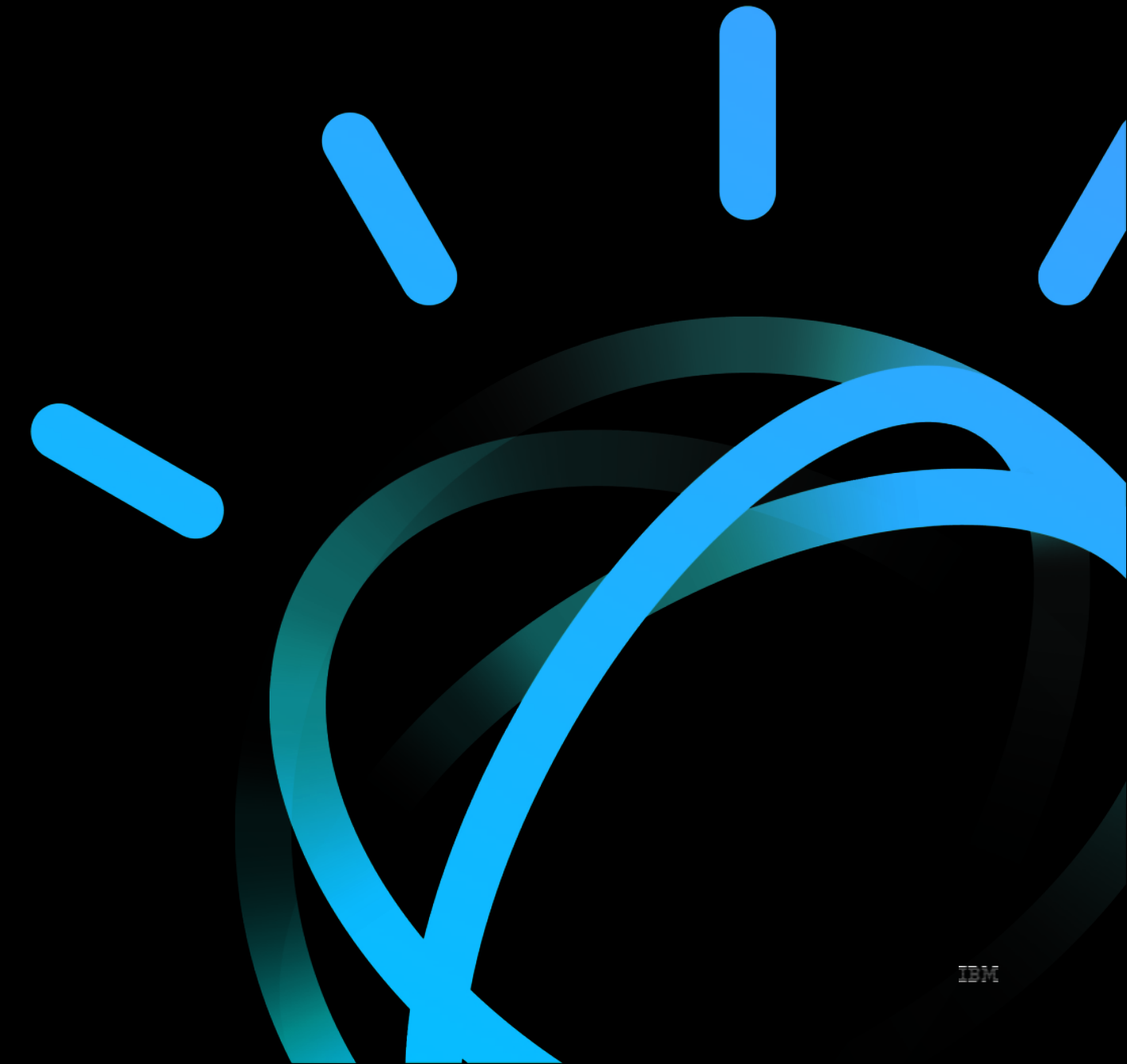
IBM Watson Studio & Watson Machine Overview

TANUT KARNWAI
28 JAN 2020



IBM

Agenda

IBM Enterprise AI Portfolio

Watson Studio & Watson Machine Learning Overview

Why Watson Studio & Watson Machine Learning

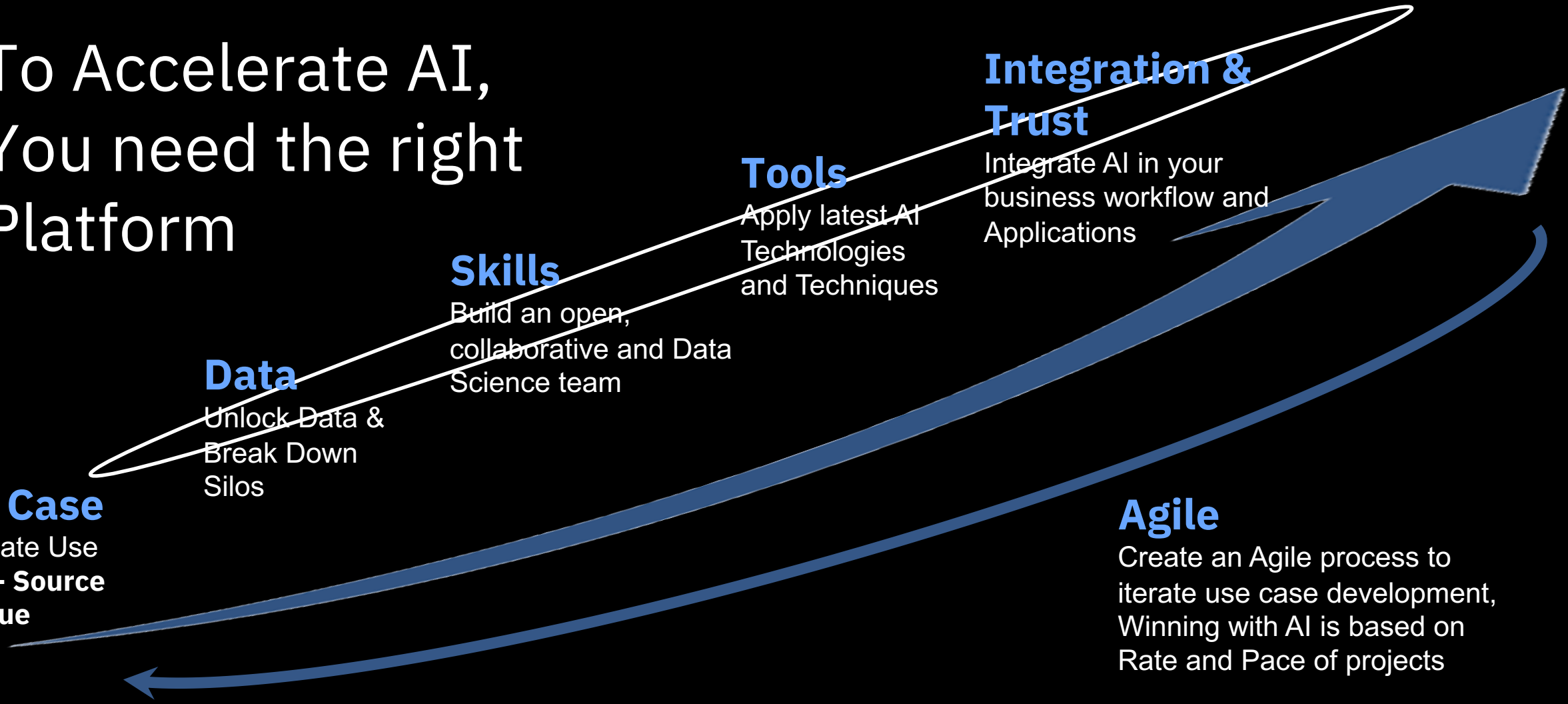
Next Steps

IBM Enterprise Data Science and AI platform

Putting AI to Work for Business

One use case at a time...

