

Subjective Question:

1. If there is an investment, should it be used to hire more IT agents, improve training programs, or upgrade ticket management software?

Analysis: Perform a cost-benefit analysis using ticket resolution and satisfaction metrics.

➤ **Investment Recommendations based on the analysis,**

- **Upgrade Ticket Management Software:**

- Resolution times for categories like Hardware (7.6 days) and System (6.6 days) are significantly higher compared to categories such as Login Access (0.3 days). Implementing advanced ticket management software could streamline workflows, enabling faster resolution for complex ticket categories.
- With ticket volumes steadily increasing year over year (e.g., Hardware: 1,272 in 2016 to 2,933 in 2020, and System: 5,252 in 2016 to 11,631 in 2020), enhanced software is essential to efficiently manage the growing demand and prevent operational bottlenecks.

- **Improve Training Programs:**

- While many agents perform well, differences in resolution times (e.g., Agent 3: 5.4 days vs. Agent 2: 3.6 days) indicate a need for targeted training programs.
- Prioritize training for agents managing Hardware and System tickets, as these categories consistently experience higher resolution times, potentially improving overall efficiency and customer satisfaction.

- **Expand IT Team Capacity:**

- If budget allows, hiring additional IT agents could help manage workloads, particularly in high-volume areas such as System (39,002 tickets) and Login Access (29,193 tickets).
- However, the success of this approach depends on optimizing the productivity of existing agents and leveraging upgraded software systems to ensure scalable growth.

[**Supporting Doc: Sheet "S1" of "[Chandan IT Tickets Analysis Updated.xlsx](#)" file]

2. Which agents need additional training based on their performance metrics?

Analysis: Identify agents with the lowest satisfaction ratings and longest resolution times.

- **Approach:** Filter agents with **satisfaction rating ≤ 4.1** and **resolution time ≤ 4.6 days**. These agents may lack customer service skills despite resolving issues relatively quickly, making them candidates for targeted training.

Insights: Agents 3, 6, 7, 11, 14, 18, 19, 22, 25, 26, 28, 30, 33, 37, and 41 fall into this category. Showing that while their resolution times are efficient, their low satisfaction scores suggest potential gaps in communication or customer handling.

Recommendations: Focus on training these agents in customer interaction skills, empathy, and communication techniques to boost satisfaction rates while maintaining their resolution efficiency.

Agent ID	Average of Satisfaction Rate	Average of Resolution Time (Days)
3	3.6	5.4
6	3.6	5.3
7	4.0	5.5
11	3.6	4.8
14	4.1	4.9
18	4.0	4.7
19	3.0	5.0
22	3.6	5.5
25	3.6	5.2
26	4.0	4.8
28	3.6	5.4
30	3.8	4.9
33	3.6	4.8
37	3.7	4.6
41	3.8	4.6

[**Supporting Doc: Sheet "S2" of "[Chandan IT Tickets Analysis Updated.xlsx](#)" file]

3. Do certain categories of requests have longer resolution times?

Analysis: Analyse the resolution times by request category.

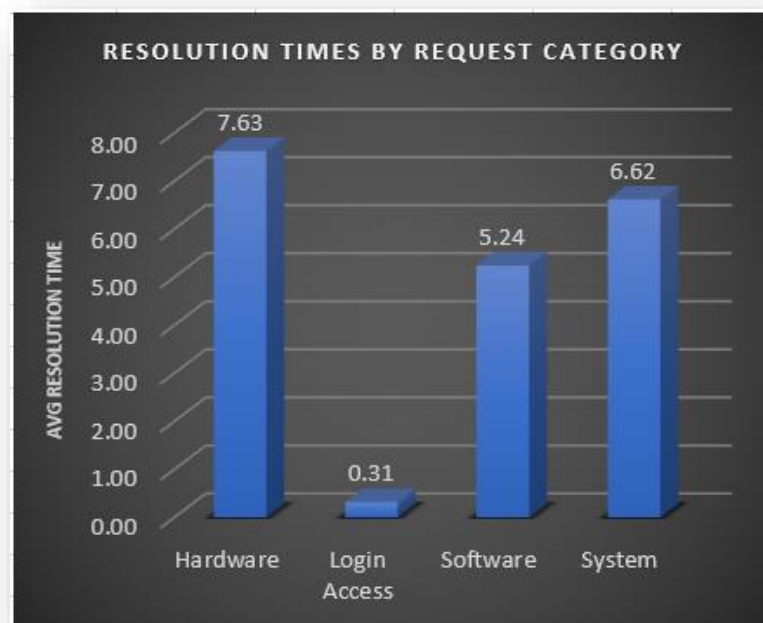
- **Approach:** Analyse the data for different categories (Hardware, Login Access, Software, and System) to understand their relative importance or usage metrics based on the provided values.

