

ML-OPs - OPERATIONALIZATION OF MODELS

A NEW OUTLOOK

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WHO IS PELMOREX CORP?



- Canada's 4th largest digital network across desktop and mobile
- World's 3rd-largest weather information provider
- Rapid growth in AI/ Data Analytics internally and for B2B customers



SNAP SHOT OF THE BUSINESS PROBLEM

WEATHER AFFECTS HOW WE PURCHASE!

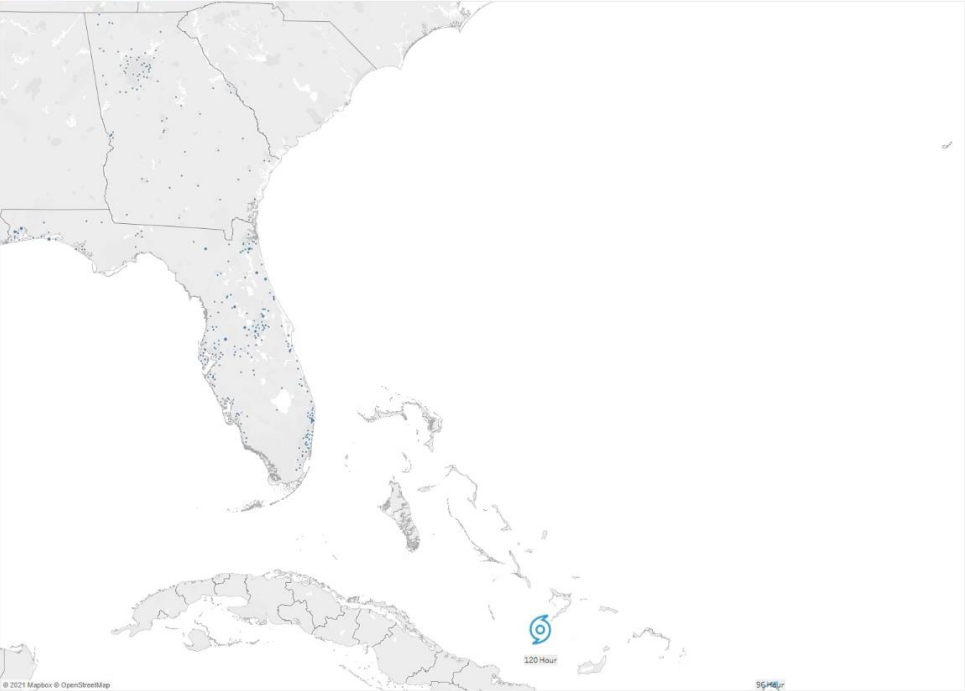
Visualization of the Impact a Hurricane on CPG Sales
(Peanut Butter)



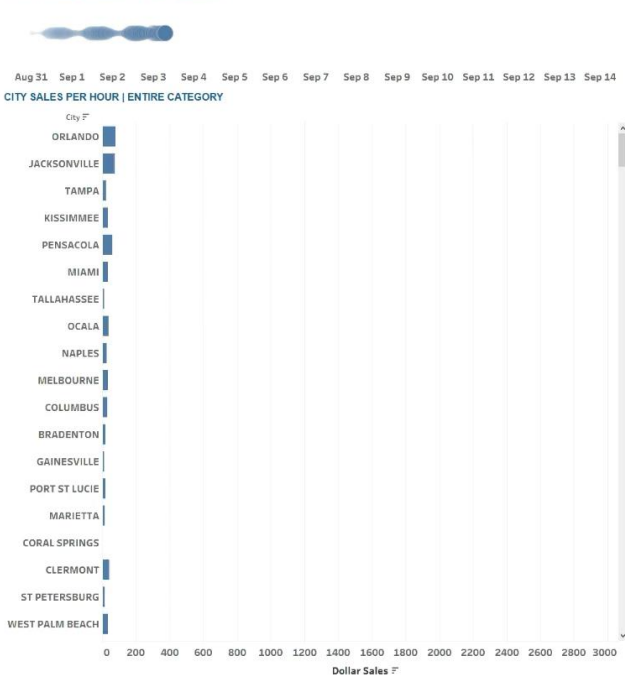
Date + Time
9/3/2017 7:00:00 AM

TIME | 9/3/2017 7:00:00 AM

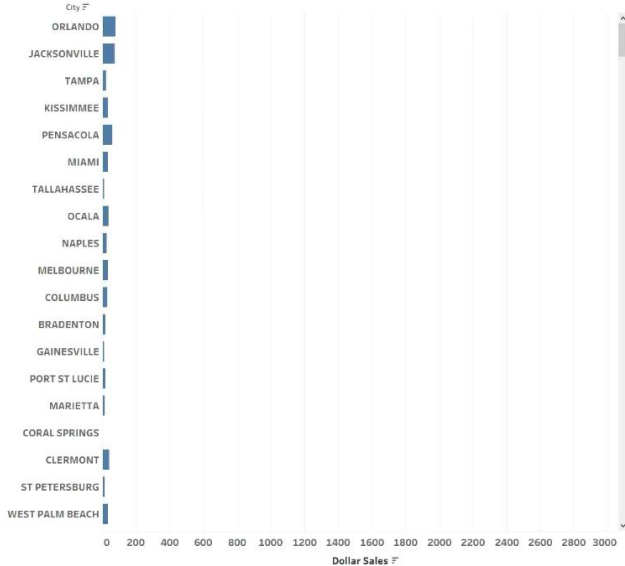
STORE SALES BY HOUR | ENTIRE CATEGORY



TOTAL CATEGORY DOLLAR SALES BY HOUR

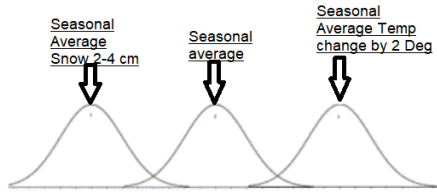


CITY SALES PER HOUR | ENTIRE CATEGORY



WEATHER DRIVEN DEMAND

WEATHER LOCAL IMPACT



WEATHER DRIVEN DEMAND PREDICTION

Store/Product level
(Local Impact)



