

Beyond the Bite: Artificial Intelligence's Hidden Influence on India's Food Delivery Platforms

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Abstract

This paper presents one of the first in-depth empirical investigations into Artificial Intelligence (AI) adoption within India's online food aggregator sector, using Zomato and Swiggy as pivotal case studies. It reconceptualizes AI not merely as a technological enhancer, but as a behavioral orchestrator that personalizes consumption, optimizes delivery, and governs user engagement through algorithmic systems. Leveraging a triangulated research design-integrating platform analytics, user feedback, and corporate reports-the study unpacks how AI reshapes digital service delivery while simultaneously surfacing ethical frictions around bias, opacity, and data autonomy. The paper advances a hybrid intelligence model that foregrounds the need for human oversight and transparent AI governance, offering timely insights for platform strategists, policymakers, and scholars exploring the evolving interface of technology, retail, and consumer behavior.

Categories: Computational Intelligence and Information Management, Consumer Behavior, Customer relationship management

Keywords: artificial intelligence (ai), online food aggregators, zomato, swiggy, recommender systems, personalized consumption, algorithmic bias, intelligence model, consumer engagement, data autonomy

Introduction

The online food aggregator industry has witnessed unprecedented global expansion, reshaping consumer behavior, particularly in India where rapid smartphone adoption and widespread internet access have catalyzed a significant rise in digital food ordering. This study investigates the strategic deployment of artificial intelligence (AI) by Zomato and Swiggy, two prominent Indian food delivery platforms, to enhance user experiences, optimize operational efficiency, and elevate customer satisfaction, positioning India as a key market for AI-driven innovation in the food delivery sector.

The Indian online food delivery market is projected to reach a revenue of USD 43.78 billion by 2024, with a compound annual growth rate (CAGR) of 15.98% from 2024 to 2029, culminating in an estimated market volume of USD 91.88 billion by 2029 as per the Statista ([Statista, 2024](#)).

India's rapid technological adoption, marked by increasing smartphone penetration and widespread internet access, has significantly contributed to the surge in digital food ordering, positioning the country as a prime market for AI-driven food delivery platforms such as Zomato and Swiggy ([Jeevanandam, 2024](#)).

Several major trends are shaping the rapid evolution of India's online food delivery landscape. The customer preferences and convenience factor remain central to the market's growth, particularly among India's predominantly young and tech-savvy population, aged 18 to 35, who prefer online food ordering over traditional dining experiences. The COVID-19 pandemic further accelerated this shift, as safety concerns prompted consumers to avoid dining out, leading to a notable rise in online food deliveries ([Selvan and Andrew, 2021](#)).

Significant shifts are driving the ongoing transformation of India's online food delivery market. One of the most prominent developments is the rise of cloud kitchens-delivery-only kitchens that operate exclusively through online platforms. These virtual kitchens offer a cost-effective model with lower overhead costs compared to traditional brick-and-mortar restaurants, enabling food delivery platforms to expand without the constraints of physical infrastructure, contributing to the rapid growth of the sector. Additionally, the market has witnessed a surge in hyperlocal delivery services, where companies partner with local businesses to deliver groceries and other essentials. The growing demand for healthier and organic food options has also spurred collaborations between food delivery platforms and health-focused startups, catering to the evolving preferences of consumers ([John, 2023](#)).

India's diverse regional food preferences present another dimension of market adaptation. Food delivery platforms increasingly partner with local restaurants to offer a wide array of regional and vegetarian

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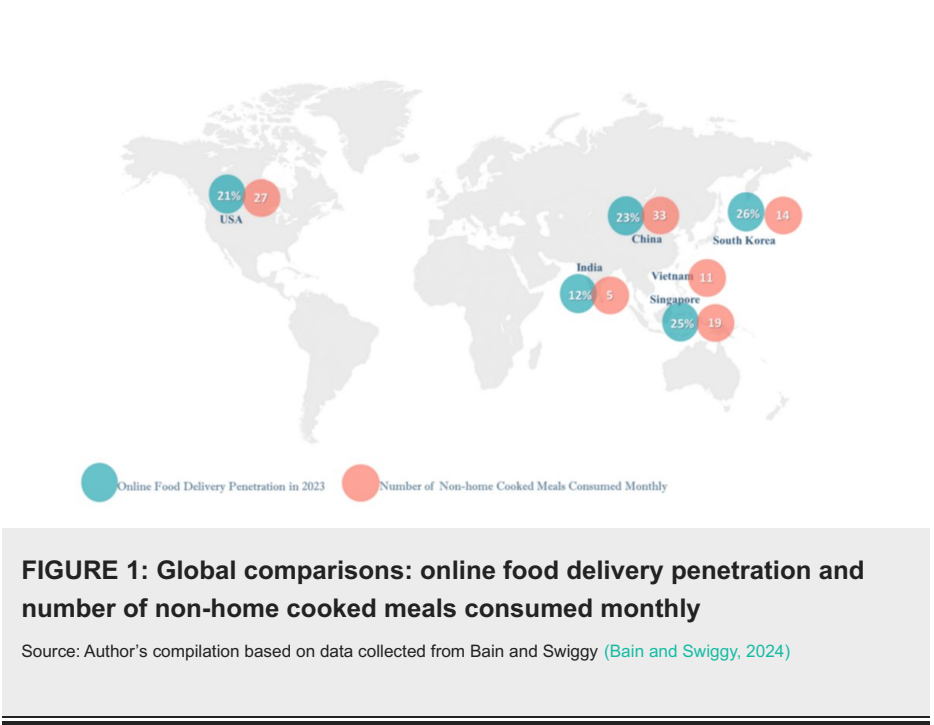
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cuisine, capitalizing on India’s large vegetarian population. The market’s expansion is also driven by macroeconomic factors, including the rise of the middle class and increasing disposable incomes, alongside government initiatives that promote digital payments and ease of doing business.