To Accelerate AI, You need the right Platform



Use Case
Articulate Use Case **- Source of Value**

Data
Unlock Data & Break Down Silos

Skills
Build an open, collaborative and Data Science team

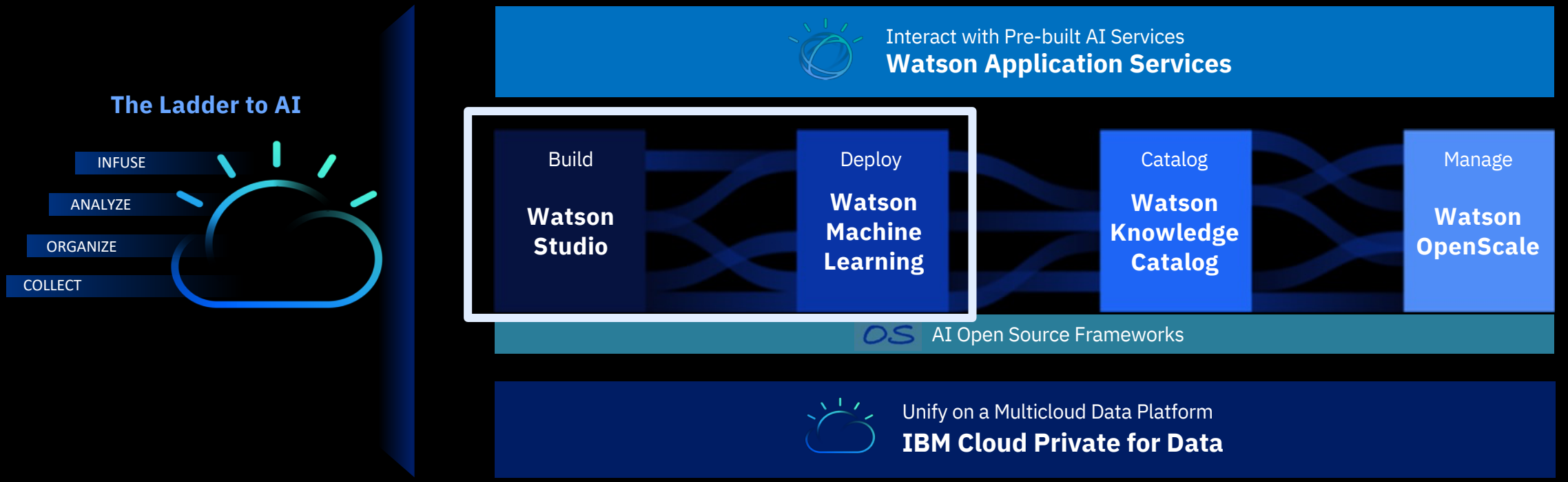
Tools
Apply latest AI Technologies and Techniques

Integration & Trust
Integrate AI in your business workflow and Applications

Agile
Create an Agile process to iterate use case development, Winning with AI is based on Rate and Pace of projects

IBM AI Portfolio

Everything you need for Enterprise AI, on any cloud



What is Watson Studio and Watson Machine Learning?

IBM Watson Studio

Maximize the productivity of data scientists with data science as a team sport

Centralize data analysis and prediction tasks across an enterprise

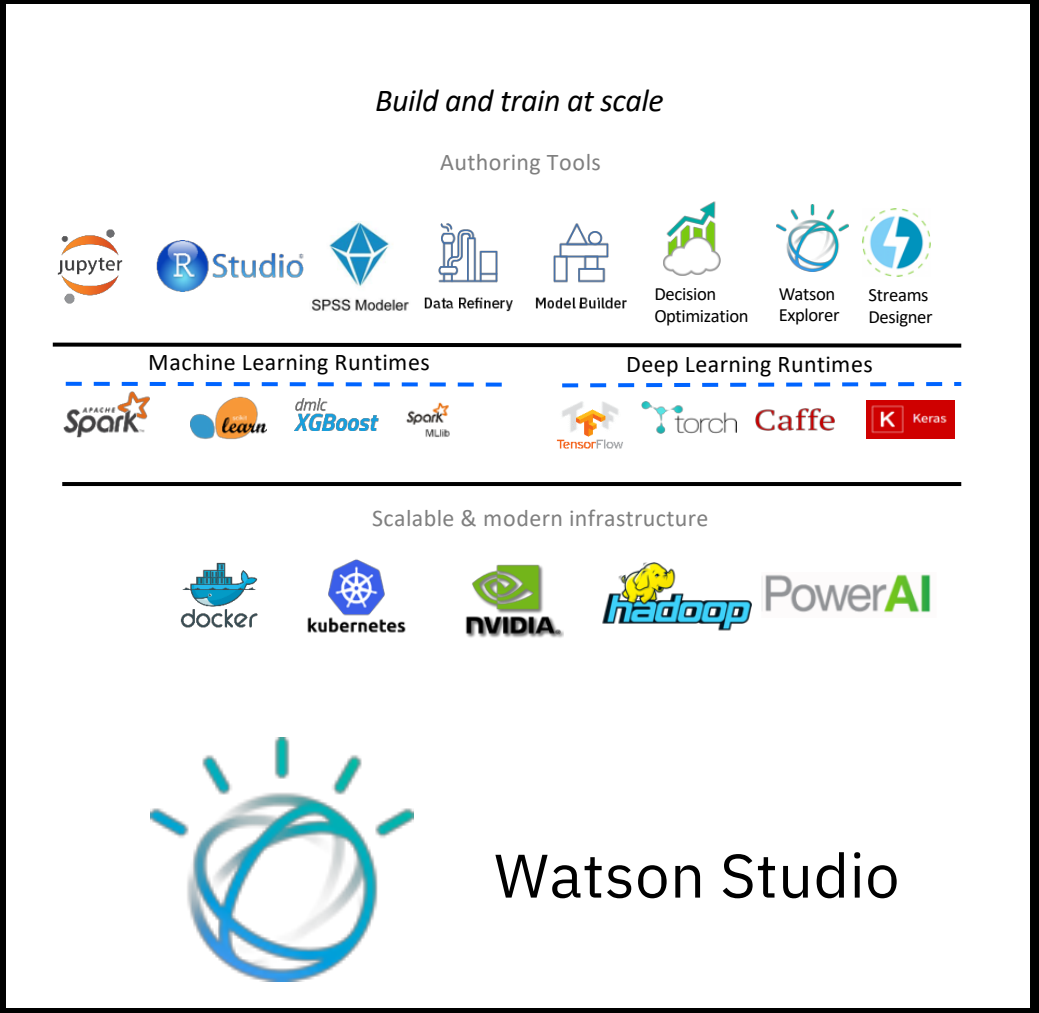
A single multi-framework platform keeps your data in its place while reducing barriers to distribution of work.

Accelerate time to insight and prediction

Quickly explore and prepare data at scale anywhere across multiclouds

Empower citizen data scientists and analysts with visual productivity and automation tools

Unlock the potential of subject matter experts working together with data scientists in the same platform.