Calendar
Features



Sales
Features



Weather
Features



WEATHER CORRELATION SALES+ WEATHER @STORE

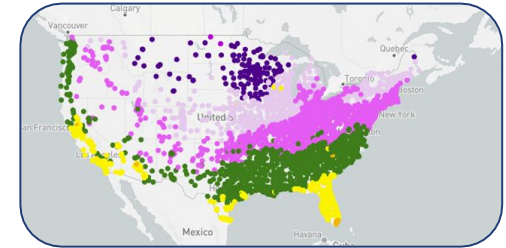


WEATHER DRIVEN DEMAND

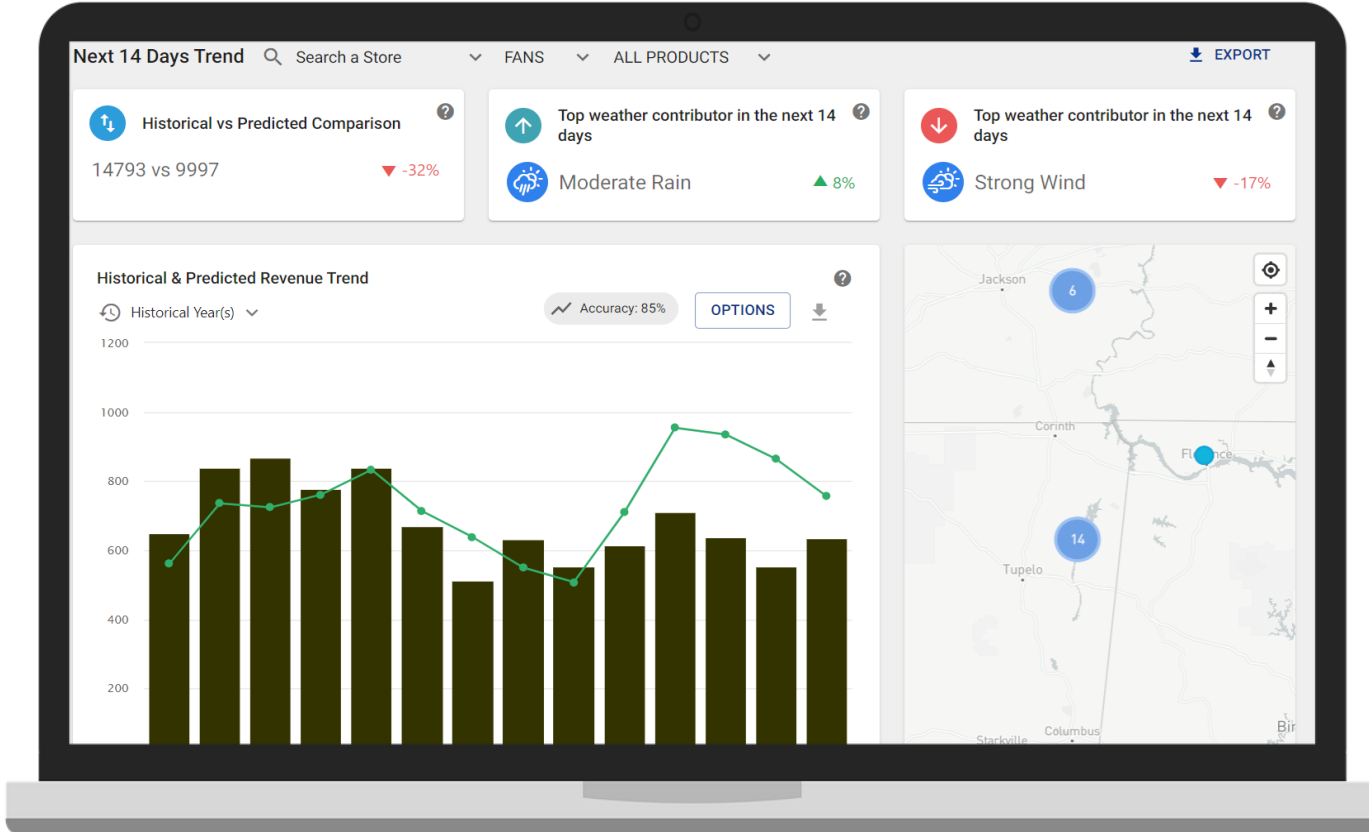
Breadth and Depth

Breadth = % stores

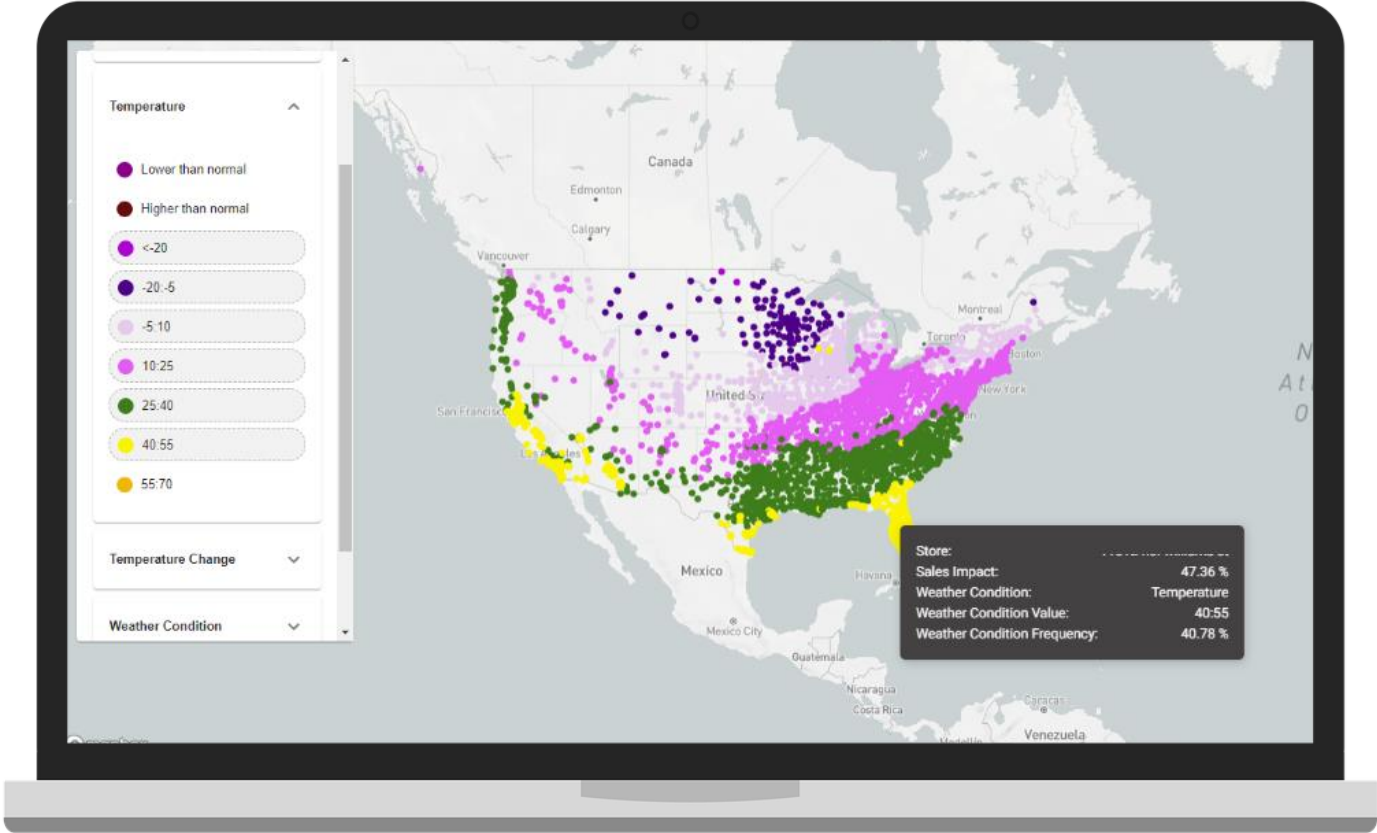
Depth = % sales impact &
weather frequency occurrence