The "How India Eats" study by Bain & Company and Swiggy (Bain and Swiggy, 2024) highlights that the Indian food services industry is set to grow at a rate of 10-12% annually over the next seven years, potentially reaching an addressable market of 450 million customers by 2030. The report emphasizes a shift in eating patterns, with mid-meal consumption times such as brunch and evening snacks gaining popularity. Additionally, the rise of food delivery platforms has introduced new consumption occasions, such as late-night orders and special events, reshaping how consumers interact with food services. The number of eating-out occasions is expected to grow from 60-65 times annually in 2023 to 90-95 times by 2030, as convenience, variety, and affordability remain crucial factors in consumer decision-making.

By 2030, India’s top 50 cities are expected to account for 65-70% of the total food services market, which is projected to reach INR 9-10 lakh crore. Quick-service restaurants and cloud kitchens are anticipated to outpace the broader food services sector, growing 1.4 times faster. Despite its rapid growth, India’s food services market still lags behind other countries in terms of restaurant density and non-home-cooked food consumption. For instance, while Brazil and China have 7,000-9,000 restaurants per million people, India has only 1,000-2,000 (Bain and Swiggy, 2024).

A glance at Figures 1 and 2 reveals India’s food industry on a clear growth trajectory. Yet, despite this expansion, global comparisons from 2023 place India fifth in online food delivery penetration, with a market share of 12%.



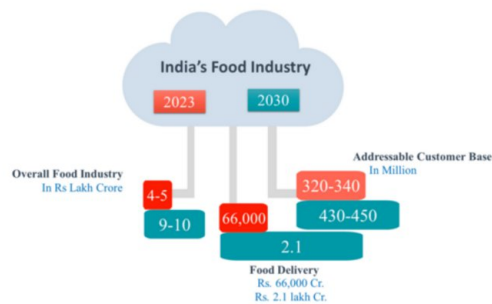


FIGURE 2: India's food industry on growth path

Source: Author's compilation based on data collected from Bain and Swiggy (Bain and Swiggy, 2024)

Zomato and Swiggy continue to dominate India's online food delivery market, which grew 2.8 times between 2019 and 2023. The market is projected to expand at an annual rate of 18%, significantly outpacing the broader food services industry, as digital platforms play an increasingly vital role in consumer behavior, restaurant discovery, and food ordering experiences. The growing preference for indulgence, specialty dining, and digital convenience, coupled with millions of new users, will continue to drive growth in India's food delivery sector in the coming years (Bain and Swiggy, 2024).

AI and its impact on online food ordering processes

There is ample evidence based on several research studies that have highlighted the rise of AI and its impact on personalizing and streamlining online food ordering processes (Cirqueira et al., 2020), (Davenport et al., 2020), (De Bruyn et al., 2020), (Flavián et al., 2019), (Gazdar and Hidri, 2020), and (Wang et al., 2020). The study by Yaiprasert and Hidayanto (Yaiprasert and Hidayanto, 2024) introduces a novel approach using ensemble machine learning techniques for personalized meal services, addressing a gap in AI-powered decision-making in the food delivery and restaurant industry. By integrating decision trees, logistic regression, and naïve Bayes algorithms, the model is trained on expert-tagged data and evaluated for accuracy using voting probability metrics. The findings demonstrate the potential of AI to enhance personalized meal recommendations, promoting healthier choices and creating new opportunities in the industry. The study highlights the societal benefits and calls for further exploration of diverse algorithms and applications across sectors. Ifekanandu et al. (Ifekanandu et al., 2023) examines the impact of AI on customer experience and loyalty, with personalization as a mediator. Findings show that AI significantly enhances customer experience and loyalty, and its effects are strengthened by personalization, suggesting companies should integrate AI and personalization into their services. Food Recommender Systems can enhance food choices by considering the complexity of preferences beyond ingredients. Using Ensemble Topic Modeling, the study by Khan et al. (Khan et al., 2021) shows that personalized recipe recommendations outperform conventional methods, offering improved accuracy and broader understanding of user preferences across multiple food domains in both cold-start and long-term scenarios. Yaiprasert and Hidayanto (Yaiprasert and Hidayanto, 2023) highlight the application of ensemble machine learning in digital marketing within the food delivery sector. The food processing industry, a critical global employer, faces challenges in managing demand-supply chains and ensuring food safety due to human limitations. AI-powered automation addresses these issues by enhancing production efficiency, operational performance, and food safety standards while maximizing resource utilization. Advanced technologies such as AI, machine learning, and deep learning are transforming the industry through innovations like smart farming, robotic agriculture, and transparent supply chain systems, resulting in significant cost reductions and improved product quality (Kumar et al., 2021). Furthermore, AI is revolutionizing online food ordering processes by personalizing user experiences, optimizing delivery logistics, and enhancing customer support, leading to greater efficiency and customer satisfaction in the food delivery ecosystem.

The primary objective of this study is to critically examine the application of AI within the Indian online food aggregator market, employing a case study methodology alongside user surveys administered through a structured questionnaire. This mixed-method approach provides a comprehensive analysis of AI's implementation and its impact from both operational and consumer perspectives.

Literature review

Existing research underscores the multifaceted impact of AI on online food aggregators worldwide. Several studies (Agarwal et al., 2024), (Davenport et al., 2020), (De Bruyn et al., 2020), (Flavián et al., 2019), (Gazdar and Hidri, 2020), (Lopez-Barreiro et al., 2024), (Wang et al., 2020), (Wang et al., 2024), and (Yaiprasert and Hidayanto, 2024) demonstrate the efficacy of AI-powered recommendation systems in boosting user engagement and order value by analyzing vast datasets of user preferences, past orders, browsing history, and dietary restrictions to offer personalized food and restaurant recommendations. This aligns with broader advancements in recommender systems, where generative AI models, such as generative adversarial networks (GANs) and variational autoencoders (VAEs), have emerged as superior to traditional AI-based systems. These models, widely implemented by platforms like Netflix and Amazon, outperform traditional techniques by addressing challenges such as data sparsity and cold starts, offering more precise personalization, and driving deeper customer engagement (Ayemowa et al., 2024). Through this lens, AI-powered recommendations in food aggregators are part of a broader trend of leveraging advanced generative models for enhanced user experiences. This not only enhances user experience and satisfaction but also has the potential to increase order frequency and overall platform revenue. The study by Haleem et al. (Haleem et al., 2022) investigate the transformative influence of AI on contemporary marketing strategies. By examining AI's applications across diverse marketing segments, the study explores its role in enhancing data-driven decision-making, optimizing customer interactions, and enabling real-time personalization. A comprehensive review of relevant literature from scholarly databases, such as Scopus and Google Scholar, provides a foundational understanding of AI's critical contributions to the marketing field.