Insights:

- *Hardware and System have the highest values (7.63 and 6.62), indicating they are likely the most critical or frequently addressed categories.*
- *Login Access has the lowest value (0.31), suggesting it might be a less prominent or less problematic area*

Recommendations:

- *Allocate resources and prioritize improvements for Hardware and System as they appear to have the highest impact.*
- *For Login Access, monitor to ensure no hidden issues arise, but keep resource allocation proportional to its lower priority.*



[**Supporting Doc: Sheet "S3" of ["Chandan IT Tickets Analysis Updated.xlsx"](#) file]

4. How effective are the current software tools in managing IT tickets?

Analysis: Evaluate performance metrics before and after the implementation of new tools.

- **Approach:** *Analyse the performance of the tools using metrics like resolution time and satisfaction rate across categories (Hardware, Login Access, Software, System) over the years.*

Insights: *Login Access has the fastest resolution time (0.3 days) but a slightly lower satisfaction rate initially, improving in 2020. System issues dominate ticket counts but have a moderate resolution time (6.6 days). Hardware consistently shows the slowest resolution (7.6-7.7 days).*

Recommendations: Focus on optimizing tools for Hardware and System issues to reduce resolution time. Maintain improvements in Login Access satisfaction and ensure similar gains for other categories.

Req Category	Count of ID Ticket	Average of Resolution Time (Days)	Average of Satisfaction Rate
Hardware	9733	7.6	4.1
2016	1272	7.8	4.0
2017	1523	7.6	4.1
2018	1844	7.5	4.1
2019	2161	7.5	4.1
2020	2933	7.7	4.1
Login Access	29193	0.3	4.1
2016	3910	0.3	4.0
2017	4526	0.3	4.1
2018	5672	0.3	4.1
2019	6426	0.3	4.1
2020	8659	0.3	4.2
Software	19570	5.2	4.1
2016	2617	5.3	4.0
2017	2946	5.2	4.1
2018	3735	5.2	4.1
2019	4407	5.3	4.1
2020	5865	5.3	4.2
System	39002	6.6	4.1
2016	5252	6.6	4.0
2017	5920	6.6	4.1
2018	7703	6.7	4.1
2019	8496	6.5	4.1
2020	11631	6.7	4.2
Grand Total	97498	4.6	4.1

[**Supporting Doc: Sheet "S4" of "[Chandan IT Tickets Analysis Updated.xlsx](#)" file]

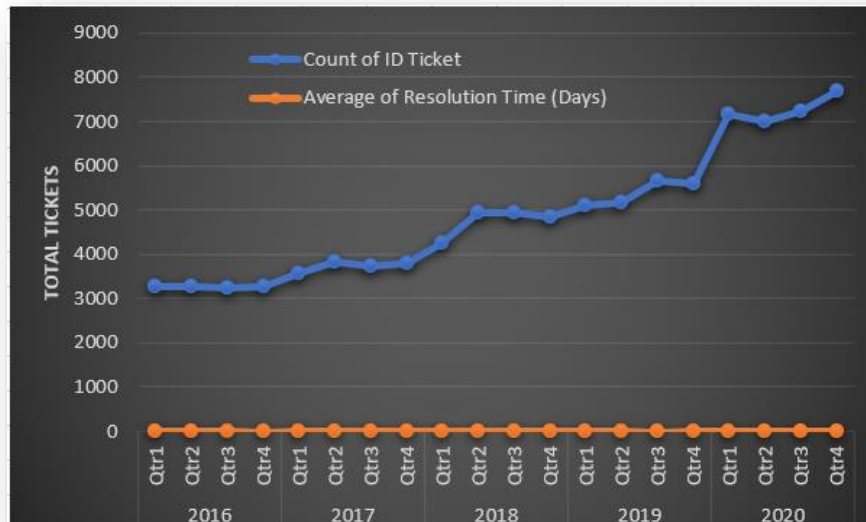
5. How has the performance of the IT support team changed over time (e.g., monthly or quarterly)?

Analysis: Trend analysis using time series charts.

