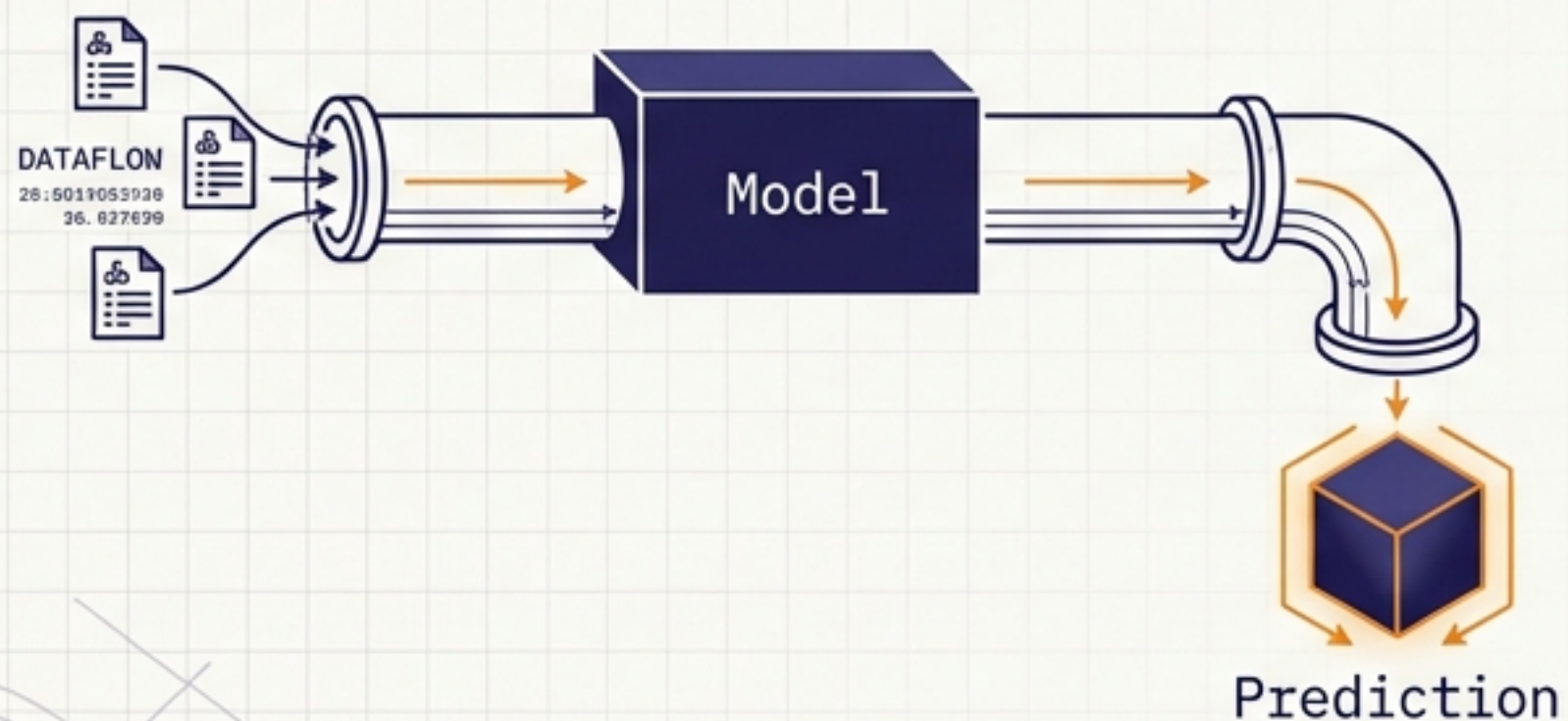


Operationalizing Unsupervised Models

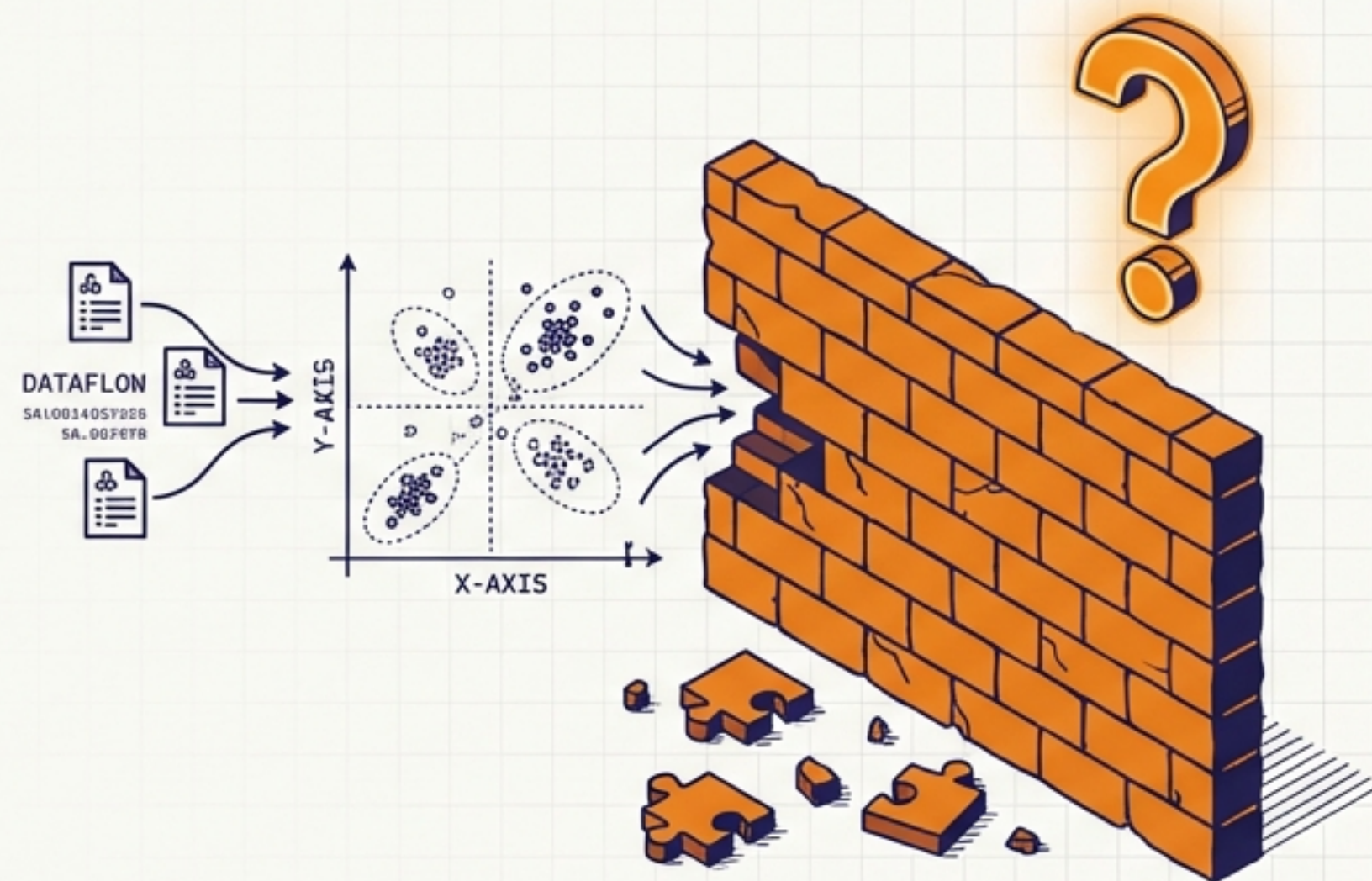
Moving beyond exploration: deploying clusters, rules, and text analytics into real-world business engines.

