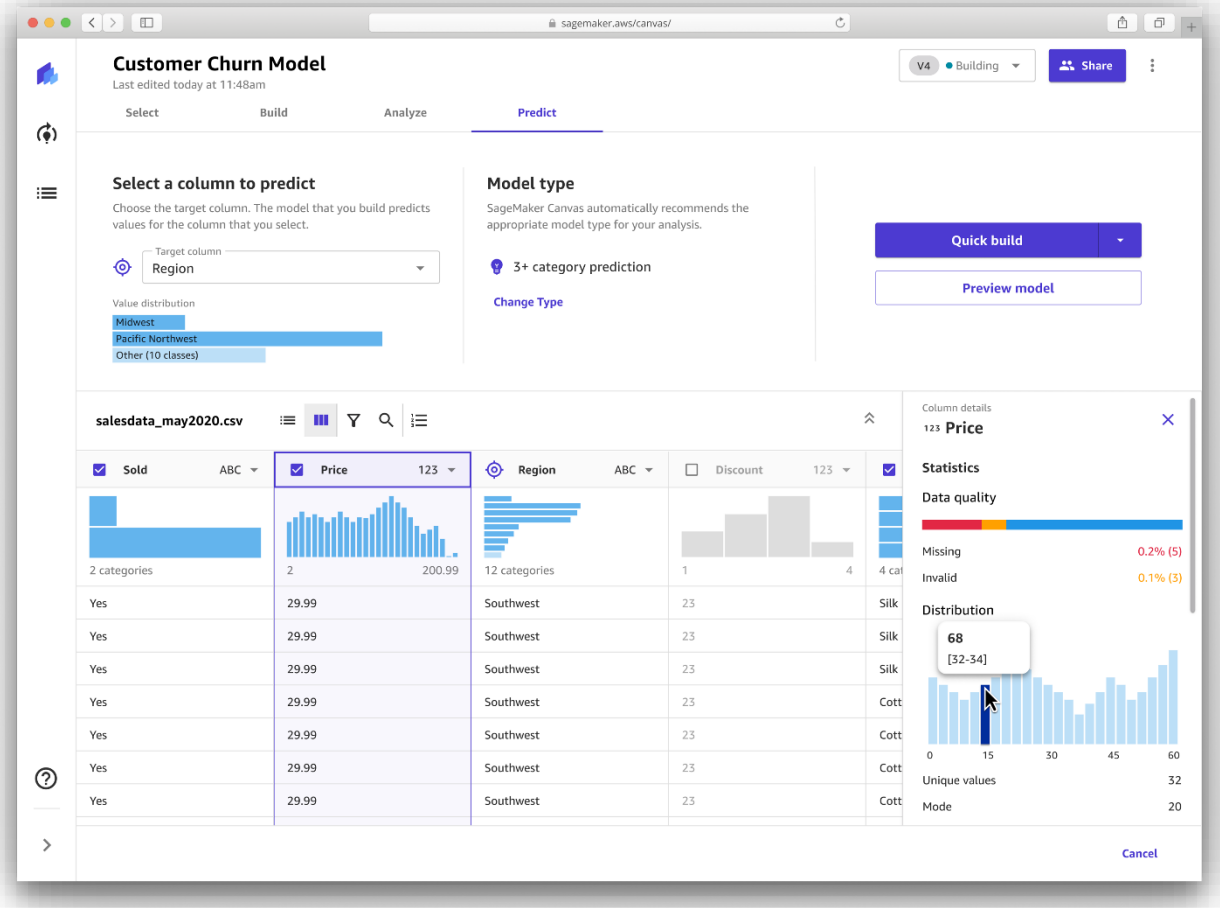


Combine datasets from various sources like local disk, Amazon S3, Amazon RedShift, and Snowflake

