Support Ticket Cost Optimization Case Study

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Service Desk Business: Overview

A **service desk business** refers to a company or division within an organization that provides technical support, customer service, and problem resolution for users or customers. The service desk acts as a central point of contact for handling a variety of support requests, including incidents, service requests, inquiries, and problems, often related to IT systems or products.

The primary functions of a service desk include:
1. **Incident Management**: Resolving disruptions or issues with IT services (e.g., system outages, software bugs).
2. **Service Request Fulfillment**: Handling requests for new services, software, or access (e.g., resetting passwords, setting up new devices).
3. **Problem Management**: Identifying and addressing the root causes of recurring issues to prevent future incidents.
4. **Customer Support**: Providing guidance and troubleshooting to end-users through multiple channels (e.g., phone, email, chat).

Service Desk Business: Support Tickets

A **support ticket** is a documented request or issue raised by a customer or user that requires attention or resolution from a service desk or customer support team.

The concept of a support ticket is a fundamental part of managing and tracking service requests or incidents in many industries, especially in IT, customer service, and technical support.
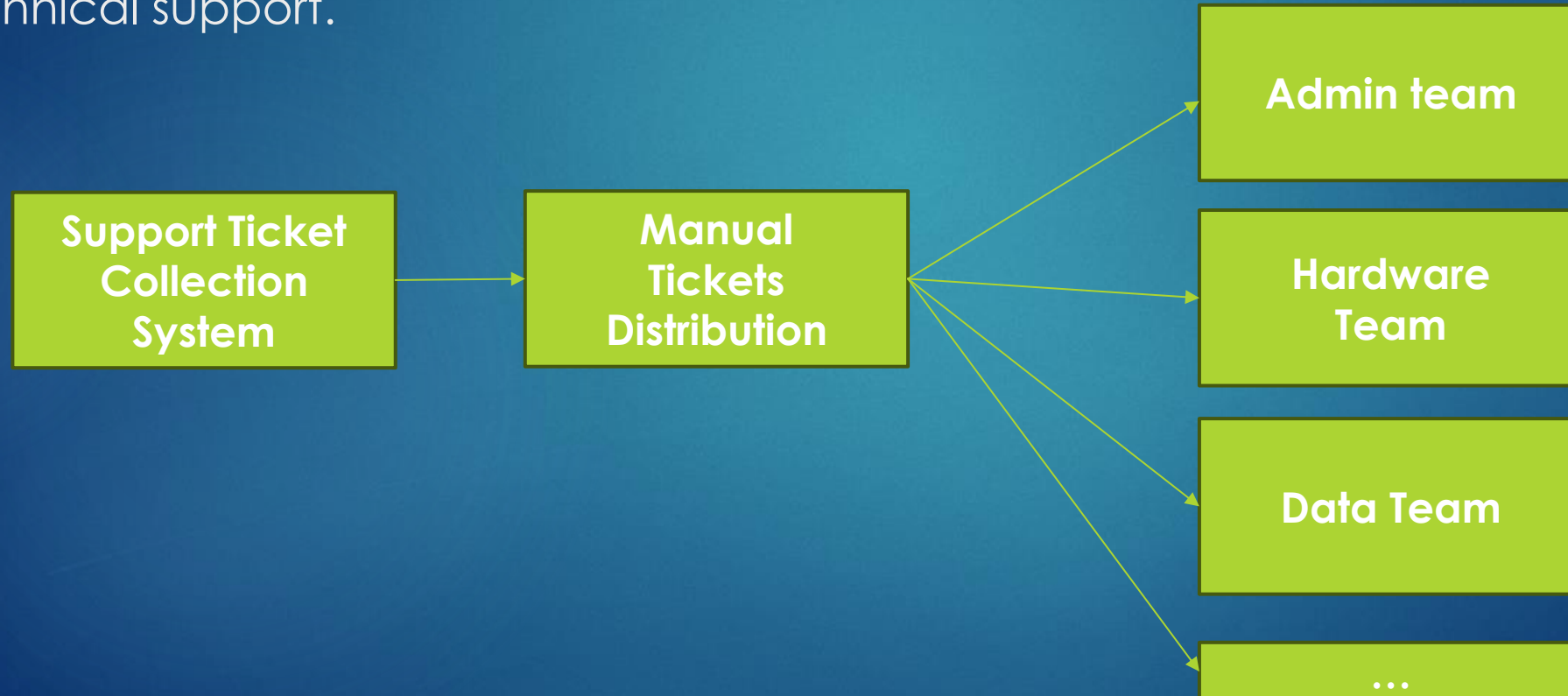
Service Desk Business: Cost Per Ticket