The Deployment Wall

Intuitive



The Wall



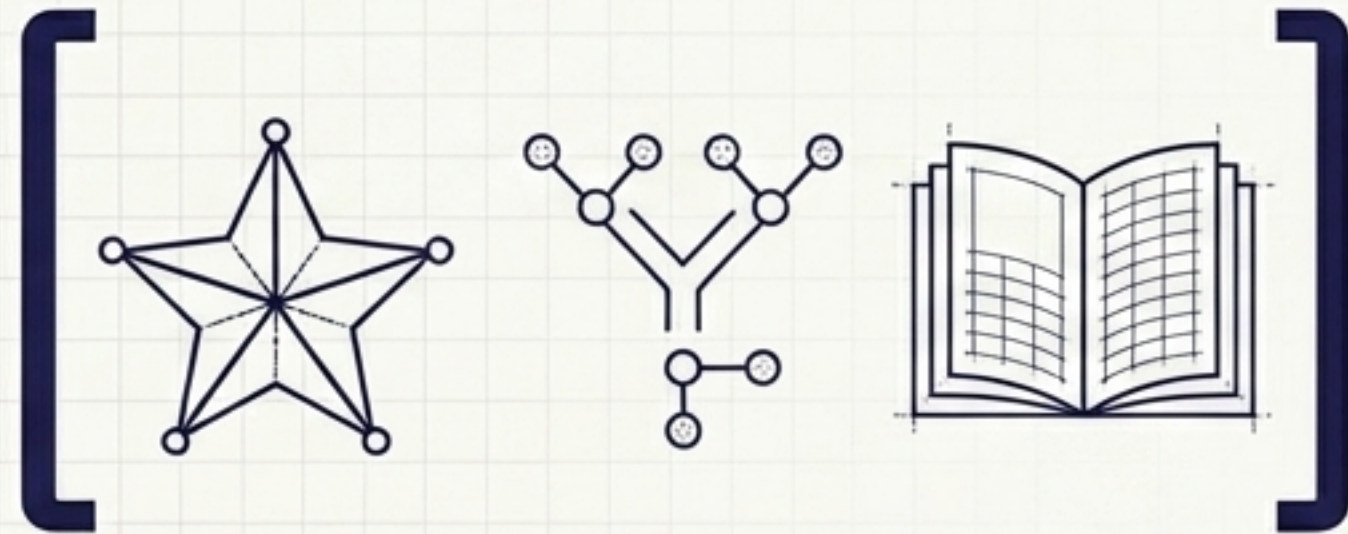
Supervised deployment is intuitive: data in, prediction out.
Unsupervised deployment often leaves us staring at a chart,
asking: Cool clusters... now what?

The Paradigm Shift

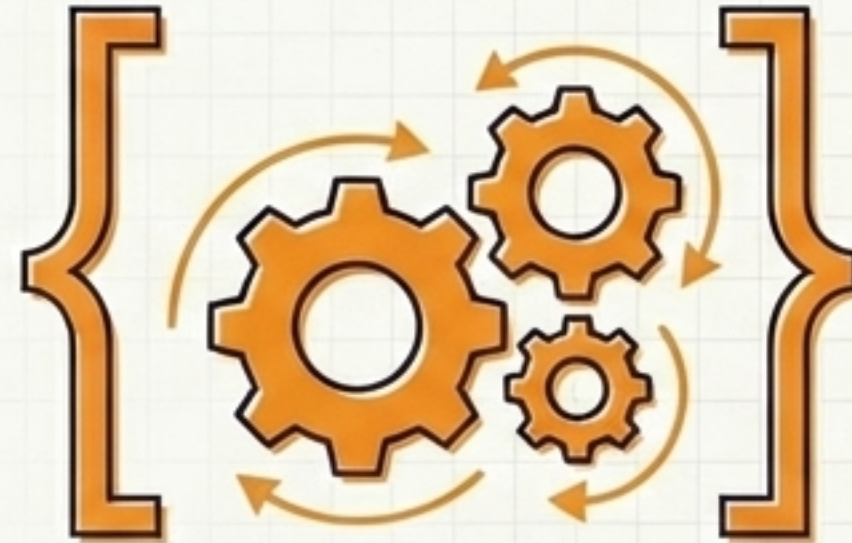
In supervised learning, the model scores the data.

In unsupervised learning, the model doesn't score new data directly. Instead, the artifacts you discover become the tools you use to score new data.