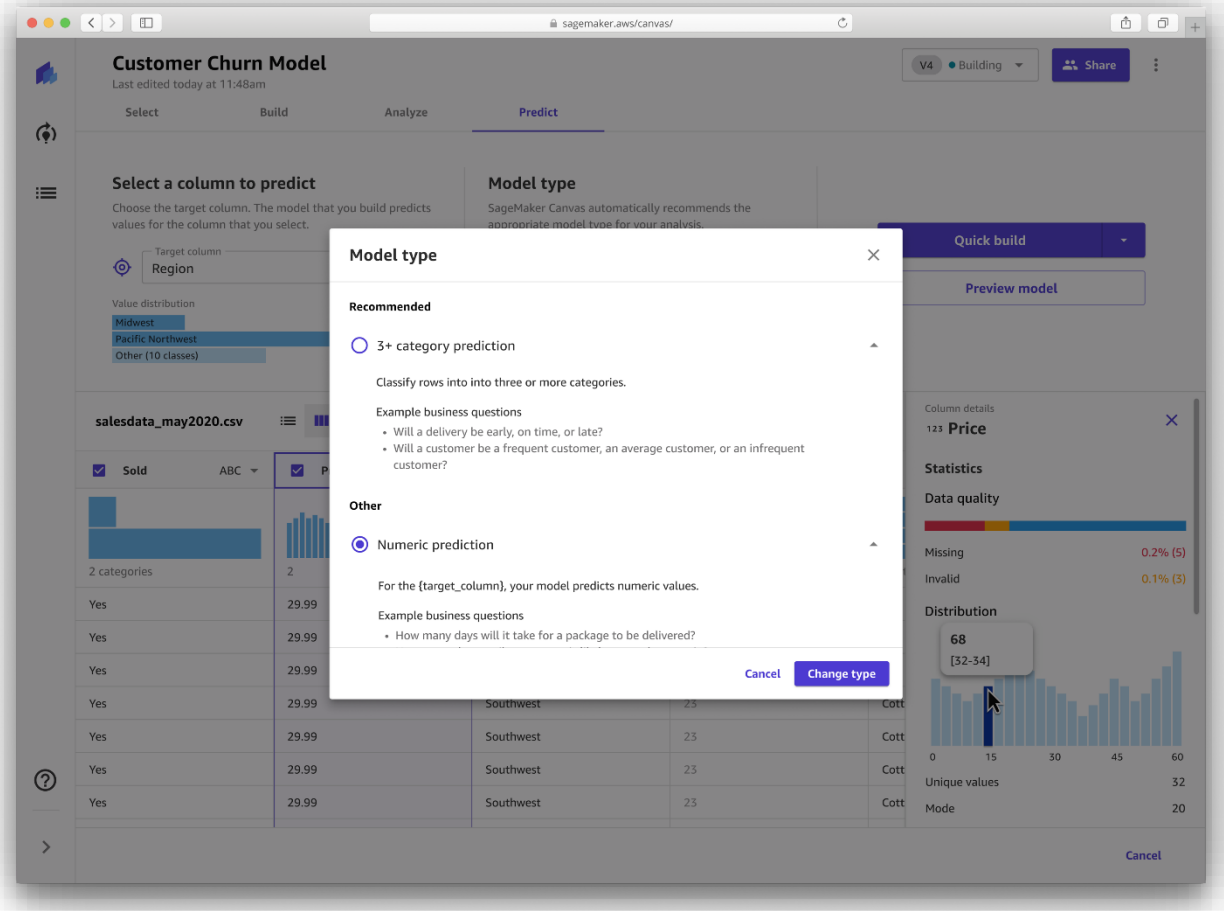
...with others coming soon



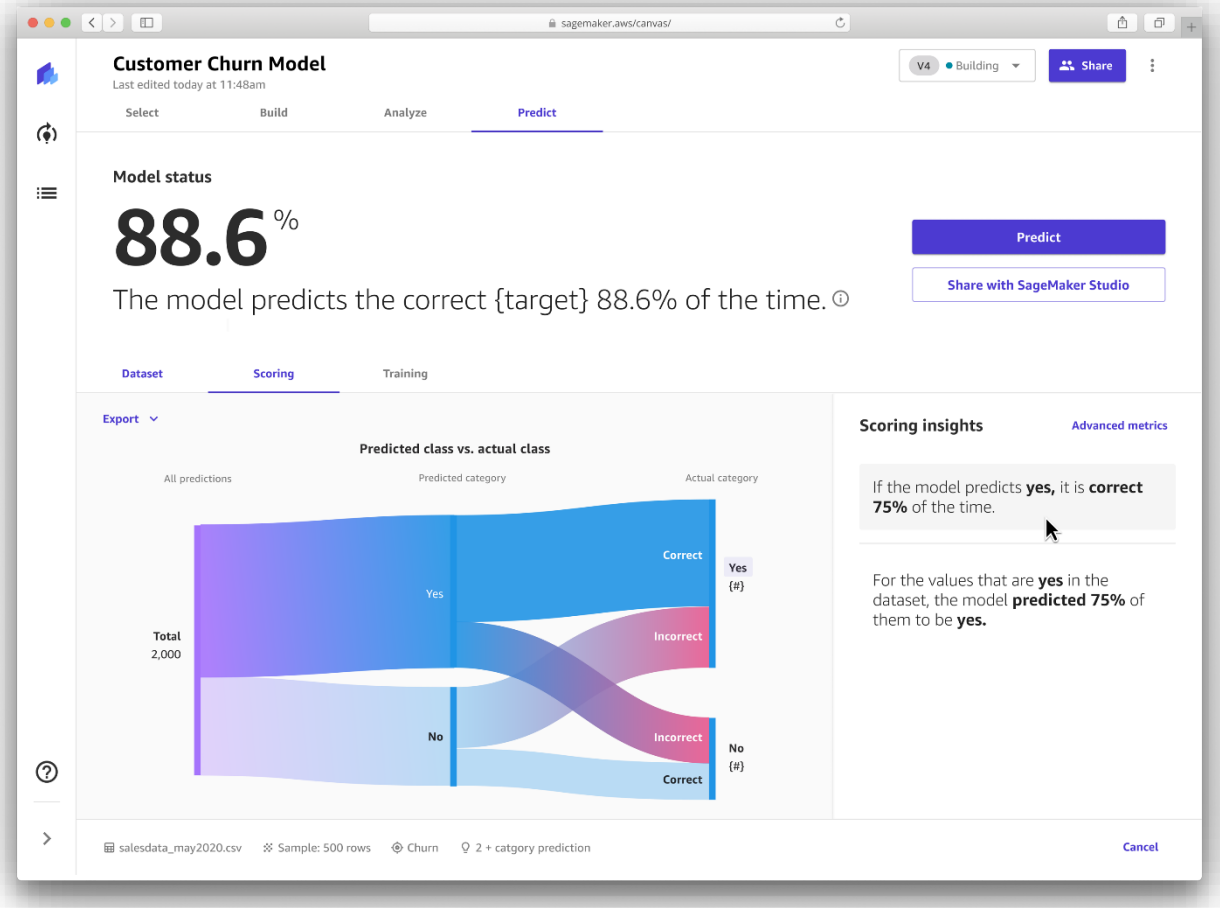
Quickly understand and prepare