IBM Watson Machine Learning

Embed Machine Learning and Deep Learning in your Business

Deploy and Manage Models

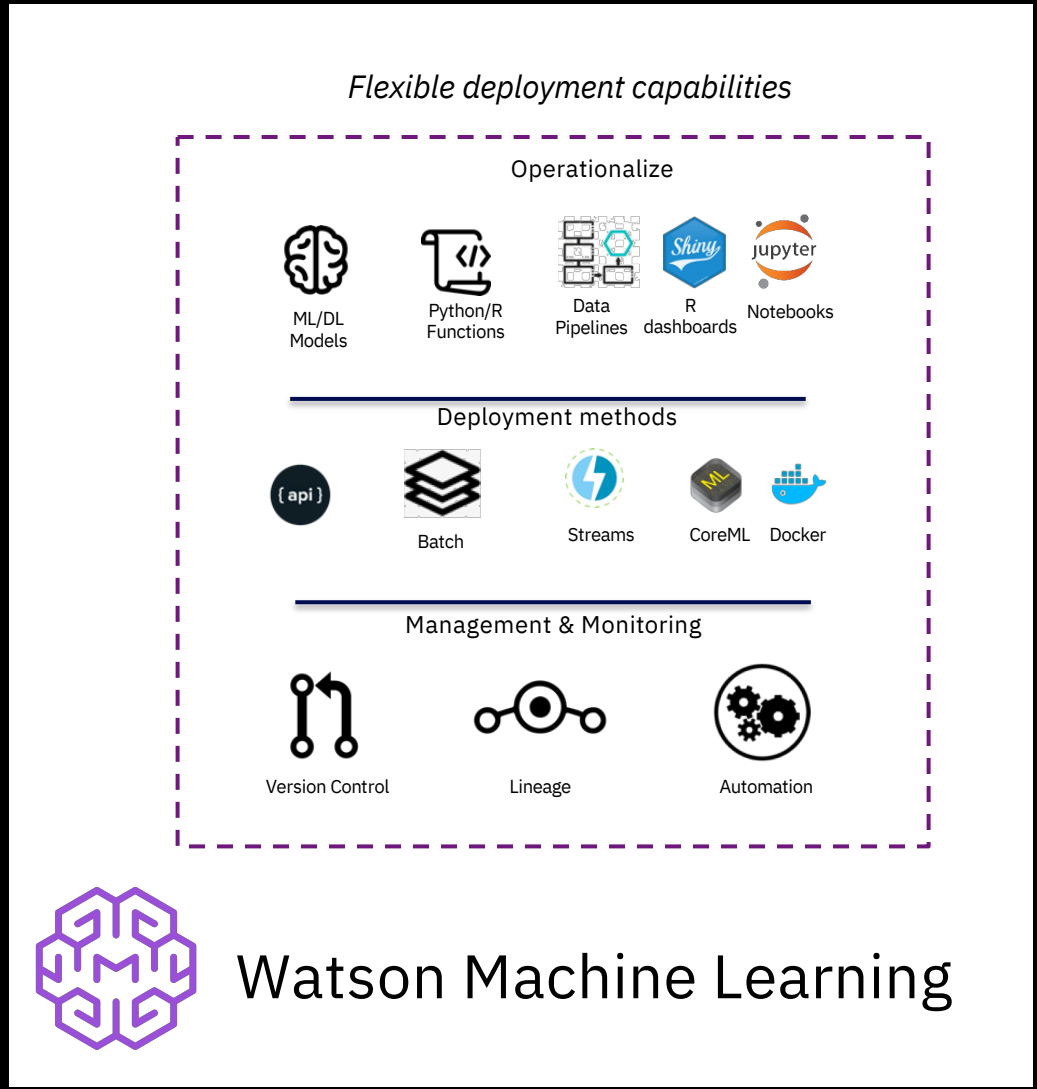
Move models to production, in an easy, secure, and compliant way

Intelligent Model Operations

Embed intelligent training services, with feedback loops that constantly learn from new data, regardless where it resides

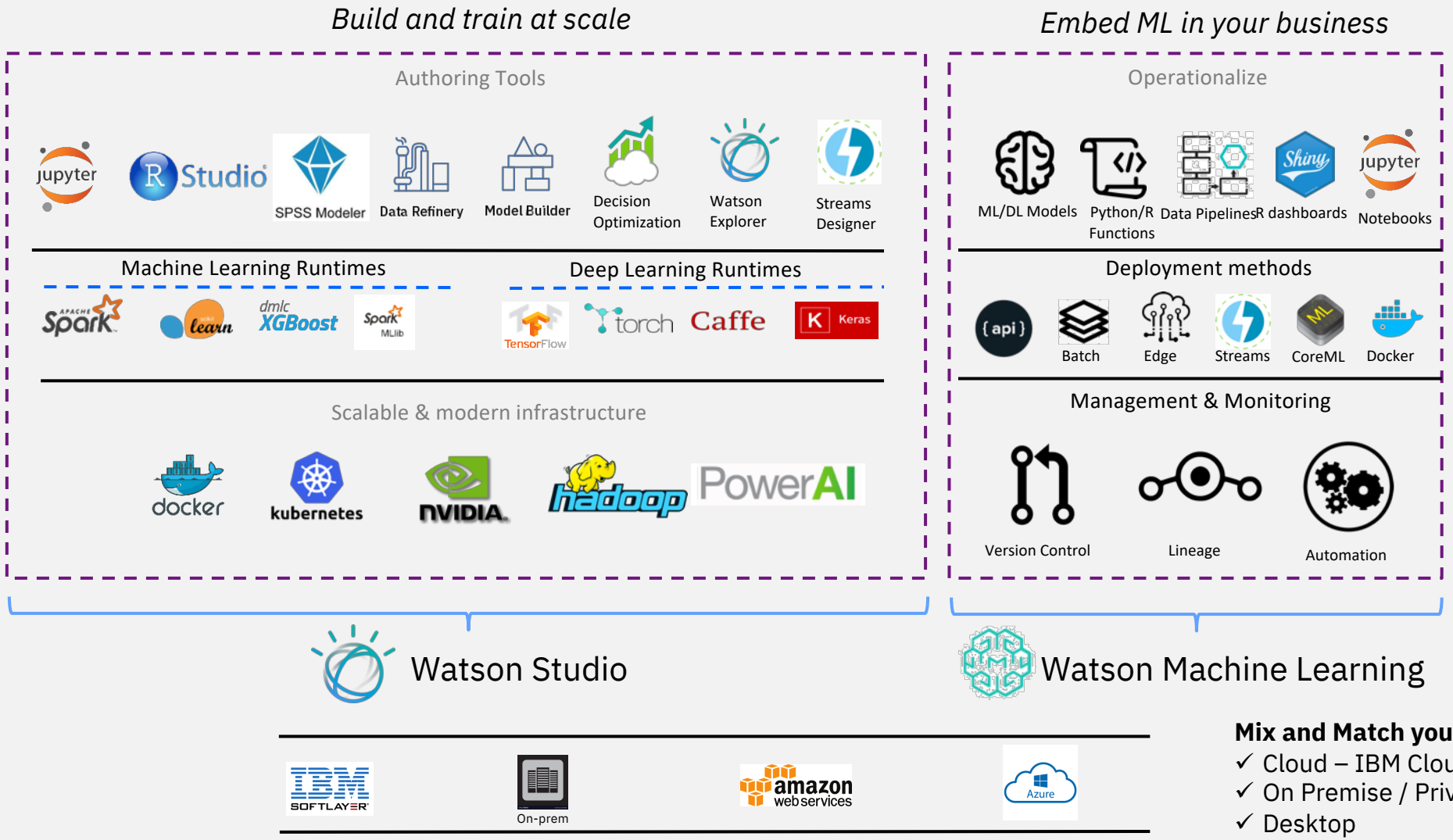
Accelerate Compute Intensive Workloads

Distribute your deep learning Training and Hadoop/Spark workloads with multi-tenant job scheduling



