

# 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.

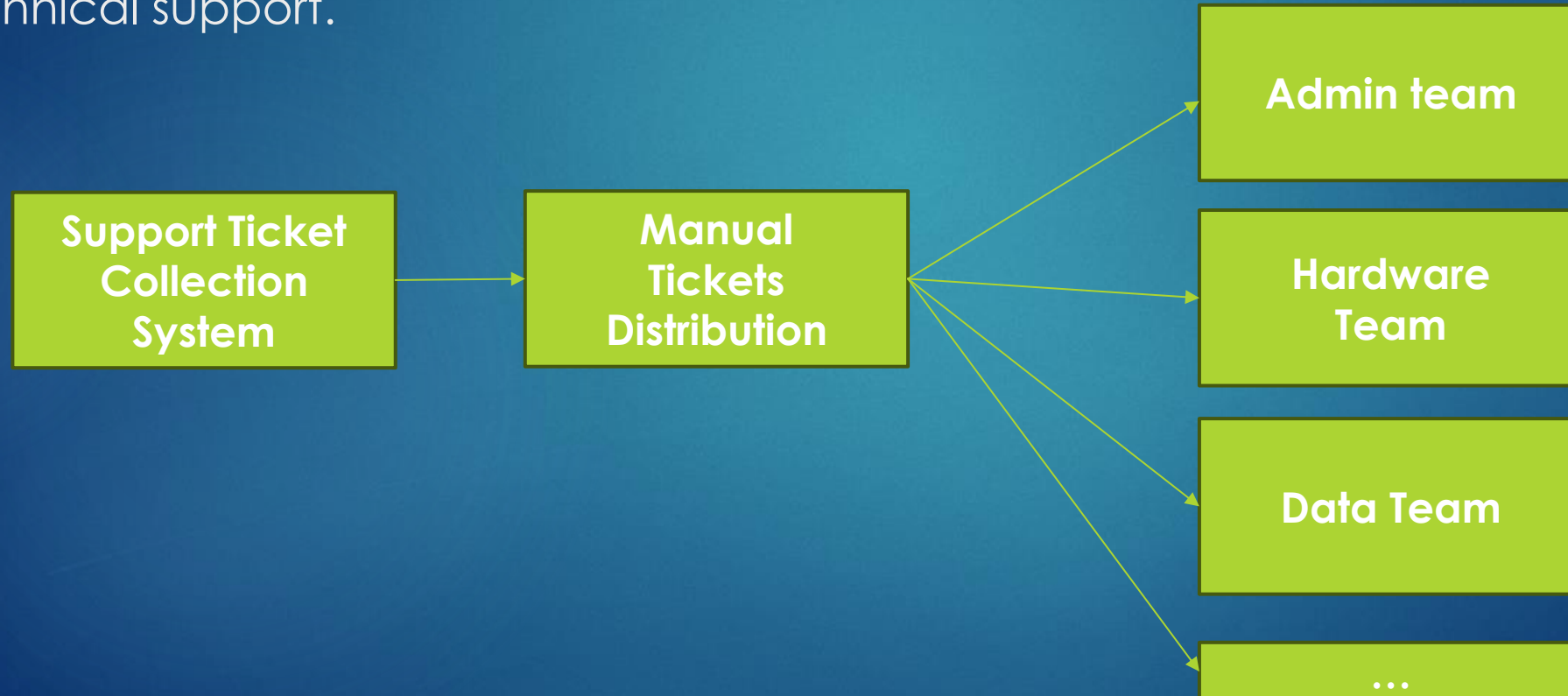
The primary functions of a service desk include:

- 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 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

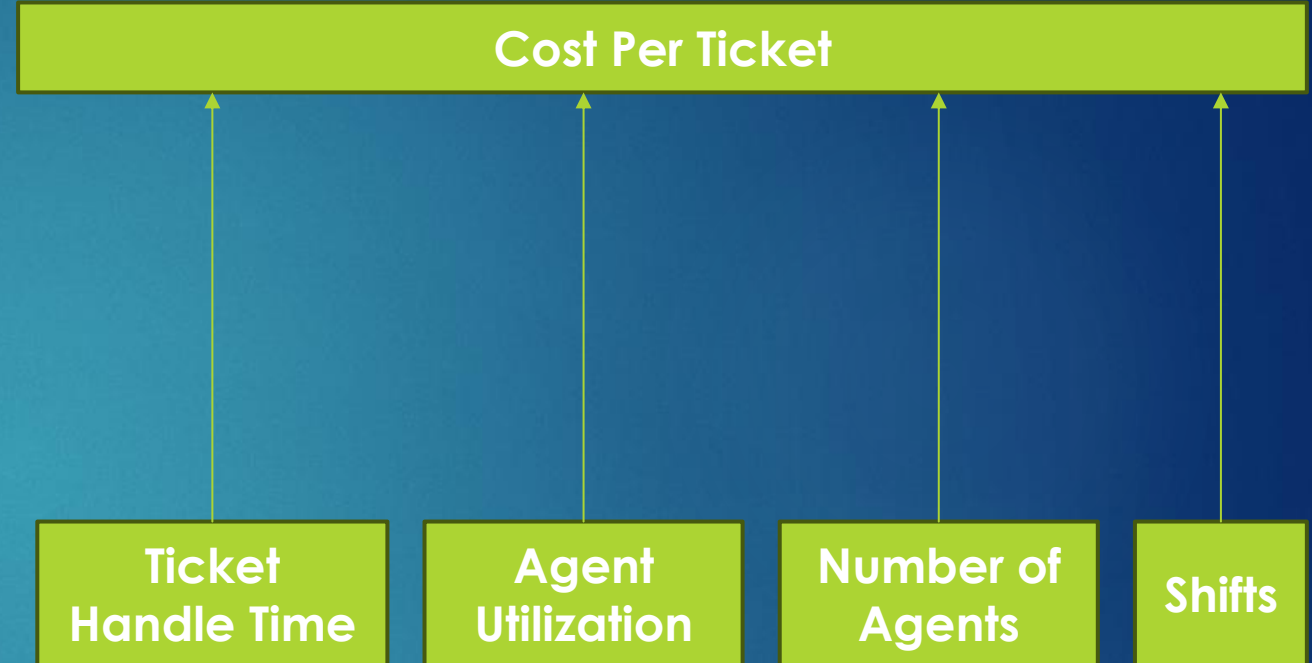
Channels	North America Cost Benchmarks		
	Average, \$	Min, \$	Max, \$
Walk-Up	37.52	19.81	104.88
Voice	17.19	7.04	40.94
Chat	15.72	5.92	36.33
Email	16.13	6.29	32.40
Web Submit	15.07	5.46	29.57
Self-help	2.37	0.74	4.18