This research builds upon existing studies (Mohammed et al., 2025) (Abhang et al., 2023) by examining the role of AI in optimizing delivery logistics, leading to faster delivery times and improved customer satisfaction. AI is transforming the logistics industry by automating tasks, enhancing efficiency, and enabling data-driven decision-making. AI algorithms process real-time data to predict demand patterns and optimize delivery routes, ensuring efficient task allocation and minimizing delays. With 40% of companies identifying customer experience as the primary driver of AI investment, this technology plays a crucial role in reshaping logistics, firms' client engagement, operational efficiency, and service delivery (Dhanasekar et al., 2021) (RTS Labs, 2024). In alignment with the study (Adesoga et al., 2024), which explores the transformative impact of AI and automation on transportation, warehousing, and demand forecasting, demonstrating significant efficiency improvements, cost reductions, and enhanced decision-making across the supply chain, and building on building on Liu (Liu, 2024), the study examines how AI and Internet of Things (IoT) technologies optimize logistics distribution routes, highlighting the theoretical and practical benefits of these advancements in the industry, including the agri-food industry (Rejeb et al., 2022). Despite challenges like data privacy concerns and implementation costs, the potential of AI and automation to reshape the future of logistics remains substantial (Adesoga et al., 2024).

Widespread interest in AI spans multiple industries, including marketing. However, concerns regarding its ethical and legal implications are on the rise. The study by Alhitmi et al. (Alhitmi et al., 2024) investigates the ethical challenges surrounding data security and privacy in AI-driven marketing and explores potential solutions. Through a comprehensive literature review, the study synthesizes findings from academic sources, highlighting key concerns such as data confidentiality, distribution, cyberattacks, fraud, and disinformation. Proposed solutions include offering privacy insurance, enhancing technology readiness, enforcing security regulations, and developing robust regulatory frameworks.

However, challenges persist, particularly in the Indian context. AI holds transformative potential to address various challenges, however, to fully realize AI's benefits, India must confront challenges such as data privacy, infrastructure reliability, and algorithmic bias through strategic investment in research and ethical frameworks, paving the way for a healthier and more accessible future for its citizens (Das et al., 2024). Furthermore, the study by Nazer et al. (Nazer et al., 2023) identifies data privacy concerns and potential biases within AI algorithms as significant hurdles to widespread adoption. These concerns regarding data collection and usage practices necessitate a focus on transparency and user control over personal information. Additionally, biases within AI algorithms, such as those favoring higher-revenue restaurants or replicating existing user preferences, require careful mitigation strategies to ensure fairness and inclusivity within the online food ordering ecosystem (Ding et al., 2023), (Ferrara, 2024), and (Rejeb et al., 2022). The recent research underscores the importance of transparency in AI usage by marketing professionals, emphasizing the need to inform clients about data handling practices (Rane et al., 2024). This study lays the groundwork for future research, advocating for ongoing dialog and analysis of this evolving field.

Research Method

Methodology

This research adopts a multi-method case study approach, focusing on the online food aggregator platforms Zomato and Swiggy, to analyze the role of AI in enhancing user experience and operational efficiency. The following methods were used for data collection and analysis.

User surveys

Sample Size and Sampling Technique

A total of 312 valid responses were collected through an online survey administered via Google Forms. A non-probability purposive sampling technique was employed, targeting individuals who had used either Zomato or Swiggy at least once in the past three months. This approach ensured that participants had adequate experience with the platforms' AI-enabled features.

Criteria for Sample Size Selection and Population

The sample size was determined based on feasibility, the exploratory nature of the study, and alignment with established research in digital consumer behavior. The target population comprised urban internet users in India who engage with food delivery applications, with the sample designed to reflect a digitally literate, app-using demographic.

Sample Size Determination

Cochran's formula for proportions $n_0 = \frac{Z^2 p(1-p)}{E^2}$ was applied, with $Z = 1.96$ (corresponding to a 95% confidence level), $p = 0.50$ (maximum variability), and $E = 0.055E$ (5.5% margin of error), assuming a large population $N \rightarrow \infty$. This produced a target of approximately 318 responses. The achieved sample of 312 (within 2% of the target) ensures statistical robustness for the study's objectives while maintaining demographic representation across key user segments of India's food delivery platforms.

The respondent demographics align closely with the documented characteristics of India's active food delivery app user base, as reported by the Internet and Mobile Association of India's Internet in India 2023 report (IAMAI, 2023) and Statista (Statista, 2025), supporting the representativeness of the sample for the community under study. This demographic alignment ensures that the findings meaningfully address the paper's core objective of analyzing AI-driven influences on consumer engagement within India's food delivery ecosystem, providing results that are both reliable and contextually relevant.

Study Period

Data collection was conducted over twelve weeks from January 2025 to March 2025.

Survey Instrument Design

The questionnaire used in this study consisted of 25 questions organized into 09 thematic sections (as seen in Appendix). It included a mix of multiple-choice and open-ended questions aimed at exploring key dimensions, such as demographic characteristics, frequency and purpose of usage of online food delivery platforms, satisfaction with personalized recommendations, responsiveness and usefulness of chatbot-based customer support, efficiency of delivery tracking features, concerns about data privacy and security, and expectations regarding future AI-driven innovations. Additionally, respondents were encouraged to share overall impressions and specific suggestions, providing qualitative insights to enrich the quantitative findings.

Data Analysis Tools

Responses were compiled and analyzed using Microsoft Excel (Office 365). Basic descriptive statistics (e.g., frequencies, percentages) were used to summarize user responses. Infographics and visual representations were created in Excel to identify patterns and communicate findings effectively. Qualitative responses from open-ended questions were manually coded and thematically analyzed.