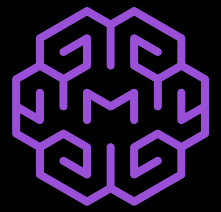
Watson Machine Learning

Watson Studio and Watson Machine Learning inject AI firepower into your business

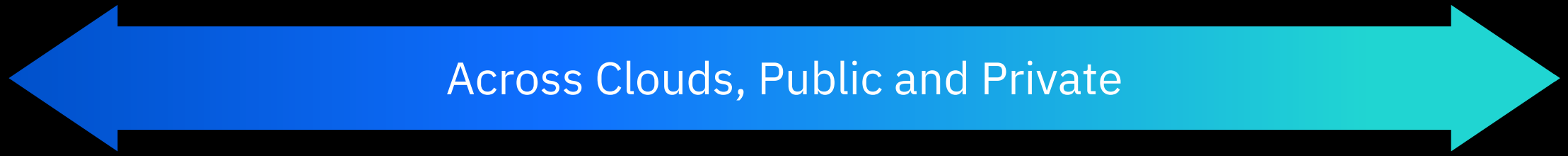


Mix and Match Watson Studio and Watson Machine Learning across hybrid multi-cloud environments

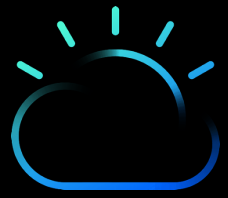
Watson Studio



Watson Machine Learning



Private clouds
On-premises
Desktop



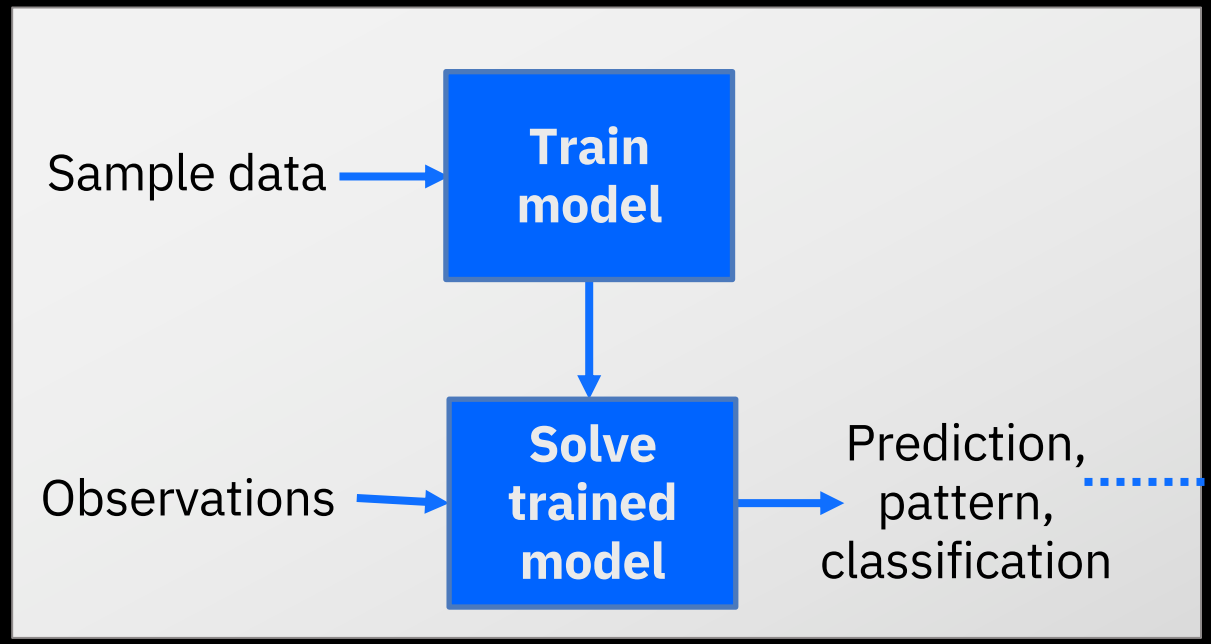
Machine Learning and Optimization are better together

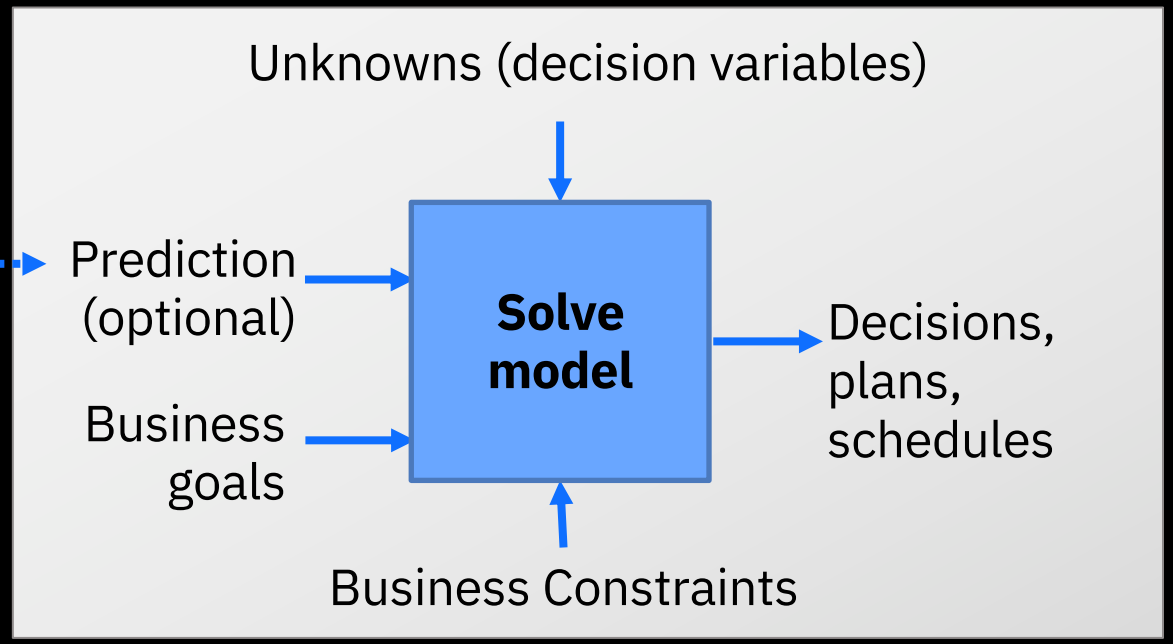
Predictive Analytics

- Basic (supervised): you **know the answer** and you **train the machine how to find it**
- More advanced – unsupervised, reinforcement, & deep learning

