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Applying Six Sigma (DMAIC) Methodology in Analysing Customer Dissatisfaction in Food Delivery Services: A Case Study on Zomato's Festive Season Pricing and Rush Hour Impact

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Abstract:

In today's competitive era, customer satisfaction is key to the success of service-oriented businesses, especially in food delivery services like Zomato. As food delivery services experience high demand during peak hours, they face various challenges, such as delivery delays, price surges, and quality instability, which can lead to customer dissatisfaction. This paper applies the Six Sigma (DMAIC methodology) to identify critical factors contributing to customer dissatisfaction. The study also provides a deeper insight into how the Six Sigma (DMAIC methodology) can optimize Zomato's service quality. By applying Six Sigma, this research offers valuable insights into how process improvements can enhance customer experience, increase operational efficiency, and sustain high service quality in food delivery services like Zomato. It provides a structured approach to tackling rush-hour challenges and price fluctuations.

Keywords:
Zomato, Six Sigma, DMAIC, delivery efficiency, rush hour, food quality, surge pricing customer satisfaction.

1. INTRODUCTION

The food delivery industry has witnessed exponential growth over the past decade, driven by rapid urbanization, digital transformation, and changing consumer lifestyles. Platforms like Zomato have revolutionized the way people access restaurant-quality food, offering convenience, variety, and quick service. The rise of on-demand food delivery services has been fueled by advancements in technology, seamless mobile applications, and an increasing preference for doorstep delivery.
However, despite its convenience, the industry faces persistent challenges, particularly during peak hours and festive seasons when demand surges significantly.

One of the critical challenges faced by food delivery services like Zomato is maintaining service efficiency and customer satisfaction during high-demand periods. The increased order volume often leads to operational inefficiencies such as delayed deliveries, inconsistent food quality, and dynamic pricing mechanisms, including price surges. These challenges not only impact customer experience but also raise concerns about service reliability and fairness. Customers often express dissatisfaction due to long wait times, increased costs, and discrepancies between the expected and delivered service. Such issues can negatively affect brand reputation, customer retention, and overall business performance.

To address these operational inefficiencies and enhance service quality, businesses must adopt systematic problem-solving methodologies. Six Sigma, a well-established quality management framework, offers a data-driven approach to identifying inefficiencies, minimizing defects, and optimizing processes. The DMAIC (Define, Measure, Analyze, Improve, Control) methodology, a core component of Six Sigma, provides a structured pathway to diagnose and resolve critical issues in business operations. By leveraging Six Sigma principles, food delivery platforms can streamline

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logistics, enhance order fulfillment processes, and ensure a consistent and reliable customer experience.

This study applies the Six Sigma DMAIC methodology to analyze customer dissatisfaction in Zomato's food delivery services, specifically focusing on the impact of festive season pricing and rush-hour demand. By identifying key factors that contribute to delays, price fluctuations, and quality inconsistencies, this research aims to propose effective solutions for process optimization.
The study will explore how data-driven decision-making can help mitigate the challenges faced by food delivery platforms, ensuring higher operational efficiency and sustained customer satisfaction.

By using Zomato as a case study, this research contributes to the growing body of knowledge on quality management in service industries. It highlights how Six Sigma methodologies can be
effectively applied to address real-world business challenges, ultimately improving service delivery, operational resilience, and customer loyalty. In an era where customer expectations continue to evolve, adopting structured improvement strategies is crucial for food delivery platforms to
maintain a competitive edge and drive long-term success.

2. REVIEW OF LITERATURE

The implementation of the Lean Six Sigma (LSS) approach has been proven to be effective in reducing surgical costs. The study found that maternal need for assistance, patient work and inadequate maternal assessment were the causes. Interventions such as midwife team support, infertility treatment and improved nutritional education reduced caesarean section rates, demonstrating the potential of LSS in optimizing childcare and supporting the genital area.

Research that integrates innovation management with the Six Sigma approach demonstrates the positive impact of the innovation process. The DMAICIM model includes innovations during development and process optimization. Research shows that Six Sigma's data driven
methods and analytical methods can effectively identify and eliminate deviations and stimulate inno vation. Identify the key elements for successful innovation and eliminate barriers. The documentatio n supporting the DMAIC.IM model is a valuable tool for organizations looking to evaluate and impr ove new business processes.

Research shows the important role of quality control in the motorcycle industry, especially in custo mer relations (Kuei et al., 2001). The Six Sigma DMAIC approach has been successfully used to im prove product quality and reduce defects (Antony et al., 2017). Research shows the importance of a ddressing root causes such as equipment maintenance and human error to improve product performa nce (Chen et al., 2016). This study supports the literature by applying DMAIC to identify and resolv e quality issues in motorcycle dealerships.
The Six Sigma DMAIC approach is widely used to improve product quality and reduce defects (Ant ony et al., 2017). Studies have shown its benefits in manufacturing, especially in identifying and res olving root causes of defects (Kwak and Anbari, 2006). The use of design of experiments (DOE) an d analysis of variance (ANOVA) techniques has also been shown to improve methodology and redu ce variance (Montgomery, 2017). This study contributes to the literature by demonstrating the succe ssful application of DMAIC and statistical analysis to reduce defects in rubber glove production.

The Six Sigma DMAIC approach is widely used in food production to improve quality and reduce d efects (Kumar et al., 2008). Studies have shown that it can effectively identify and resolve root caus es of quality issues such as leaks and cutting errors (Antony et al., 2017). The use of statistical meth ods such as FMEA and fishbone diagram can help improve the values
(Montgomery, 2017). This study supports the literature by describing the successful application of D MAIC in reducing sauce packaging waste, achieving significant improvements in DPMO and sigma levels.

The integration of Lean Six Sigma approach is widely accepted as an effective strategy for process i mprovement (Kwak and Anbari, 2006). Studies have shown the effectiveness of DMAIC in reducin g delays and increasing operational efficiency (Antony et al., 2017). The implementation of tools su ch as charts, Ishikawa diagrams, and Kanban boards have also been shown to increase project effici ency (Montgomery, 2017). This study contributes to the literature by demonstrating the success of L ean Six Sigma in an agricultural organization.

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The application of Lean Six Sigma (LSS) DMAIC approach is widely viewed as a good strategy to create process improvement (Kwak and Anbari, 2006; Antony et al., 2017). Research has shown the effectiveness of LSS in reducing defects and improving process capabilities (Montgomery, 2017). T

his study supports the literature by demonstrating the success of LSS-
DMAIC in improving the hot extrusion process of the Palestine National Aluminum and Profile Co mpany (NAPCO). These findings support existing research on the benefits of LSS in reducing defec ts and costs (Chen et al., 2016). This research fills a gap in the literature by providing evidence on th e effectiveness of LSS DMAIC in the aluminum industry in a developing country

The Six Sigma DMAIC approach is widely used for improvement and operational excellence (Kwa k and Anbari, 2006). Studies have shown its effectiveness in reducing and changing (Antony et al., 2017). This paper contributes to the literature by describing the successful implementation of DMAI C in textile manufacturing, resulting in a 74% reduction in defect cost (from 7.7% to 2%). These fin dings support existing research on the benefits of Six Sigma in achieving significant improvement (Montgomery, 2017). This study highlights the importance of a good and legitimate approach to proc ess improvement.

Studies have shown the effectiveness of Six Sigma DMAIC approach in achieving cost reduction an d quality improvement in many organizations (Kwak and Anbari, 2006; Antony et al., 2017). This p aper contributes to the literature by demonstrating the success of DMAIC in small and medium ente rprises (SMEs), resulting in significant cost reduction (INR 10,98,096 per year) and quality improve ment (from 2.9 sigma to 4.4 sigma). Using the basic tools in the DMAIC model, this study demonstr ates the feasibility of implementing Six Sigma in SMEs (Montgomery, 2017). The findings support t he benefits of DMAIC in improving operational efficiency.