Platform analysis

To understand the functional integration of AI into the user experience, a feature-based comparative analysis of Zomato and Swiggy was conducted. The methodology involved:

- Simulated user interactions to observe features such as search personalization, smart recommendations, dynamic pricing, real-time delivery tracking, and AI-driven customer support interfaces (e.g., chatbots).
- Functionality mapping and screen capture to document user flows and AI touchpoints.
- Where available, developer documentation and technical blogs were consulted to validate observations and contextualize platform functionalities.

This method offered a practical understanding of how AI tools are embedded across the customer journey

(user touchpoints and operational processes).

Company report analysis

To assess the strategic direction and public communication of AI integration, a content analysis was conducted on company-released materials (annual reports, investor presentations, press releases, and blog posts) published between 2022 and 2024 (Zomato Annual Reports: 2022-2024) (Bhutani V, 2023), (Swiggy Blog and Press Announcements, 2024), and (Mathew J, 2024). These documents were examined for recurring themes related to AI strategy, investment priorities, platform upgrades, and user-centric technological developments.

Methodological rationale

This multi-method approach facilitated the triangulation of insights from primary data (surveys) and secondary data (platform features and company reports), thereby enhancing the depth, credibility, and robustness of the findings. The methodology aligns with established practices in applied case study research within digital business contexts (Creswell and Plano Clark, 2017), (Plano Clark, 2016), and (Guest et al., 2015), particularly when examining rapidly evolving technological phenomena in real-world settings. This approach enables both breadth and depth in understanding AI's multifaceted role in online food delivery services

Results And Discussion

Findings and analysis

User Survey Analysis

Impact of AI on user experiences on Zomato and Swiggy

This section presents an in-depth analysis of the data collected through a survey aimed at understanding how AI influences user experiences, delivery processes, customer support, and data security on Zomato and Swiggy. The questionnaire was designed to capture users' demographic details, their usage patterns, and their perceptions of AI-driven features across these platforms.

The survey responses provide critical insights into how users engage with AI tools, such as personalized recommendations, delivery tracking, and chatbots, as well as their concerns around data privacy and security. By examining these results, we can better understand the effectiveness of AI in enhancing user satisfaction and identify areas where further improvements or adjustments may be necessary. Below is a breakdown of the key findings from each section of the questionnaire, followed by a discussion of the implications.

Demographics

The demographic profile of the respondents (as given in the Figures 3-5) reveals a dominant age group between 18 and 24 years (64.6%), followed by 25-34 years (11.1%), highlighting that the majority of users engaging with online food aggregators like Zomato and Swiggy are young. This age distribution suggests that younger consumers are more inclined to adopt technology-driven services in the food delivery sector, a trend consistent with the growing digital consumption habits of millennials and Gen Z. Gender representation is almost equally split, with 50.7% male and 49.3% female, indicating that online food delivery services cater equally to both genders. Additionally, the majority of users reside in metropolitan areas (72.2%), which suggests that the penetration of online food aggregators is significantly higher in urbanized regions, likely due to better technological infrastructure and access to a wider variety of food options.

