



AI-DRIVEN ITSM AUTOMATION

From Chaos to Resolution: Operationalizing NLP and
Machine Learning for Enterprise Support

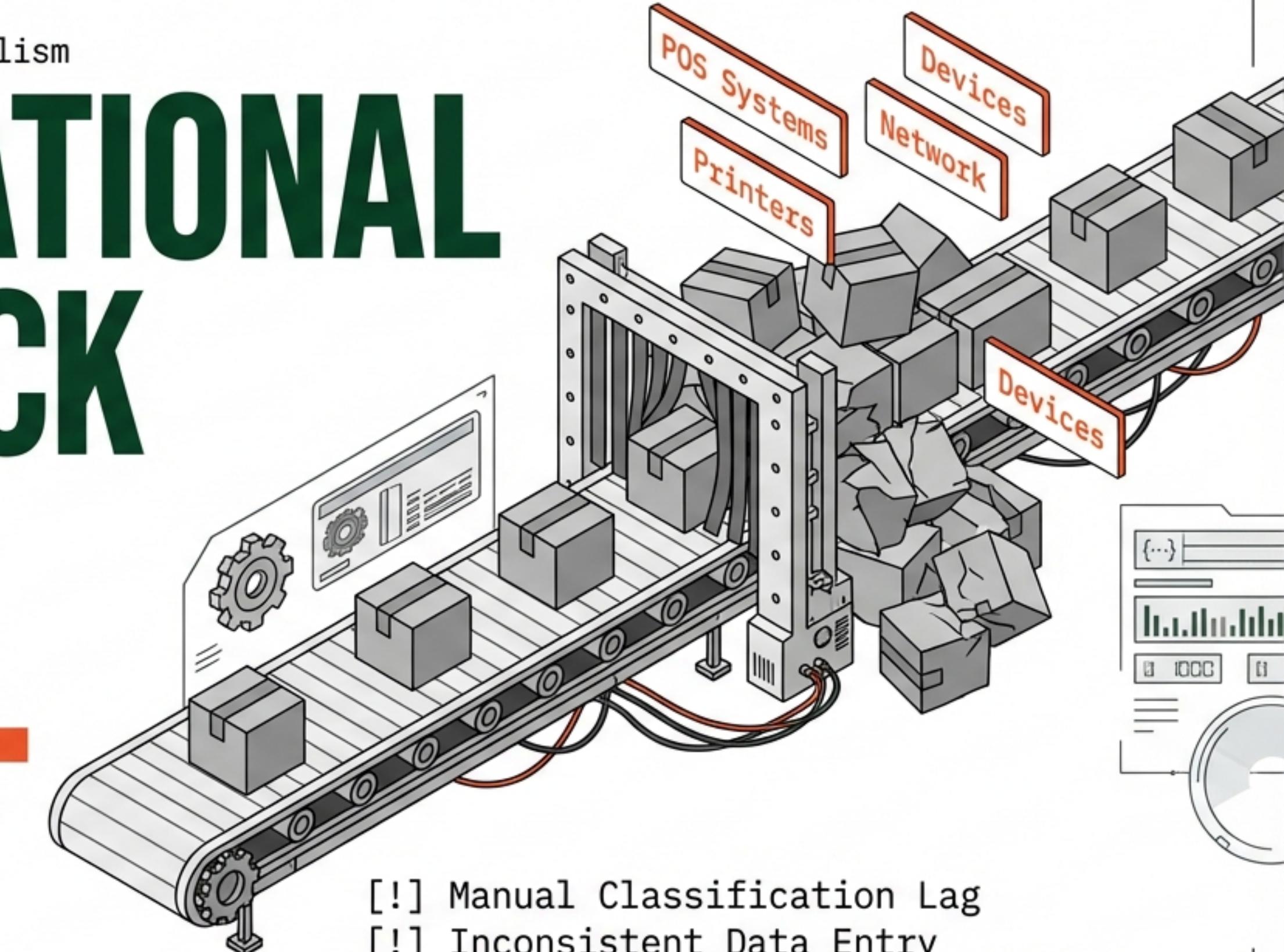
MANU CHOPRA | ID: iitrprai_24091692

