



Data Analysis Report

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Report Context & Definitions

ABC is a company that specialises in providing customer service support to its clients. ABC's largest account is a world-renowned e-commerce company, called B&S. The client requires 24/7 support in three different branches, serving millions of customers. To meet these requirements, the project is structured as follows: three 8-hour shifts (Morning, Day and Night) handling tickets about technical issues, sales questions and general support. To minimize vendor dependency, the client has decided to sign ABC for the morning and day shift, while a competitor has been signed to handle the night shift.

Negotiations for the first contract renewal are coming up and different stakeholders within ABC have shown an interest in leveraging data to improve their KPIs for the next year; Sales need to meet their yearly quota, for which they need to sell an additional 30 FTE(Full-Time-Employees); the operational manager, who just returned from CXS Toronto today, on the 20th of January, 2020, has decided that the team's new main KPI is customer satisfaction (CSAT) and would like to formalize an improvement plan; Operations would like to prepare a worst case scenario and needs to know which ABC agents to ramp down if the client decides to downsize. What is more, the director of Data sees this sudden increase in interest in data analysis as an opportunity to spend further resources on our back-end.

We are going to analyze the available ticket data and find out what we can do to serve our stakeholders. To this end, an extract of closed tickets from the ABC Data Warehouse has been made available to us along with Agent data. We have decided to use Microsoft PowerBI for our analysis and report.

Definitions and Terms

Client: Company that signed ABC as a customer service business partner.

Customer: Someone that reached out to CS to find an answer to a question or problem.

Ticket: Contains a question by a customer.

StartDate: First date an agent worked on a project.

Vendor: Different companies can provide CS for a client: these are called vendors.

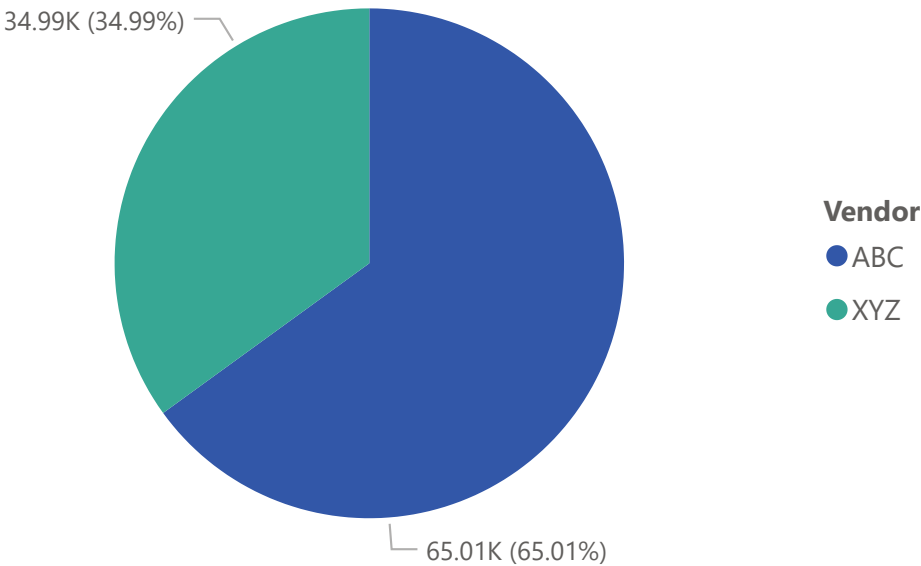
AWT: Average Waiting Time. Expresses how long, on average, a customer has been waiting for an agent's answer.

CPC: Contacts per Case. Number of agent-sided interactions on a Ticket.

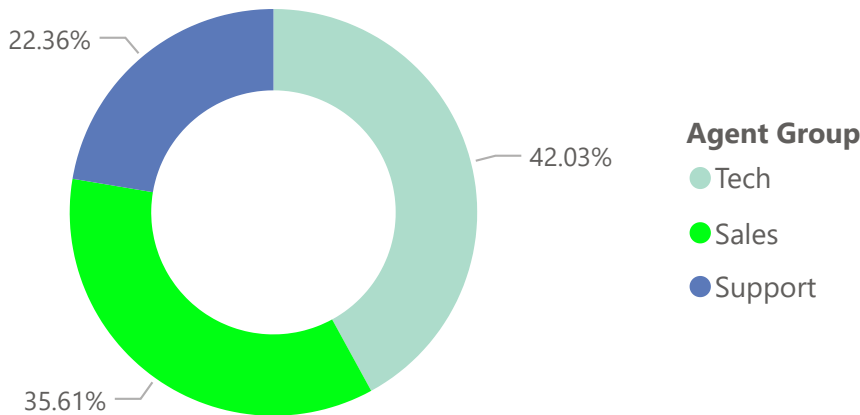
Satisfaction: The customer's satisfaction with how a ticket was handled. Satisfaction is expressed as %CSAT, the ratio of good surveys out of all answered surveys.