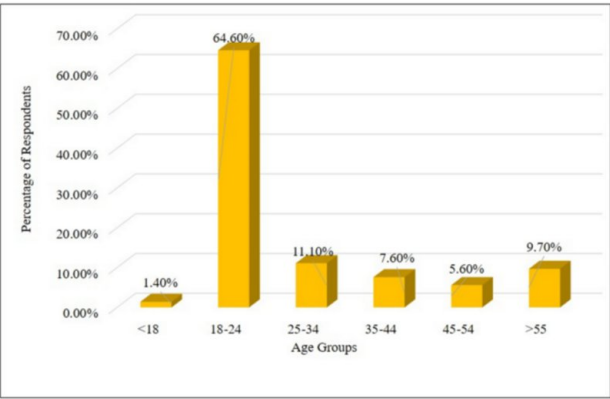


FIGURE 3: Demographic data and OFD platform usage pattern: age groups

Source: Author's own work. OFD, Online Food Delivery

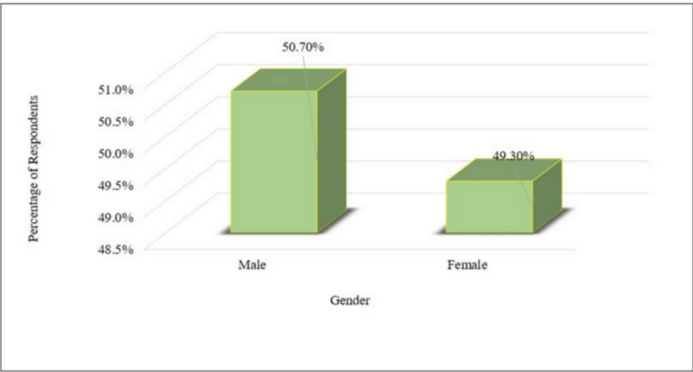


FIGURE 4: Demographic data and OFD platform usage pattern: gender

Source: Author's own work. OFD, Online Food Delivery

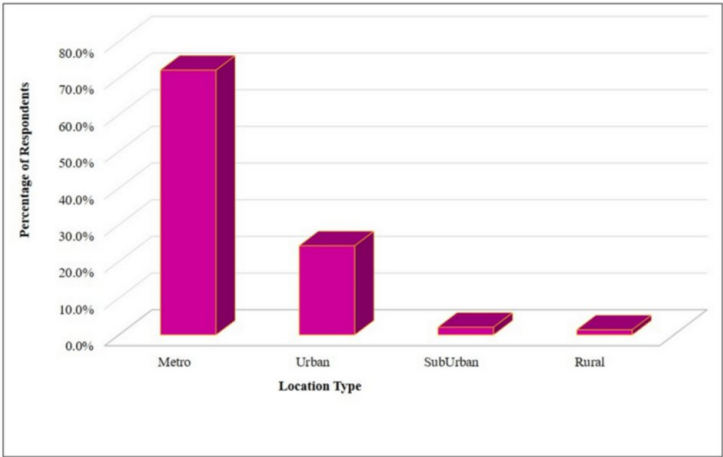


FIGURE 5: Demographic data and OFD platform usage pattern: location type

Source: Author's own work. OFD, Online Food Delivery

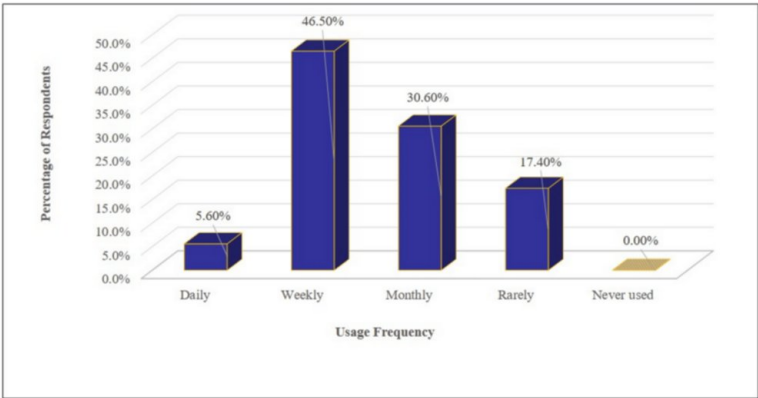


FIGURE 6: Demographic data and OFD platform usage pattern: usage frequency of OFD services

Source: Author's own work. OFD, Online Food Delivery

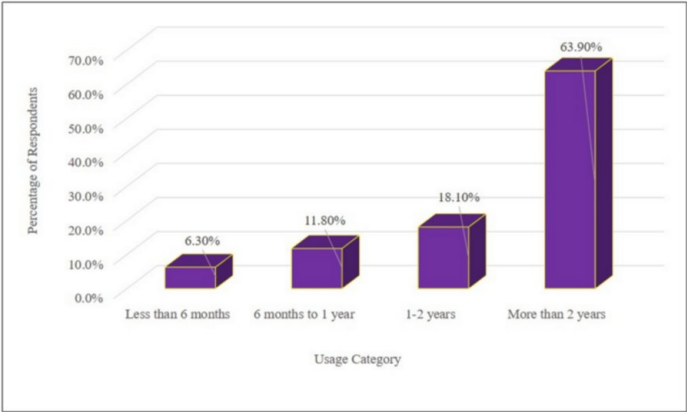


FIGURE 7: Demographic data and OFD platform usage pattern: usage duration

Source: Author's own work. OFD, Online Food Delivery

Platform Usage (Zomato and Swiggy)

As observed in Figure 6 and Figure 7, regarding usage patterns, 46.5% of respondents reported using these platforms on a weekly basis, while 30.6% used them monthly. Only a small percentage (5.6%) used the services daily, whereas 17.4% used them rarely, indicating a moderate frequency of engagement overall. This usage trend aligns with the high retention rates, as a substantial 63.9% of users have been using these platforms for more than two years, signaling strong customer loyalty and a well-established presence of these platforms in consumers' everyday routines. The low percentage of newer users (6.3% using the platform for less than six months) suggests that growth in user acquisition may be slowing, with a shift toward retention and experience enhancement among the existing customer base. These findings provide critical insights into the market segmentation and user behavior in the online food delivery ecosystem.

Personalized Recommendations

The survey data provides insightful trends regarding user preferences and behaviors on food aggregator platforms with a focus on personalized recommendations, as given in Figures 8-10. Analyzing the responses help reveal key aspects of user engagement, the effectiveness of AI-driven personalization, and potential areas for improvement in such platforms.

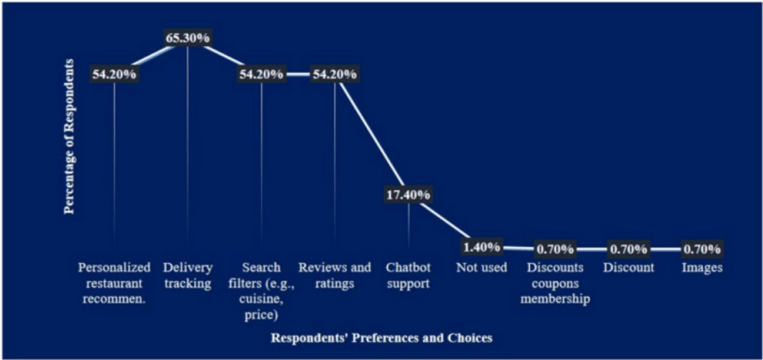


FIGURE 8: Personalized recommendations for the platform(s) used and the most helpful features