Cost per Ticket (CPT) is **an IT help desk metric that shows the average cost of solving an issue or request**. It can be calculated it by dividing the total operating expense of a service desk by the number of tickets resolved during a specific period

$$\text{Cost per Ticket} = \frac{\text{Total Service Desk Costs}}{\text{Total Number of Tickets Handled}}$$

Cost per Ticket (CPT) by communication channel in 2021

Channels	North America Cost Benchmarks		
	Average, $	Min, $	Max, $
Walk-Up	37.52	19.81	104.88
Voice	17.19	7.04	40.94
Chat	15.72	5.92	36.33
Email	16.13	6.29	32.40
Web Submit	15.07	5.46	29.57
Self-help	2.37	0.74	4.18

https://www.thinkhdi.com/library/
supportworld/2021/
understanding-cost-per-ticket

Service Desk Business: Cost Per Ticket

Main Sources of Cost for a Service Desk

1. Labor Costs:

2. Technology Costs:

3. Training and Development Costs:

4. Facility and Overhead Costs:

5. Management and Administration Costs:

6. Third-party Support Costs:

7. Miscellaneous Costs:

Cost Per Ticket

| Ticket Handle Time | Agent Utilization | Number of Agents | Shifts |
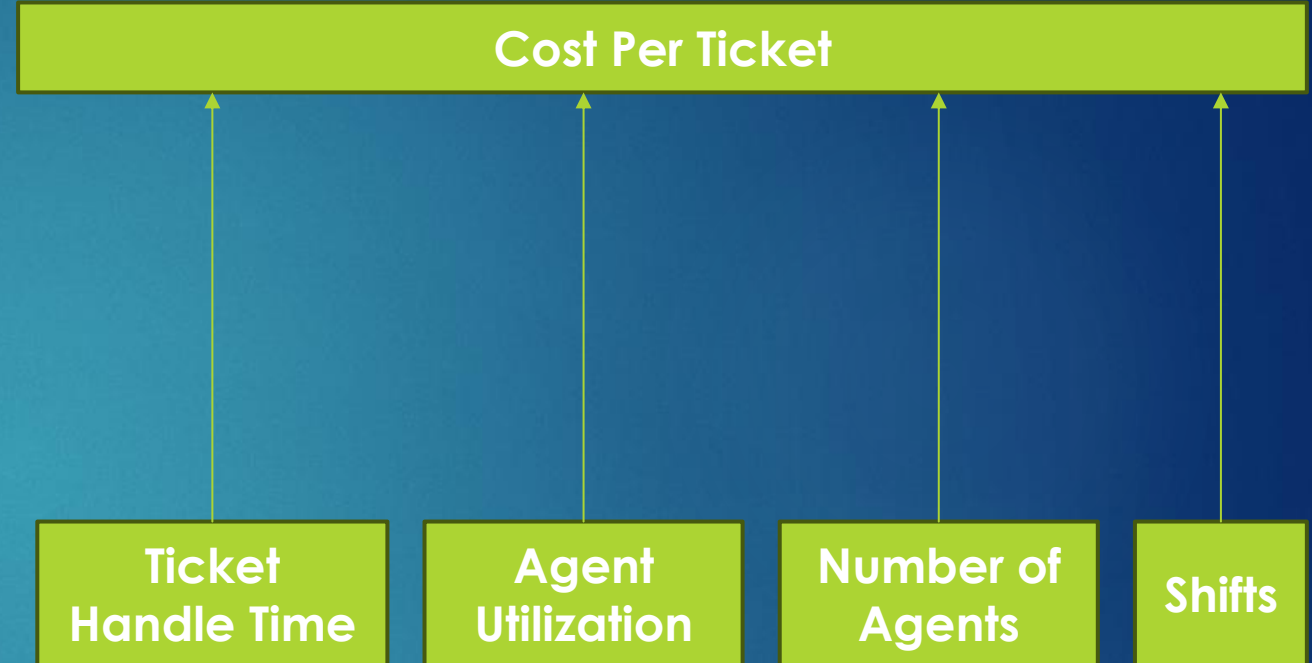
Service Desk Business: Problem Definition for AI/ML
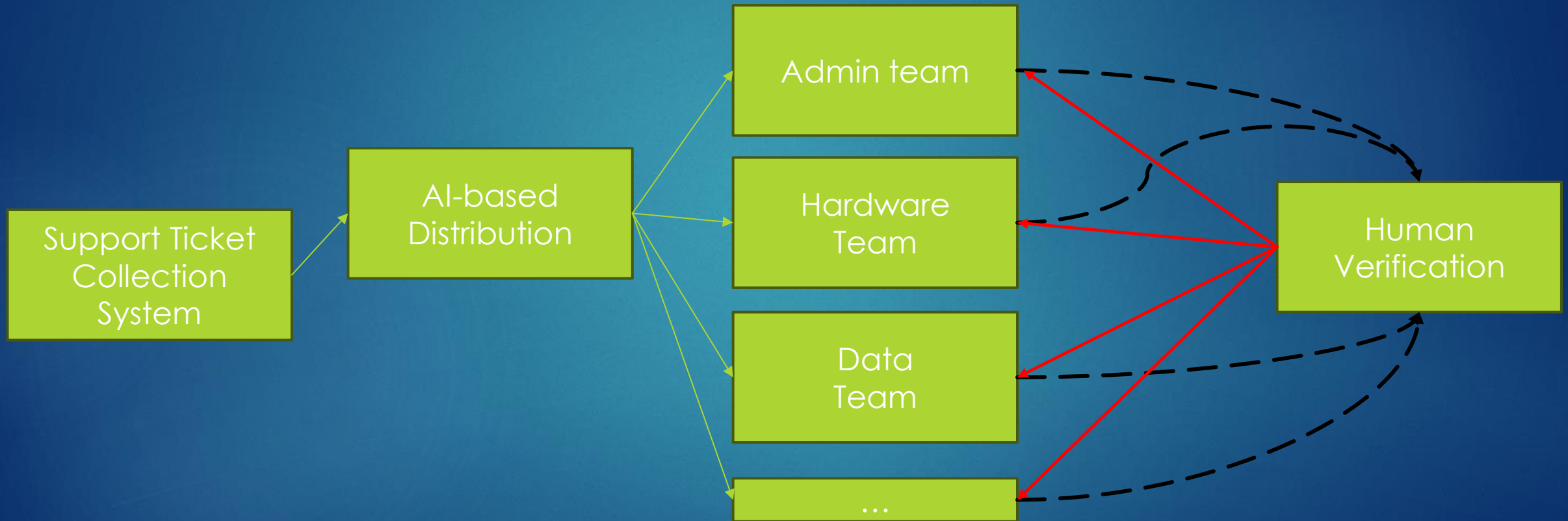
ML solution