Prescriptive Analytics

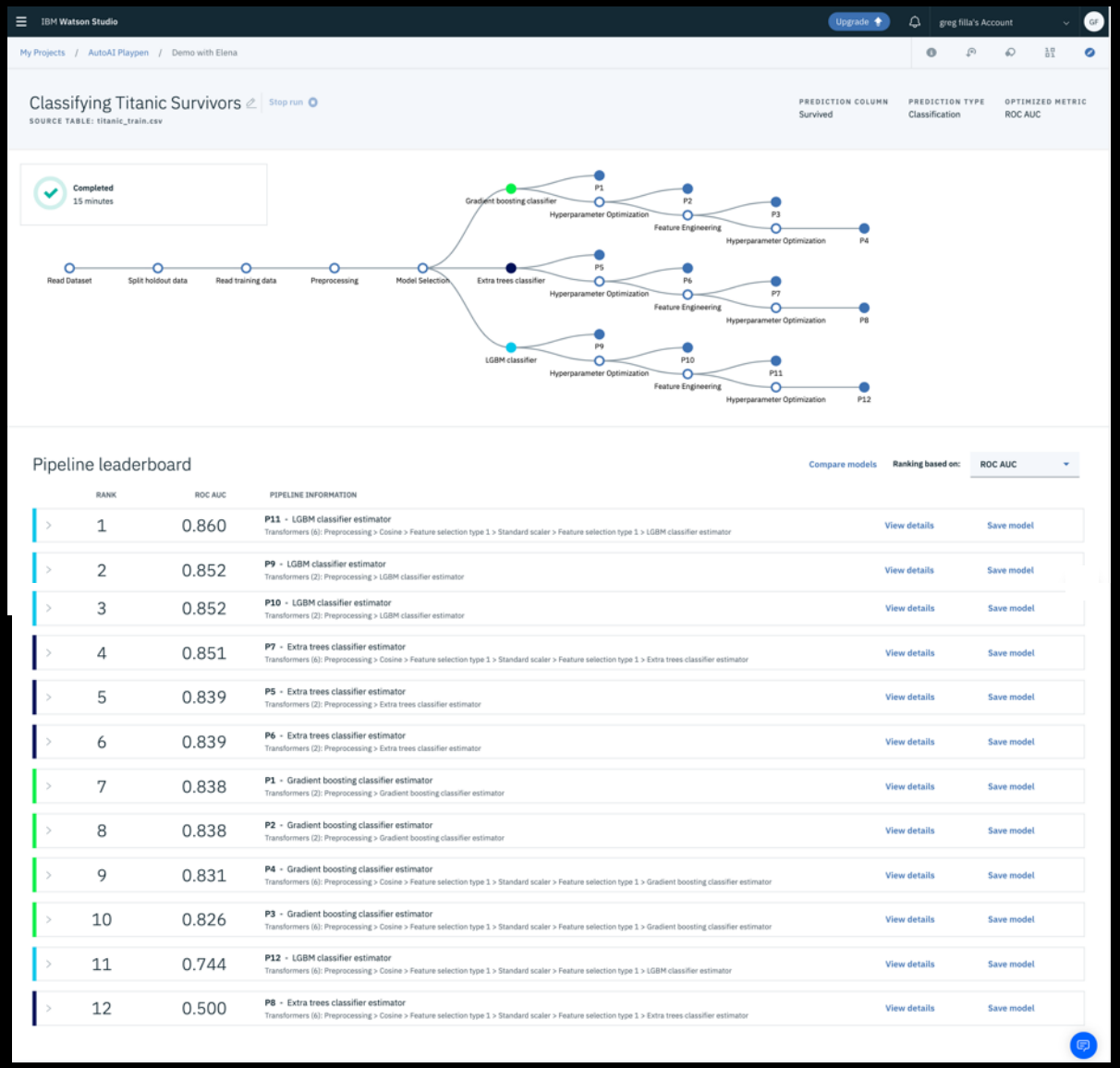
- You **don't know the answer**, and you **provide the machine the logic on what is a good and a bad solution**
- More advanced – robust/stochastic/…





What does AutoAI with IBM Watson Studio do?

- Integrated with **Watson Studio** and **Watson Machine learning**
- Automatically ingest, clean, transform, and model with hyperparameter optimization
- Training feedback visualizations provide real-time results to see model performance
- One-click deployment to Watson Machine Learning



User Benefits of using AutoAI

Build models faster
Automate data preparation and model development

Jump the skills gap
No coding? No problem – get started with a couple clicks

Discover more use cases
Supercharge collaboration with AI everywhere to disrupt and transform

Find signal from noise
Auto-feature engineering makes it easy to extract more predictive power from your data

Rank and explore models
Quickly compare candidate pipelines to find the best model for the job

Ready, set, deploy
Pipelines generated with AutoAI can be deployed to REST APIs with one click

Introducing Watson Machine Learning Accelerator

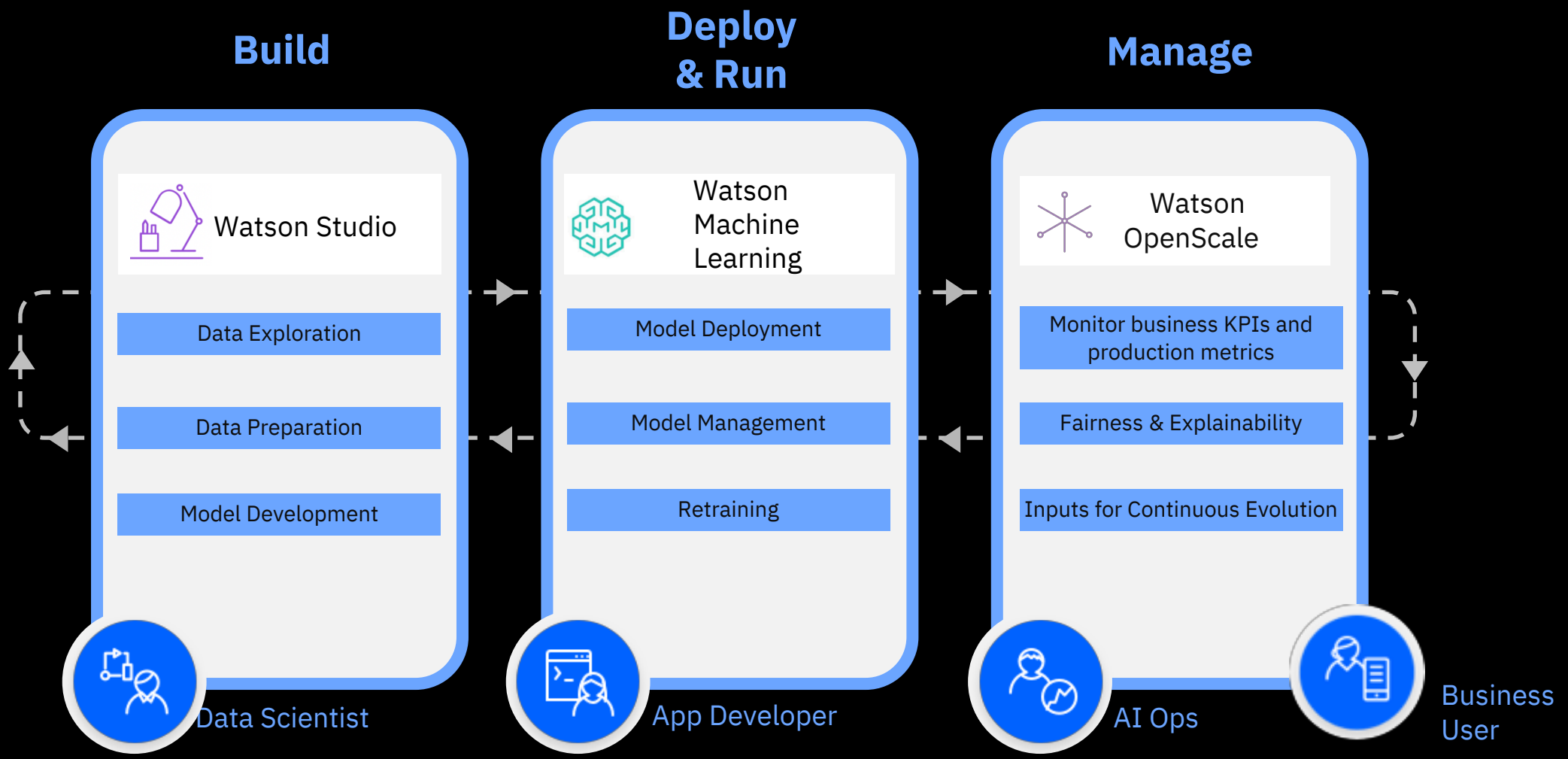
Watson Studio

Watson Machine Learning

+

Watson Machine Learning Accelerator,
formerly PowerAI Enterprise

Watson Studio, Watson Machine Learning, and Watson OpenScale enable enterprises to operationalize AI



Where do we go from here?

An IBM-led **AI Journey Workshop** provides the **strategy** and **expertise** to transform your business into a cognitive enterprise and **unlocks the full potential of your data** with AI.

Identify your unique business challenges and needs.

Explore how AI is transforming every industry.

Partake in an IBM-led **half** or **full** day workshop to explore your use case and scope out potential solutions.

Work with IBM subject matter experts to fully **define** the scope and success criteria for an AI solution.