Source: Author's own work

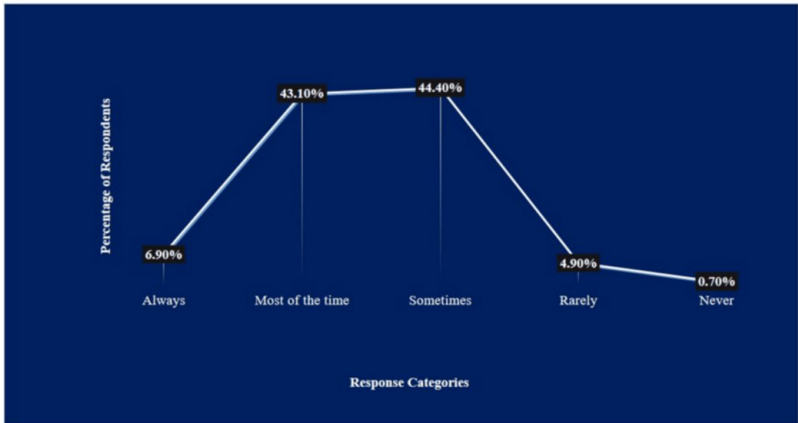


FIGURE 9: User perceptions of recommendation accuracy

Source: Author's own work

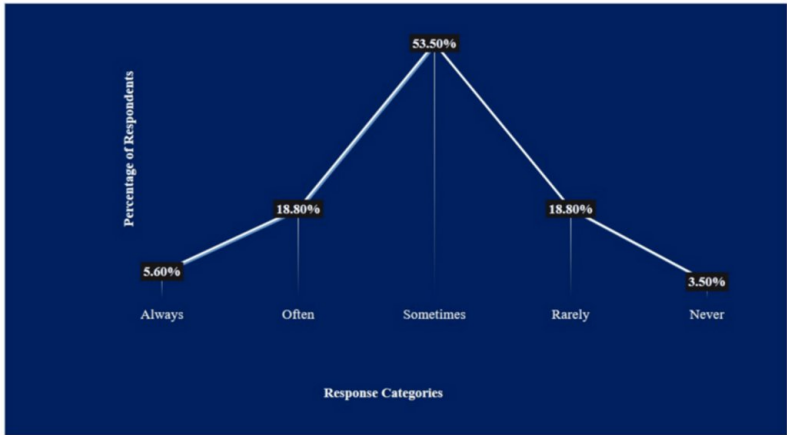


FIGURE 10: Frequency of food orders based on recommendations

Source: Author's own work

Key Feature Preferences

Data show that delivery tracking is the most valued feature, with 65.30% of users marking it as helpful (Figure 8). This suggests that real-time information about the delivery process is a crucial part of the customer experience, likely because it provides a sense of control and transparency.

Other significant features include:

Personalized restaurant recommendations (54.20%).

Search filters (54.20%).

Reviews and ratings (54.20%).

These features, especially those involving personalization and feedback mechanisms like reviews, align with users' desires for informed decision-making and tailored experiences. Interestingly, less than 1% of users found discounts, membership coupons, or images particularly helpful. This could imply that price incentives or visual elements are not as crucial as functional tools that help users navigate and evaluate their choices.

Accuracy of Recommendations

When asked whether the recommendations reflect their preferences, only 6.90% of users felt that they "always" do so (Figure 9). The majority, 43.10%, indicated that recommendations match their preferences "most of the time," while 44.40% responded with "sometimes." This suggests that while AI-driven recommendations are generally useful, there is still room for improvement in refining these algorithms to more consistently meet individual preferences.

User Actions Based on Recommendations

In terms of how often users act on these recommendations, the majority, 53.50%, stated that they "sometimes" order food based on personalized recommendations (Figure 10). Another 18.80% indicated that they do so "often," while 5.60% "always" act on recommendations. This highlights that while recommendations are somewhat effective in influencing user behavior, they are not consistently compelling enough to drive frequent actions for a significant proportion of users. This pattern aligns with the evaluation-action gap observed in recommendation systems (Shah et al., 2025), where perceived relevance and behavioral response operate at distinct thresholds. Users may still perceive personalized recommendations as relevant, even if they do not act on them consistently. The moderate rate of action likely reflects external situational factors, such as timing, mood, or contextual constraints-rather than limitations in recommendation accuracy alone (Pu et al., 2012). These results reflect a well-documented phenomenon in AI-driven platforms where users often recognize recommendations as relevant (cognitive

fit) without always acting on them due to contextual barriers (e.g., situational needs, decision fatigue). This "intention-action gap" is consistently observed in food-delivery research (Yusof et al., 2021) and the broader recommendation literature (Smith and Linden, 2017). Our findings suggest that while Zomato and Swiggy's AI systems achieve baseline relevance (as reflected in the 43% frequent/sometimes action rate), driving consistent behavioral response requires addressing user-centric factors beyond algorithmic accuracy.

Implications for AI in Food Aggregator Platforms

This analysis points to several strategic implications for food aggregator platforms leveraging AI for personalized user experiences.

Optimization of personalization: While over 50% of users report finding personalized recommendations helpful, only a smaller percentage consistently act on them. This apparent discrepancy reveals a critical behavioral insight—users may perceive recommendations as relevant at a surface level, yet may not follow through due to contextual or situational constraints, such as timing, mood, or specific needs at the moment. This highlights a perceived-behavioral gap, emphasizing that usefulness alone does not guarantee conversion. Therefore, enhancing personalization requires not only improving content relevance but also deepening contextual alignment to increase the likelihood of behavioral response.

Enhancing transparency with delivery tracking: Delivery tracking emerged as the most important feature, indicating that users value transparency and real-time updates. Further investment in this feature could enhance user satisfaction.

Feedback and user engagement mechanisms: Reviews and ratings are just as important as personalized recommendations and search filters, indicating that peer feedback strongly influences decision-making. Platforms could benefit from enhancing social proof elements to complement AI recommendations.

Room for discounts and membership optimization: The extremely low response rate for discounts and coupons (0.7%) suggests that these features are underutilized or not effectively integrated. There may be an opportunity to reassess how discount offers are presented or combined with personalized recommendations.

These data highlight that while food aggregator platforms have made progress in using AI to personalize user experiences, there are still areas that require further refinement, particularly in the precision of recommendation algorithms and user engagement strategies.

Delivery Optimization

This analysis provides an in-depth exploration of user satisfaction and behavior related to delivery times and tracking features on two leading Indian online food aggregator platforms, Zomato and Swiggy. The data derived from the survey are designed to assess customer perceptions of delivery optimization, with a specific focus on three key dimensions: satisfaction with delivery times, perceived improvements in delivery speed over time, and the frequency of real-time delivery tracking feature usage as depicted in Figures 11-13. The findings offer valuable insights into how these platforms are performing in terms of logistical efficiency and customer engagement.

Satisfaction with delivery times: The survey results indicate that customer satisfaction with the typical delivery times provided by Zomato and Swiggy is generally high, though not without opportunities for further improvement (Figure 11). Approximately 70% of respondents expressed some level of satisfaction, with 25.7% reporting they were "very satisfied" and 44.4% indicating they were "somewhat satisfied." These data suggest that, for the majority of users, the delivery times are meeting or exceeding expectations. However, a notable proportion of respondents (26.4%) remained neutral, highlighting a potential area for enhancement. The 3.5% who reported being "somewhat dissatisfied" represent a small but important segment that may require targeted interventions to improve their overall experience and mitigate the risk of customer attrition.