Artifact



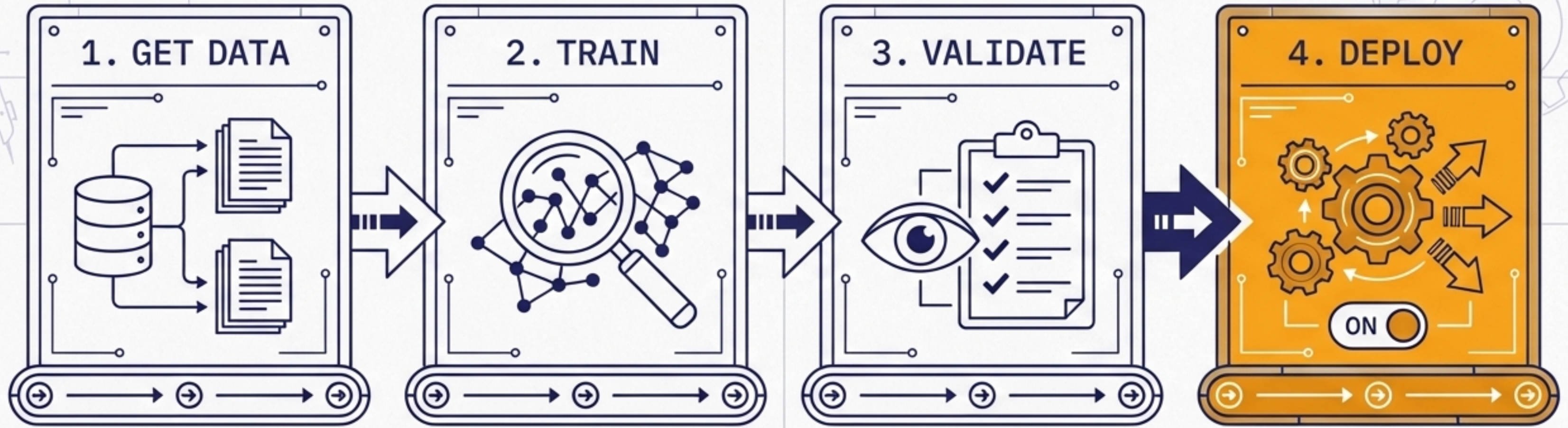
Tool



Model Output Artifact = Deployment Tool

Deployment is simply building a mechanism to use these artifacts.

The Universal Deployment Pipeline



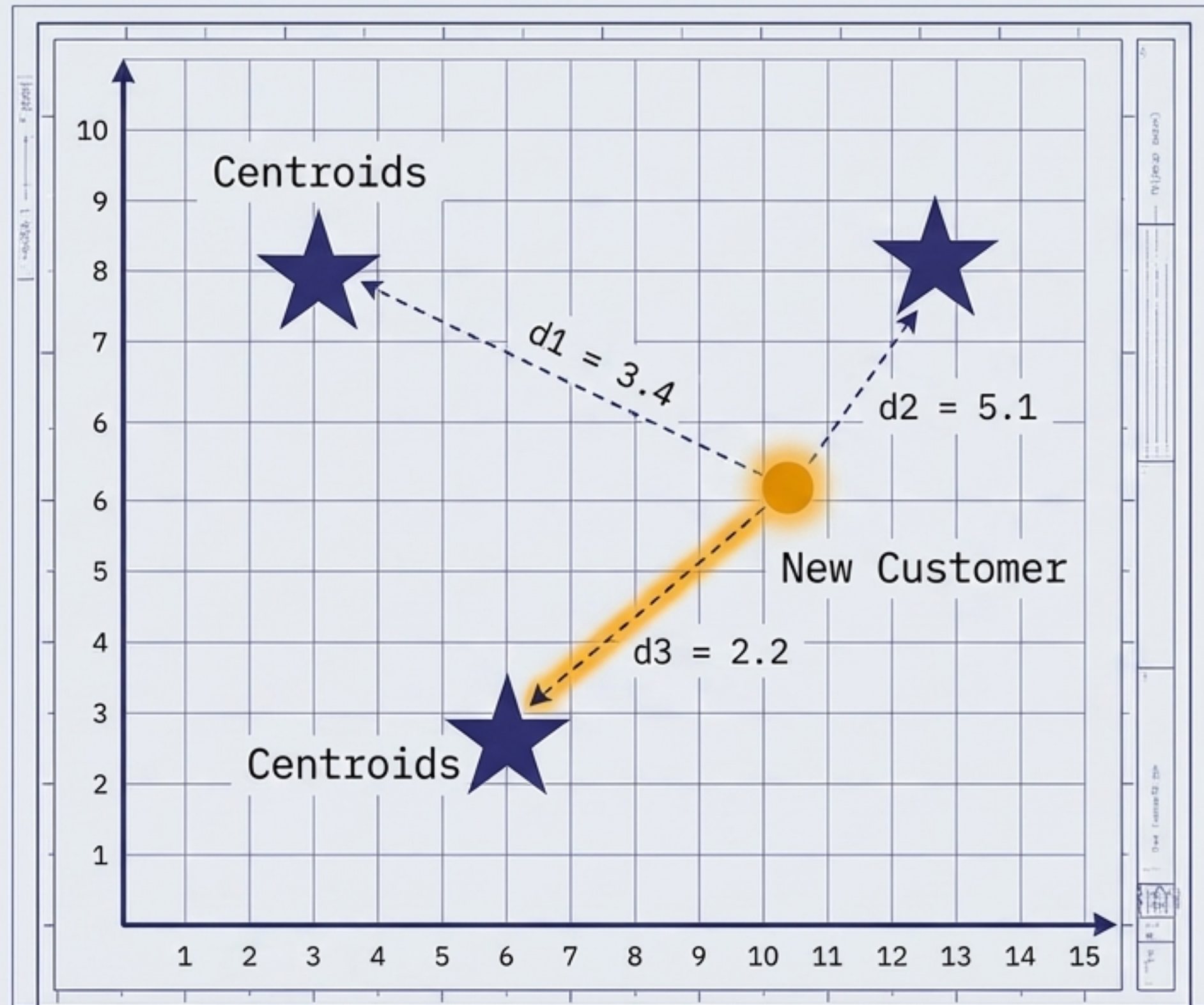
Raw inputs

Discovering patterns

Ensuring business sense

Focus of this deck:
Operationalizing the artifact.

Clustering: The Mental Model



The Model:

Centroids (Averages representing the center of a cluster).

The Deployment:

A simple distance calculator.