your data via a visual interface



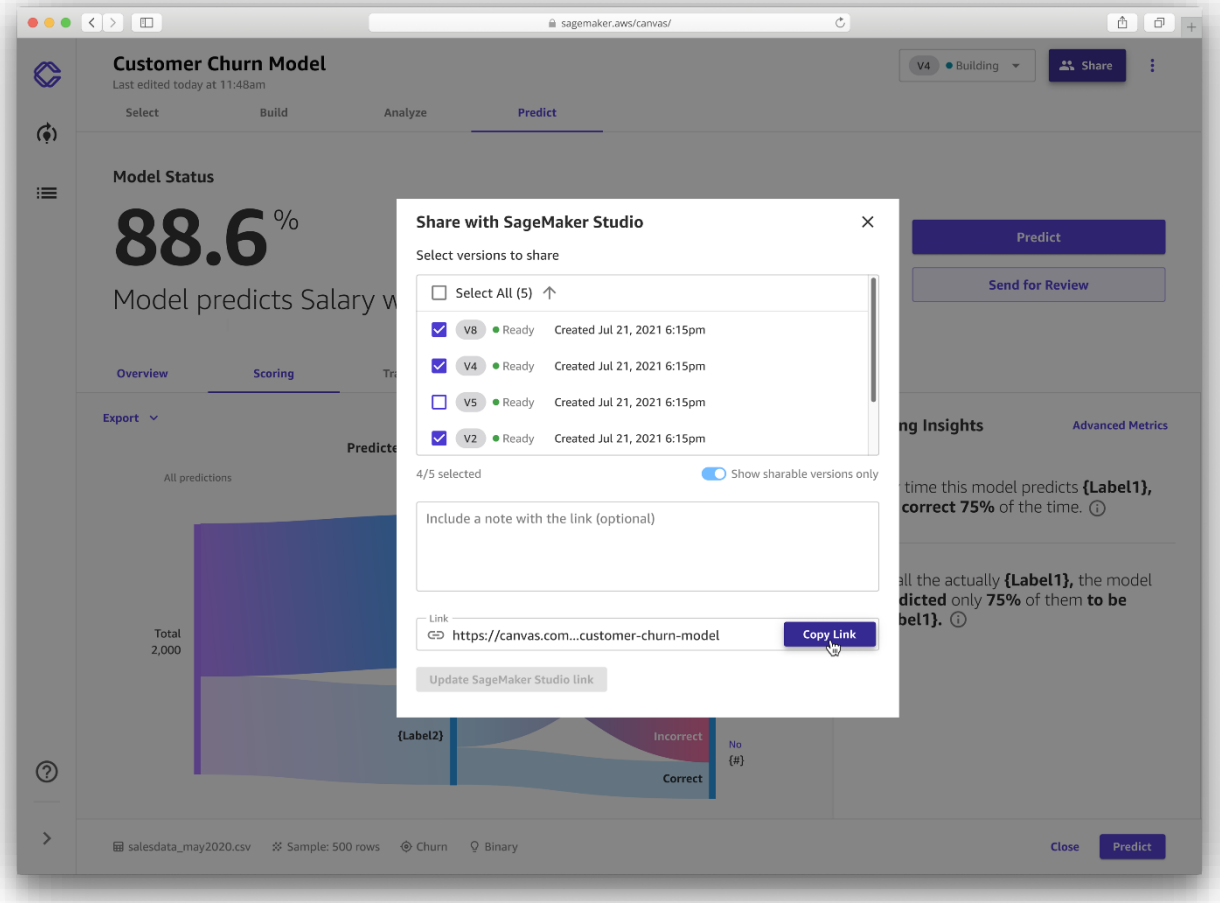
Automatically build an accurate ML model for your dataset