Improvement in delivery speed over time: A significant majority of respondents reported perceiving improvements in delivery speed over time, with 24.3% noticing a "significant improvement" and 59.7% observing a "slight improvement" (Figure 12). This combined 84% reflects the success of the platforms in optimizing their logistics, likely through the application of advanced technologies such as AI for real-time traffic analysis and route optimization. These innovations contribute to better demand forecasting, more efficient task allocation, and ultimately shorter delivery times. However, 13.9% of respondents reported no noticeable change, and a small fraction (2.1%) indicated that delivery times had worsened, suggesting that performance may vary across different geographical areas or customer segments. This variability underscores the need for more localized optimization strategies.

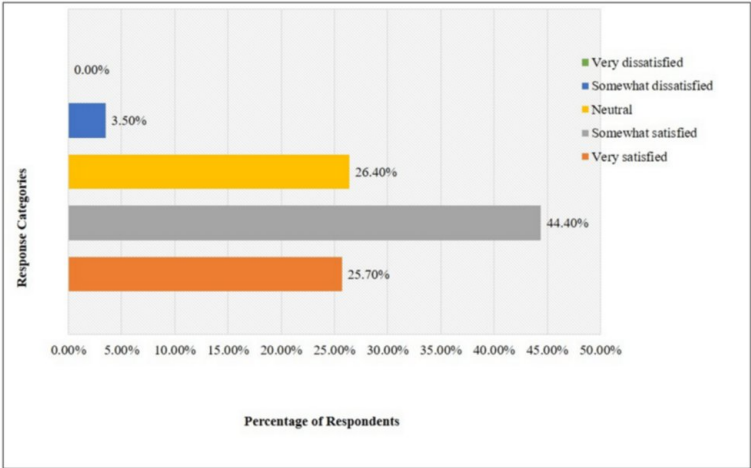


FIGURE 11: Customer satisfaction with delivery times on Zomato/Swiggy

Note: Responses to the survey question: "How satisfied are you with the typical delivery times on these platforms (Zomato/Swiggy)?"

Source: Author's own work

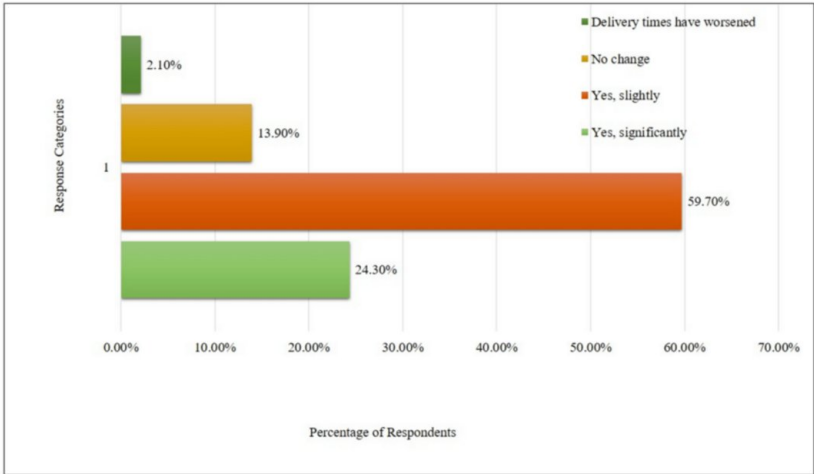


FIGURE 12: Perceptions of improvement in delivery speed over time

Note: Response to the survey question: "Have you noticed an improvement in delivery speed over time?"

Source: Author's own work

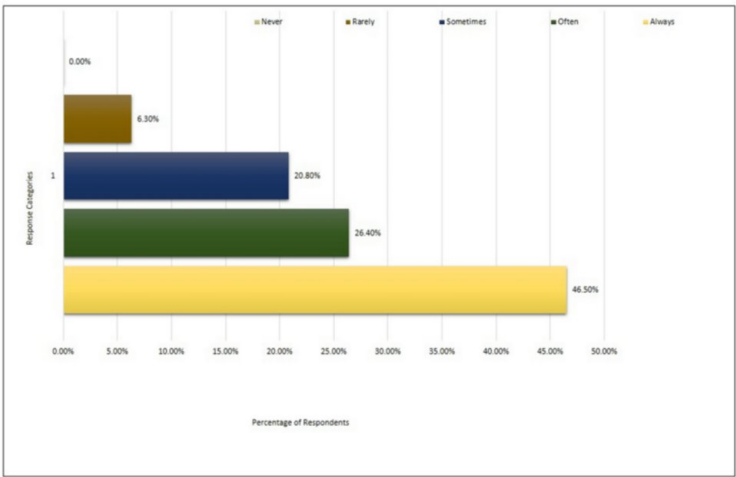


FIGURE 13: Frequency of real-time delivery tracking feature usage

Note: Responses to the survey question: "How often do you use real-time delivery tracking features?"

Source: Author's own work

Frequency of using real-time delivery tracking features: The use of real-time delivery tracking features is widespread among users of both platforms, with 46.5% of respondents reporting they "always" use this feature and 26.4% using it "often" (Figure 13). This suggests that real-time tracking is a highly valued tool for the majority of customers, with over 90% engaging with it regularly. The transparency and control afforded by this feature are likely to contribute positively to overall user satisfaction and trust in the platform. Only a small minority (6.3%) reported using the feature "rarely," with no respondents indicating they "never" use it. This directly relates to the study's aim, drawn from its core themes, of examining how AI-enabled platform features shape consumer engagement, transparency, and trust in India's online food delivery sector. Real-time tracking, as part of the AI infrastructure, not only strengthens user control and satisfaction but also embodies the hybrid human-AI service approach highlighted in this research, reinforcing fairness and reliability while pointing to the importance of regulatory foresight. These findings emphasize the importance of maintaining and continually enhancing real-time tracking capabilities as a critical component of the user experience.

Strategic insights and future directions: Overall, the data paint a positive picture of delivery optimization efforts by Zomato and Swiggy, particularly regarding customer satisfaction with delivery times and the widespread use of real-time tracking features. The high levels of satisfaction, coupled with the significant improvements in delivery speed reported by the majority of users, indicate that both platforms are successfully leveraging AI-driven logistics to enhance service delivery. By utilizing AI for real-time traffic analysis, route optimization, and demand forecasting, these platforms not only improve delivery efficiency but also strengthen restaurant-customer relations and potentially drive higher order values.