Industrial Precision meets Data Journalism

THE OPERATIONAL BOTTLENECK

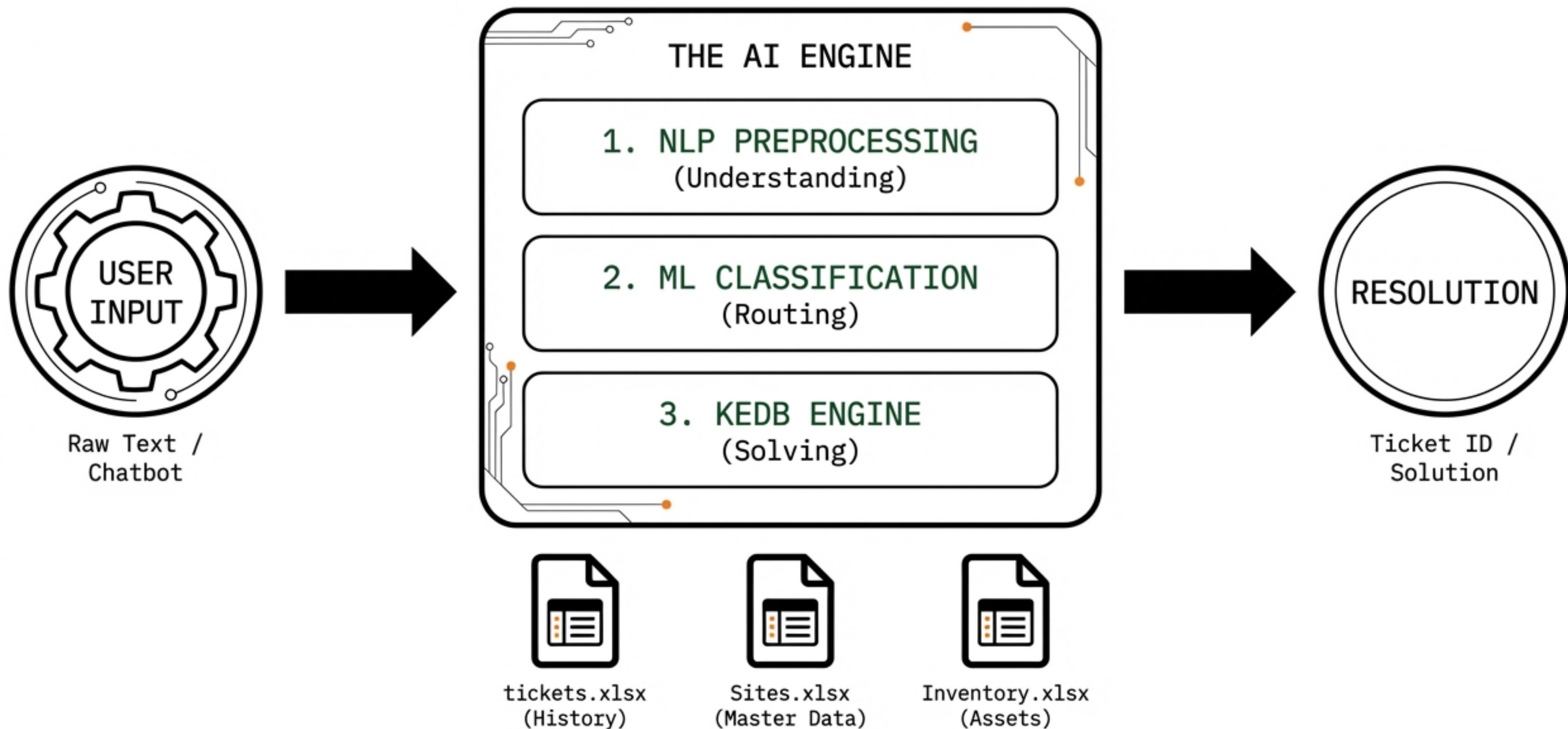
1000+

Tickets Per Day



- [!] Manual Classification Lag
- [!] Inconsistent Data Entry
- [!] High dependency on L2/L3 Engineers