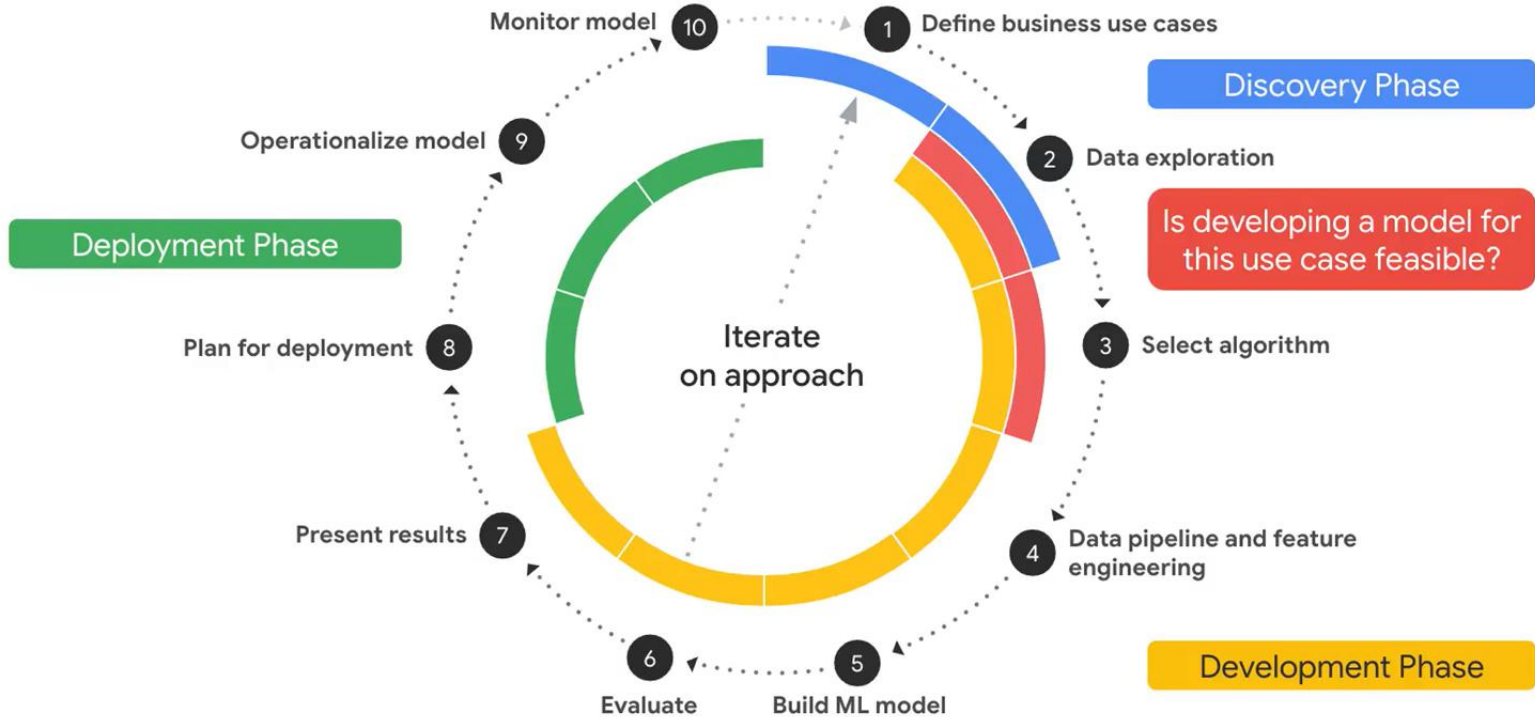
END USER TOOL FOR B2B CUSTOMER



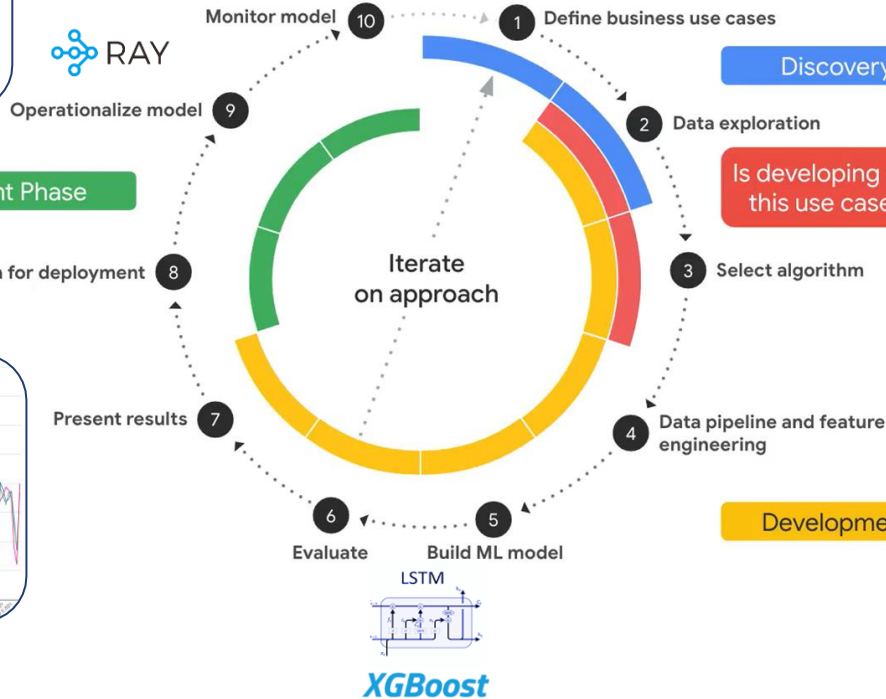
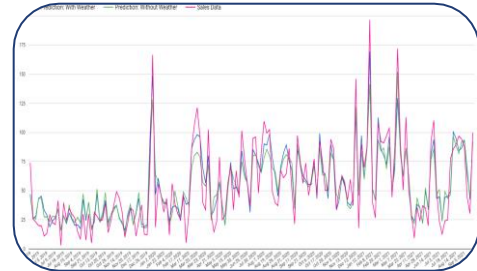
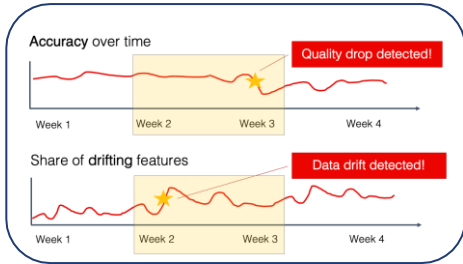
EXPLAINABLE AI - WHICH PRODUCTS HAVE WEATHER IMPACT