- The DMAIC-
6 Sigma method is widely accepted as a good way to improve product quality and process capabiliti es (Kwak and Anbari, 2006; Antony et al., 2017). This study shows that DMAIC was successfully a pplied in reducing ceiling fans, resulting in significant improvements in sigma scores (from 3.14 to 5.1) and cost savings ($23,438/year). The use of statistical tools such as Pareto analysis, root cause a nalysis, and design experiments supports existing research on the importance of material decision m aking in improving performance. The findings based on research on the impact of Six Sigma on ope rational excellence highlight the effectiveness of DMAIC in improving process capabilities and prod uct quality.

Six Sigma and Service Quality
Six Sigma is widely used to reduce process variation and enhance customer satisfaction. In service industries, where process inefficiencies are less visible than in manufacturing, Six Sigma offers structured, data-driven improvement strategies. According to Chakrabarty and Tan (2007), Six Sigma in service sectors improves transaction speed, accuracy, and customer engagement by eliminating non-value-added activities.

DMAIC in Dynamic and Customer-Centric Environments
The DMAIC methodology (Define, Measure, Analyze, Improve, Control) is particularly suitable for dynamic environments like online platforms. Linderman et al. (2003) found that applying Six Sigma principles in fast-changing service domains helped companies respond quickly to customer needs by using real-time analytics and operational metrics.

Lean Six Sigma in E-Commerce and Delivery Systems
Research by Salah, Rahim, and Carretero (2010) emphasizes that Lean Six Sigma, when applied to service logistics and e-commerce, significantly improves delivery speed, reduces errors, and enhances customer experience. Similarly, Zailani et al. (2011) highlighted the effectiveness of Lean Six Sigma in managing logistics during peak demand periods.

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Operational Efficiency in Food Delivery Services

In the context of online food delivery, Raj and Aithal (2020) explored the operational strategies of platforms like Swiggy and Zomato, noting that delivery speed, cost transparency, and food quality are key performance indicators. They suggested that quality improvement models like DMAIC could fill the gaps in delivery consistency and customer satisfaction.

Customer Dissatisfaction and Peak-Time Logistics

Festive seasons and rush hours are linked to increased customer complaints due to logistical overload. Tiwari and Buse (2021) found that the integration of predictive analytics with Six Sigma tools in food delivery services could reduce delivery time variance by up to 30%, especially when aligned with resource optimization models.

Digital Transformation and Customer Retention

According to Parasuraman, Zeithaml, and Malhotra (2005), digital service quality is a core determinant of customer satisfaction and retention. Their e-SERVQUAL framework aligns well with Six Sigma's emphasis on data-driven feedback loops, making it highly relevant for improving service quality in platforms like Zomato.

3. OBJECTIVES OF THE STUDY

1) Identify Key Customer Dissatisfaction Factors through Six Sigma Analysis.

2) Measure the Effect of Surge Pricing and Seasonal Charges on Customer Perception.

3) Estimate Operational Effectiveness during High-Demand Periods.

4) Develop Six Sigma-Based, Data-Driven Solutions for Operational Improvement.

5) Optimize Customer Satisfaction Metrics through Continuous Improvement

4. METHODOLOGY OF STUDY

- To fulfill the research objectives, information is gathered from primary and secondary sources.
- The primary data is obtained from 250 consumers to investigate the challenges faced by the consumer when getting food and evaluate their level of satisfaction.
- In this particular study, the implementation of Six Sigma is employed to know the root causes of customer dissatisfaction by using pareto analysis and taking into consideration various factors.
- For this study, data is collected through the use of Convenient sampling.

❖ GAP ANALYSIS

Current strategies in food delivery services like Zomato inadequately address peak-hour challenges such as delivery delays, quality issues, and surge pricing, leading to customer dissatisfaction. Existing frameworks lack a structured, data-driven approach for continuous improvement. This study bridges the gap by applying Six Sigma's DMAIC methodology to systematically identify and optimize key operational and customer satisfaction metrics, providing a replicable model for addressing these challenges effectively.

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5. Result and Discussion

❖ The Six Sigma is a statistical measure used to quantify the deviation from perfection. In the year 1980s, Six Sigma was developed by Motorola.

❖ This was used to improve customer satisfaction, reduce cost, etc. by many industries. Industry generally uses this to identify errors and try to eliminate them.

❖ It helps to enhance the quality and efficiency.

❖ In Six Sigma two methodologies are used such as DMAIC.

❖ But in the present study, we make use of the DMAIC model which helps to improve the services of Zomato and in turn increase customer satisfaction.

❖ **The five phases are considered such as :**

1. **Define**
2. **Measure**
3. **Analyse**
4. **Improve**
5. **Control**

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5.1 Define :

Define Phase: Understanding Customer Dissatisfaction in Zomato's Food Delivery System Zomato is a widely recognized food delivery platform that bridges the gap between
customers and a diverse range of restaurants, from local eateries specializing in authentic Chhattisgarhi cuisine to well-known national and international restaurant chains. With its
extensive reach and efficient service model, Zomato has become an integral part of the food delivery ecosystem, catering to a broad customer base seeking convenience, variety, and
timely service.

Despite its widespread adoption and technological advancements, Zomato, like any other
service-oriented platform, encounters several challenges that impact customer satisfaction. This study focuses on identifying key factors contributing to customer dissatisfaction by systematically analyzing customer feedback. The major concerns identified include rush- hour delivery delays, festive season surcharges, price fluctuations, and communication issues between customers, delivery personnel, and restaurants.

Among these issues, delivery delays during peak hours emerge as one of the most pressing concerns. As demand spikes during lunch and dinner hours, as well as on weekends and
holidays, the delivery system experiences strain, leading to increased waiting times. Many customers express frustration over delayed orders, particularly when time-sensitive meals such as lunch for office-goers or dinner for families arrive later than expected.

Another significant factor impacting customer satisfaction is festive season surcharges.
During high-demand periods, including festivals, public holidays, and special events, Zomato implements dynamic pricing mechanisms, leading to noticeable price hikes. While this
strategy helps manage demand and incentivize delivery partners, it often results in
customer dissatisfaction, as many feel that the additional charges are unfair or excessive. Customers have voiced concerns over increased delivery fees, higher menu prices, and the unpredictability of charges during these peak times.

Beyond logistical challenges, communication issues also play a crucial role in customer dissatisfaction. Miscommunication between restaurants, delivery executives, and customers often leads to incorrect orders, missing items, or delays in resolving complaints. Inadequate responses to customer queries, lack of real-time updates, and difficulty in reaching
customer support further exacerbate the problem.

To gain deeper insights into the dissatisfaction levels and specific grievances, a customer survey was conducted, and feedback was collected. As shown in Table 1.1, the study
recorded 250 cases of dissatisfied customers who reported various issues affecting their experience. The most common complaints include:

- Unhygienic environment at restaurants, leading to concerns over food safety and cleanliness.
- Poor staff behavior, with reports of rude or uncooperative service personnel affecting customer interactions.
- Food quality concerns, such as undercooked rice, stale ingredients, or improper food handling.
- Food shortages, where specific dishes or menu items were unavailable despite being listed on the platform.
- Delays in service, whether in terms of order preparation by restaurants or extended delivery times.

This study aims to leverage Six Sigma's DMAIC (Define, Measure, Analyze, Improve, Control) methodology to

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systematically address these challenges. By analyzing the root causes of customer dissatisfaction and implementing process improvements, Zomato can enhance its service efficiency, optimize pricing strategies, and improve overall customer satisfaction. The findings from this research will contribute to refining operational strategies, ensuring smoother service during peak hours, and fostering long-term customer trust in food delivery services.

Dissatisfaction Factor	Count of Customer
Rush Hour Delivery Delays	80
Festive season Surcharge	90
Quality Instability	42
Customer Support	38
Total	**250**

Table 1.1

5.2 Measures :

Measure Phase: Establishing Baseline Metrics for Customer Dissatisfaction in Zomato's Food Delivery Services

In this phase, Zomato focuses on systematically gathering and analyzing data to establish key performance indicators (KPIs) related to customer dissatisfaction. This data-driven approach helps in identifying specific problem areas such as delivery delays, complaints about festive season surcharges, price fluctuations, and customer support issues. By compiling and evaluating customer feedback, the company aims to develop a clear understanding of the primary factors contributing to service inefficiencies.