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

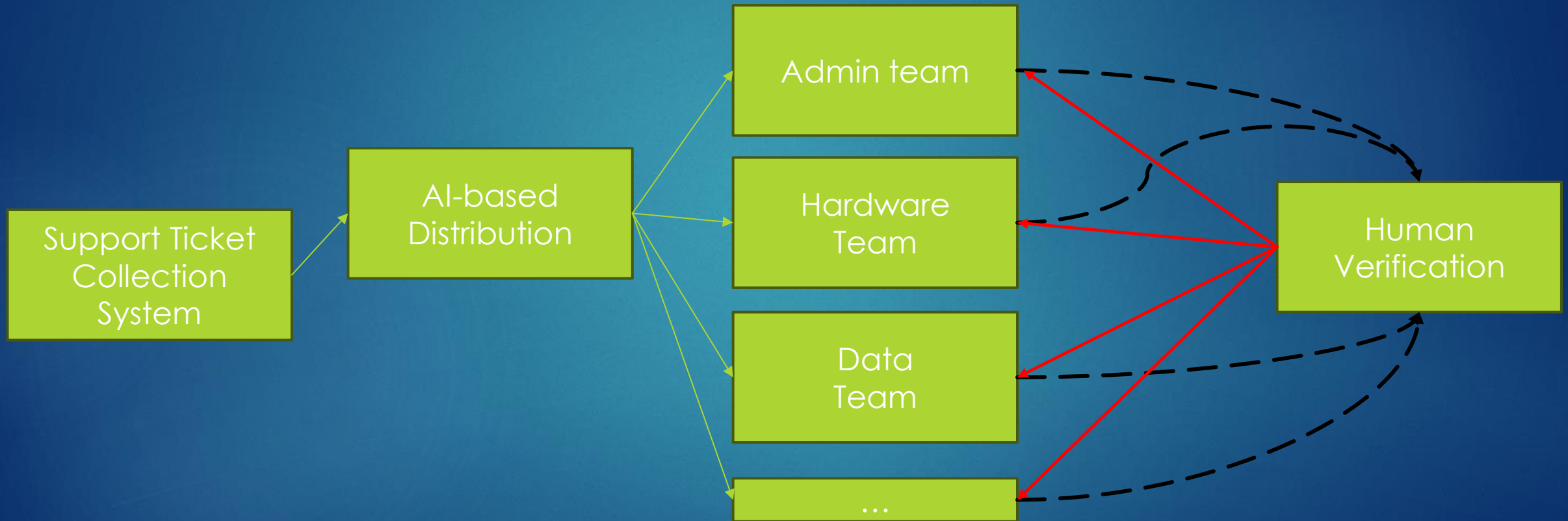
# Service Desk Business: Cost Per Ticket

## 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:



# 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



Support Tickets Analysis Code

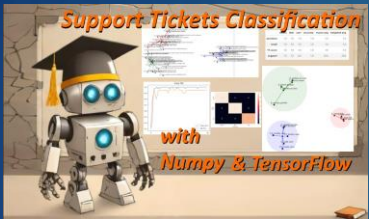
[https://github.com/enoten/support\\_ticket\\_analysis/blob/main/support\\_tickets\\_classification.ipynb](https://github.com/enoten/support_ticket_analysis/blob/main/support_tickets_classification.ipynb)



Hugging Face

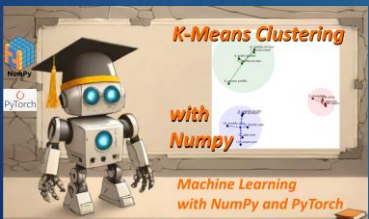
Support Tickets Dataset

[https://huggingface.co/datasets/phi-ai-info/support\\_tickets](https://huggingface.co/datasets/phi-ai-info/support_tickets)



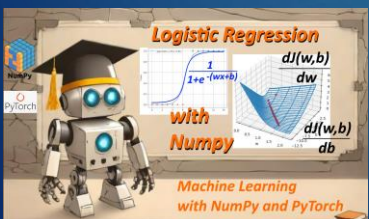
Support Tickets Analysis Video

<https://www.youtube.com/watch?v=NIJ1yS0F03M>



K-means Clustering Video

<https://www.youtube.com/watch?v=5IA3ChRT90I&t=10s>



Logistic Regression Video

<https://www.youtube.com/watch?v=zFQUV4rMd2Q>



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





Thank You!