Closed Ticket Analysis

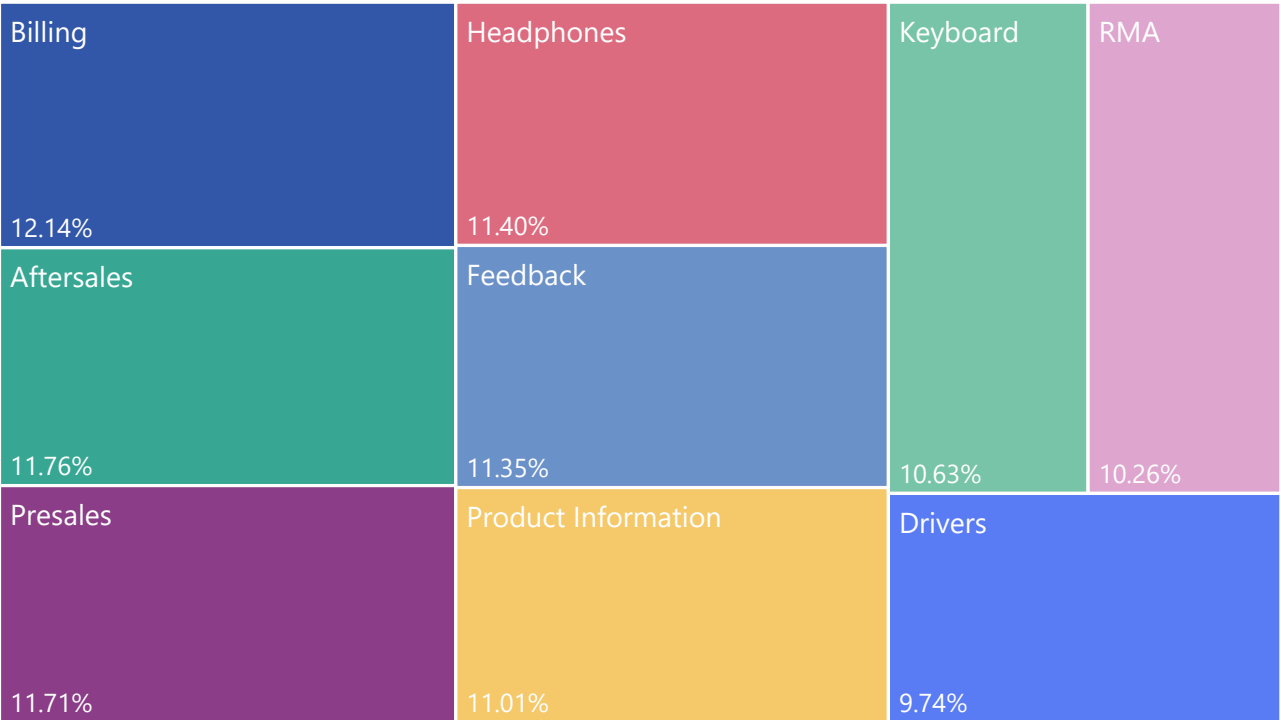
No. of tickets by Vendor



No. of Tickets by Agent Group



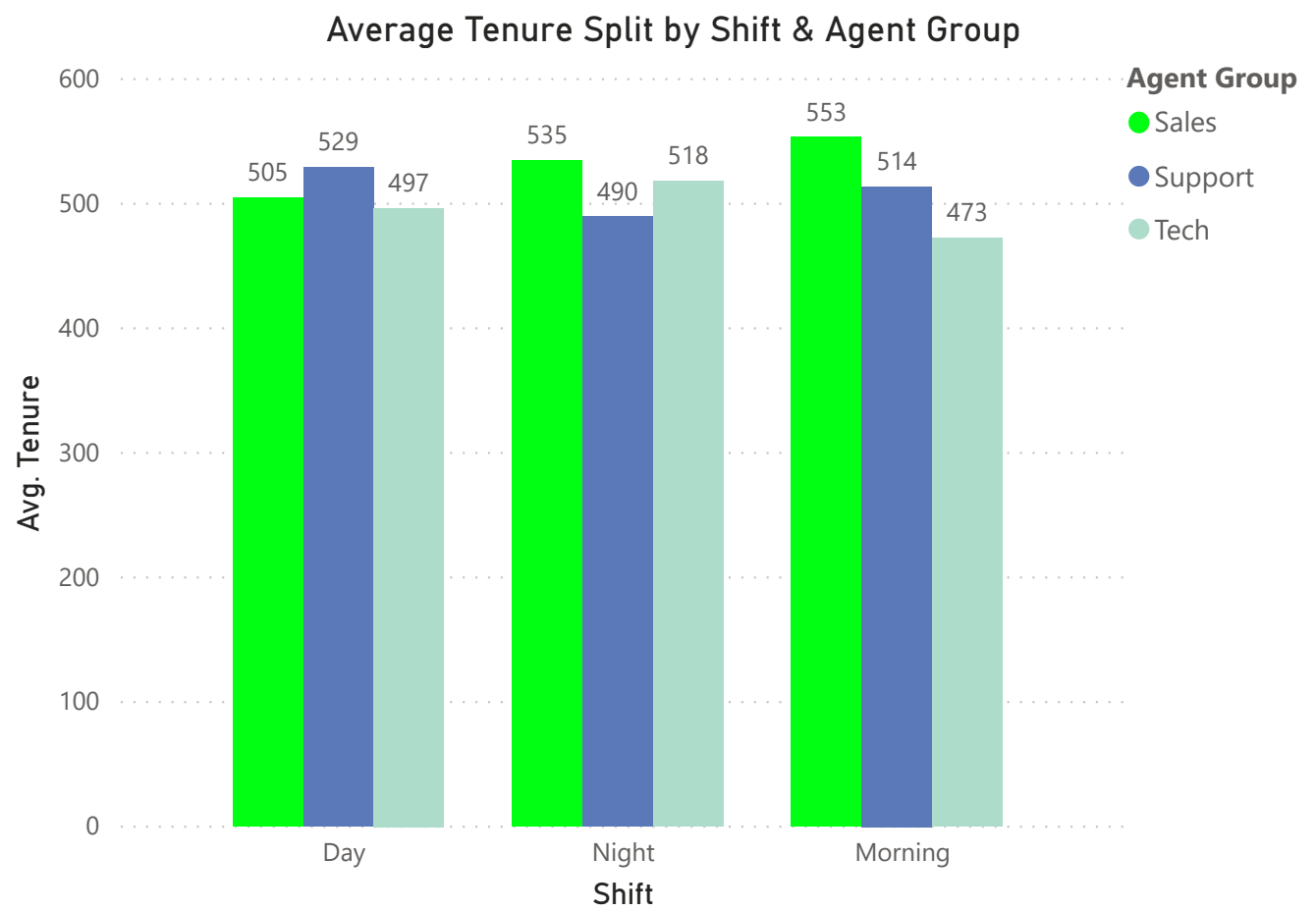
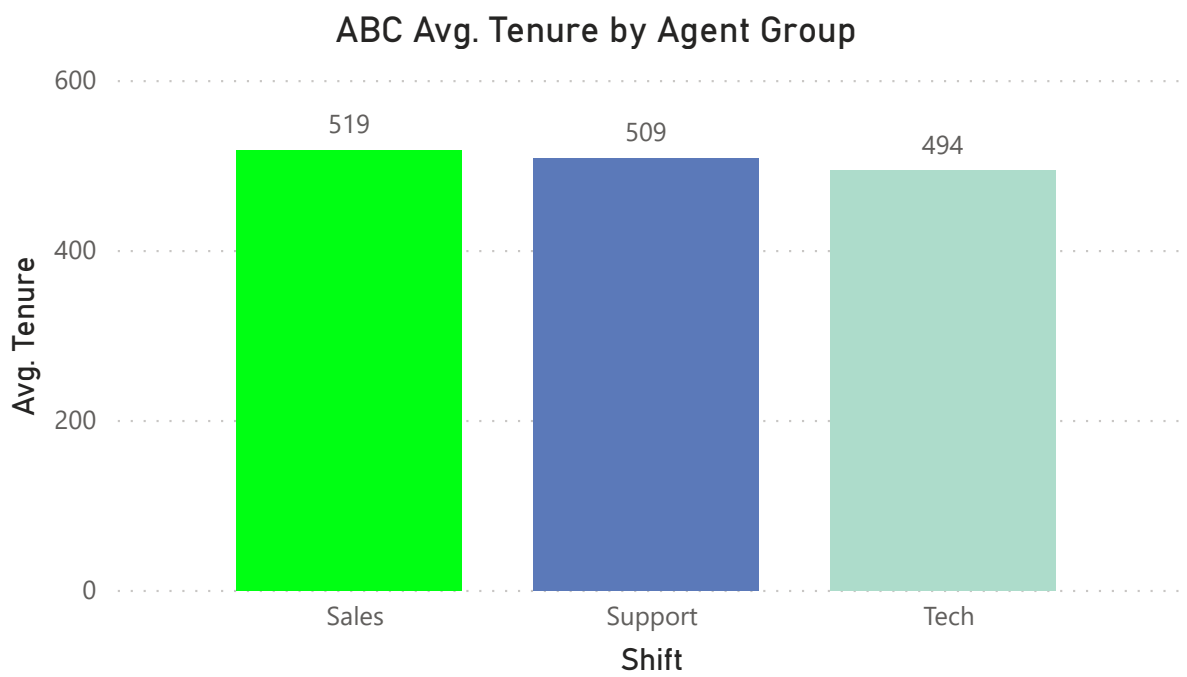
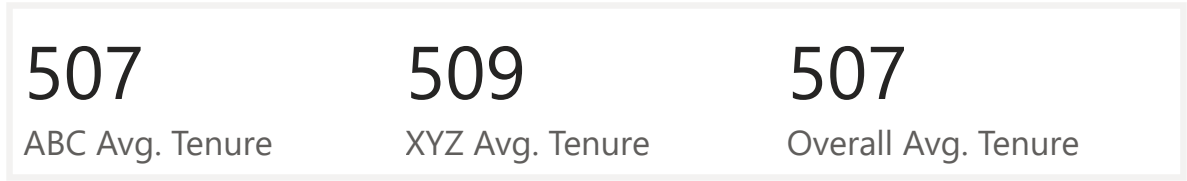
Split of tickets by Issue Type



Let us begin with a breakdown of the how the tickets have been split in our dataset:

- 1) **Vendor:** As ABC operates 2 shifts out of the 3, it understandably has around 65% of the share of closed tickets.
- 2) **Issue Type:** Interestingly, the majority of tickets have been split rather evenly across each of the relevant issue types raised by customers. Billing (~12%) edges out the rest and is the largest cause of tickets raised.
- 3) **Agent Group:** The majority of tickets go to agents in the tech group (~42%), followed by Sales (~36%) and Support (~22%).