To achieve this, Zomato collects data through multiple channels, including customer surveys, order history records, complaint logs, and direct feedback from users on the platform. By leveraging historical data, the company can detect recurring patterns in delivery times, customer grievances, and price changes, particularly during high-demand periods such as festive seasons and peak rush hours. These insights enable Zomato to quantify the extent of customer dissatisfaction and pinpoint critical pain points that require process improvements.

The key metrics used in this phase include:

1. Average Delivery Time During Peak Hours and Festive Seasons

- One of the main causes of dissatisfaction is delayed deliveries during busy hours. By analyzing historical data, Zomato determines the typical delivery time under different demand conditions.
- For instance, the baseline data might indicate that the average delivery time during peak hours is 45 minutes, which is significantly higher than the standard delivery expectation of 30 minutes.

2. Percentage of Customer Complaints Related to Surge Pricing

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- Customers frequently express frustration over price surges during festive seasons, weekends, or high-demand periods.

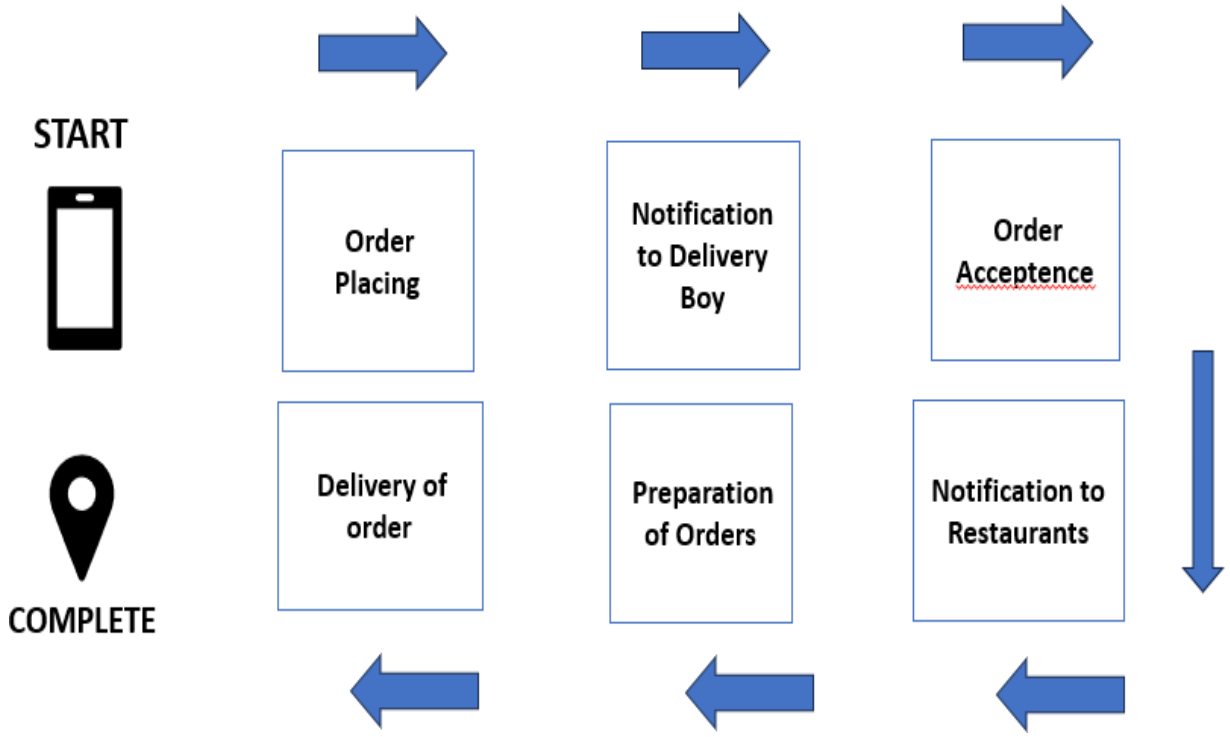
- Zomato assesses the percentage of complaints specifically related to pricing fluctuations. If data shows that 30% of customer complaints stem from surge pricing, it indicates a major area of concern that needs to be addressed.

3. Customer Satisfaction Scores Before, During, and After Peak Periods

- Zomato tracks customer feedback across different timeframes to assess satisfaction trends. By comparing ratings and reviews before, during, and after peak demand periods, the company can measure how external factors such as delays and pricing impact overall service perception.

By establishing these baseline metrics, Zomato gains a quantifiable understanding of its current performance levels. This information is critical in the subsequent phases of the Six
Sigma DMAIC methodology, as it helps the company identify inefficiencies, develop targeted solutions, and implement improvements to enhance customer experience. Through this structured data collection approach, Zomato aims to optimize its operational efficiency, reduce delivery time fluctuations, and improve transparency in its pricing strategies.

The process flow diagram as shown in **Fig.1** shows every step involved in the Order Prosessing of food through Zomato.



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5.3 Analysis :

Analysis Phase: Identifying Key Causes of Customer Dissatisfaction Using Data Analysis Tools

In the **Analysis phase** of the **Six Sigma DMAIC methodology**, Zomato focuses on evaluating the data collected in the previous phase to identify the primary causes of customer dissatisfaction. This step involves the application of statistical and graphical tools such as **Pareto Analysis Charts** and the **Cause-and-Effect Diagram (Fishbone Diagram)** to detect recurring service issues and pinpoint their root causes.

Application of Pareto Analysis and Cause-and-Effect Diagram

To systematically analyze the reasons behind customer dissatisfaction, **Pareto Analysis** is used. The **Pareto Principle (80/20 rule)** states that **80% of issues typically arise from 20% of the causes**. By applying this principle, Zomato is able to determine the most significant
factors contributing to service inefficiencies. The **Pareto chart** visually represents the
frequency of various issues, allowing the company to prioritize the most critical problems that need urgent attention.

Additionally, the **Cause-and-Effect Diagram (Fishbone Diagram)** is employed to further investigate the root causes of the identified defects. This diagram helps categorize potential reasons for customer complaints into broader categories such as **process inefficiencies,**
technological limitations, human factors, and external influences. By mapping out these issues, Zomato can gain a deeper understanding of how different factors interconnect and contribute to overall service dissatisfaction.

Key Problems Identified from the Analysis

Through data evaluation, three major problems were found to be **the primary sources of customer dissatisfaction**:

1. **Delivery Delays** – One of the most critical complaints from customers is the **delayed delivery of food orders**, particularly during peak hours and festive seasons. The
analysis revealed that factors such as increased order volume, inefficient dispatch processes, and traffic congestion contribute significantly to this problem.

2. **Festive Season Surcharges and Price Fluctuations** – Customers frequently express frustration over unexpected **price surges during high-demand periods**, such as
festivals and weekends. Many users feel that these additional charges are unfair and impact their overall experience with the platform.

3. **Inconsistent Customer Support** – Complaints related to **poor customer service, lack of timely responses, and inadequate issue resolution** have been identified as
another major factor leading to dissatisfaction. Customers often report that they struggle to get quick resolutions to their complaints regarding order cancellations, refunds, or incorrect deliveries.

Plotting Data for Better Understanding

To visually represent the **frequency and cumulative percentage of dissatisfaction causes**, **Pareto charts** were plotted, as illustrated in **Fig.2**. These charts provide a **quantitative view** of which problems contribute the most to customer complaints, allowing Zomato to focus its efforts on the most pressing service issues.

By completing this **Analysis Phase**, Zomato is now equipped with **actionable insights** that can be used in the next phase—**Improvement (I)**—where targeted solutions will be
implemented to address these key pain points and enhance overall customer satisfaction.