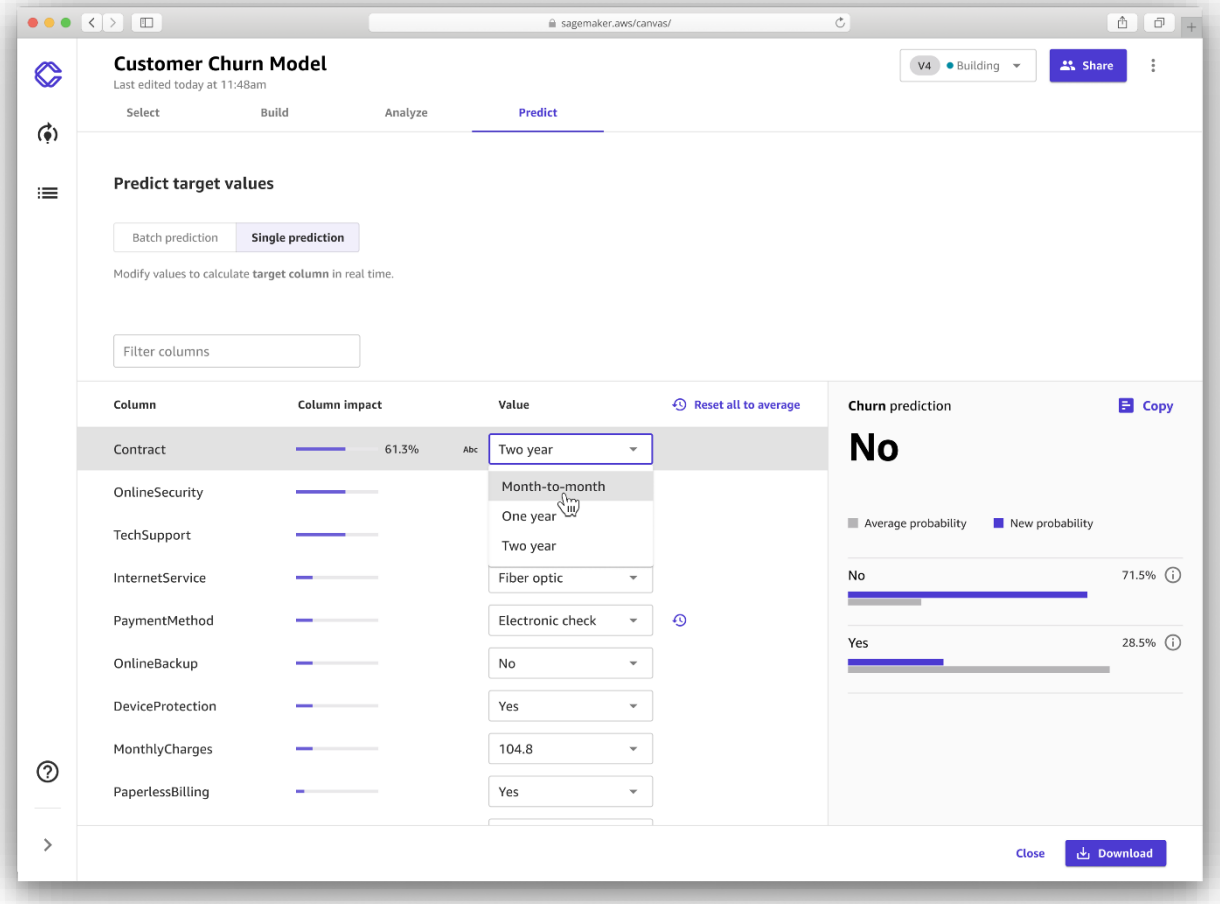
Get the first ML model in minutes; review advanced metrics and feature importance to understand and explain predictions