The Reality Check:

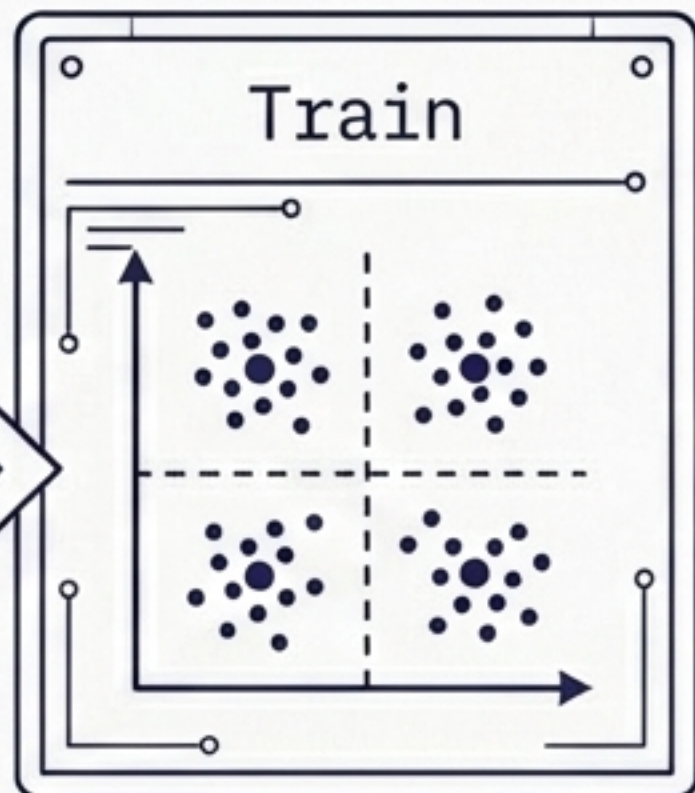
Calculate distance from a new data point to each centroid using SUMPRODUCT and SQRT in Excel.

Train in Python, Deploy in Excel.