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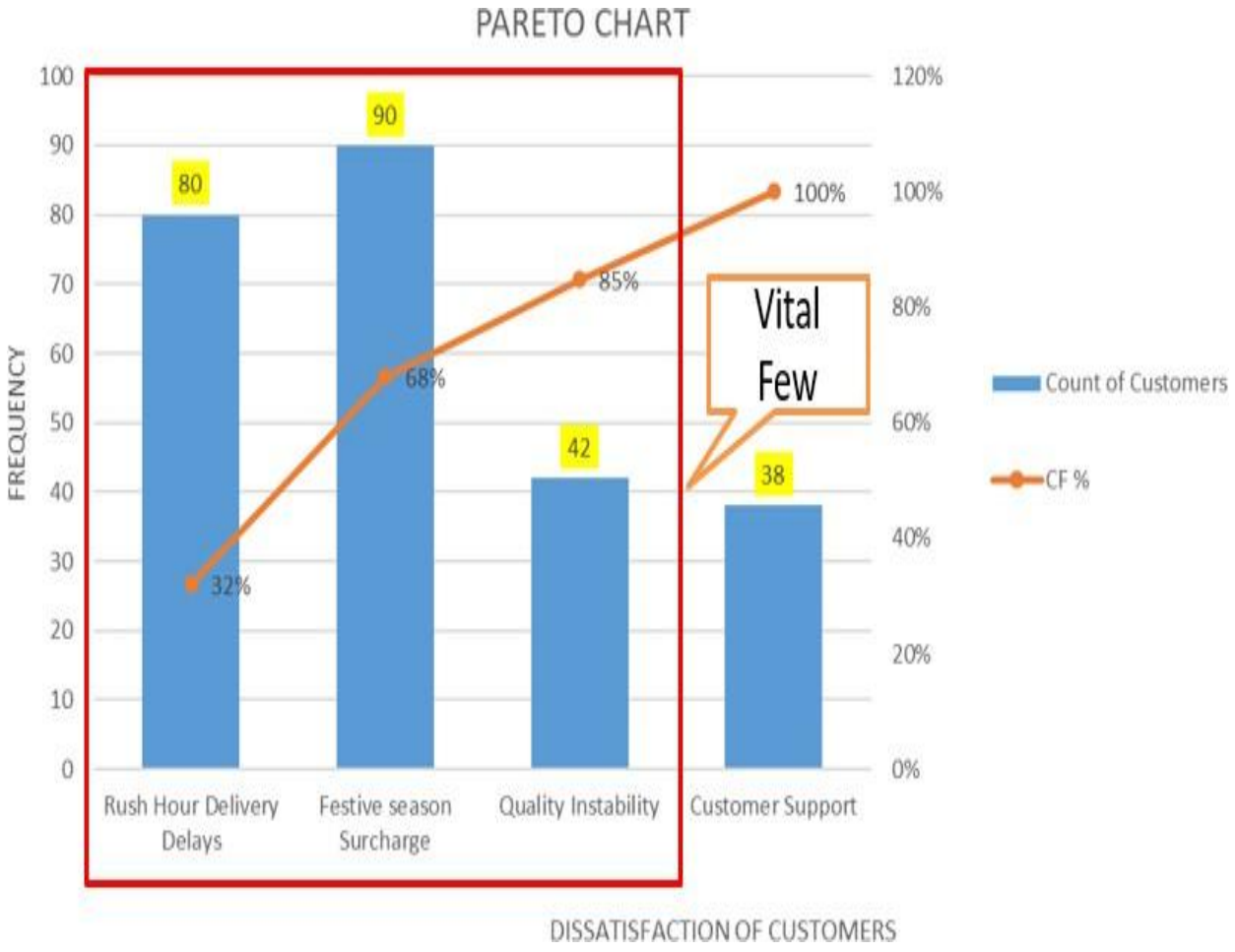

Fig.2

From the Pareto chart we identified 3 main factors that lead to dissatisfaction so we decided to address the causes responsible for these 3 factors. To do this, we decided to determine primary causes using a cause-and-effect diagram. A cause-and-effect diagram is suitable for knowing the possible root causes so that corrective measures can be taken up. After

studying the process, and discussion it with some of regular consumers we brainstormed and prepared the cause and effect diagram to identify the primary causes.

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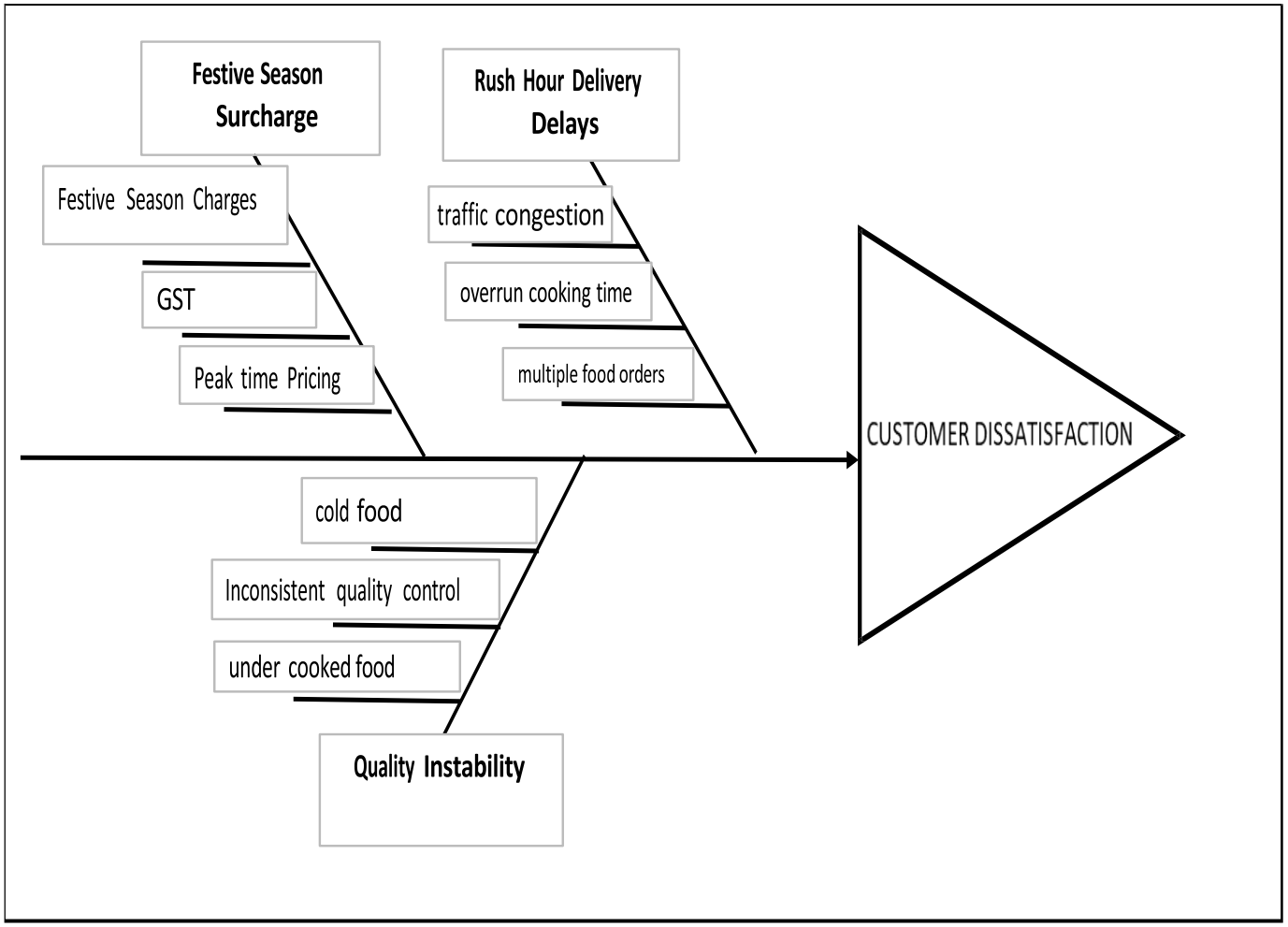
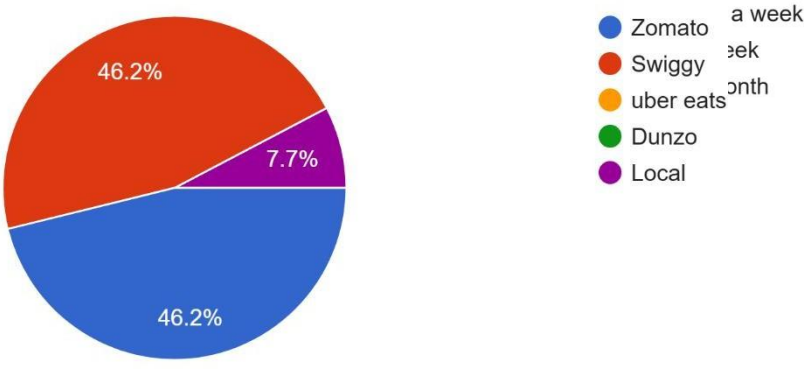