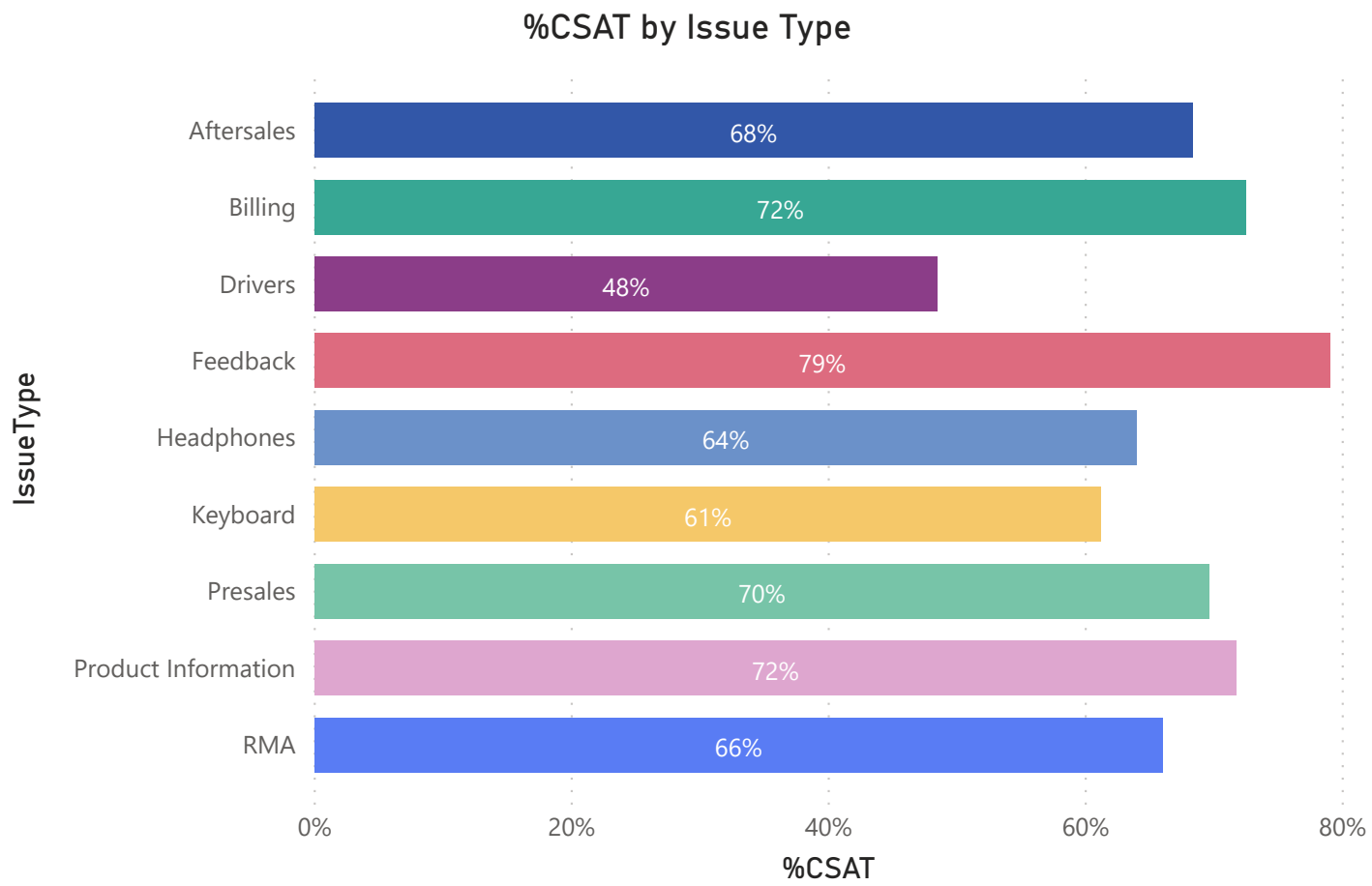
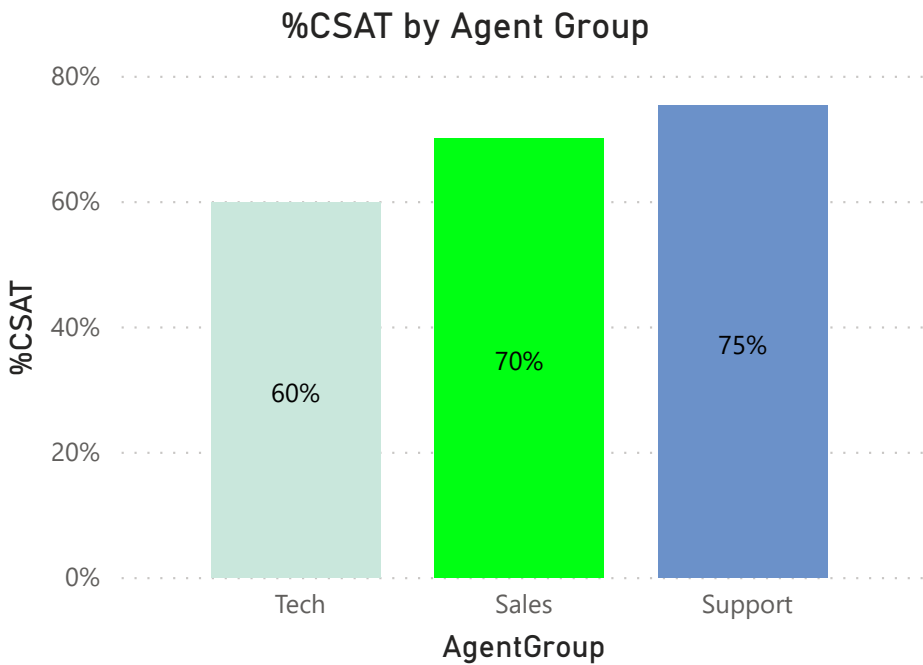
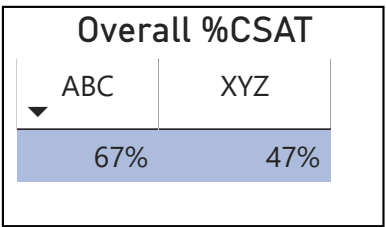
Agent Tenure Analysis



There were a few agents in the dataset with start dates that had the incorrect date of '01 January, 2000' (ABC did not exist then). When tenure was calculated, it was ensured that they weren't included in the subsequent analyses.