Clustering in Action: Nike Customer Segments



Transaction history, app engagement



K-Means finds 4 distinct groupings

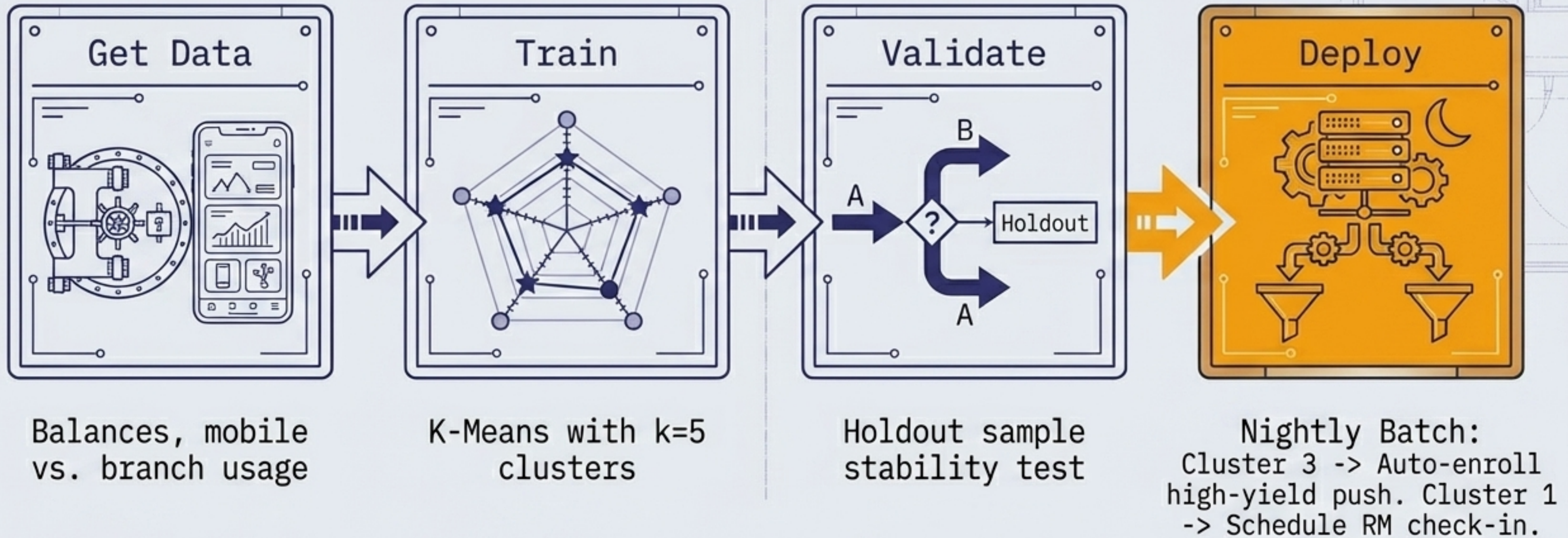


Sneakerheads, Weekend Warriors, Performance Athletes, Casual Walkers



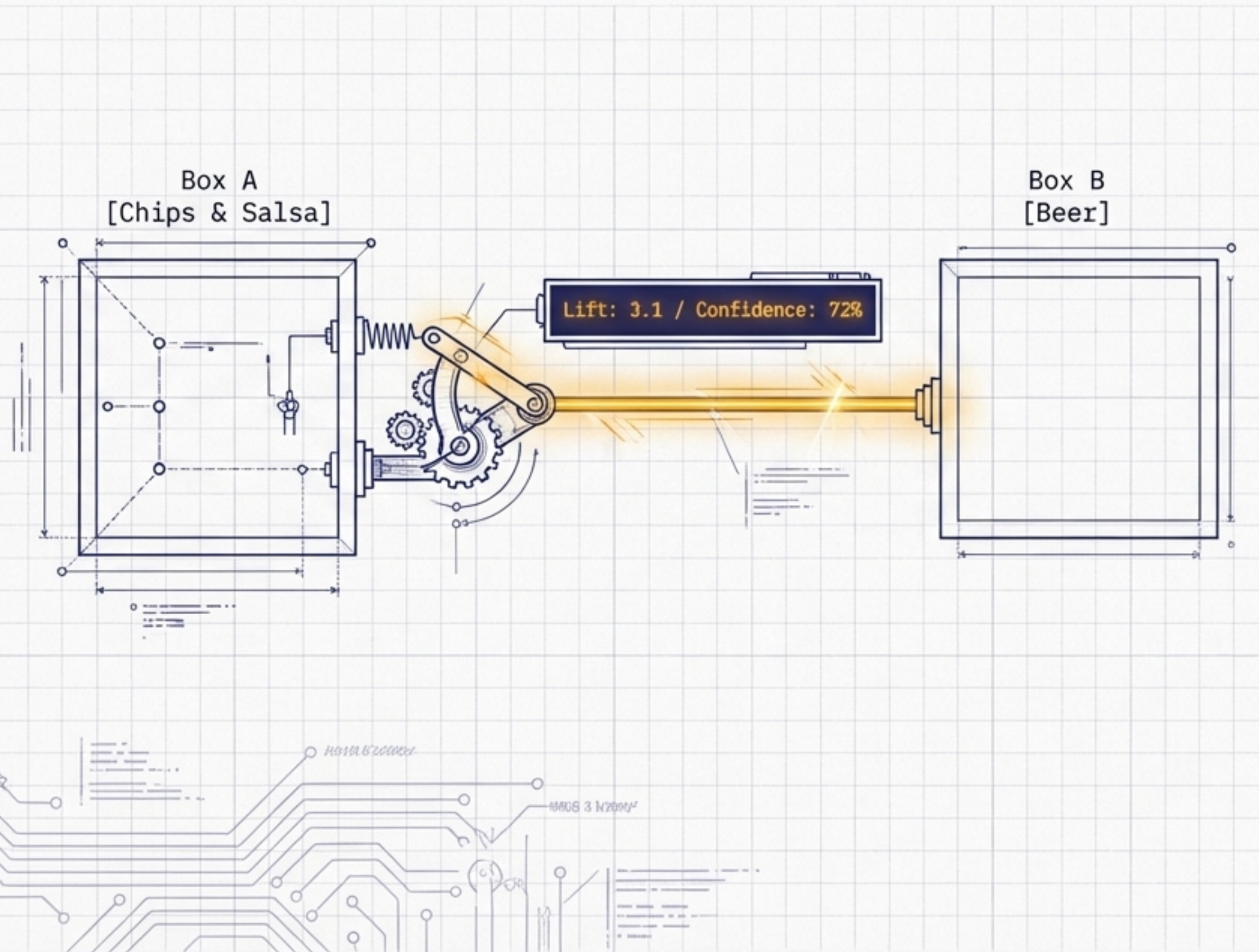
Excel Scorer: Plug into distance formula -> Assigned to Sneakerhead -> Trigger automated shoe drop email

Clustering in Action: Bank Segmentation



The cluster ID becomes a direct input to downstream decision automation.

The Logic Gate



Market Basket Analysis: The Mental Model

The Model:

The association rules themselves.

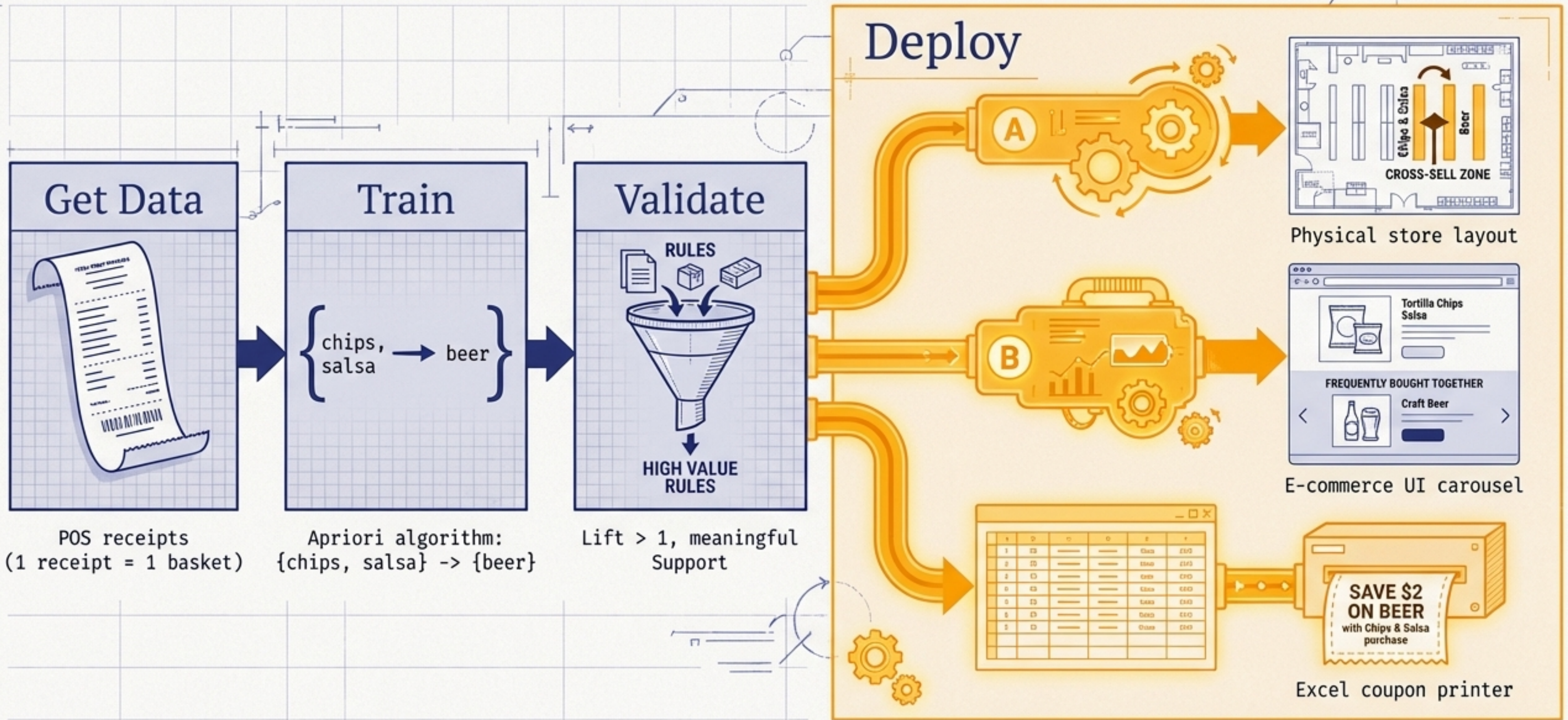
The Deployment:

A recommendation engine or lookup table.