Fig. 3 Fish Bone Diagram Data Analysis :-

1. How often do you order food online?
2. Which food delivery platform do you use the most?



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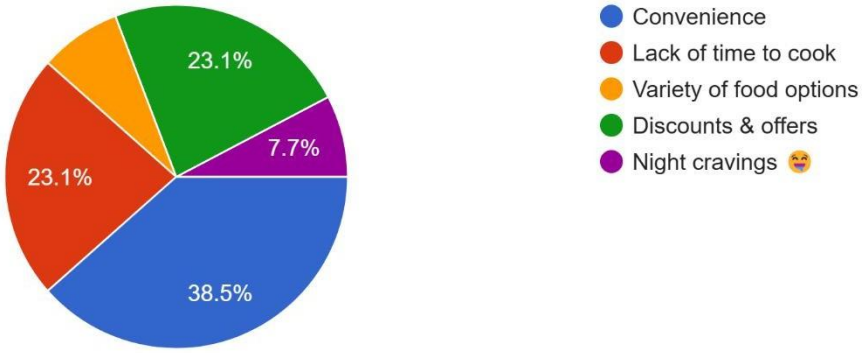
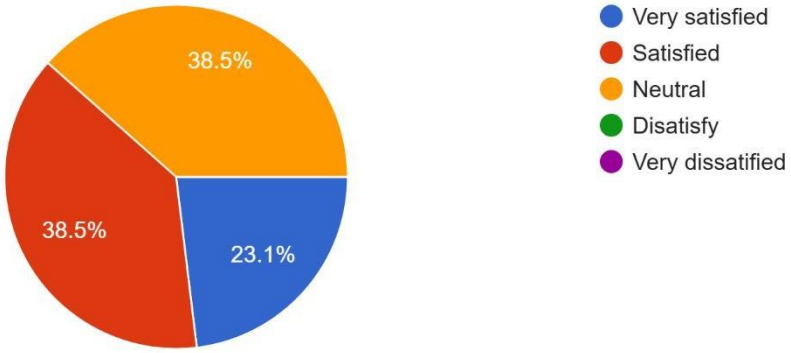
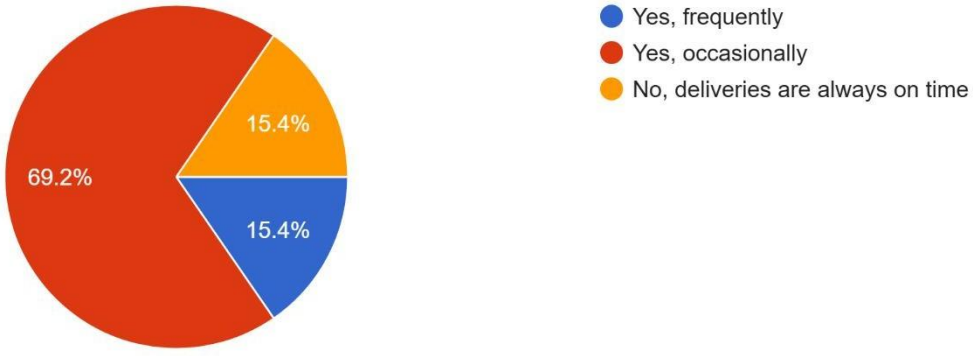
3. What is your primary reason for ordering food online?



4. How satisfied are you with the delivery speed of your food orders?



5. Have you ever experienced delayed deliveries?



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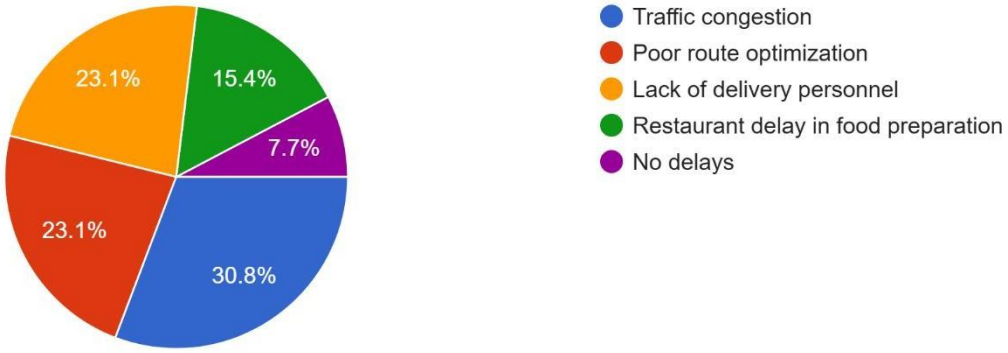
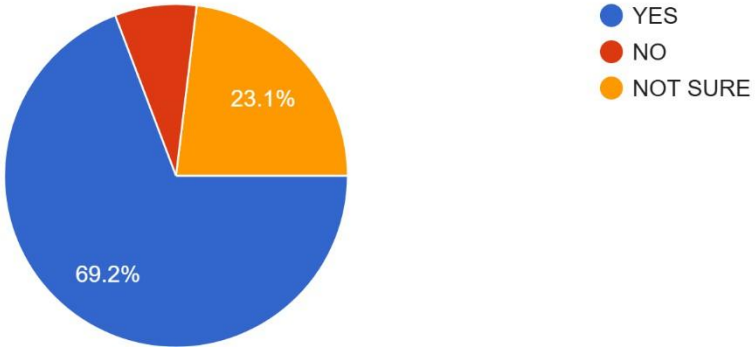
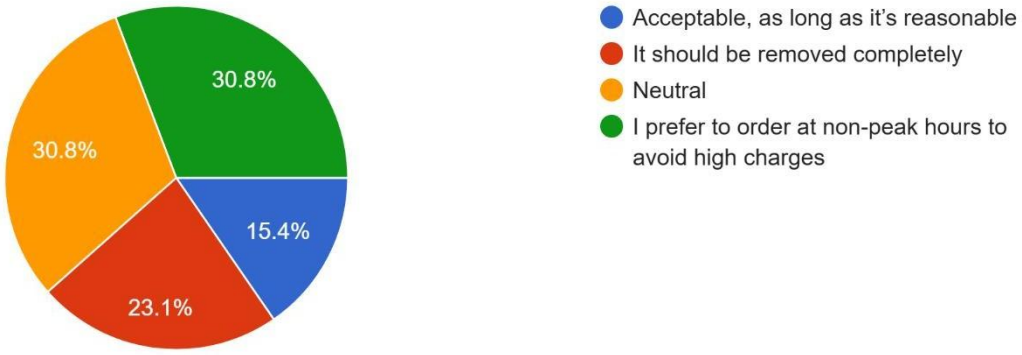
6. If you have faced delays, what do you think is the main reason?