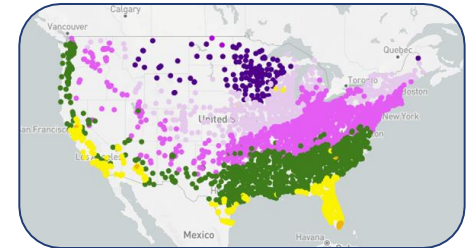
ML OPS - CIRCLE OF LIFE



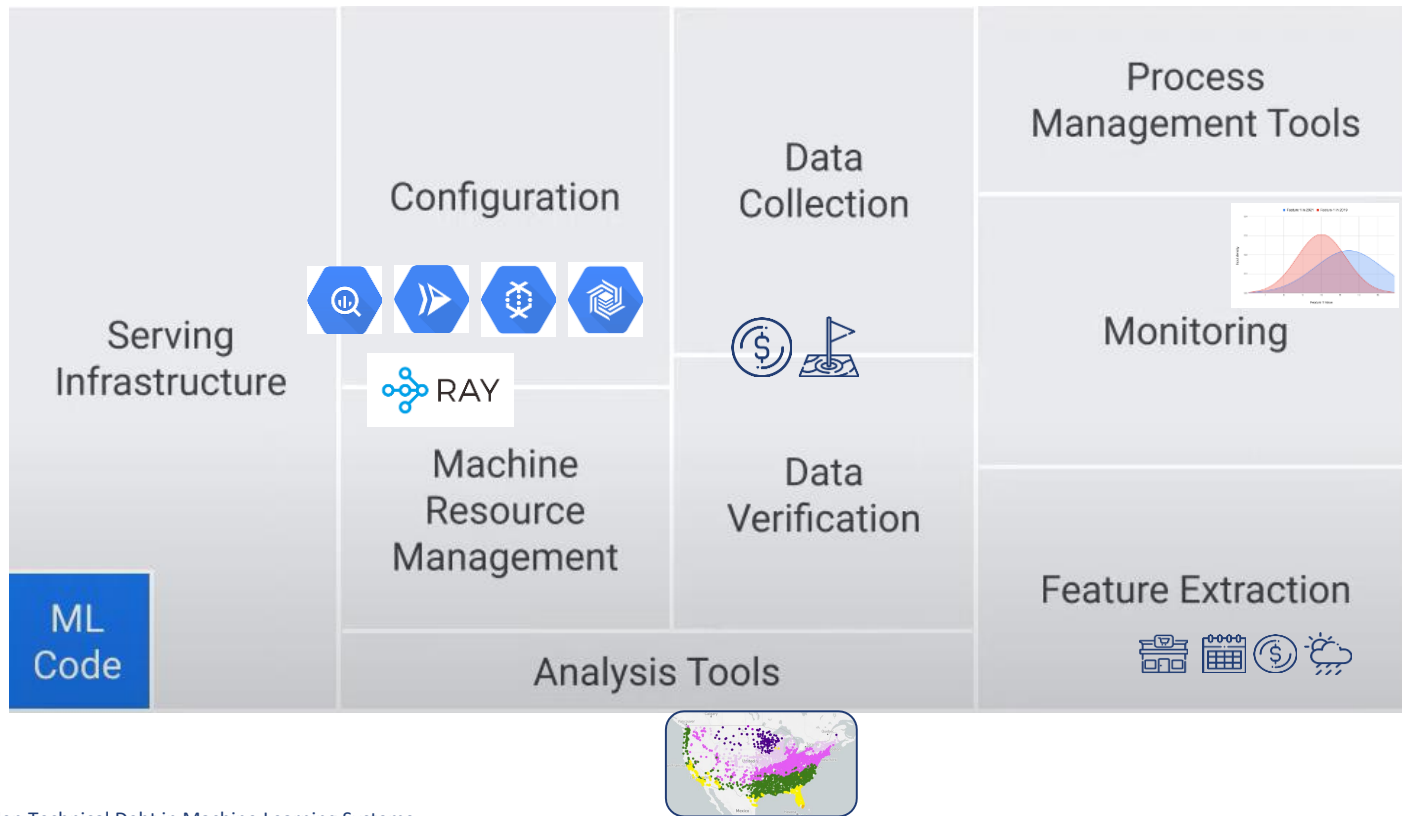
ML OPS PHASE THROUGH THE LENS OF WEATHER DRIVEN DEMAND



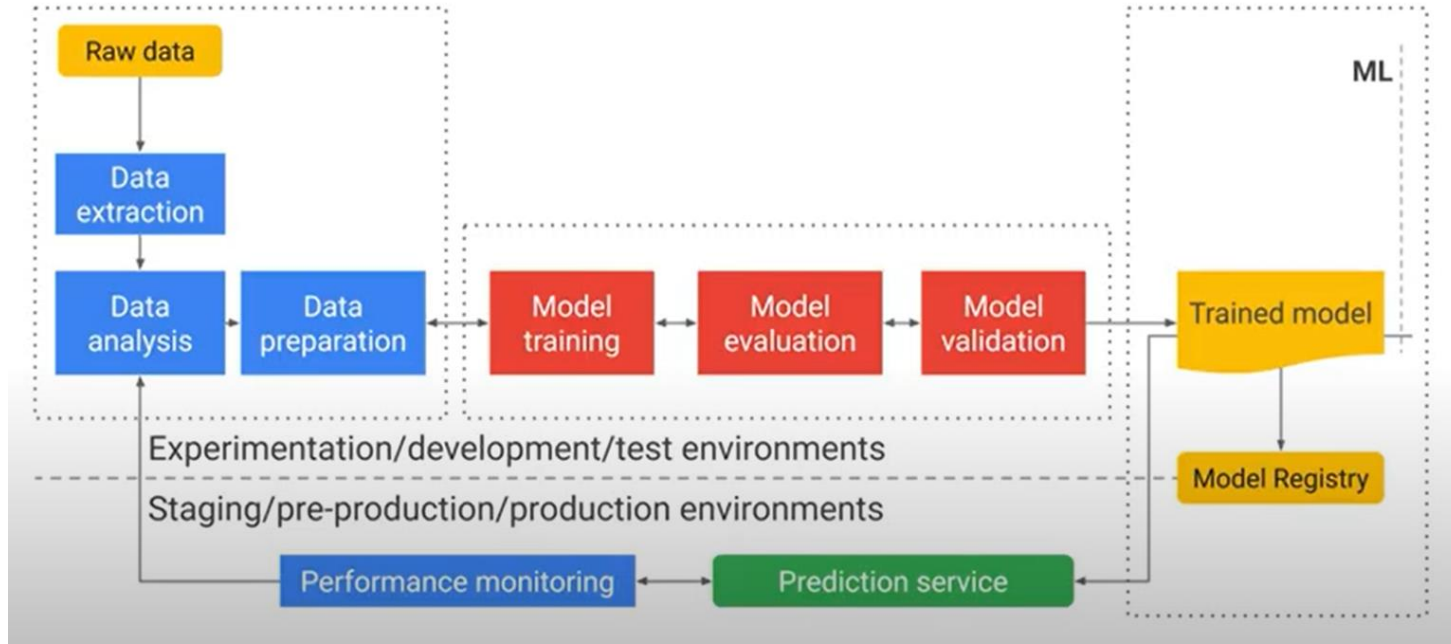
Is developing a model for this use case feasible?