- Agent Tenure is an important metric in a business such as ABC's. Here a few interesting insights when we consider the analyses of this metric:
- 1) When we compare the average agent tenure figure to ABC's competitor, XYZ, there's not much between them, ABC seems to be doing slightly better. However, we must consider that ABC handles the lion's share of inquiries for the client.
 - 2) If we look at average tenure split for each agent group, interestingly we can note that support leads the pack.
 - 3) If we analyze this further by looking at the split between each Shift, we can see that there are differences between each Shift and Agent group. within the Shift. It can be noted that the Tech Group average tenure for the morning shift is the worst.

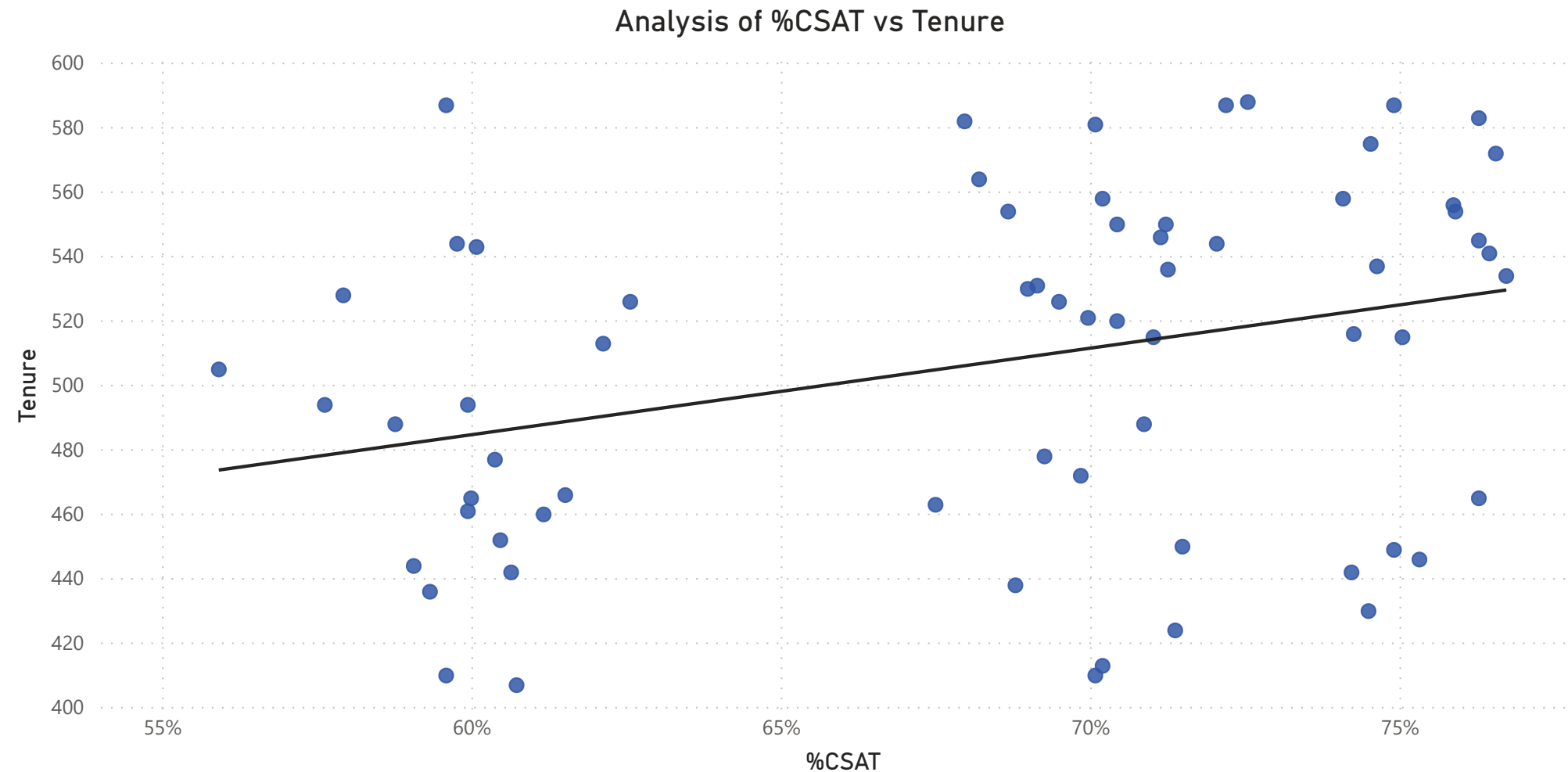
Customer Satisfaction Analysis



Customer Satisfaction i.e the percentage of good feedback received, has been deemed a key metric by the Operations Manager hence it becomes a key measure to analyse an Agent's performance. Here are few insights:

- 1) ABC appears to be serving the client's customer's 20% better than XYZ, which is good news for the company. There's potential for this information to be used to win more contracts with B&S and other clients.
- 2) The Support Agent group is leading the way in terms of good feedback with a rate of 75% customer satisfaction, whereas Tech agent group only has a 60% satisfaction rate.
- 3) If we break things down further and look at the satisfaction across different Issue Types, it becomes clear that Tech issues such as Drivers, and Keyboard problems appear to be bringing down the overall customer satisfaction.