7. Do you think AI-based route optimization can help in improving delivery time?



8. How do you feel about surge pricing during peak hours?



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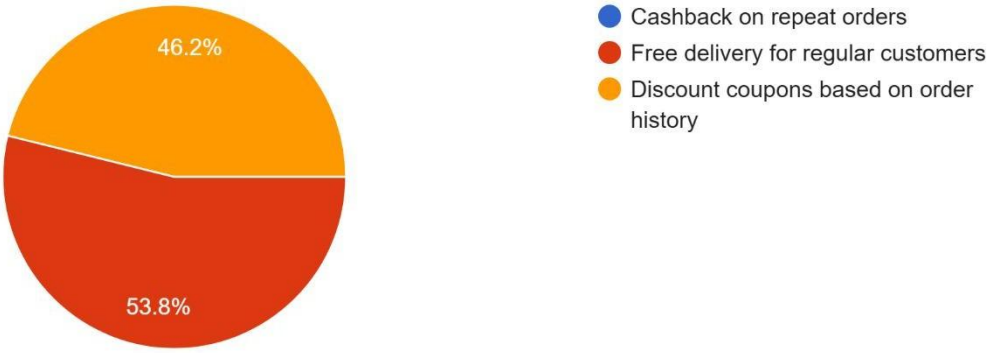
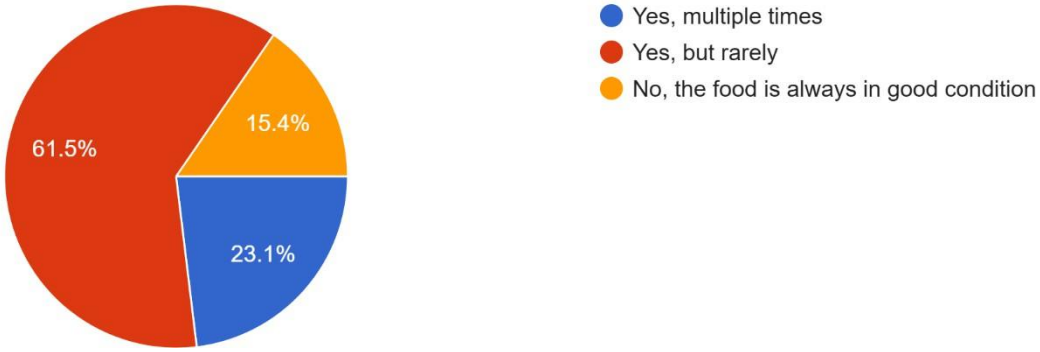
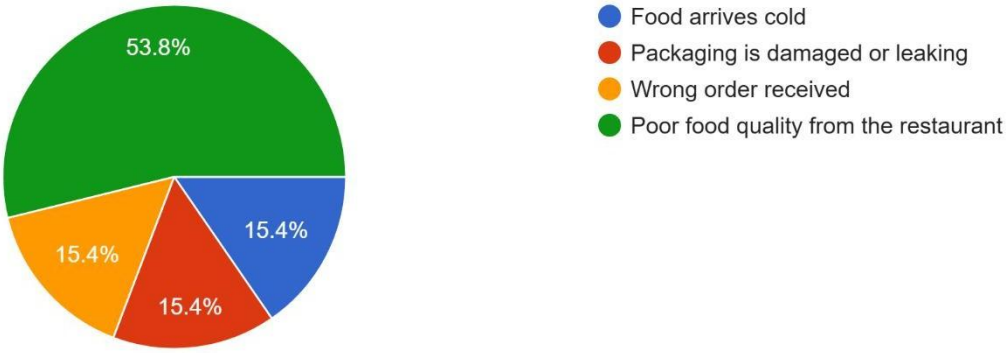
9. What kind of discounts or loyalty programs would encourage you to order more frequently?



10. Have you ever received food that was not in good condition (cold, spilled, or damaged packaging) ?



11. What is the most common quality issue you have faced?



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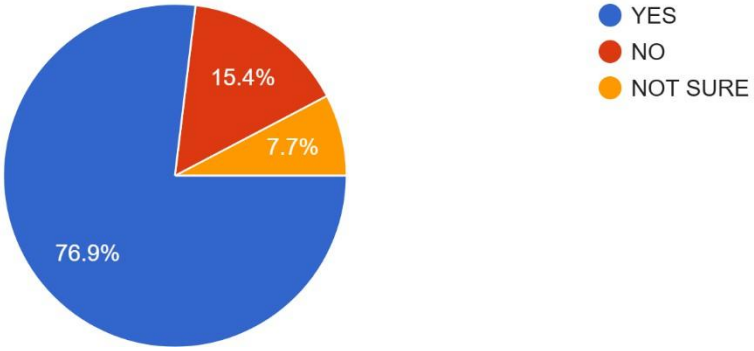
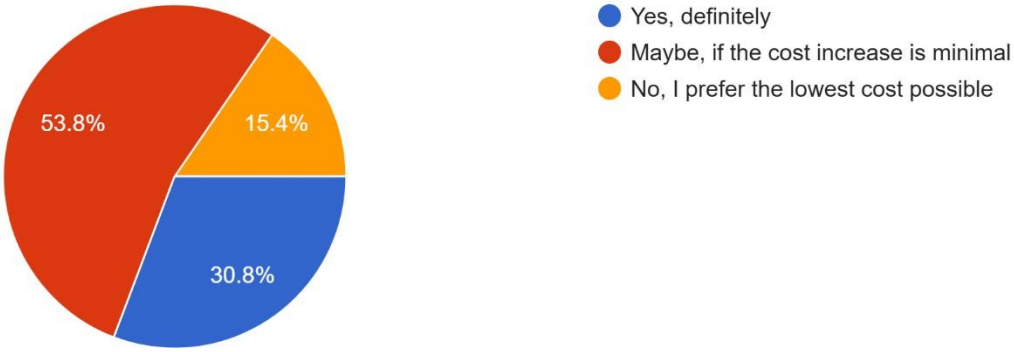
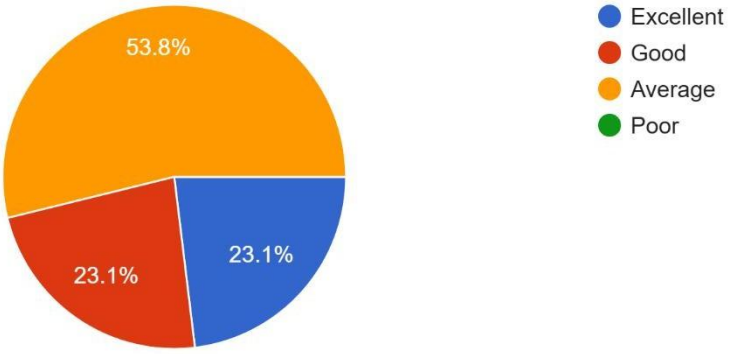
12. Do you think better packaging solutions (e.g., temperature-controlled bags) can improve food quality?



13. Would you prefer more eco-friendly and sustainable packaging options even if it slightly increases the cost?



14. How do you rate the responsiveness of customer support when you have a complaint?



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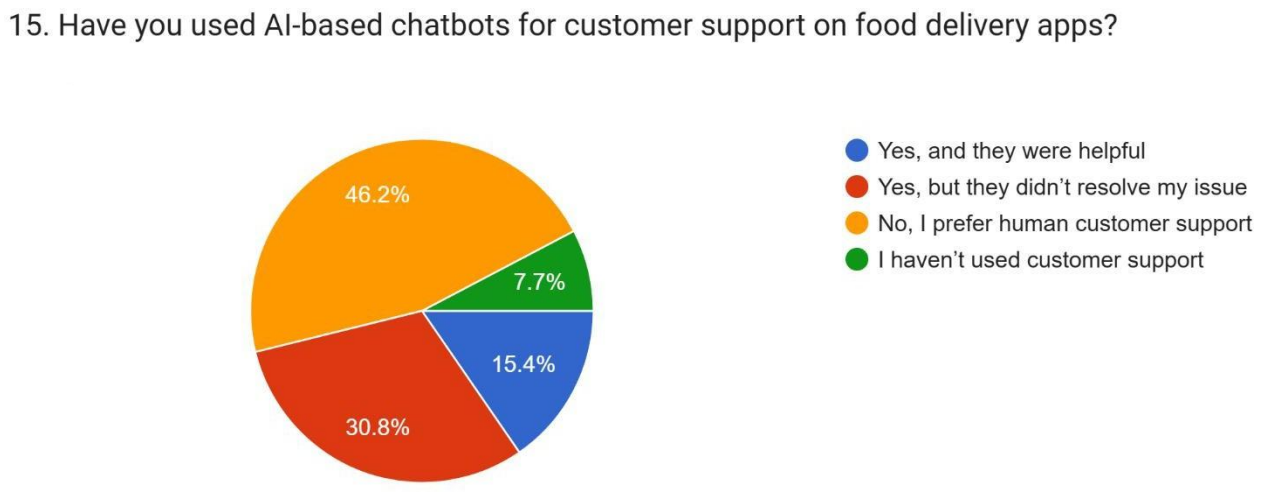