Easily share your models with data scientists to get feedback



Run what-if scenarios, or get predictions on an entire dataset



SageMaker Canvas Use Cases

VAST ARRAY OF USE CASES ACROSS DIFFERENT BUSINESS FUNCTIONS, OR VERTICALS



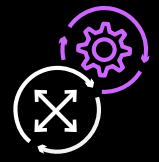
Sales and Marketing

1. Sales conversion
2. Sales forecasting
3. Propensity to churn
4. Customer lifetime value prediction
5. Marketing mix modeling



Finance and Accounting

1. Credit risk scoring
2. Delayed payments prediction
3. Fraud detection
4. Portfolio optimization
5. Account payables automation



Operations and Logistics

1. Demand forecasting
2. Inventory planning and scheduling
3. Delivery time forecasting
4. Predictive Maintenance

and many more…

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Customer Showcase:

BMW Group

Marc Neumann
Product Owner - AI Platform

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Our ride with AI & ML continues

2015 — Solitary, decentral AI use cases

2016 — Central IT unit for big data & data science

2019 — Many AI use cases operational at on-premise platforms

2021 — Shifting AI use case implementation to cloud

2022 — Established re-usable best practice blueprint, new use cases using it

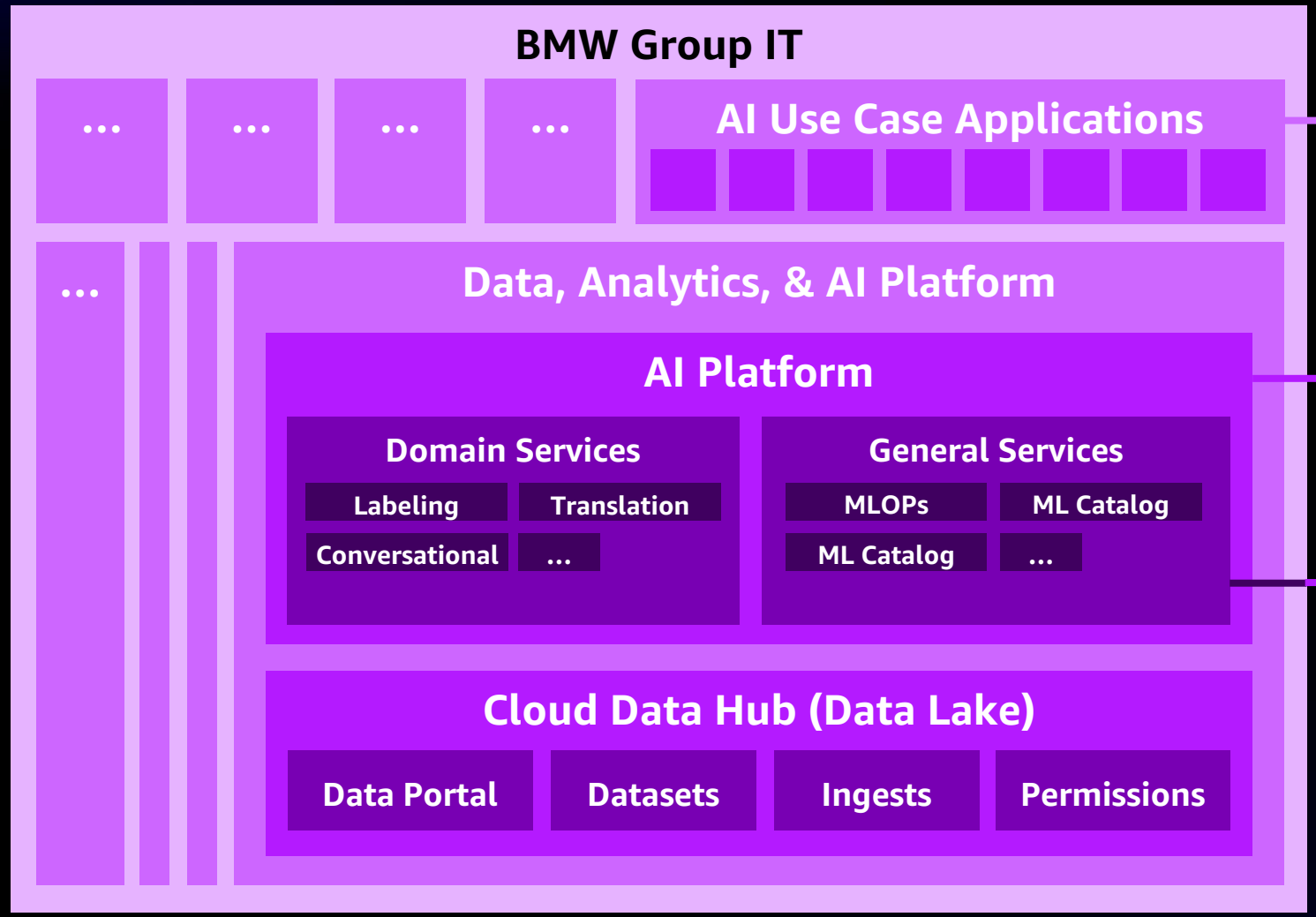
Scale AI use cases with No code AI & MLOps beyond big initiatives



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Our platform pushes data orientation



AI use cases throughout all divisions e.g., product development, procurement, production, sales, aftersales

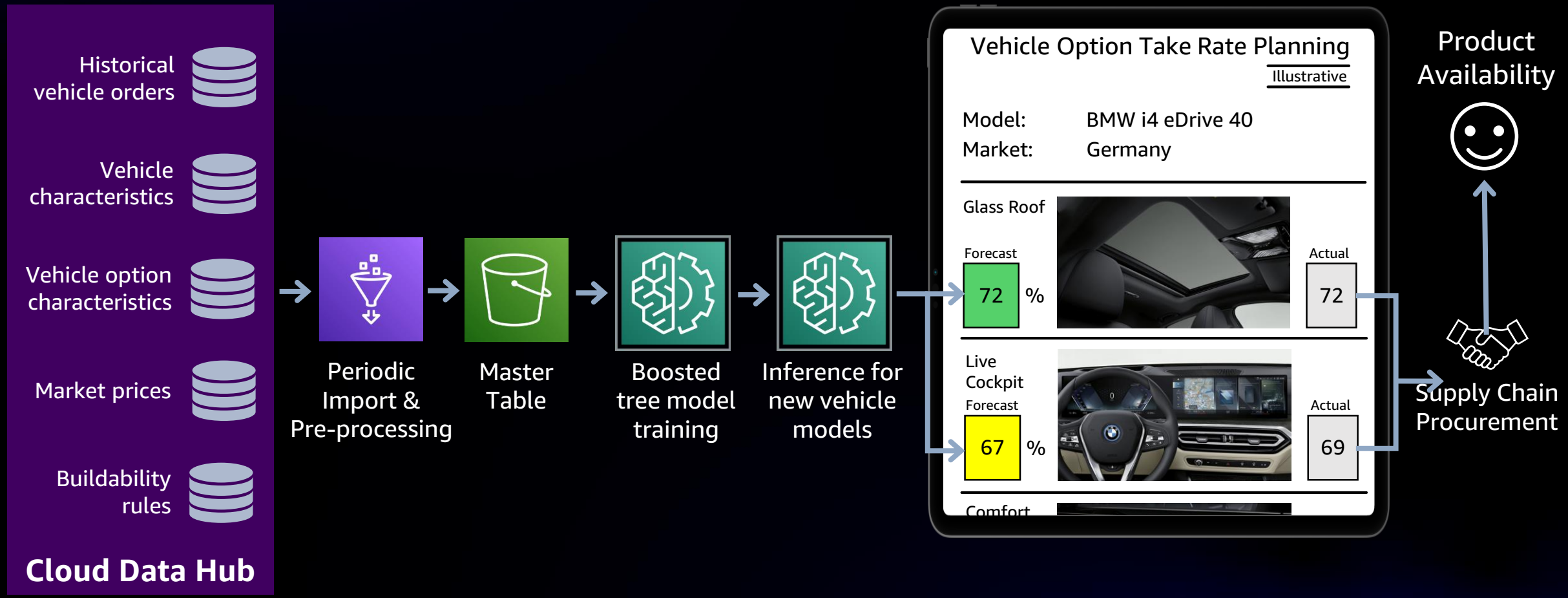
Boost AI use case exploration, implementation & operation