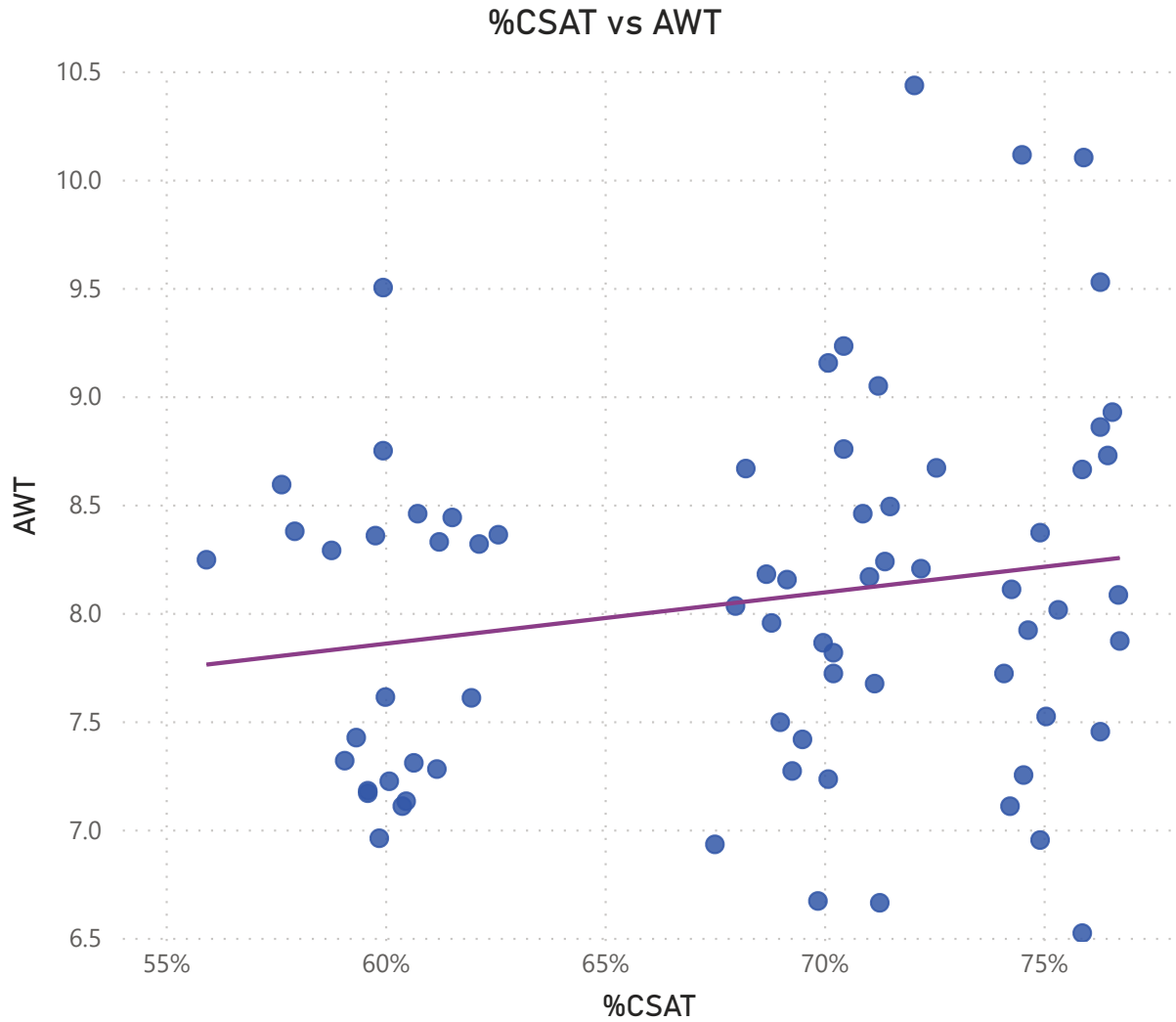
CSAT vs Tenure Analysis



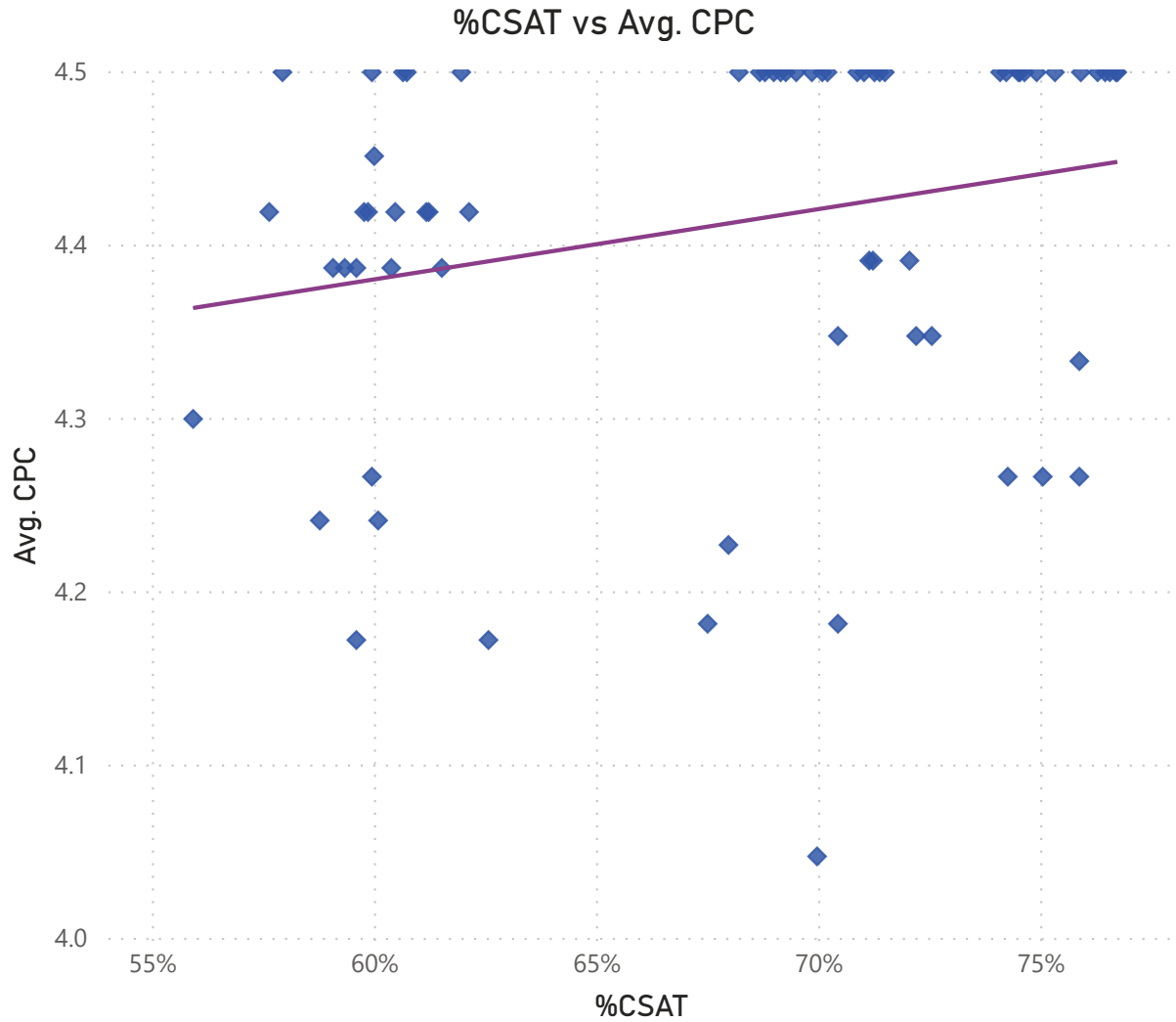
This scatter plot was made by taking ABC agents into account and comparing their tenure and the percentage of good customer feedback they received. As mentioned previously, the data was filtered to exclude the incorrect tenure figures due to the start date being 01 January, 2000.

The trend line on the graph appears to indicate that the longer an agent usually stays, the better his/her performance in terms of customers providing 