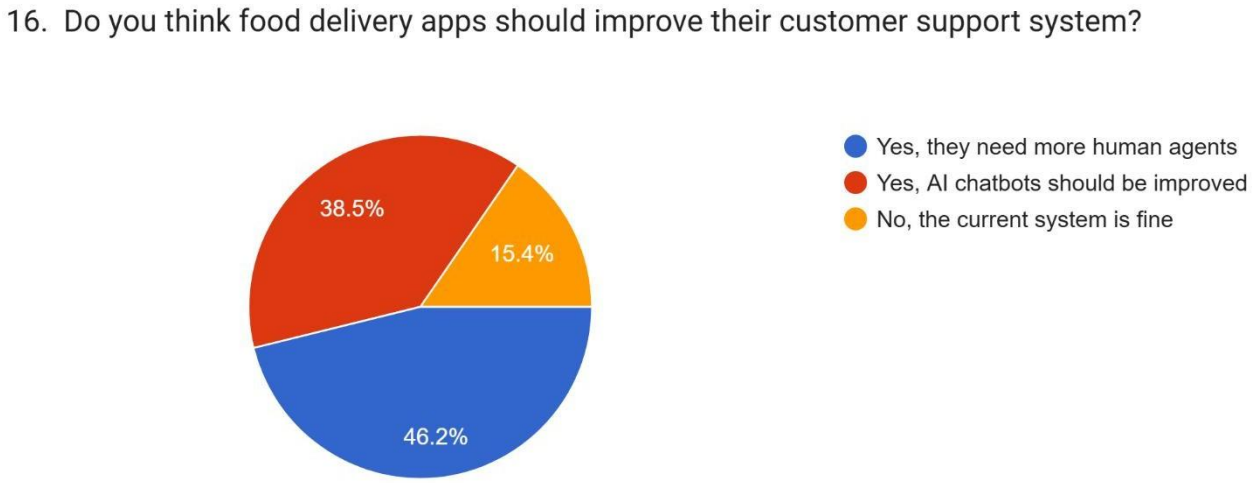

5.4 Improves

During the improvement phase, Zomato actively worked on implementing solutions to address the root causes of customer dissatisfaction. These solutions were identified after an extensive analysis of customer feedback and operational challenges. The company conducted discussions with various customers to understand their pain points and expectations. Based on these insights, several strategies were developed and put into action to enhance the efficiency and overall service experience.

1. Optimizing Delivery Routes

One of the primary issues that customers faced was delayed deliveries, especially during peak hours. To combat this, Zomato introduced AI-driven route optimization
systems. These systems use advanced algorithms to analyze real-time traffic patterns, restaurant locations, and delivery executive availability. By leveraging machine
learning, the AI suggests the fastest and most efficient delivery routes. This minimizes travel time, reduces congestion-related delays, and ensures that food reaches
customers promptly. As a result, the average delivery time was significantly reduced, leading to higher customer satisfaction and improved delivery partner productivity.

2. Introducing Flexible Pricing Models

Customers frequently raised concerns about price surges during high-demand periods, such as festive seasons, weekends, and meal rush hours. To maintain a balance between profitability and customer satisfaction, Zomato

implemented a
flexible pricing model. This model included capped surge pricing, ensuring that prices do not increase excessively. Additionally, loyalty discounts were introduced for
frequent customers. These discounts help retain customers by offering them value for their continued patronage. The implementation of a fair pricing strategy prevented dissatisfaction related to sudden price hikes while still covering operational costs
effectively.

3. Enhancing Food Quality Assurance

Another critical issue identified was related to food quality, particularly concerning packaging and temperature maintenance. Customers often reported receiving cold or poorly packaged food, which impacted their dining experience. To resolve this, Zomato strengthened its quality assurance measures. More stringent checks were enforced at partner restaurants to ensure that food was packed securely and maintained at an optimal temperature during transit. Insulated delivery bags were provided to delivery personnel to help retain food warmth. Additionally, quality
monitoring systems were put in place to track restaurant compliance with packaging and hygiene standards. These efforts significantly reduced customer complaints related to food quality.

4. Implementing AI-Driven Customer Support Automation

Customer support plays a crucial role in addressing grievances and enhancing the
user experience. However, during peak hours, customer service representatives often faced an overwhelming number of inquiries, leading to long response times and delayed resolutions. To streamline customer interactions, Zomato deployed AI-driven chatbots. These chatbots were designed to handle common queries, such as order
tracking, refund requests, and general complaints. By automating responses to
frequently asked questions, customers received instant support without waiting for a human representative. This not only improved response efficiency but also freed up human agents to focus on more complex issues that required personalized attention.

By implementing these solutions, Zomato successfully tackled key areas of customer dissatisfaction and enhanced the overall operational efficiency of its platform. These improvements contributed to a smoother, more reliable, and customer-friendly food delivery experience.

5.6 Control

The control phase is a crucial step in ensuring that the implemented solutions continue to deliver the desired results over time. This phase focuses on maintaining high service
standards, monitoring key performance indicators, and identifying opportunities for further improvements. The following measures have been introduced as part of Zomato's control phase:

1. Regular Audits on Delivery Times and Quality

To maintain efficiency in operations, Zomato conducts regular audits to track delivery performance and food quality. These audits involve analyzing metrics such as average delivery time, food temperature upon arrival, packaging integrity, and overall compliance with quality standards. By regularly reviewing this data, the company can identify potential bottlenecks and take corrective actions when necessary.
Additionally, random quality checks are conducted to ensure that restaurant partners and delivery personnel adhere to established guidelines.

2. Customer Satisfaction Surveys Post-Delivery

Understanding customer feedback is essential for continuous improvement. To gather real-time insights, Zomato sends post-delivery surveys to customers, allowing them to rate their experience and provide suggestions. These surveys assess factors such as delivery speed, food quality, packaging, and overall satisfaction. Negative feedback
triggers immediate corrective actions, such as offering compensation, retraining
delivery partners, or working with restaurants to improve service. The collected data helps in identifying recurring issues and implementing targeted improvements.

3. **Real-Time Monitoring of Surge Pricing and Cap System During High-Demand Periods** To prevent excessive price hikes that may lead to customer dissatisfaction, Zomato has implemented a real-time monitoring system for surge pricing. During high-
demand periods such as weekends, holidays, or peak meal hours, the system tracks price fluctuations and ensures that surge pricing remains within a reasonable limit. The cap system prevents sudden spikes in delivery charges, making pricing fair and transparent. This measure helps maintain a balance between operational costs and
customer affordability, leading to a more consistent and predictable pricing structure.

4. **Continuous Improvement Through Feedback Loops**

A structured feedback mechanism has been set up to ensure ongoing service enhancement. Customers are encouraged to share their experiences, and their input is continuously analyzed to identify patterns and areas needing improvement. This data is used to refine operational strategies, introduce new policies, and enhance the overall service experience. Additionally, Zomato collaborates with restaurant partners and delivery executives to collect their insights, ensuring that all stakeholders contribute to the improvement process.

By implementing these control measures, Zomato ensures that the improvements made during the earlier phases are sustained and refined over time. The focus remains on
delivering a seamless, high-quality experience to customers while optimizing operational efficiency.. Conclusion and Suggestions :

6.1 Conclusion

This research paper systematically analyzed and improved key operational aspects of Zomato's food delivery process. Through a structured approach involving data analysis,
problem identification, and solution implementation, significant enhancements were made in delivery efficiency, pricing strategies, food quality assurance, and customer support
mechanisms.

The Analysis Phase identified the root causes of customer dissatisfaction using Pareto Charts and Fishbone Diagrams, pinpointing three major problem areas that required immediate attention. These issues were further analyzed to quantify their impact on customer
experience and business performance.