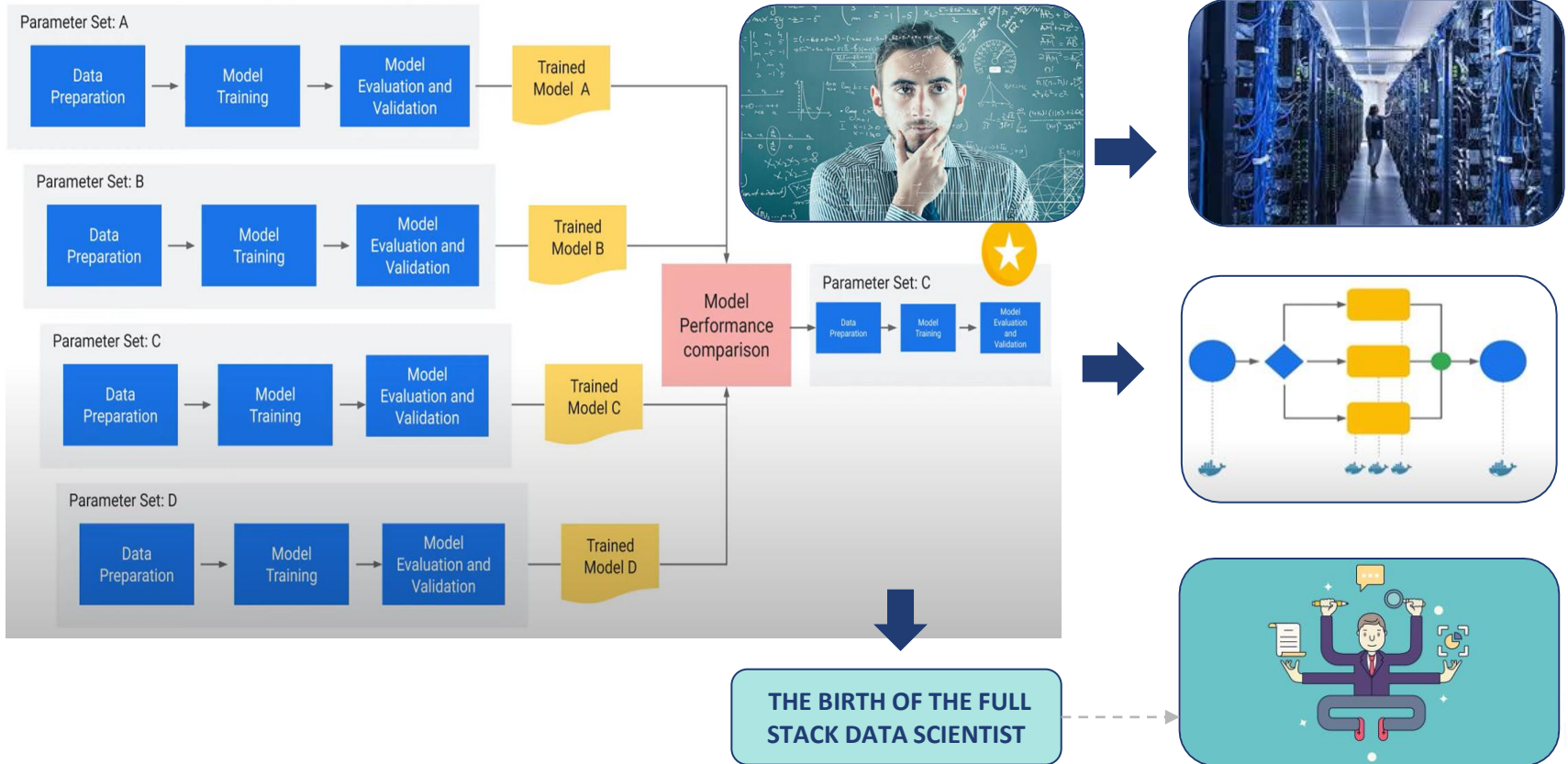
IN PRODUCTION - ML IS ONLY A SMALL PART OF THE SYSTEM



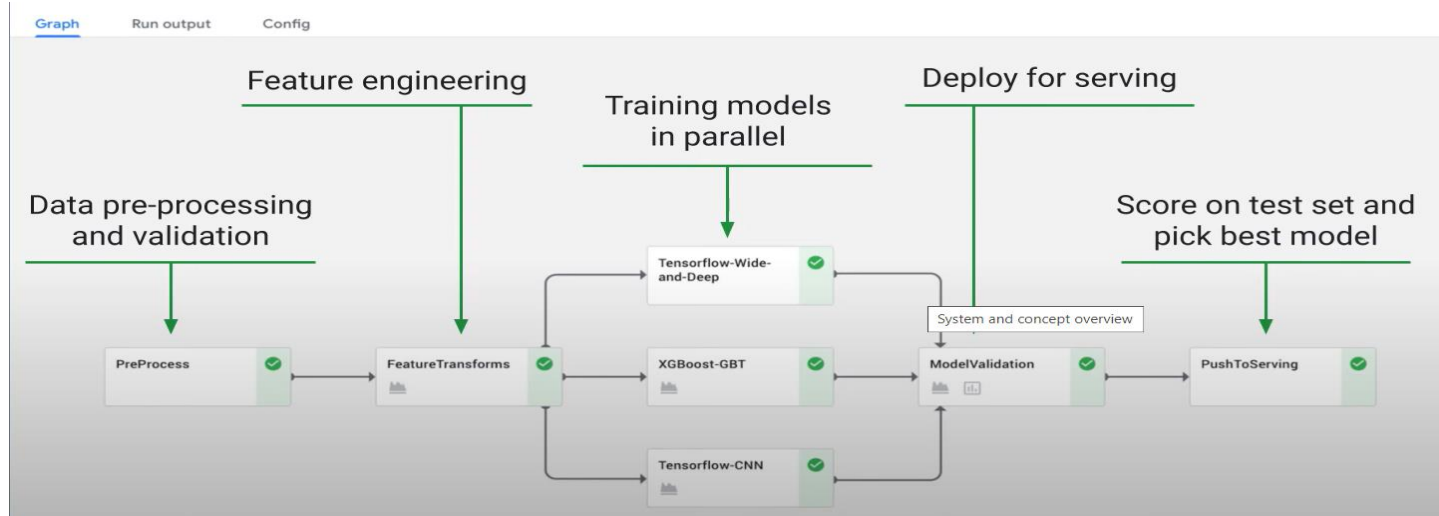
ML OPS - TRANSITION



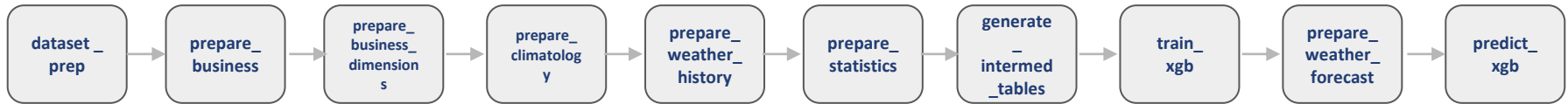
DATA SCIENCE -> PIPELINES -> INFRASTRUCTURE



PIPELINES IN ACTION



WDD PIPELINE



DEV OPS VS ML OPS

ML TRAINING SPECIFIC ISSUES

- Not enough time on data selection
- Insufficient Feature Engineering
- Different data in Live model



Continuous Integration (CI)



