



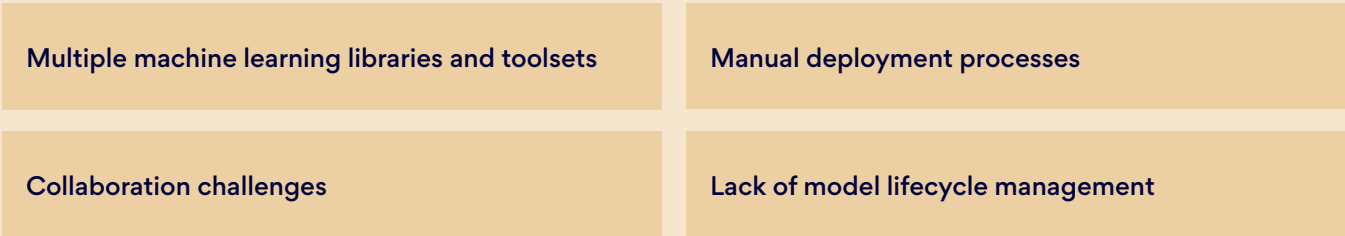
Solution Sheet

# Machine Learning Lifecycle Management with MLOps

With investments in artificial intelligence and machine learning increasing dramatically, so are the number of initiatives that fail to see the light of day into production. While most organizations actively focus on the development of machine learning models, the operational aspects of machine learning such as constantly changing data, performance, and governance tend to get side-lined.

Organizations struggle with scaling models in production because machine learning deployment processes are often manual and complex. They need the involvement of multiple teams such as data science, business, and IT which leads to slow and fragmented machine learning workflows.

This can often result in delays in realizing tangible business value from ML programs which translates to losing precious dollars and opportunities as well as losing the trust of executives and investors.



## Persistent’s MLOps Framework for Machine Learning Lifecycle Management

Persistent’s MLOps framework helps you deploy, monitor, and govern your models in production and ensures that they stay relevant by rapidly adapting to changing conditions. You can deploy your models on any cloud, on-premises or hybrid platform that’s right for your needs.

The solution, customized to your needs, continuously monitors models and delivers production diagnostics to enhance model performance. It helps you comply with regulations through governance policies that you can customize and helps preserve the complete history of model changes and updates. With Persistent’s MLOps framework, you can deploy models in minutes instead of weeks and see business value rapidly.

Predictably move from experimentation to production	Automated deployment on cloud or on-premises
Ensure traceability and reproducibility	Manage change with constant model monitoring
Ensure models stay relevant to business with retraining	Manage risk and regulations