In the Improve Phase, practical and data-driven solutions were implemented to address the identified challenges. The use of AI-based route optimization helped streamline delivery
times, while flexible pricing models ensured fairness in cost structures. Additionally, food quality control measures were strengthened to minimize customer complaints, and AI- driven customer support was introduced to handle queries efficiently.

The Control Phase established mechanisms to sustain the improvements over time. Regular audits on delivery performance, customer satisfaction surveys, and real-time monitoring of surge pricing were introduced to maintain service consistency. Moreover, continuous
feedback loops were put in place to enable ongoing improvements based on real-world data.

Overall, this research demonstrated that a data-driven, customer-centric approach to operational improvement can significantly enhance service quality, optimize costs, and improve overall customer satisfaction in the food delivery industry. The structured
methodology applied in this study can also serve as a blueprint for other service-based businesses aiming for long-term process optimization.

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6.2 Suggestion :

1. Expand AI and Automation in Delivery Management

Zomato should further explore AI-powered logistics management to optimize delivery routes dynamically based on real-time traffic, weather conditions, and order density. This would help in reducing delays and improving overall delivery efficiency.

2. Enhance Personalization in Customer Experience

Implementing AI-driven **personalized recommendations** based on user preferences and past orders can increase customer engagement. This could include dynamic meal suggestions, customized discount offers, and proactive issue resolution before a complaint is raised.

3. Introduce Predictive Demand Forecasting

By leveraging **machine learning models**, Zomato can predict high-demand periods with greater accuracy and allocate resources accordingly. This can help in better
workforce management, stock optimization for restaurant partners, and reduction of delivery bottlenecks.

4. Strengthen Food Packaging and Sustainability Efforts

Food quality is often impacted by packaging failures. Implementing **temperature- controlled** and **eco-friendly** packaging solutions can improve food freshness while reducing environmental impact. Encouraging restaurant partners to use
biodegradable and recyclable materials can enhance brand reputation and attract environmentally conscious consumers.

5. Develop a More Transparent Pricing Model

While surge pricing is essential to balance demand and supply, making it more **predictable and transparent** will improve customer trust. Zomato can introduce a **"Surge Price Estimator"** feature, allowing customers to see potential pricing
fluctuations in advance and plan their orders accordingly.

6. Invest in Delivery Partner Training and Incentive Programs

Continuous training programs for delivery personnel on customer service etiquette, order handling, and safety measures can lead to **better service quality**. Additionally,
introducing **performance-based incentives** for delivery partners can boost motivation and reduce turnover rates.

7. Improve Customer Support Accessibility

While AI-based chatbots are useful, Zomato should ensure that customers have
access to **human support agents** for complex issues. Introducing a **hybrid support**
model with AI handling basic queries and human intervention for escalated cases can significantly enhance the overall customer support experience.

8. Leverage Blockchain for Order Transparency

To enhance trust and reliability, Zomato can integrate **blockchain technology** into its
order tracking system. This would provide real-time, tamper-proof tracking of food preparation, packaging, and delivery, ensuring greater accountability from restaurant partners and delivery executives.

By implementing these suggestions, Zomato can further solidify its position as a market leader in food delivery while continuously adapting to changing consumer expectations and industry trends. The key takeaway from this study is that **continuous innovation, customer feedback integration, and data-driven decision-making** are crucial for long-term success in the competitive food delivery sector.

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DOI:10.55041/ISJEM03350

7 . References :

1] Chai, Z. Y., Hu, H. M., Ren, X. L., Zeng, B. J., Zheng, L. Z., & Qi, F. (2017). Applying Lean Six Sigma methodology to reduce cesarean section rate. *Journal of Evaluation in Clinical Practice*. https://doi.org/10.1111/jep.12671

2] Ifrim, A. M., Biţan, G. E., Maier, D., & Fogoroş, T. E. (2020). Improving the performance of organizational innovation processes by applying the Six Sigma methodology. *Proceedings of the International Conference on Business Excellence*, *14*(1). https://doi.org/10.2478/picbe- 2020-0103

3] Mutiara Putri, D. (2023). Product Quality Optimization by Applying the Six Sigma Methodology: DMAIC in CV XYZ (A Case Study of an Indonesian Subcontractor Company). *PROCEEDING INTERNATIONAL CONFERENCE ON ECONOMICS, BUSINESS AND INFORMATION TECHNOLOGY (ICEBIT)*, *4*. https://doi.org/10.31967/prmandala.v4i0.728

4] Jirasukprasert, P., Garza-reyes, J. A., Soriano-meier, H., & Rocha-lona, L. (2012). A Case Study of Defects Reduction in a Rubber Gloves Manufacturing Process by Applying Six Sigma Principles and DMAIC Problem Solving Methodology. *2012 International Conference on Industrial Engineering and Operations Management*.

5] Sukwadi, R., Harijanto, L., Inderawati, M. M. W., & Huang, P. T. B. (2021). Reduction in Rejection Rate of Soy Sauce Packaging via Six Sigma. *Jurnal Teknik Industri*, *22*(1). https://doi.org/10.22219/jtiumm.vol22.no1.57-70

6] do Nascimento, F. R., dos Santos, A. G., da Fonseca Júnior, L. A., & Nunes, D. M. (2024). Application of Lean Six Sigma to Reduce Delays in Engineering Changes. *IEEE Transactions on Engineering Management*, *71*. https://doi.org/10.1109/TEM.2022.3199388

7] Araman, H., & Saleh, Y. (2023). A case study on implementing Lean Six Sigma: DMAIC methodology in aluminum profiles extrusion process. *TQM Journal*, *35*(2). https://doi.org/10.1108/TQM-05-2021-0154

8] Hayajneh, M. T., & Bataineh, O. (2010). Applying Six Sigma Methodology Based On " DMAIC " Tools to Reduce Production Defects in Textile Manufacturing. *Recent Avances in Industrial and Manufacturing Technologies*, *1*.

9] Soundararajan, K., & Janardhan Reddy, K. (2019). Cost-reduction and quality improvement using DMAIC in the SMEs. *International Journal of Productivity and Performance Management*, *68*(8). https://doi.org/10.1108/IJPPM-10-2018-0360

10] Hasan, M. Z., & Ahammed, R. (2021). Noise Reduction of Ceiling Fans in Mass Production Applying DMAIC-Six Sigma Approach. *Journal of Nondestructive Evaluation, Diagnostics and Prognostics of Engineering Systems*, *4*(3). https://doi.org/10.1115/1.4050264

11] Chakrabarty, A., & Tan, K. C. (2007). The current state of Six Sigma application in services. Managing Service Quality: An International Journal, 17(2), 194–208. https://doi.org/10.1108/09604520710735174

12] Linderman, K., Schroeder, R. G., Zaheer, S., & Choo, A. S. (2003). Six Sigma: A goal- theoretic perspective. Journal of Operations Management, 21(2), 193–203. https://doi.org/10.1016/S0272-6963(02)00087-6

13] Salah, S., Rahim, A., & Carretero, J. A. (2010). The integration of Six Sigma and lean management. International Journal of Lean Six Sigma, 1(3), 249–274.

14] Raj, S., & Aithal, A. (2020). Operations Management Practices in the Indian Online Food Delivery Industry: A

ISSN: 2583-6129
DOI:10.55041/ISJEM03350

Case of Zomato and Swiggy. Journal of Management Studies and Academic Research, 3(2), 22–30.

15] Tiwari, R., & Buse, S. (2021). Using Six Sigma and Predictive Analytics for Improving Logistics in FoodTech Startups. International Journal of Supply Chain Management, 10(1), 43–51.

16] Zailani, S., Iranmanesh, M., & Melewar, T. C. (2011). Lean Six Sigma adoption in logistics: Empirical evidence from Malaysian service firms. International Journal of Quality &
Reliability Management, 28(6), 526–543.

17] Parasuraman, A., Zeithaml, V. A., & Malhotra, A. (2005). E-S-QUAL: A multiple-item scale for assessing electronic service quality. Journal of Service Research, 7(3), 213–233.