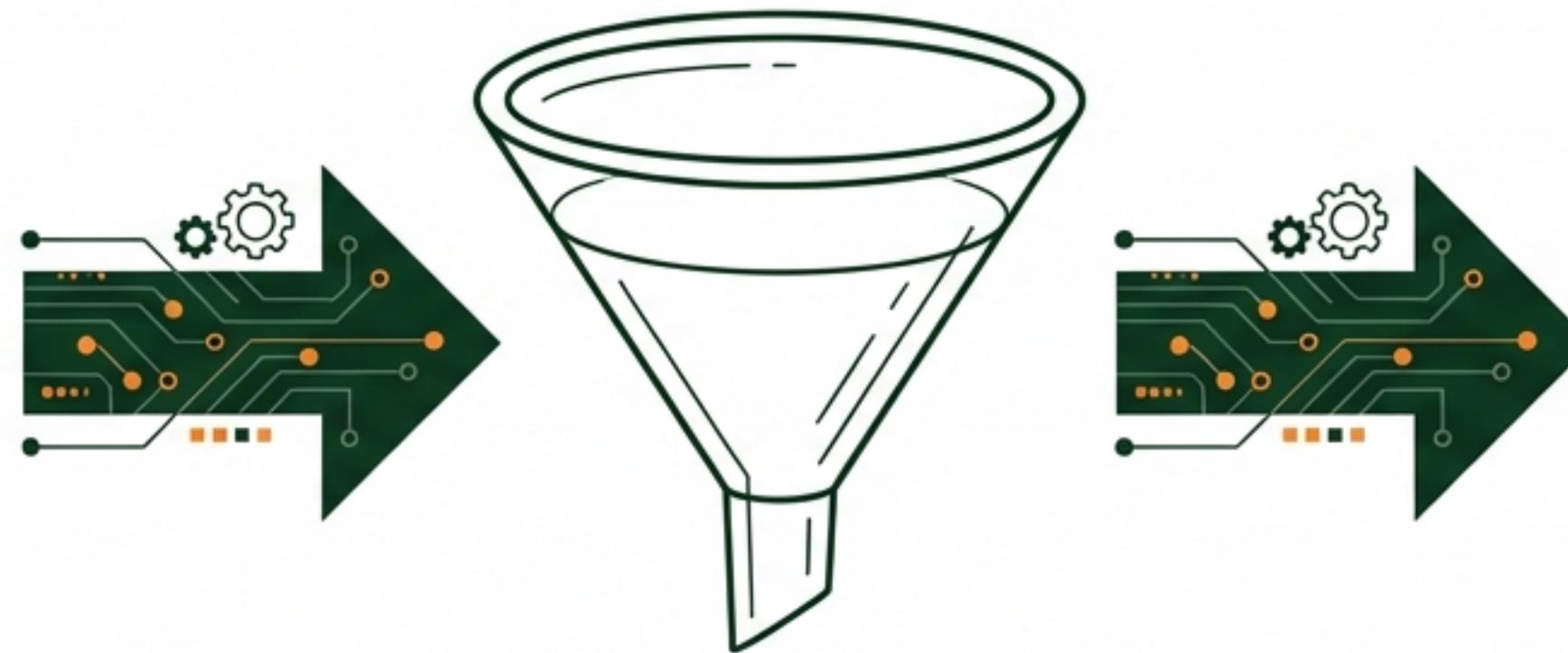
THE ARCHITECTURE OF EFFICIENCY



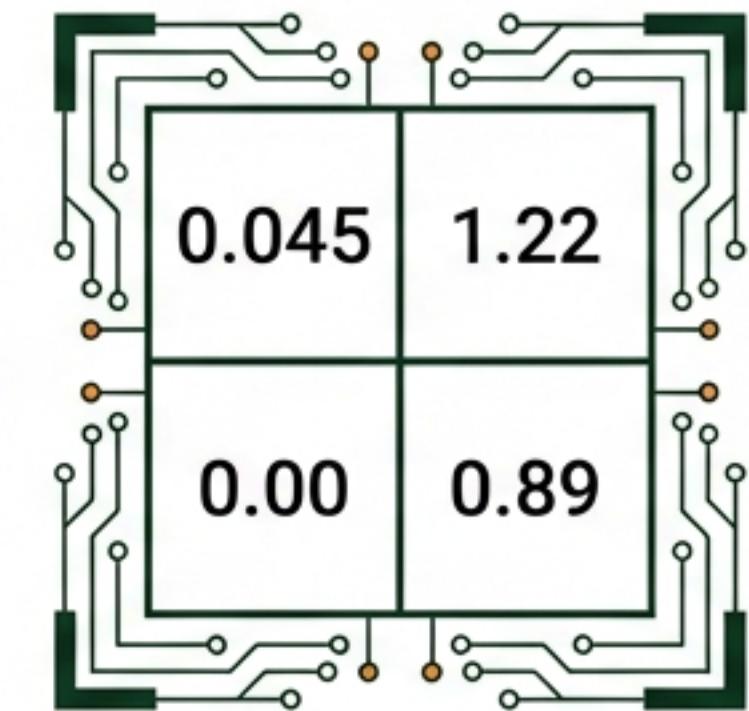
FEATURE 1: THE MACHINE THAT READS

NLP Transformation Pipeline

My receipt
printer is
jammed and
flashing red.