- **Approach:** Analyse the data by evaluating ticket volumes and resolution times across quarters from 2016 to 2020 to identify trends and areas of improvement. Focus on yearly and quarterly variations to assess workload distribution and efficiency.

Insights: The quarterly trend indicates a **consistent average resolution time** of approximately 4.5 days across the years, with no significant improvement or decline. However, **ticket volumes have steadily increased**, peaking in 2020, which suggests growing workload pressure on the IT support team.

Recommendations: Plan for scalability to manage future ticket growth and ensure resolution times continue to meet expectations.



[**Supporting Doc: Sheet "S5" of "[Chandan IT Tickets Analysis Updated.xlsx](#)" file]

6. If we invest more on tech (Hardware, software, etc), do you think it will improve the ticket resolution times and employee satisfaction?

Analysis: Use historical data to project potential improvements.

- **Approach:** Use historical data to evaluate if investments in request categories (Hardware, Login Access, Software, and System) can reduce resolution times and enhance satisfaction rates.

Insights: Login Access shows excellent resolution times (0.3 days) with a steady satisfaction rate. Hardware and System issues have the longest resolution times (7.63 and 6.62 days) but stable satisfaction rates, indicating room for improvement.

Recommendations: Prioritize investments in Hardware and System tools to reduce resolution times. Maintain current strengths in Login Access while monitoring Software for potential optimizations.

Req Category	Count of ID Ticket	Average of Resolution Time (Days)	Average of Satisfaction Rate
Hardware	9733	7.63	4.1
2016	1272	7.75	4.0
2017	1523	7.64	4.1
2018	1844	7.48	4.1
2019	2161	7.55	4.1
2020	2933	7.71	4.1
Login Access	29193	0.31	4.1
2016	3910	0.33	4.0
2017	4526	0.33	4.1
2018	5672	0.32	4.1
2019	6426	0.31	4.1
2020	8659	0.30	4.2
Software	19570	5.24	4.1
2016	2617	5.27	4.0
2017	2946	5.18	4.1
2018	3735	5.21	4.1
2019	4407	5.27	4.1
2020	5865	5.25	4.2
System	39002	6.62	4.1
2016	5252	6.56	4.0
2017	5920	6.62	4.1
2018	7703	6.66	4.1
2019	8496	6.55	4.1
2020	11631	6.65	4.2

[**Supporting Doc: Sheet "S6" of "[Chandan IT Tickets Analysis Updated.xlsx](#)" file]

7. What are the key performance metrics for IT agents, and how can they be improved, do we need to fire any agents?

Analysis: Define and analyse metrics such as average handling time, satisfaction scores, and number of tickets resolved.

- **Approach:** Evaluate agents based on the criteria: resolution time > 4.6 days, satisfaction rate < 4.2, and total tickets < 1949.

Insights: Agent 7, 14, 18, 25 and 28 meet the criteria due to slower resolution times, lower satisfaction rates and lower count of ticket. All of them have room for improvement in efficiency and service quality.

Recommendations: Provide targeted training and support to these agents to improve their performance. Firing may not be necessary if they show potential for growth. Monitor their progress closely.

Agent ID	Count of ID Ticket	Average of Resolution Time (Days)	Average of Satisfaction Rate
7	1935	5.5	4.0
14	1942	4.9	4.1
18	1892	4.7	4.0
25	1906	5.2	3.6
28	1946	5.4	3.6

[**Supporting Doc: Sheet "S7" of "[Chandan IT Tickets Analysis Updated.xlsx](#)" file]

8. How do employee demographics (e.g., department, seniority) impact satisfaction and ticket outcomes?

Analysis: Segment analysis using filters and pivot tables.

- **Approach:** Analyse employee age groups' impact on ticket resolution and satisfaction using the provided data on resolution times and satisfaction rates. Patterns were identified using averages and counts.

Insights: Younger age groups (28-31) resolve tickets faster with higher satisfaction rates (4.2). However, mid-aged groups (44-47) have longer resolution times and slightly lower satisfaction (3.9).

Recommendations: Provide additional training or tools for mid-aged groups to improve resolution efficiency. Analyse specific challenges they face and adapt workflows accordingly.