Delivery and deployment of the agreed upon AI solution, **tailored** specifically to your business needs.

Explore how to further **accelerate** your organization's AI Journey with IBM.

What can Data Science and AI do for the LOB Executive?

Insight

What happened or is happening and how to measure or monitor?

Prediction

Based on historical data, what is the likelihood of an event occur in the future?

Action

What is the best allocation of resource, plan, schedule, next best action?

Insight

What happened or is happening and how to measure or monitor?

Customer experience

- Customer segmentation
- Churn analysis
- Lifetime value

Risk & fraud

- Risk scoring, monitoring
- Fraud analysis
- Governance and security

Operations

- Operational cost
- Staffing productivity
- Waste and abuse

Prediction

Based on historical data, what is the likelihood of an event occur in the future?

Customer experience

- Customer churn
- Buying pattern
- Offering recommendation

Risk & fraud

- Risk management & monitoring
- Fraud detection

Operations

- Demand forecast
- Operational efficiency
- Predictive maintenance

Action

What is the best allocation of resource, plan, schedule, next best action?

Customer experience

- Next best action
- Staff allocation for NPS improvement

Risk & fraud

- Offering optimization
- Pricing optimization
- Fraud prevention posture

Operations

- Capacity management optimization
- Operational efficiency
- Workforce optimization

AI and machine learning help detect, predict and prevent fraud

72%
of businesses cite fraud as a growing concern and

63% report the same or higher levels of fraudulent losses over the past 12 months

– Experian Global Fraud Report

Data Science in Fraud Detection

A data science platform is complimentary to other fraud detection systems

React: Predictive models can quickly determine changing patterns in fraud and react to them in real time

Improve: Data science can help derive new fraud detection rules, which can be used to improve the business process

Achieve more: Data science can increase the rate of fraud detection

Why data science in fraud?

“As fraud schemes become more sophisticated and migratory, access to real time data and the use of advanced data analysis to monitor claims and provider characteristics are critically important.”

-DANIEL R. LEVINSON, INSPECTOR GENERAL

OFFICE OF THE INSPECTOR GENERAL

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

CASE STUDY

IBM helps North American financial institution **build and deploy credit card fraud detection models**

USE CASE

Financial institution's data science team develops fraud detection models using **GPU accelerated IBM Power** Systems. These models are then **deployed** into their production credit card authorization system on **IBM Z**.

- Watson Studio Local
- Fit for purpose Machine Learning:
  - Train models on IBM Power leveraging GPUs
  - Deploy and manage models on zLinux

UNIQUE CHALLENGE

- Low latency, high throughput requirements
- Portability of models and pipelines between platforms

EXPECTED BENEFIT

- Millions in potential savings by improving detection of fraudulent transactions
- Models operationalized close to credit card authorization system on IBM Z
- Enhances existing authorization system

Nedbank: Predict Fraudulent Online Banking Activity

OVERVIEW

- Currently uses a decision-rule based system to flag suspicious transactions for review by fraud responders
- High false positive rate, low false negative rate
- Missed fraudulent activity is costly
- Large volume of alerts places a burden on responders

OBJECTIVE

- Use supervised machine learning to predict fraudulent activity within Nedbank's mobile banking system

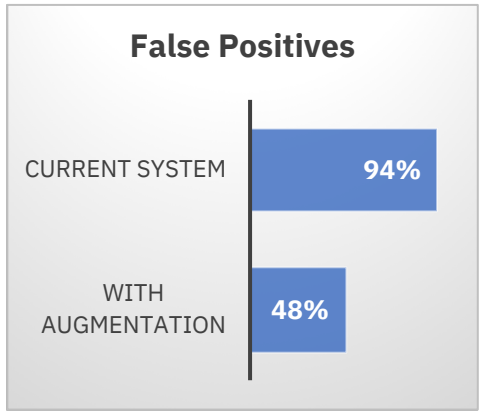
CHALLENGES

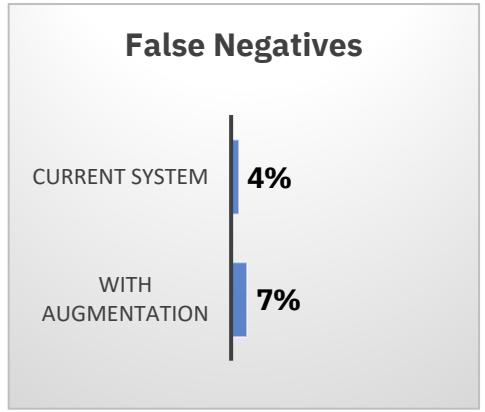
- Fraudulent activity is very rare relative to all online banking activity

  (0.004% of sessions)
- ~500M actions/ month
- Predictors need to be accepted by fraud team

FIRST MODELING APPROACH

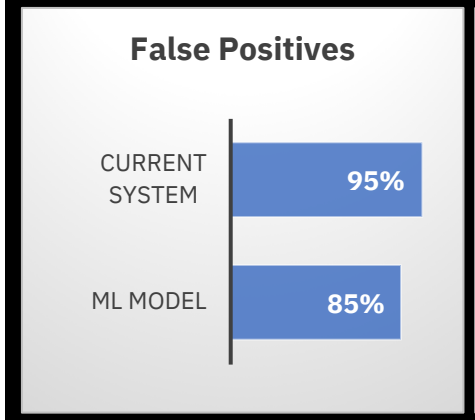
- Augment existing system by predicting which alerts ***on individual activity*** are correct

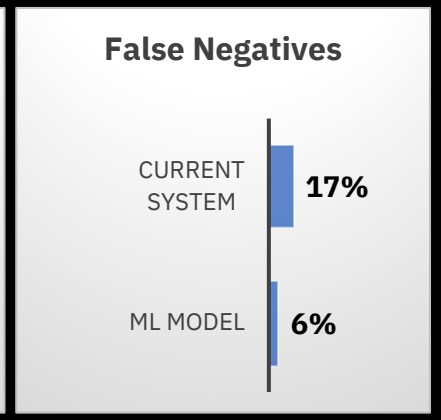




SECOND MODELING APPROACH

- Predict which ***user sessions*** are fraudulent within first 10 seconds





Need to move from fraud ***detection*** to fraud ***prediction***

Need to ***upskill*** the team to do more data science

More data science for more people

- Visual programming tool for LOB experts and analysts (citizen data scientists)
- Increase efficiency of “known” threats