NLP PREPROCESSING

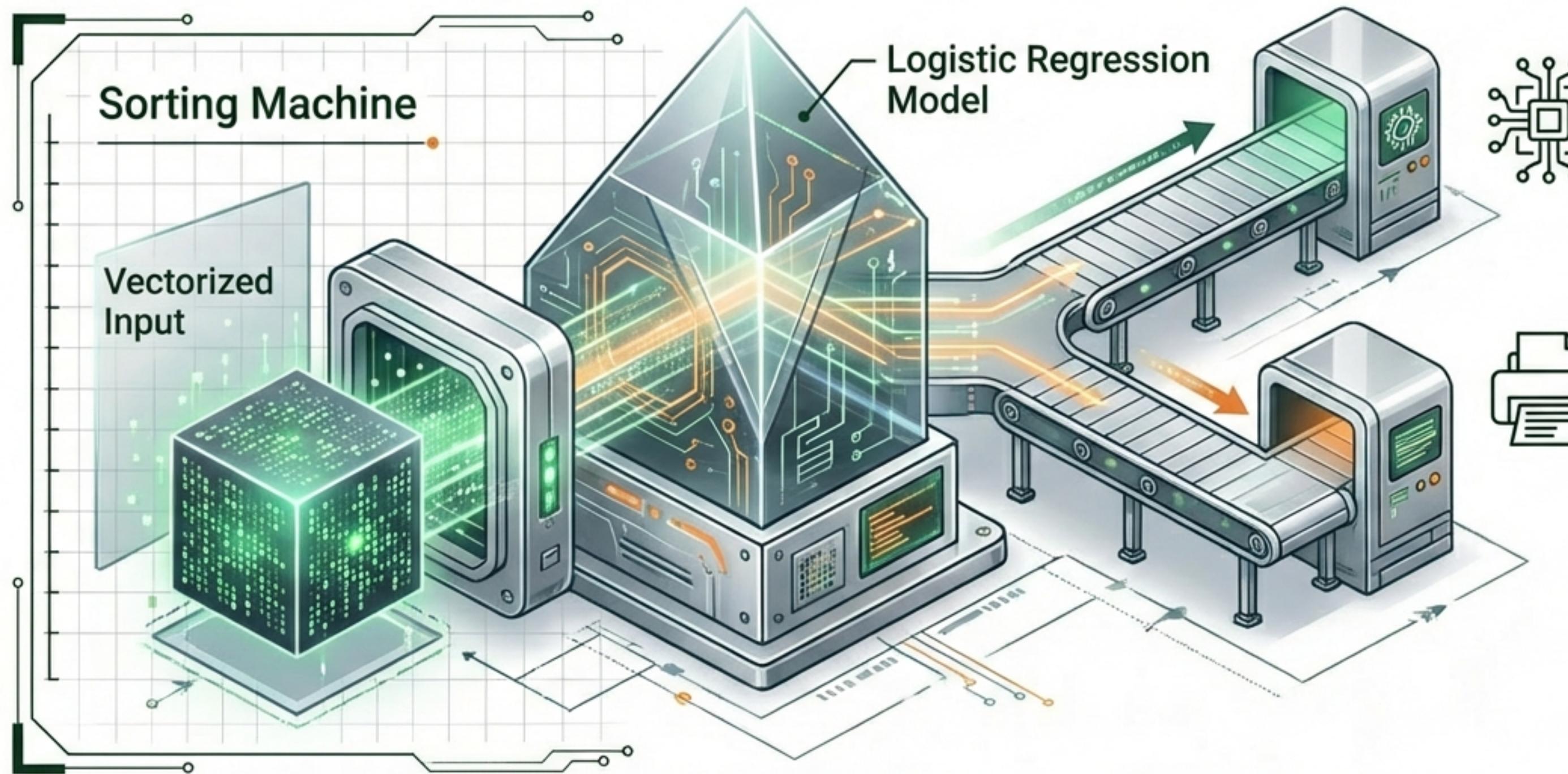


TF-IDF VECTOR

Unstructured Text converted
to Mathematical Signature.