Promote best practices & sharing to enterprise

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A typical ML use case – Sales forecasting



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We templatized our MLOps best practices

Instantiate

Create code repository and CI/CD pipelines with an AI use case example

Preprocess

Import, join and preprocess data from enterprise data lake periodically

Train

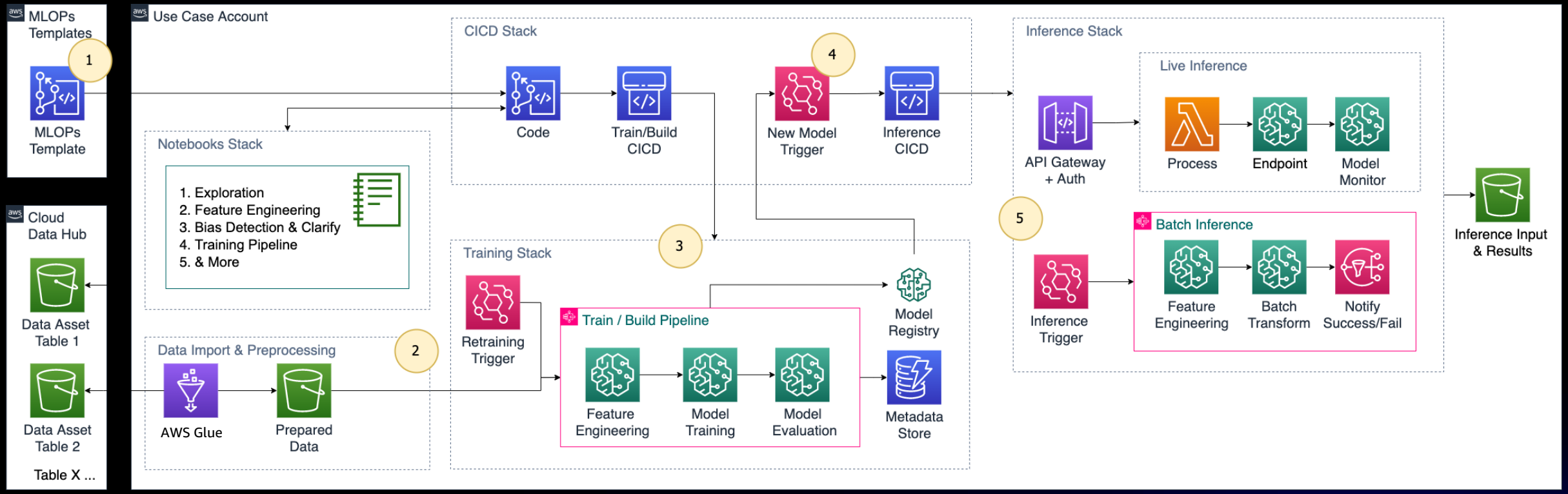
Automatically or manually triggered model creation

Deploy

Bring new model versions to production

Operate

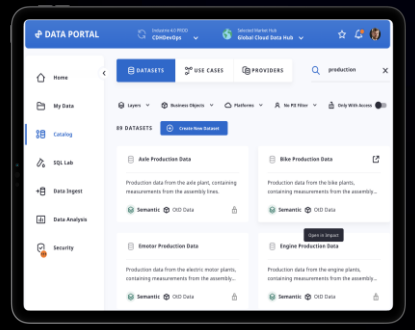
Run model integrated in enterprise processes & monitor quality