Continuous Delivery (CD)



Continuous Training (CT)

Validate Data, Schema, Models

Consider Whole ML Training Pipeline

Monitor, Retrain, Serve Model

ML OPS MATURITY WHERE ARE YOU?



Level 0

Build and
deploy manually

Level 1

Automate
the training phase

Level 2

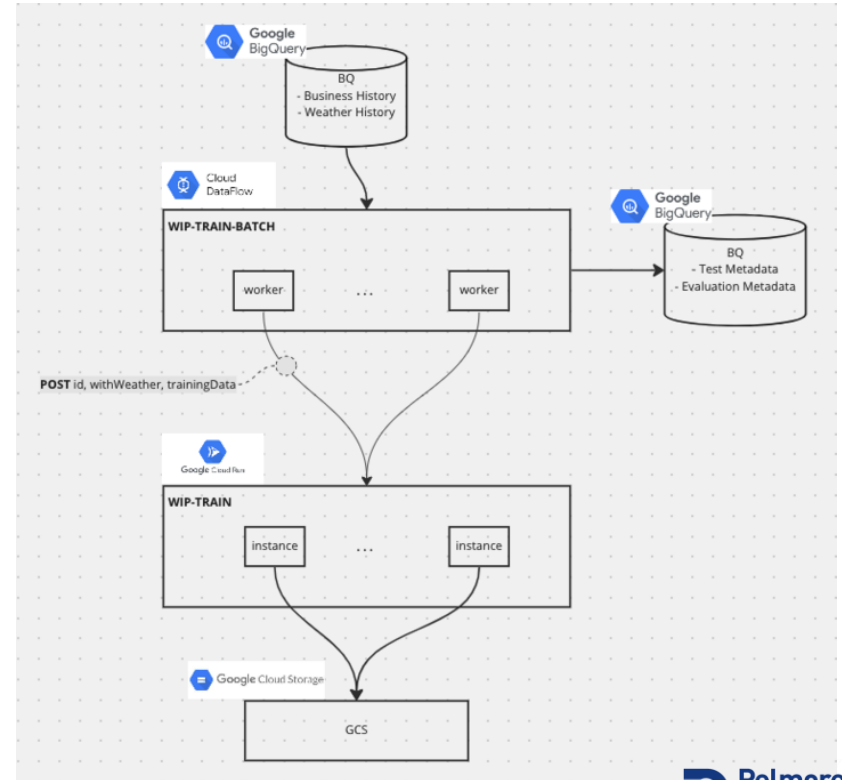
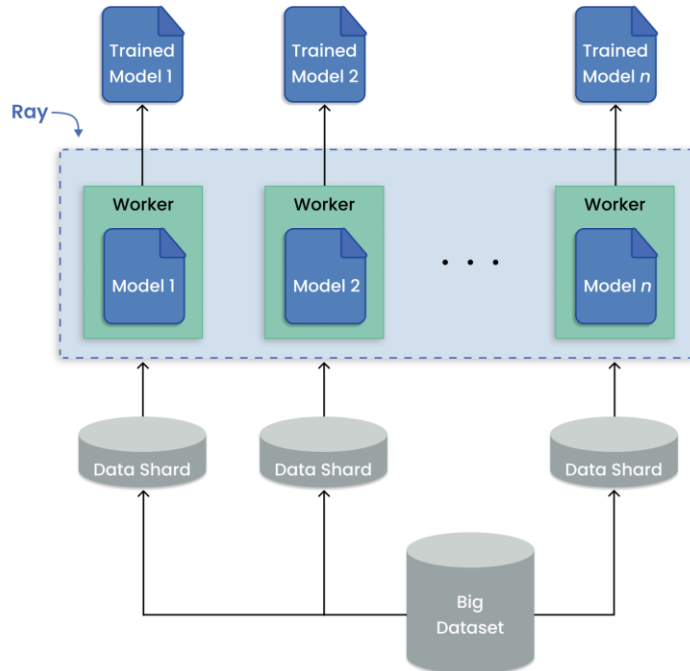
Automate training,
validation, and deployment

HOW DO YOU SCALE YOUR ML FOR MODELS AND DATA?