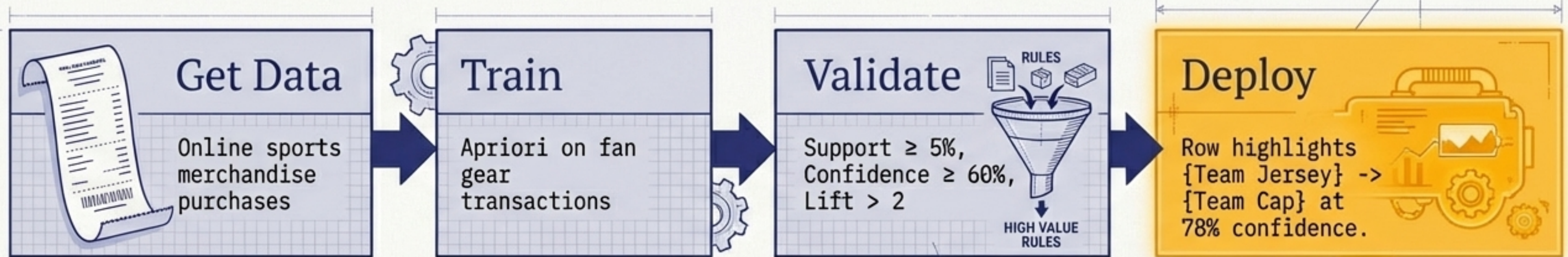
The Reality Check:

No scoring algorithm needed. The deployment is simply an IF/THEN filter applied to new baskets.

Market Basket in Action: Kroger Grocery



Market Basket in Action: ESPN Merchandise

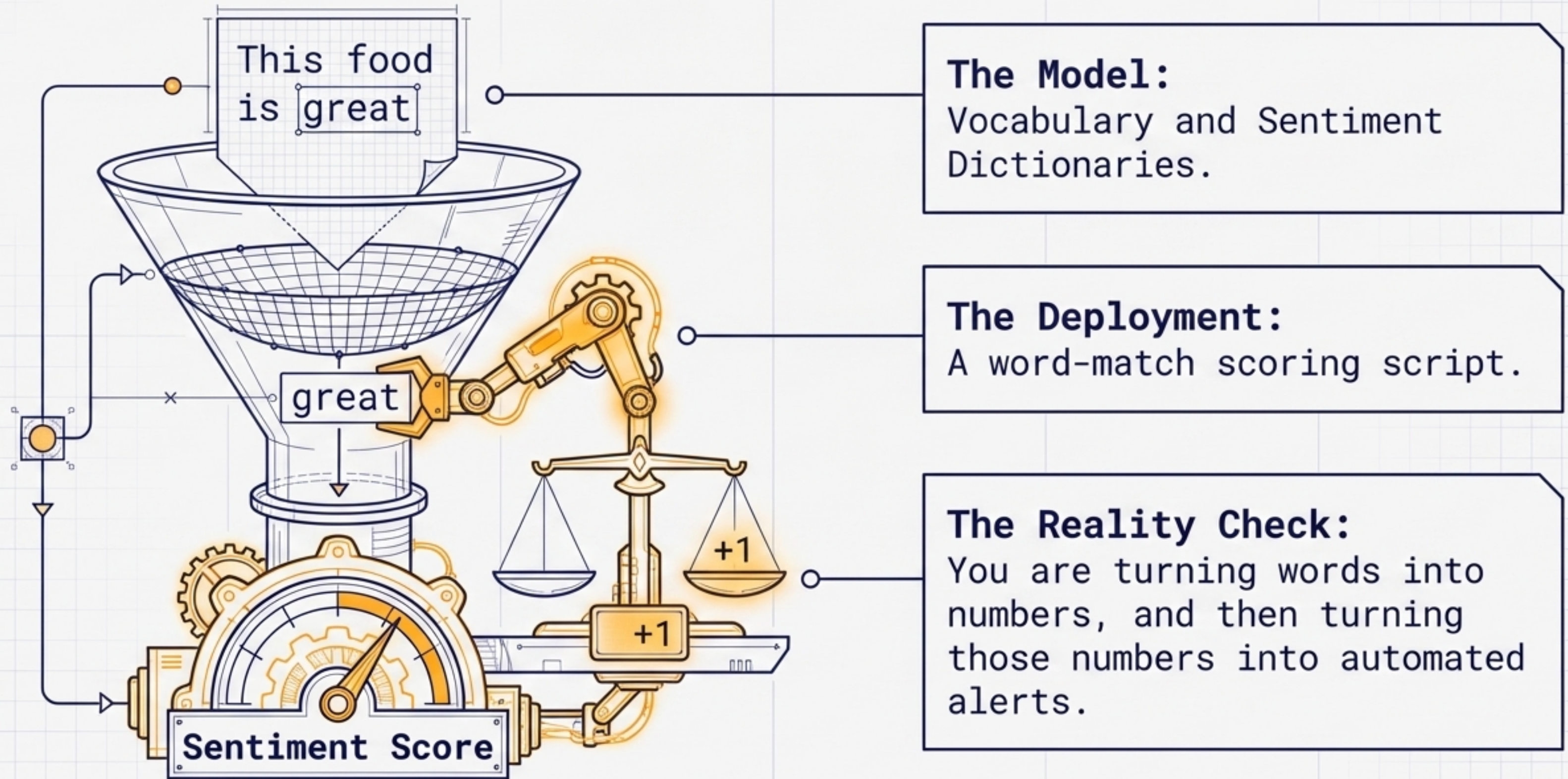


	A	B	C	D	E	F
1		Antecedent	Consequent	Support	Confidence	Lift
2	1	{Team Jersey}	{Team Cap}	1.0%	80%	=Lift(+11=28)
3	2	{Team Jersey}	{Team Cap}	6.5%	77%	=Lift(+11=38)
4	3	{Team Jersey}	{Team Cap}	3.8%	60%	=Lift(+11=22)
5	4	{Team Jersey}	{Team Cap}	6.5%	78%	Lift:4.2
6	5	{Team Jersey}	{Team Cap}	3.5%	78%	=Lift(=.4.22)
7	6	{Team Jersey}	{Team Cap}	3.8%	60%	=Lift(+11=73)
8	7	{Team Jersey}	{Team Cap}	3.5%	78%	=Lift(+11=30)
9	8	{Team Jersey}	{Team Cap}	4.0%	78%	=Lift(+11=35)
10						
11						