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Business units benefit from no code ML

1



Use & join datasets in enterprise data lake

2

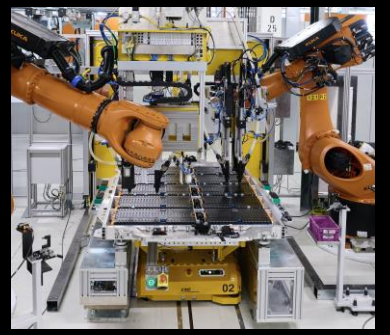


Leverage analyst skill & domain understanding to build a predictive system

Amazon SageMaker Canvas

3

Understand correlations and causality (e.g., regarding quality)



4

Deploy created model to industrialized AI applications



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No code ML allows building MLOps teams

Business Unit X



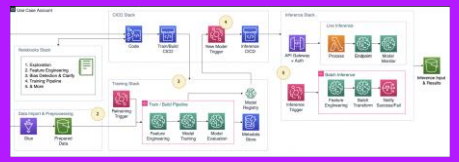
DevOps Teams

Machine Learning

Operations

No code ML

Amazon SageMaker Canvas



Use Case X

AI Platform

Cloud Data Hub (Data Lake)

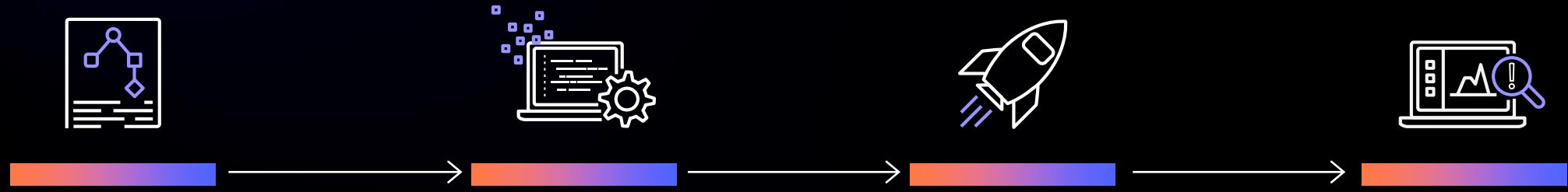
Data, Analytics & AI Platform

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ML Value Creation From Months to Hours

WITH A TAILOR-MADE WORKSPACE FOR ANALYSTS AND A TAILOR-MADE WORKSPACE FOR DATA SCIENTISTS



Business Requirements

Business Leads, Domain Experts, and Business Analysts

Data Preparation & Feature Engineering

Data Engineers and Data Scientists

Model Development, Training, and Tuning

Data Scientists and ML Engineers

Model Deployment & Monitoring

ML Ops Engineers

SAGEMAKER CANVAS

No-Code ML

Collaboration

SAGEMAKER STUDIO | RSTUDIO

Prepare data | Store features | Detect bias | Build with notebooks | Train models faster | Tune parameters | Deploy in production | Explain predictions | Manage and monitor

Analyst-focused Workspace

Data Scientist-focused Workspace

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Customer Spotlight



At Siemens Energy our purpose is to energize society, and we have a plan. Our top focus areas in ESG, innovation and transformation share how we're making the future of tomorrow different today, for both our partners — and our people.

"The core of our data science strategy at Siemens Energy is to bring the power of machine learning to all business users by enabling them to experiment with different data sources and machine learning frameworks without requiring a data science expert. This will enable us to increase the speed of innovation and digitalization of our energy solutions such as Dispatch Optimizer and Diagnostic services. We found Amazon SageMaker Canvas a great addition to Siemens Energy machine learning toolkit, because it allows business users to perform experiments while also sharing and collaborating with data science teams. The collaboration is important because it helps us productionalize more ML models and ensure all models adhere to our quality standards and policies.

—Davood Naderi, Data Science Team Lead at Industrial Applications, Siemens Energy

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Getting Started and Documentation

SCALE ML VALUE CREATION

Business Executives

Scale your ML efforts by offering your business teams a way to build ML with no code

BUILD ML WITH NO CODE

Business Analysts & Domain Experts

Learn how to use Canvas and start building ML-powered predictions with no code

ENABLE COLLABORATION

Platform Admins

Onboard analysts in Canvas and data scientists in Studio to enable collaboration

http://aws.amazon.com/sagemaker/canvas

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Thank you!

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