1. Collect unlabeled Support Tickets
2. Preprocess raw text
3. Cluster Analysis
4. Assign Labels
5. Train Classifiers
6. Evaluate Classifier Performance
7. Deploy into the system

Useful Links

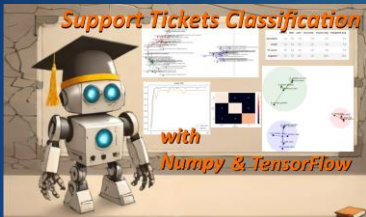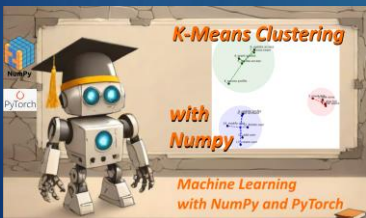|	
GitHub	Support Tickets Repo https://github.com/enoten/support_ticket_analysis/ Code: support_tickets_classification.ipynb Slides : Support Ticket Use Case slides.pdf
Hugging Face	Support Tickets Dataset https://huggingface.co/datasets/phi-ai-info/support_tickets
Support Tickets Classification with Numpy & TensorFlow	Support Tickets Analysis Video https://www.youtube.com/watch?v=NIJ1yS0F03M
K-Means Clustering with Numpy	K-means Clustering Video https://www.youtube.com/watch?v=5IA3ChRT90I&t=10s
Logistic Regression with Numpy	Logistic Regression Video https://www.youtube.com/watch?v=zFQUV4rMd2Q

PHI AI

https://www.youtube.com/@phiai1618