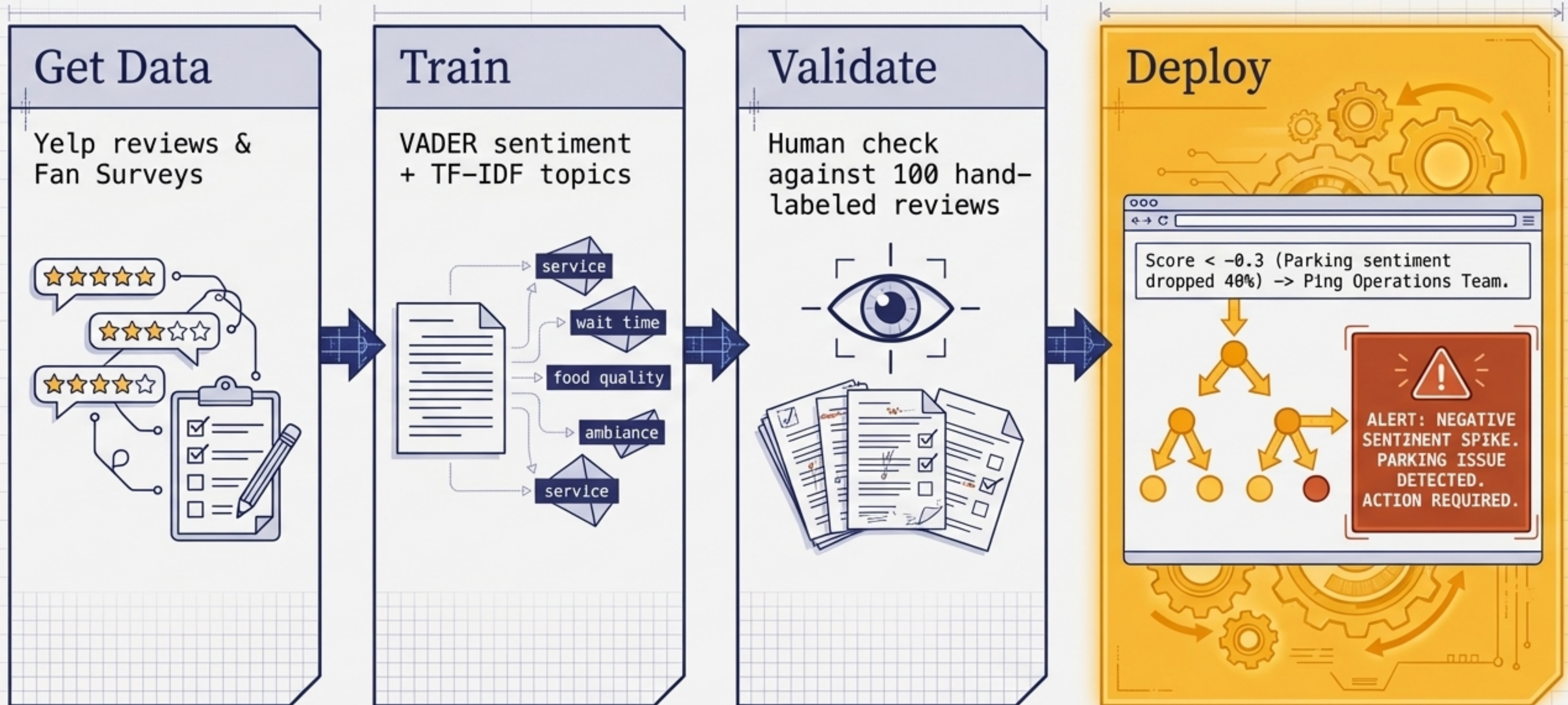
A promotional banner with a yellow background and a white border. It features an illustration of a white sports jersey and a white cap. The text reads: **Complete Your Fan Kit: 10% Bundle Discount.**

The exported spreadsheet is the deployed model. PMs can configure promotions without touching code.