'Good' feedback. The main reason for this could be as a result of simply getting better on the job as times goes by through handling more tickets and exceptional cases.

CSAT Analysis



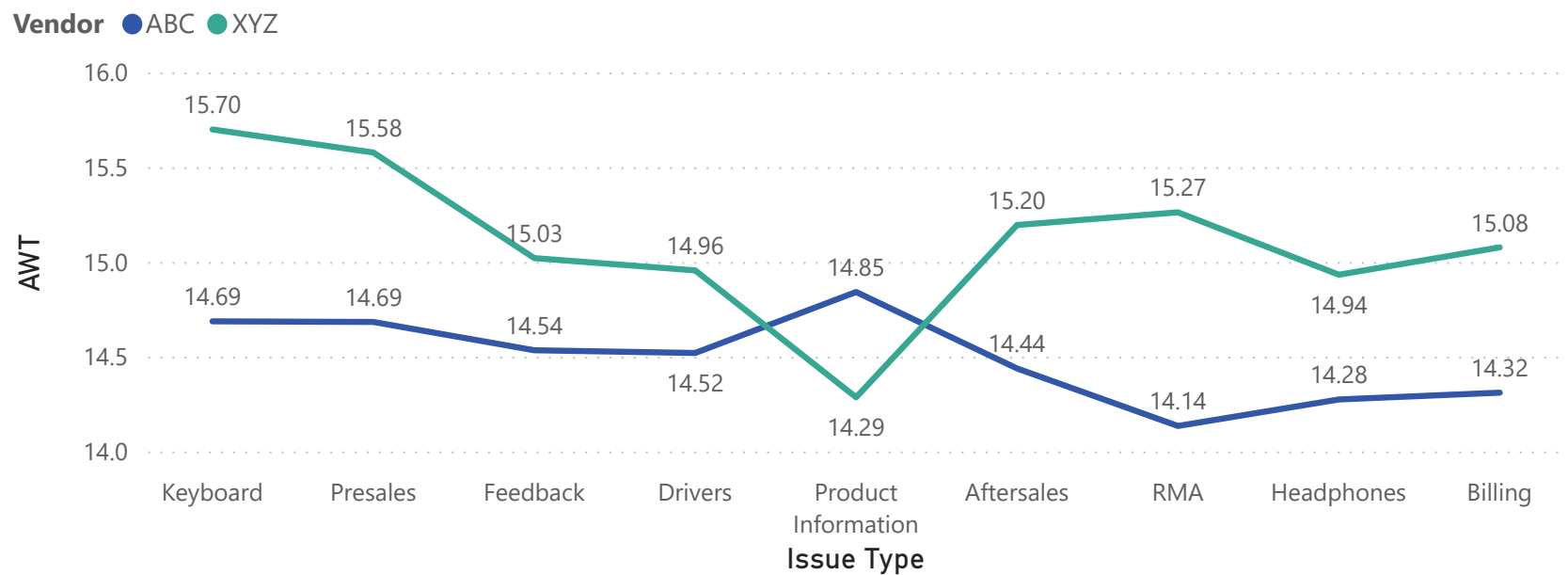
When we compare the average waiting time (AWT) for responses for an agent versus the feedback received, it is noted that there is trend toward a longer waiting time indicating better feedback. This could possibly mean that agents might be spending longer times to resolve cases that require more complexity.