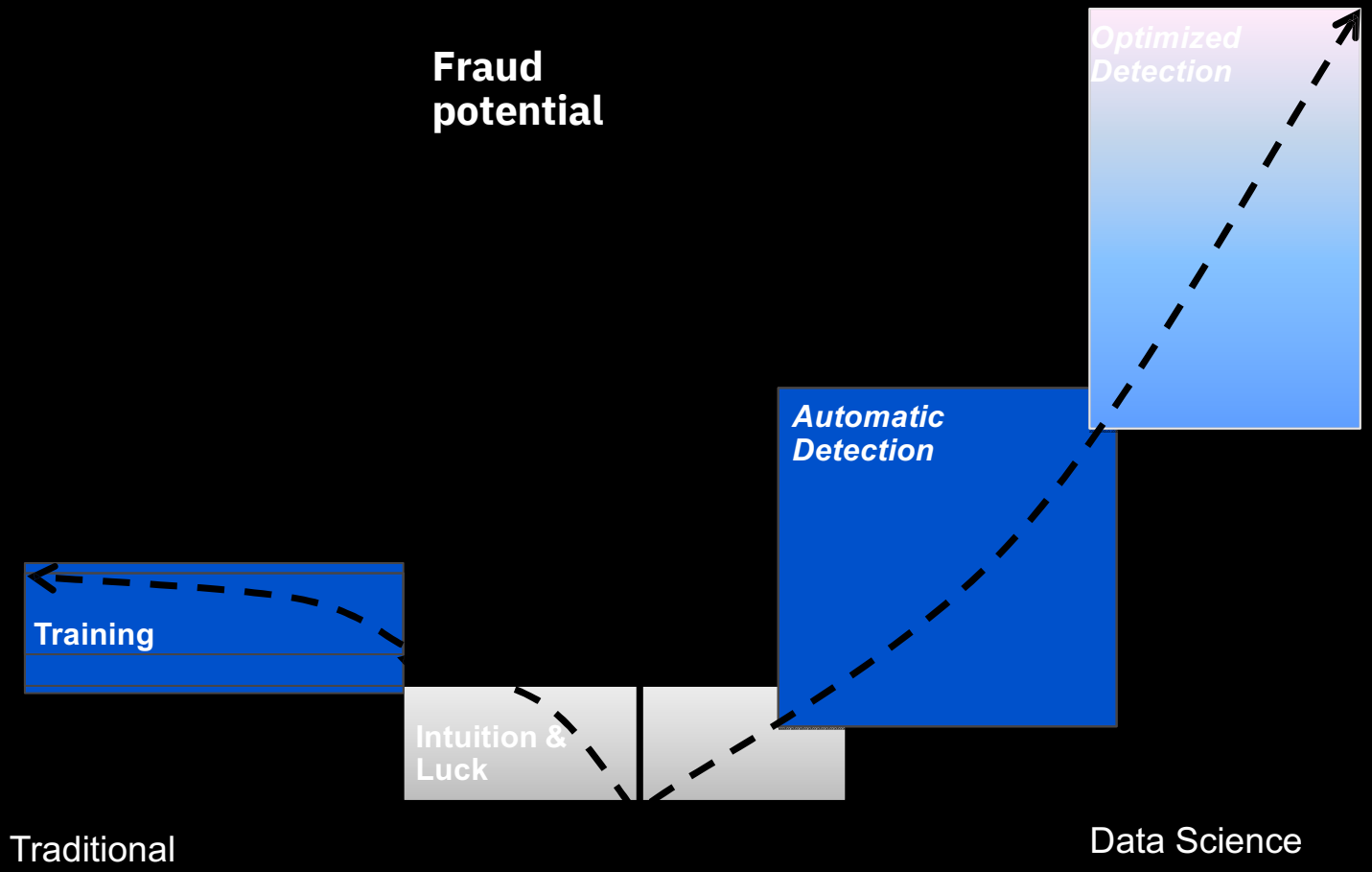
Faster discovery and deployment

- Full end-to-end AI lifecycle: build, deploy, and manage
- More time to identify, counteract, and recover

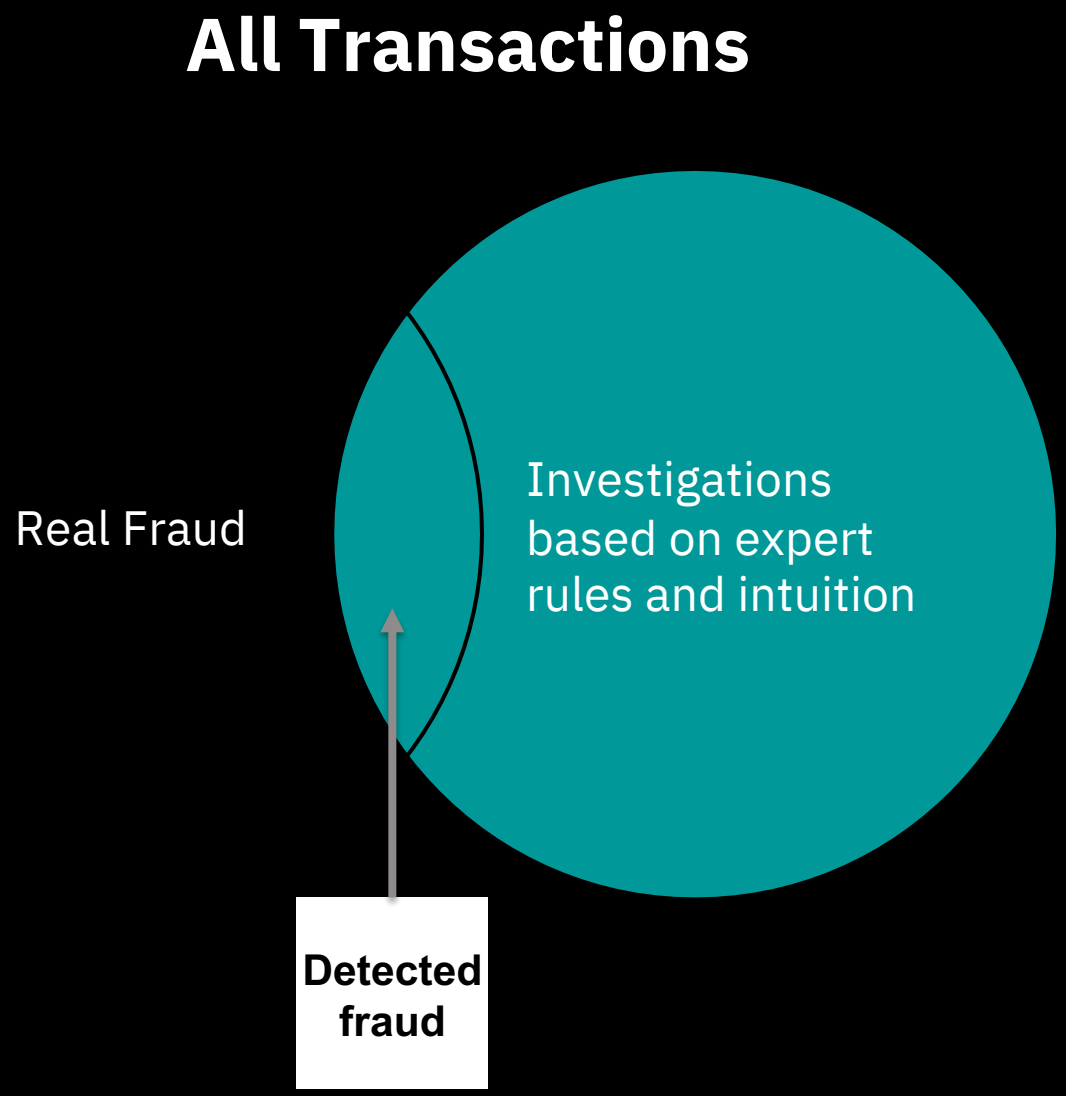
Deep learning and advanced analytics

- Enable deep learning and neural networks
- Get latest models and frameworks in fraud prediction