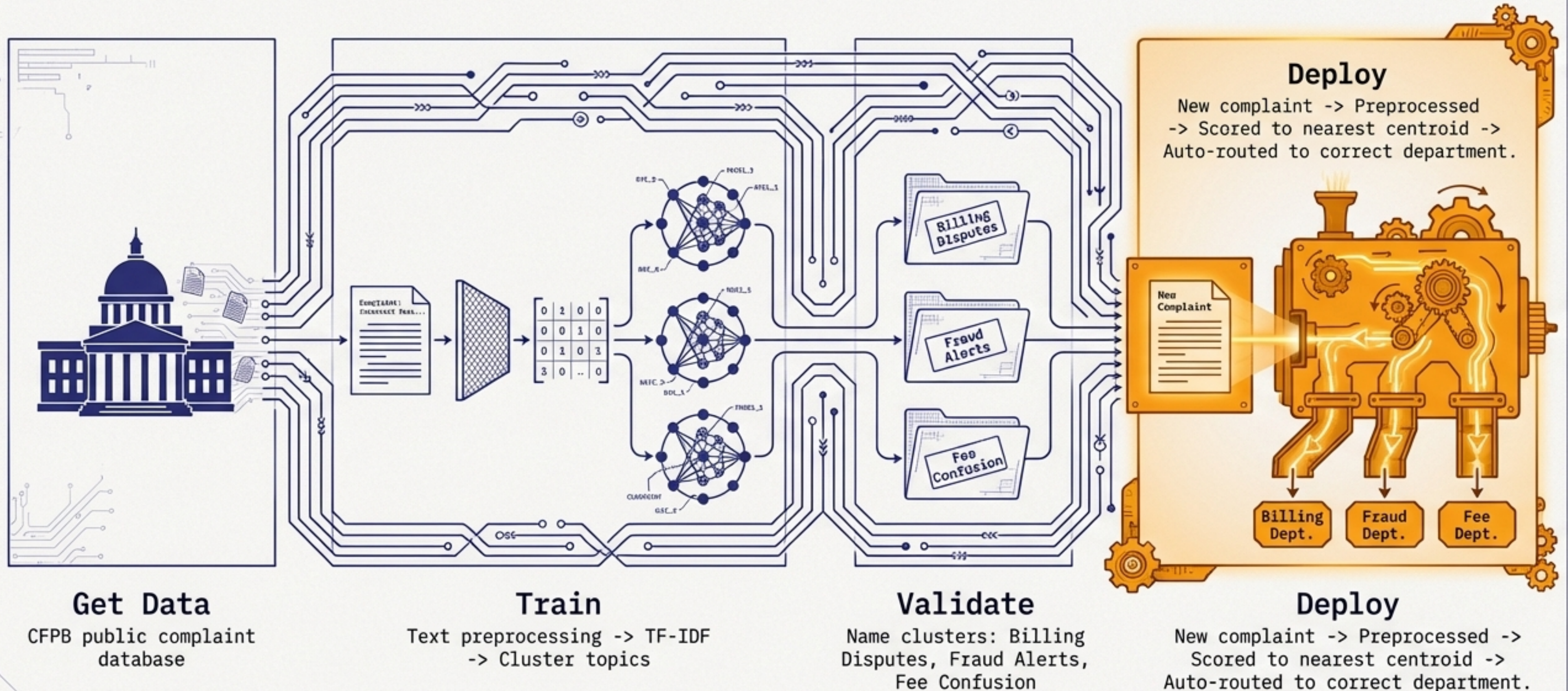
Text Analytics: The Mental Model




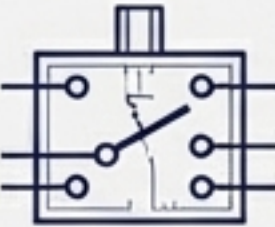

Text Analytics in Action: Yelp & Thunderhawks

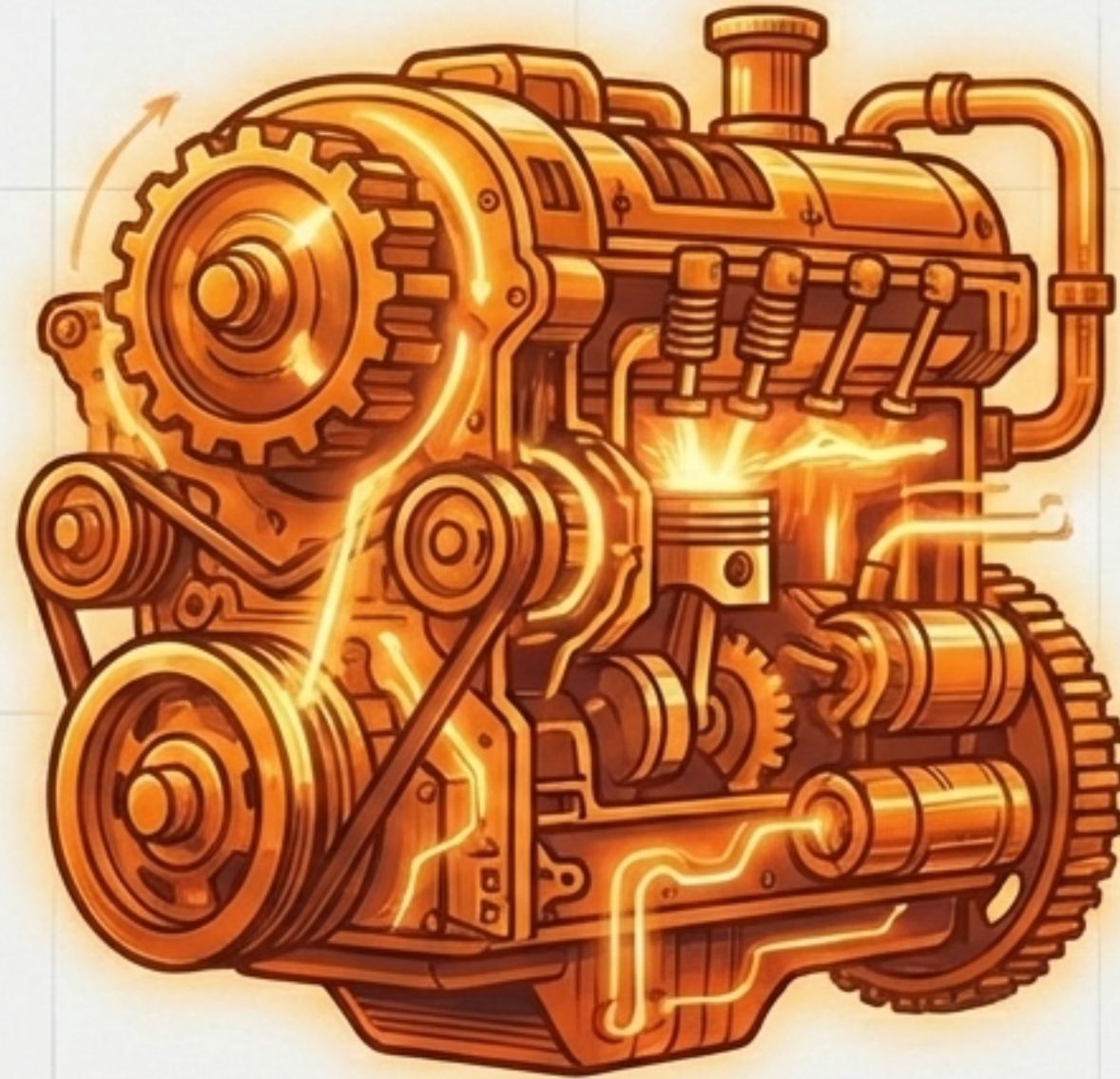


Advanced Deployment: Chase Bank (Text + Clustering)



The Unifying Deployment Framework

Technique	What is the Model?	What Gets Deployed?	Deployment Vehicle
Clustering 	Centroids (cluster centers)	Distance calculator assigning new records to nearest cluster	Excel SUMPRODUCT formula
Market Basket 	Association rules table	Lookup: if customer has X, recommend Y	Excel filtered rules table
Text Analytics 	Vocabulary + sentiment dictionary	Word-match scorer on new text	Excel VBA or Python script



Deployment is simply operationalizing artifacts.

Whether it is a distance calculation, a lookup table, or a dictionary match—real business value happens when business users can act on the model's insights without ever touching the underlying code.