When satisfaction scores are compared to the average Contacts per Case (CPC) for each agent, it is noted that the trend is towards more contact/interactions leading to better feedback from clients.

Factor Analysis

Average Waiting Time (AWT) by Issue Type



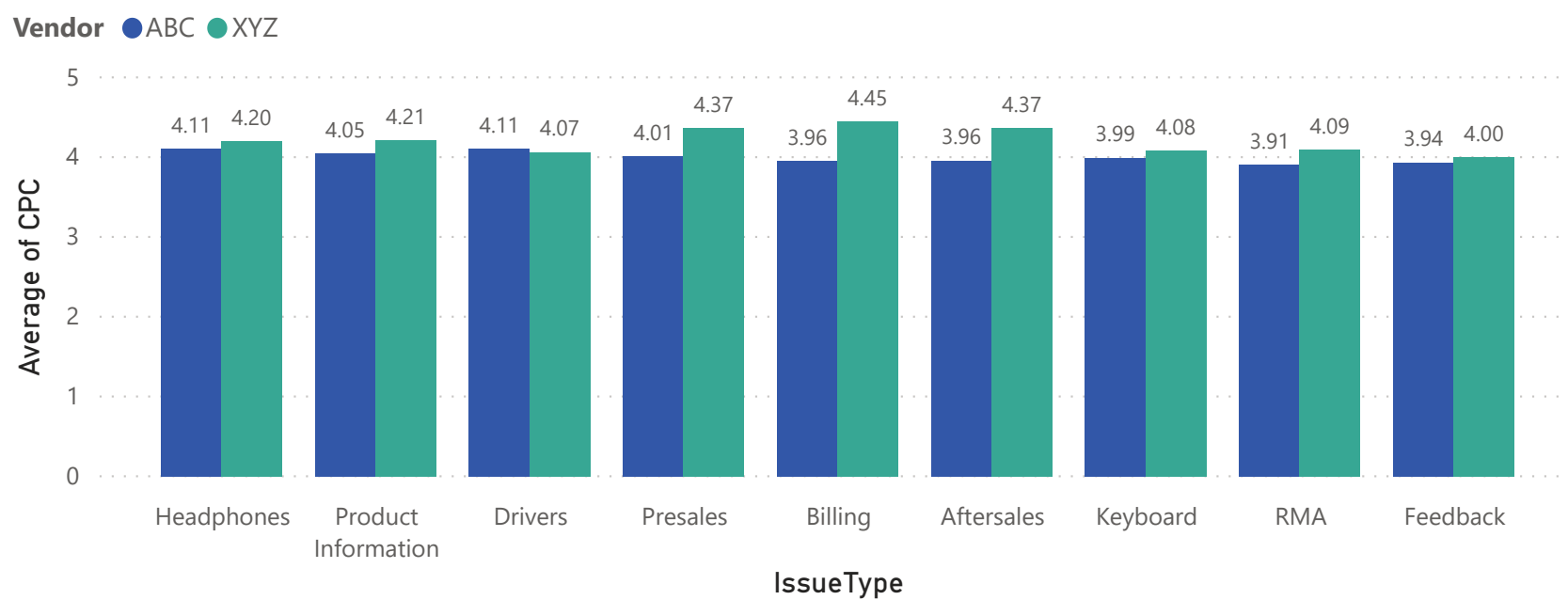
We can perhaps gain more insight into an agent's performance by analyzing how key factors such as Average Waiting Time (AWT) and Contacts per Case (CPC) are spread between each of the Issue Types.

When compared to ABC's competitor, XYZ, there are a couple of key observations:

1) ABC's average waiting time between responses is better than their competitor's for every Issue Type except Product Information. This indicates an area of improvement for ABC.

2) Interestingly, XYZ has a higher average Contacts per Case (CPC) for almost every Issue Type except Drivers. This indicates that ABC agents are resolving tickets with less interactions with customers, which could be a factor driving their overall superior customer satisfaction scores.

Average of CPC by Issue Type



Areas for Improvement

There are a few areas that could be improved for ABC. It should be noted that these recommendations are made assuming that the dataset is a representative sample of the existing population of agents and tickets.

ABC Agents ≤ 60% CSAT

Agent_key	%CSAT
57	56%
78	58%
65	58%
77	59%
38	59%
55	59%
52	60%
62	60%
6	60%
74	60%
27	60%
45	60%
76	60%

One such recommendation includes monitoring and providing more training to agents that have customer satisfaction scores below a certain threshold. The table to the left highlights all the ABC agents that have customer satisfaction scores below or equal to 60%. If as the WFM department states, and the worst case scenario is realised, agents below these score thresholds can be let go first.

As the operations manager was looking for an plan for agents to improve their customer satisfaction scores, here are a couple of areas to start with:

- 1) The Tech Agent Group is responsible for around 42% of tickets, however, for this group the overall customer satisfaction score is only around 60%. As the Morning shift Tech group average tenure is the lowest, this could indicate why overall satisfaction scores are lower for this group. More training can be provided to agents in this group to handle such queries or more experienced (higher avg. tenure) agents can be re-allocated to the Morning shift to help improve satisfaction scores.
- 2) Related to this, if satisfaction scores across issue types are analysed there is definite scope for improvement across 'Headphone' (64%), 'Keyboard' (61%) and especially 'Drivers' (48%) Issue Types.

Lastly, it should be noted that ABC is performing far better than its competitor in terms of satisfaction scores and other KPI's, this could be used to obtain a better contract during upcoming negotiations with B&S and also in winning future sales contracts.