WDD SCALING CHALLENGE



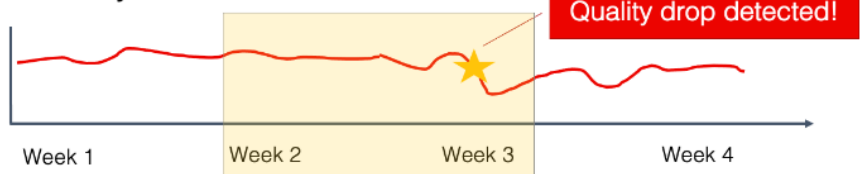
Thousands of stores, hundreds of Products at POS...



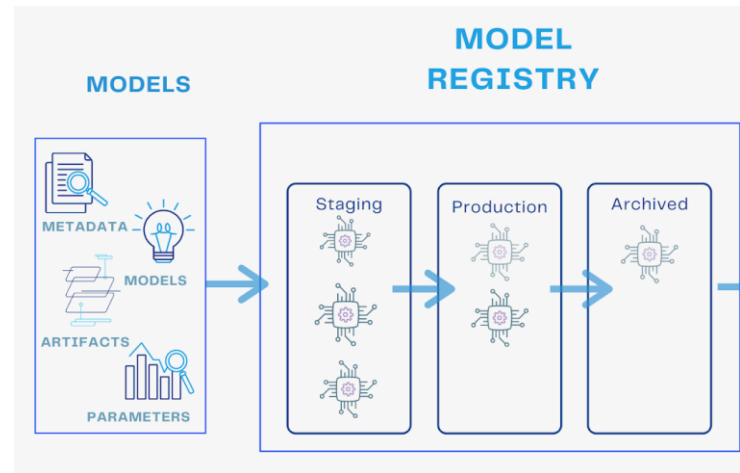
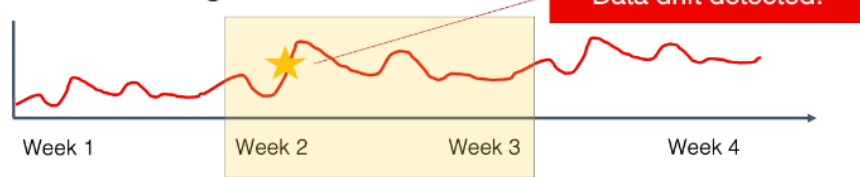
MODELS IN PRODUCTION

OTHER KEY ELEMENTS

Accuracy over time



Share of drifting features



ML TOOLS

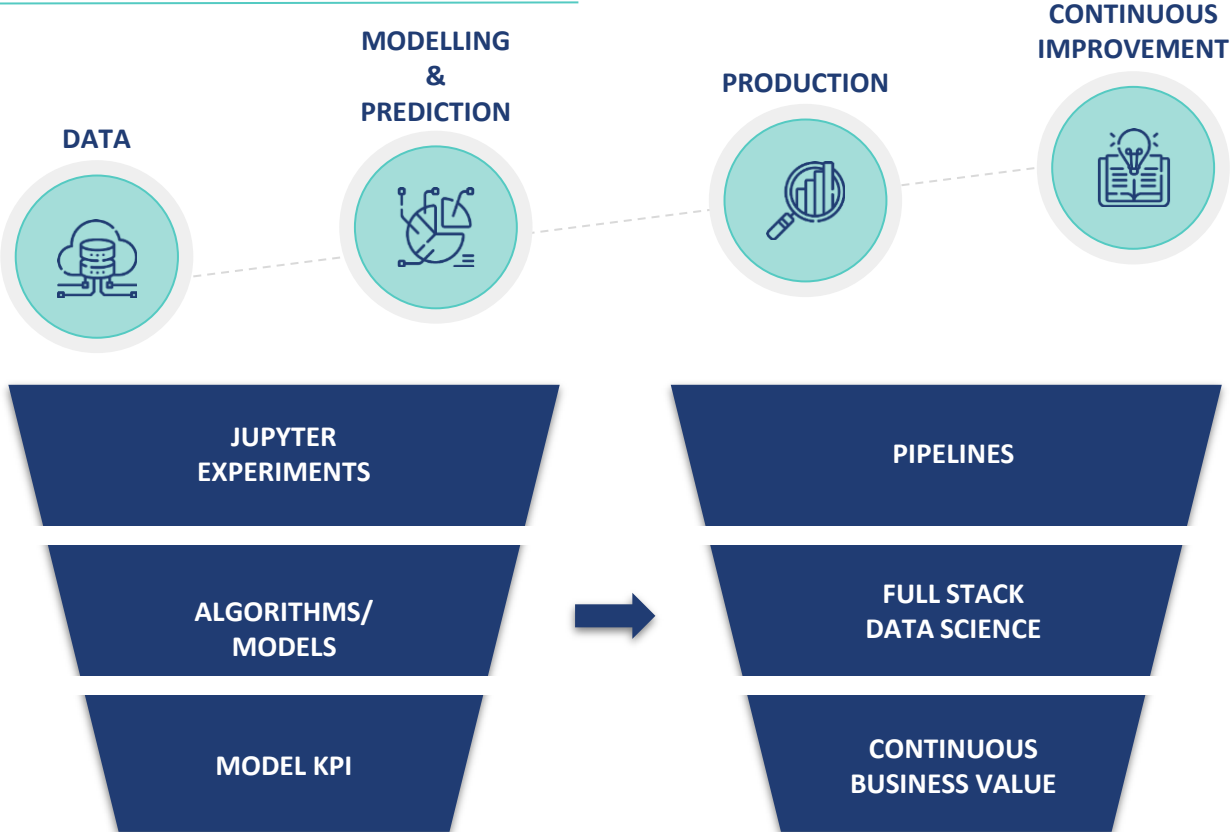


mlflowTM



AND OTHERS....

SUMMARY – THE NEW ML-OPS WORLD





Thank You

We are hiring

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