FEATURE 2: INTELLIGENT TRIAGE

Automated Classification via Logistic Regression



CATEGORY:
Hardware

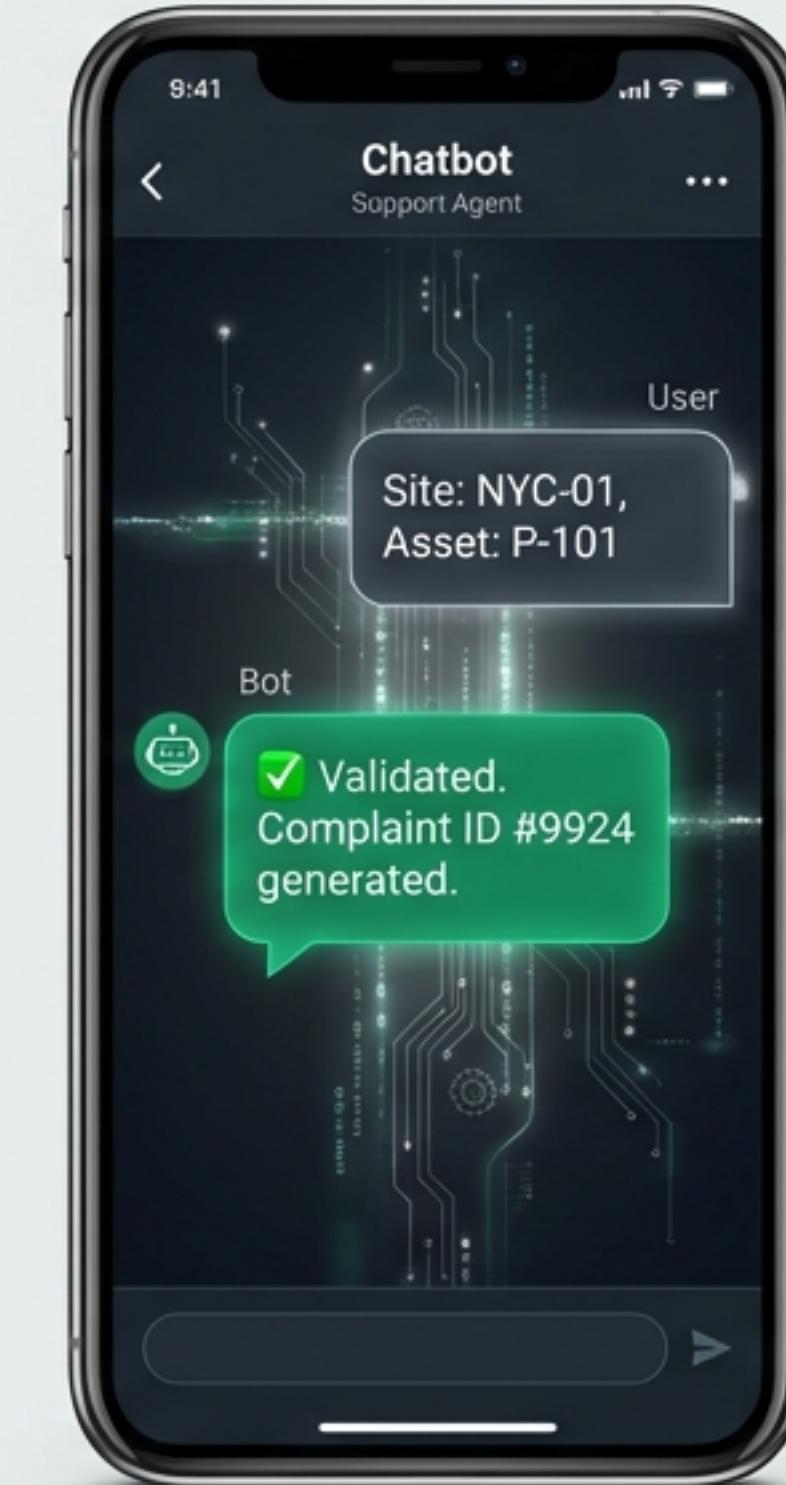
ISSUE TYPE:
Printer Jam



FEATURE 3: THE GATEKEEPER

Validation via Chatbot

- › **Input:** Site ID + Asset Tag
- › **Logic:** Real-time lookup in Sites.xlsx & Inventory.xlsx
- › **Outcome:** Prevents garbage data entry