Age Group	Count of ID Ticket	Average of Resolution Time (Days)	Average of Satisfaction Rate
28-31	23483	4.4	4.2
32-35	7788	5.0	4.0
36-39	13569	4.8	4.1
40-43	17486	4.5	3.9
44-47	19569	4.8	4.0
48-51	9708	4.2	4.1
52-55	5895	3.9	4.4
Grand Total	97498	4.6	4.1

[**Supporting Doc: Sheet "S8" of "[Chandan IT Tickets Analysis Updated.xlsx](#)" file]

9. Identify the trends for IT support operations based on ticket volumes and satisfaction, and mention the peak and stable times?

Analysis: Use pivot tables and charts to identify peak and off-peak hours.

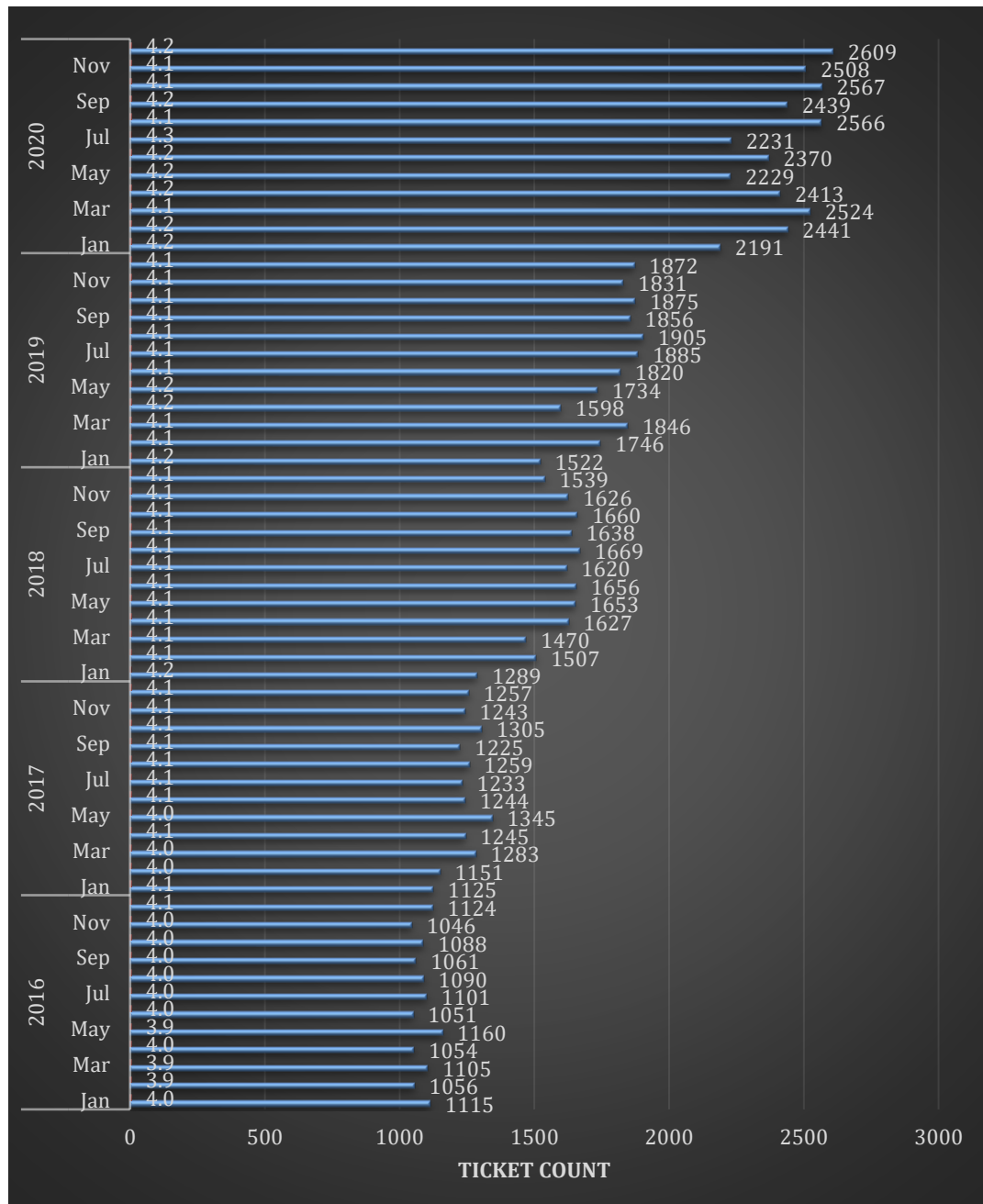
- **Approach:** Analyse ticket volumes and satisfaction trends using monthly data from pivot charts. Identify peak and stable periods for IT support operations.