# What Do You Get with Persistent’s MLOps Framework?

## Persistent’s MLOps Framework

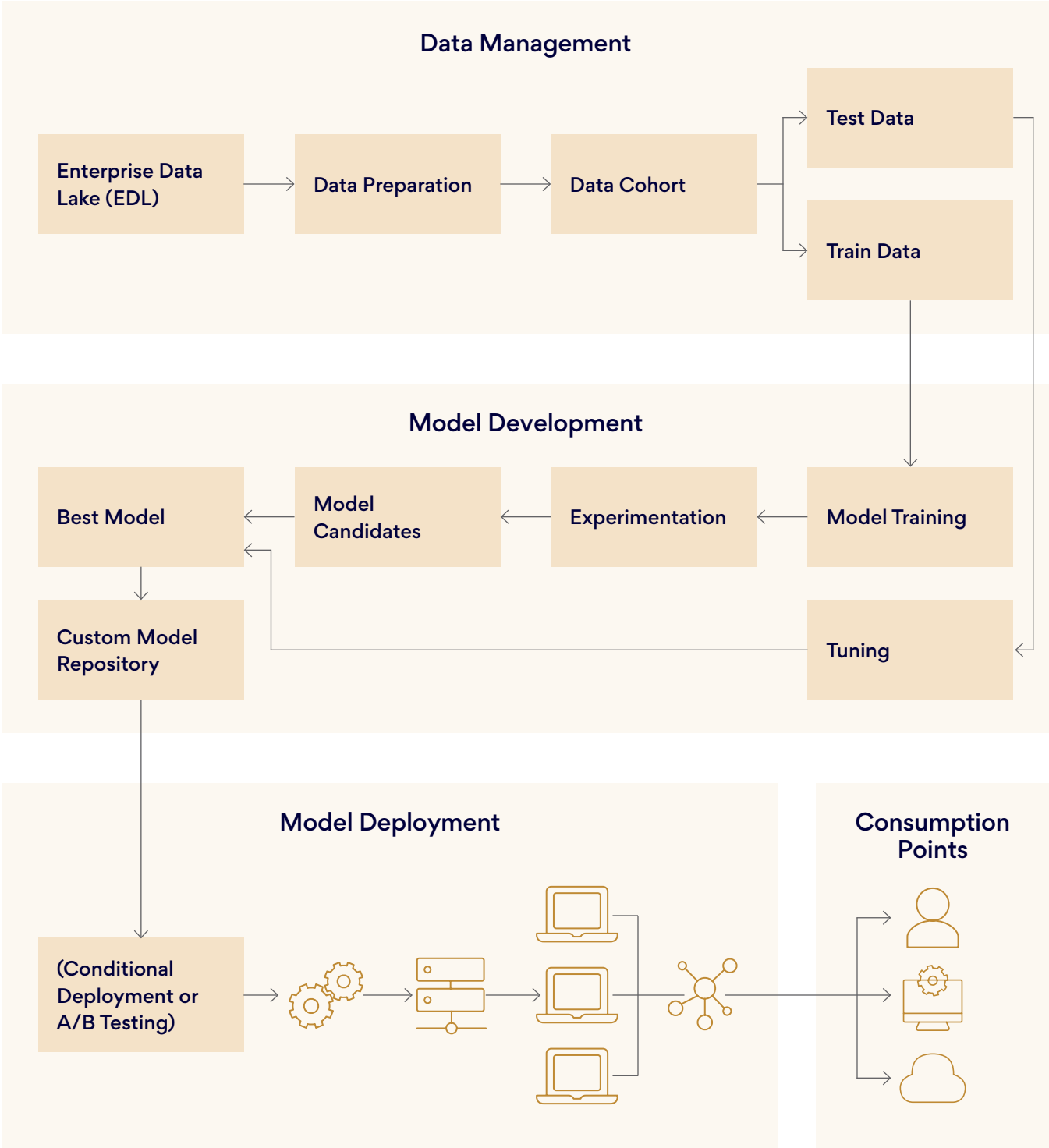
- Data Management**
- \ Data Acquisition
  - \ Data Exploration & Definition
  - \ Data Validation & Cleansing
  - \ Transformation & Integration
  - \ Data Labelling & Synthetic Data Generation
  - \ Scheduler
  - \ Data Lineage

- Model Development**
- \ Ability to use ML Env of Choice — Python, R
  - \ Auto ML Capability
  - \ Ability to Run Experiments and Compare, Reproduce Results
  - \ Hyper Parameter Tuning
  - \ Collaboration
  - \ Distributed Training
  - \ Explainability

- Model Lifecycle Management**
- \ CI/CD + DevOps Automation
  - \ Versioning — Source Code and Model Details
  - \ Create Training/Retraining Interfaces
  - \ ML Metadata Store
  - \ Collect Stats, Logs
  - \ Evaluate & Optimize for Accuracy
  - \ Alerts for Infra Usage and Model Performances

- Production Deployment & Monitoring**
- \ Capability to Deploy in any Serving Environment/Cluster
  - \ Create Specific Instances
  - \ Publish Inferences Interfaces
  - \ Automate Complete Development
  - \ A/B Testing
  - \ API Performance
  - \ Feedback

# How It Works



# Customer Story: Scaling Machine Learning Operationalization and Delivering Improved Customer Experiences for One of the Largest Banks in the US

## Challenges

- \ The bank struggled with deploying ML models at scale and post-production monitoring
- \ Existing deployment methods were manual with long and fragile ML workflows
- \ There was a lack of centralized tracking of models necessary to ensure compliance
- \ The bank wanted to enable reproducibility for model validation

## Solution

- \ Persistent designed and implemented an SOP for model operation automation
- \ Automated deployments via VM/containers
- \ Built a model monitoring framework for the bank
- \ Designed and implement an ML pipeline framework
- \ Created specialized training and scoring partitions in the bank's dedicated AI-ML storage-compute platform
- \ Created a feature store with a set of standard features
- \ Enabled complete tracking of ML artifacts for each model version

## Outcomes

- \ **Reduced time** required initially for validation and deployment from **months to weeks**
- \ **Streamlined ML operations** with tracking and monitoring
- \ **Aligned ML models with business** needs through event tracking for automated retraining

Start scaling machine learning models across your business today.

[Request Demo](#)

## About Persistent

We are a trusted Digital Engineering and Enterprise Modernization partner, combining deep technical expertise and industry experience to help our clients anticipate what's next. Our offerings and proven solutions create a unique competitive advantage for our clients by giving them the power to see beyond and rise above. We work with many industry-leading organizations world-wide including 14 of the 30 most innovative US companies, 80% of the largest banks in the US and India, and numerous innovators across the healthcare ecosystem. Our company fosters a values-driven and people-centric work environment. Our strength of over 22,500+ employees is spread over 18 different countries across the globe.

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