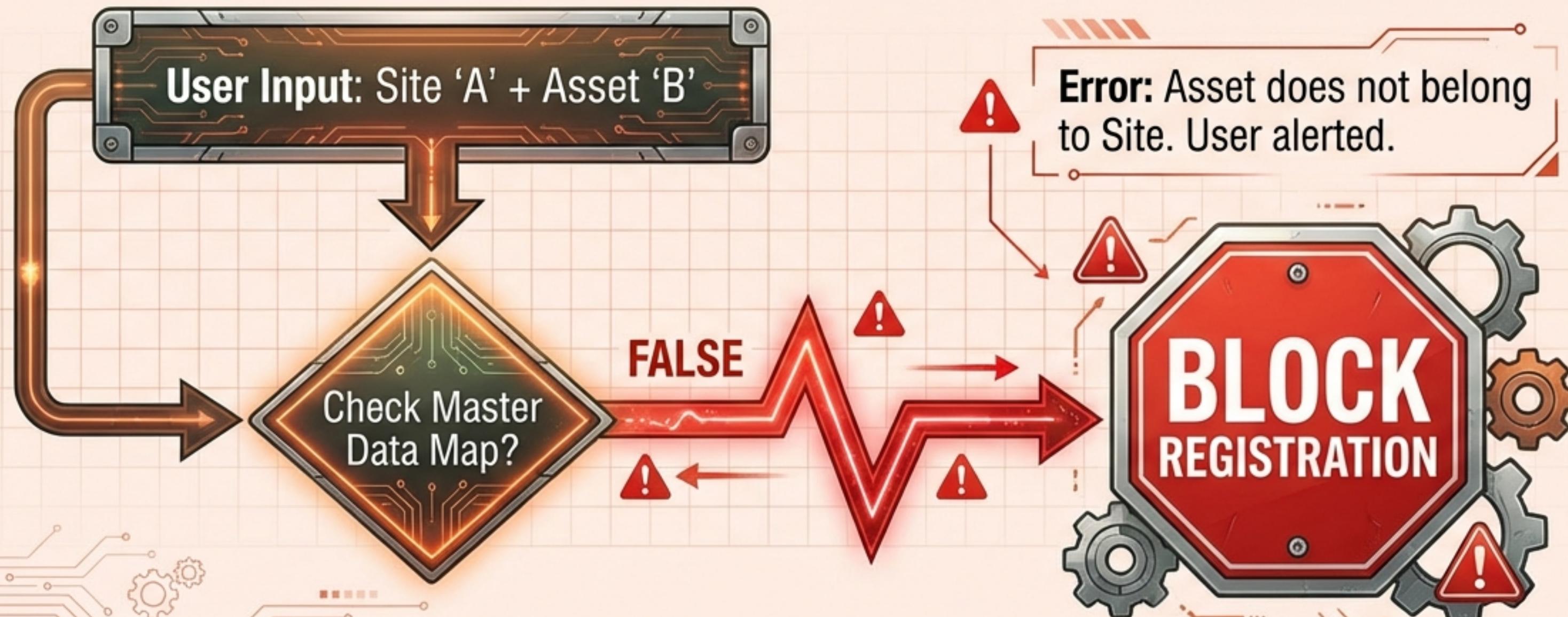


**Zero-Touch
Registration**



HANDLING REALITY: THE EDGE CASE

Scenario: Site-Tag Mismatch



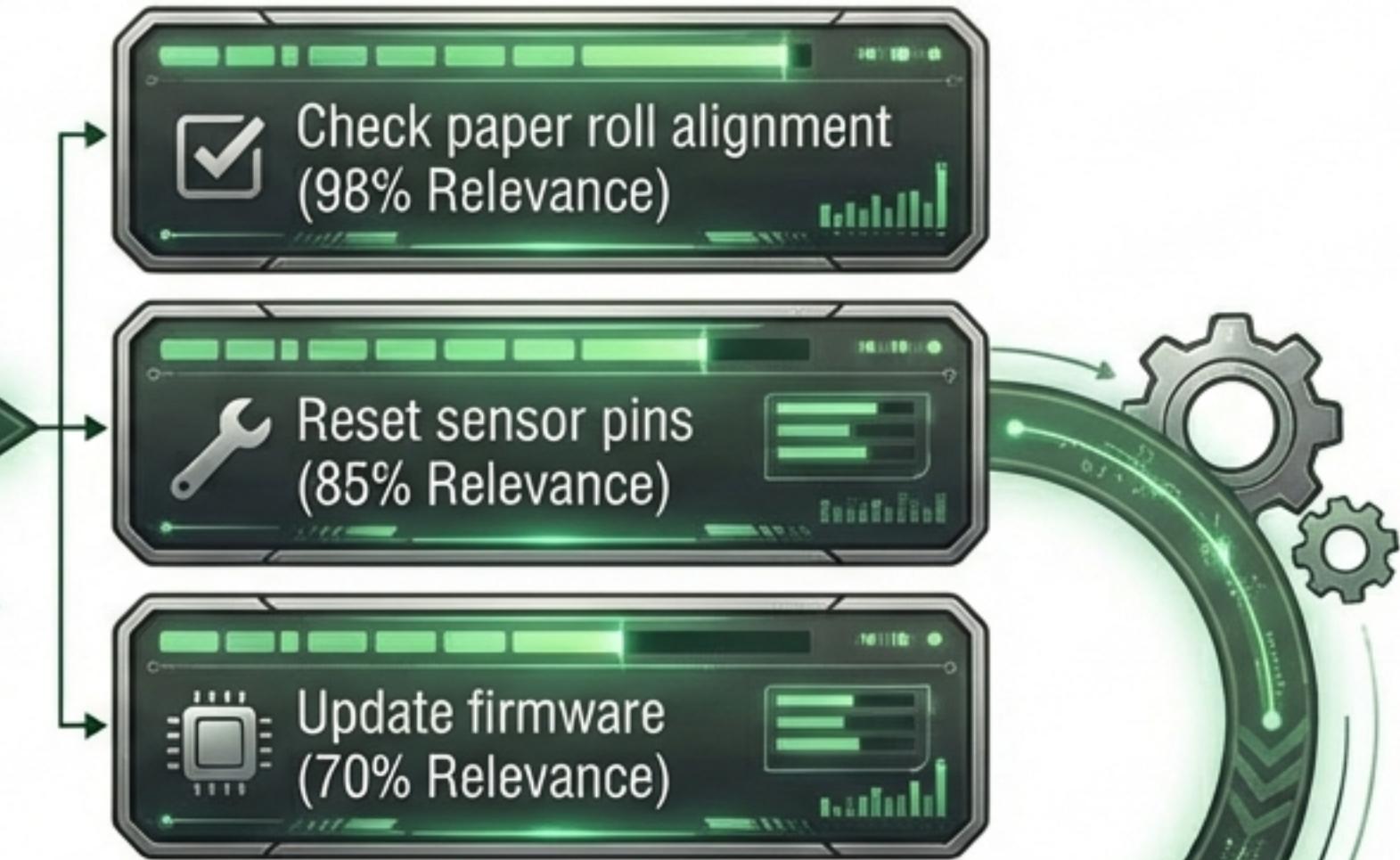
Ensures database integrity for future training.

FEATURE 4: THE INSTANT EXPERT

KEDB Retrieval Engine