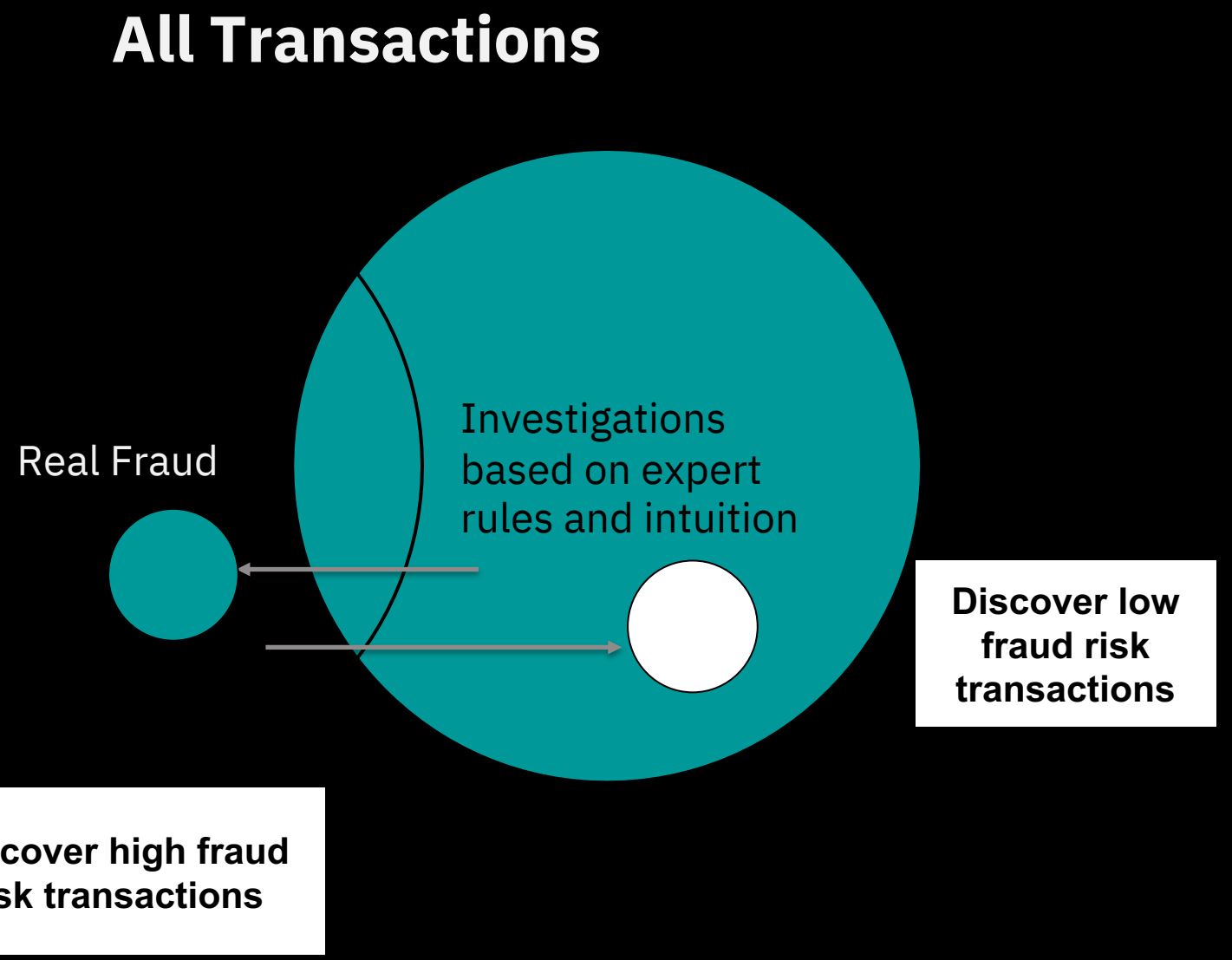
Fraud Detection improvement with Data Science



Fraud Detection without data science

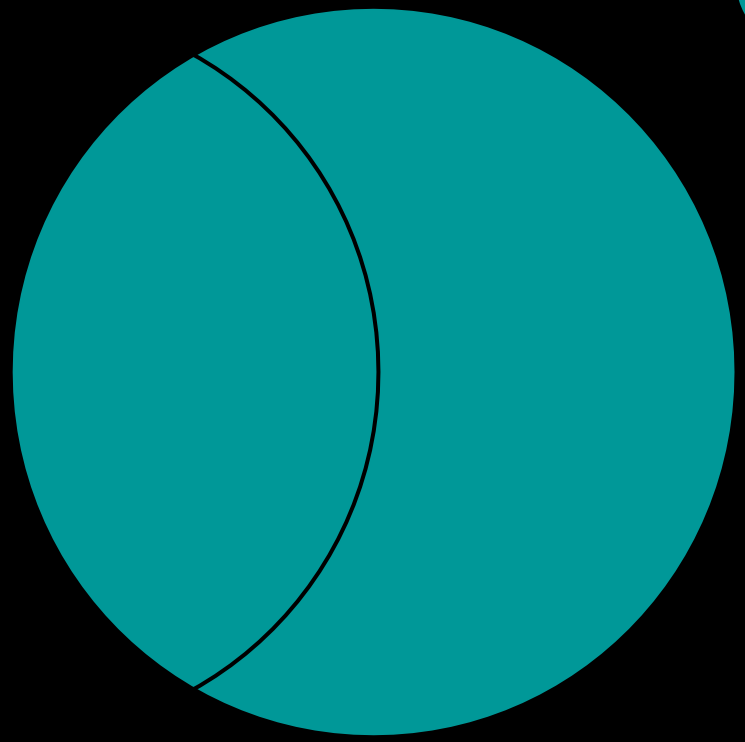


Fraud Detection improvement with Data Science



Fraud Detection improvement with Data Science

All Transactions



Transactions that don't need to be investigated

Double or triple fraud detection with the same resources

AI enables you to predict likelihood of fraud and proactively act upon insight to drive better prevention

Capture

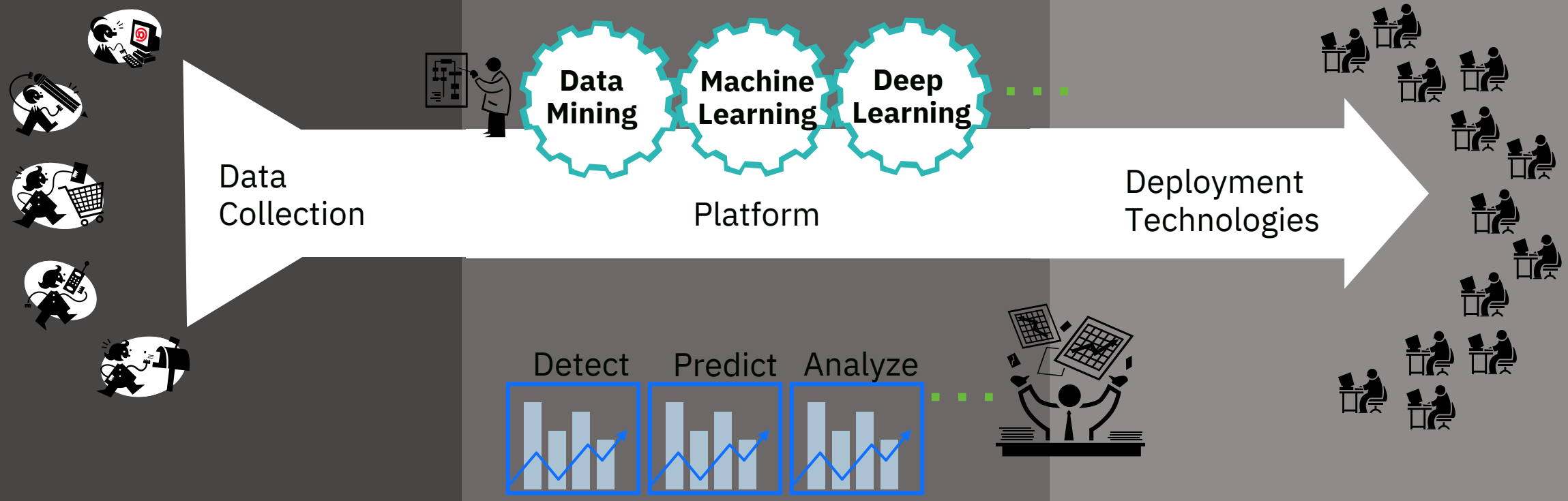
Data Collection delivers an accurate view of customer attitudes and opinions

Predict

Predictive capabilities bring repeatability to ongoing decision making, and drive confidence in your results and decisions

Act

Unique deployment technologies and methodologies maximize the impact of analytics in your operation



Challenge Demo 1: Fraud Detection

Data silos

- Multiple fraud departments
- Internal point-solutions

Data overload

- Different channel, product or fraud type

Incomplete view

- Unable to see patterns or behaviors across business lines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