Insights:

- **Trends:** Ticket volumes have gradually increased over the years, with consistent monthly satisfaction ratings around 4.1–4.2. There is a slight uptick in satisfaction in mid-year months, particularly July.
- **Peak Times:** Ticket volumes are observed in November 2020 (2,609 tickets) and generally higher volumes occur in November and January.

- **Stable Times:** Lower and more stable ticket volumes are observed in earlier years (e.g., 2016 and 2017) and mid-year months like May and July.

Recommendations: Plan staffing and resources to address higher ticket volumes in late Q4 and early Q1, while leveraging mid-year periods for training or system upgrades.



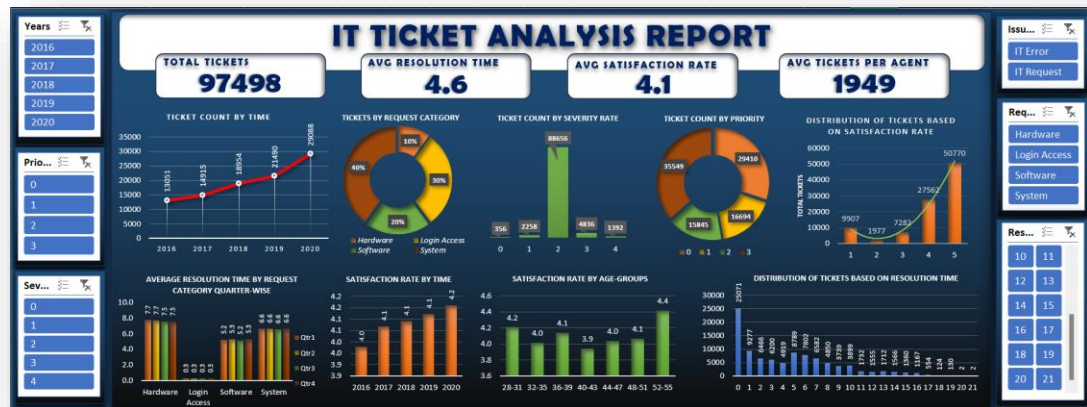
[**Supporting Doc: Sheet "S9" of "[Chandan IT Tickets Analysis Updated.xlsx](#)" file]

10. What metrics should be included in the final dashboard to provide a comprehensive view of call center performance and guide investment decisions?

➤ Here are the metrics I have included in the dashboard ("Dashboard" sheet) to represent the KPIs.

- **Ticket count by time (year):**
 - This tracks the total number of tickets created each year.
 - It helps in understanding year-over-year trends and analysing ticket volumes over long periods.
- **Tickets by request category:**
 - Tickets are grouped into predefined categories such as Hardware, Login Access, Software, and System, and the count is determined for each.
 - This shows which category generates the highest or lowest number of requests, allowing for better resource allocation.
- **Ticket count by severity rate:**
 - This groups tickets based on their severity (e.g., 0, 1, 2, 3, 4) and provides the total count for each category.
 - It highlights the proportion of tickets with varying levels of urgency.
- **Ticket count by priority:**
 - This categorizes tickets based on their assigned priority levels (e.g., 0, 1, 2, 3) and tracks the total count in each category.
 - It identifies the tickets requiring immediate attention.
- **Distribution of tickets based on satisfaction rate:**
 - This metric looks at how tickets are distributed across different customer satisfaction rates.
 - For example, tickets may be grouped by satisfaction scores (e.g., 1–5), showing the proportion of satisfied vs. dissatisfied customers.
- **Average resolution time by request category quarterly:**
 - This calculates the average time it takes to resolve tickets for each request category and breaks it down by quarter.
 - It provides a periodic view of resolution efficiency.
- **Satisfaction rate by time (year):**
 - This measures customer satisfaction rates (e.g., 1-5) and tracks how they change over the years.
 - It's useful for identifying long-term trends in customer experience.
- **Satisfaction rate by age-groups:**
 - This analyses satisfaction rates across different agent age groups (e.g., 28–31, 32–35, etc.).

- It identifies how satisfaction levels differ based on demographic factors.
- **Distribution of tickets based on Resolution time:**
 - This shows how efficiently tickets are resolved and highlights areas for process improvement.



[**Supporting Doc: Sheet "Dashboard" of "[Chandan IT Tickets Analysis Updated.xlsx](#)" file]