Cosine Similarity Search



Shift-Left Resolution

MEASURABLE IMPACT

74%

Classification Accuracy

(On real-world retail data)

100%

Data Consistency

(Via Chatbot Validation)

~0s

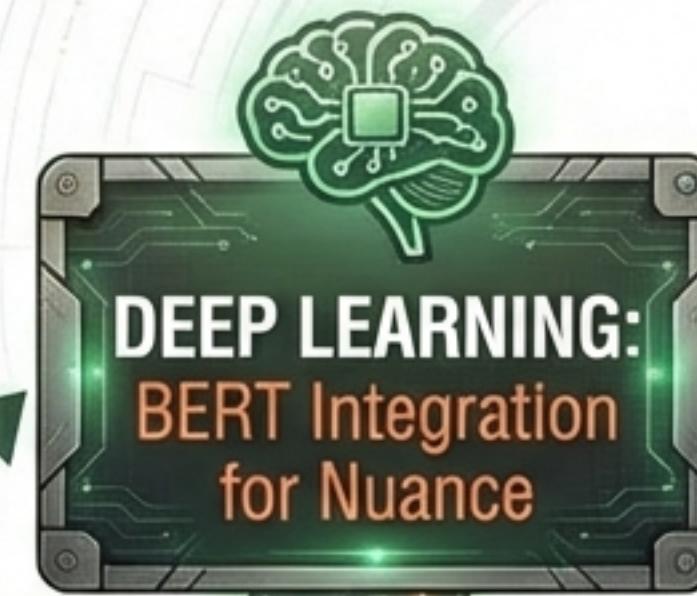
Manual Triage Time

(Reduced from minutes)

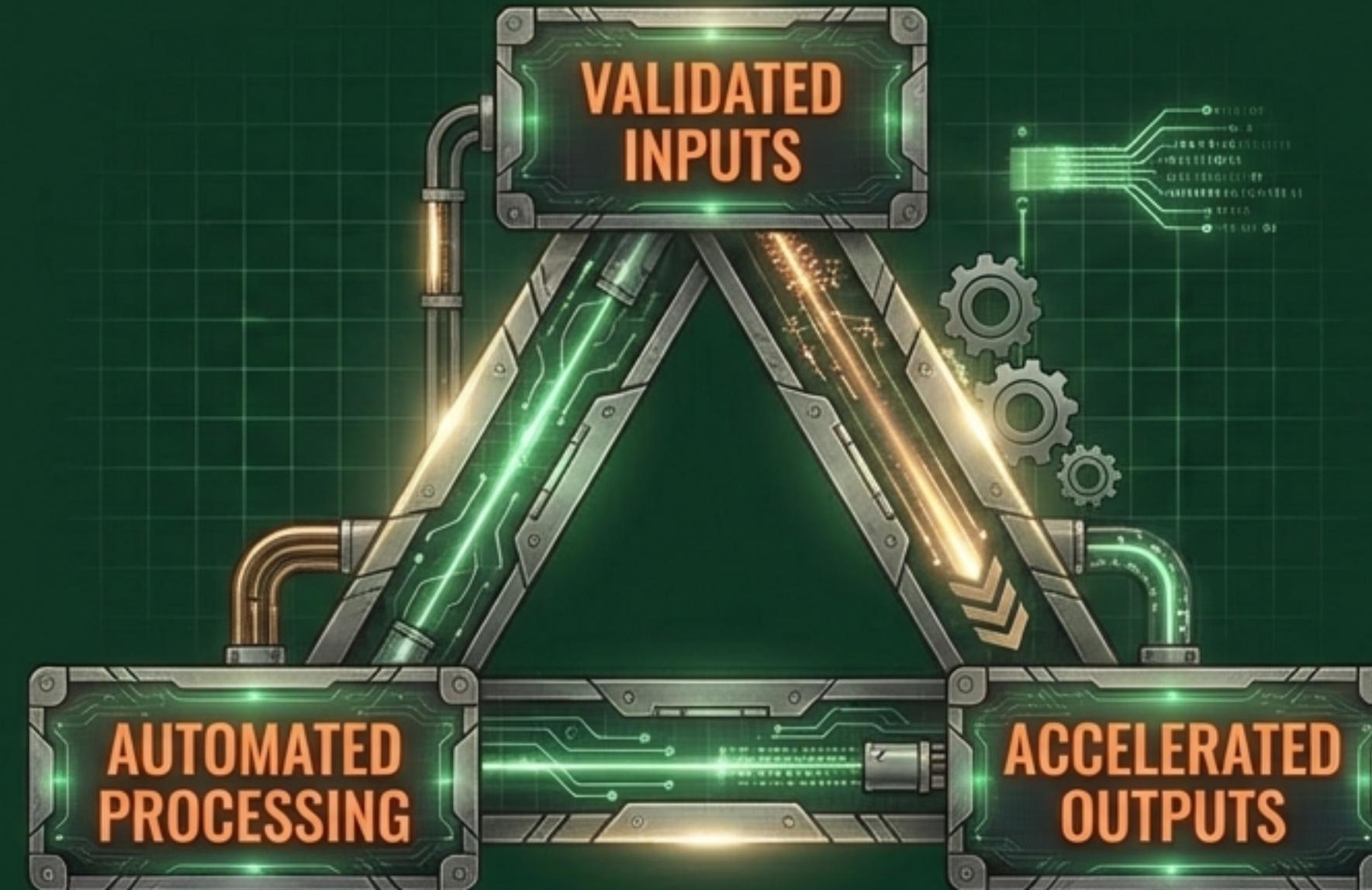
Execution: End-to-end processing in Jupyter Notebooks.

FUTURE SCOPE

From Reactive to Predictive



TRANSFORMING ENTERPRISE SUPPORT



Moving from human dependency to an intelligent, scalable knowledge system.