However, there remains a subset of neutral and somewhat dissatisfied users, suggesting that further efforts are required to optimize the delivery experience across all user groups. Future improvements could include more personalized delivery options and dynamic pricing features, designed to better meet the needs of different customers. Leveraging AI in more nuanced ways, such as predictive delivery windows based on historical user behavior or region-specific optimizations, could help in addressing these gaps.

Both platforms have already integrated AI-enabled logistics and personalization features into their operations. Zomato has launched a personalized AI food assistant-powered by OpenAI's large language models via Microsoft Azure and uses AI to optimize preparation and delivery times (The Indian Express, 2024). Swiggy's "What to Eat" feature uses AI-powered recommendations based on mood, past orders, and locality, while its real-time route optimization improves logistical efficiency (The Times of India, 2024) and (The Indian Express, 2024). Overall, while Zomato and Swiggy have made considerable strides in delivery optimization, continued innovation and refinement of AI-driven logistics and personalization strategies will be essential to maintaining competitive advantage and further improving customer satisfaction in the rapidly evolving food delivery market.

Chatbots and Customer Support

The role of chatbots in customer support for online food aggregator platforms such as Zomato and Swiggy has gained prominence due to the convenience they offer. Both platforms incorporate AI-powered chatbots to handle customer queries regarding order status, restaurant information, and potential issues. However, user interactions with these automated systems reveal a mixed pattern of adoption and satisfaction, suggesting both advantages and limitations in their current application. The responses are illustrated in Figures 14-16.

Chatbot usage frequency: Data reveal (Figure 14) that chatbot usage is not yet ubiquitous among users. The majority of respondents (40.30%) report using chatbots "sometimes," which suggests that while these tools are accessible, they are not the default option for customer service interactions. Additionally, 34.70% of users stated they "rarely" use chatbots, indicating a significant portion of users may still prefer other forms of support, particularly for less frequent or minor issues.

Interestingly, only 13.20% of users fall into the "always" and "often" categories, suggesting that a relatively small segment of users consistently rely on chatbots for customer support. This limited reliance may point to users perceiving chatbots as insufficiently effective or suitable only for handling basic queries. Meanwhile, 11.80% of respondents report never using chatbots, which could be due to a preference for human support or dissatisfaction with previous chatbot interactions.

User satisfaction with chatbot responses: Satisfaction with chatbot performance is skewed toward the middle of the spectrum, as shown in Figure 15, with 57.60% of respondents expressing neutrality towards the responses provided. This suggests that while chatbots may adequately address basic inquiries, they do not yet deliver a consistently high level of service that fully meets user expectations. A combined 32.00% of respondents reported being either "satisfied" or "very satisfied" with chatbot interactions, indicating that these systems function effectively in certain cases, particularly for routine and straightforward issues.

However, dissatisfaction is present among 10.50% of users, with 6.30% feeling "dissatisfied" and 4.20% "very dissatisfied." This dissatisfaction could stem from the chatbot's inability to handle more nuanced or complex queries effectively, leading users to seek alternative support methods. The relatively low satisfaction levels underscore the importance of improving the conversational quality and problem-solving capabilities of chatbots on these platforms.

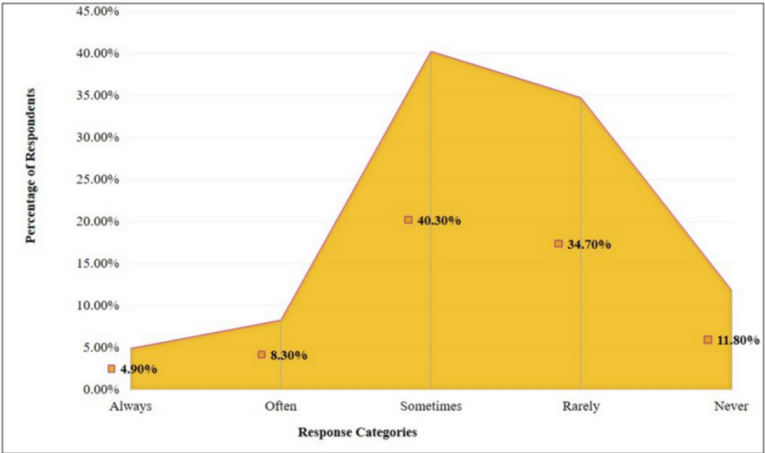


FIGURE 14: Frequency of Chatbot use for customer support on Zomato/Swiggy

Note: Responses to the survey question: "How often do you use chatbots for customer support on these platforms (Zomato/Swiggy)?"

Source: Author's own work

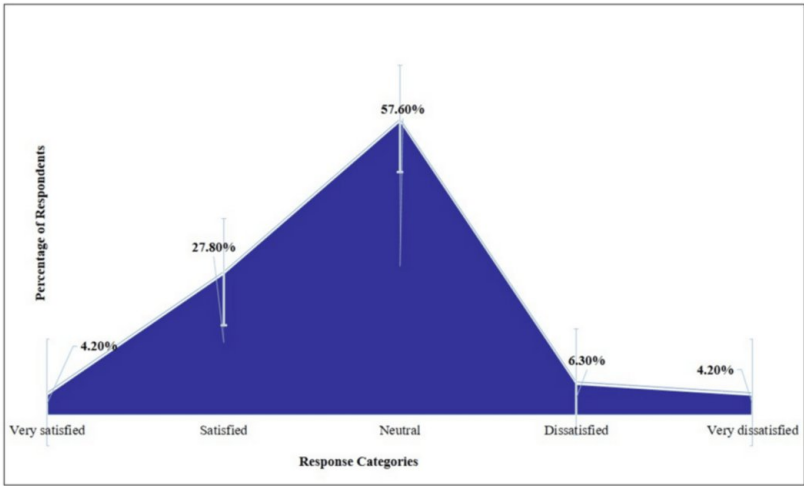


FIGURE 15: Satisfaction with Chatbot responses

Note: Responses to the survey question: "How satisfied are you with the responses provided by chatbots?"

Source: Author's own work

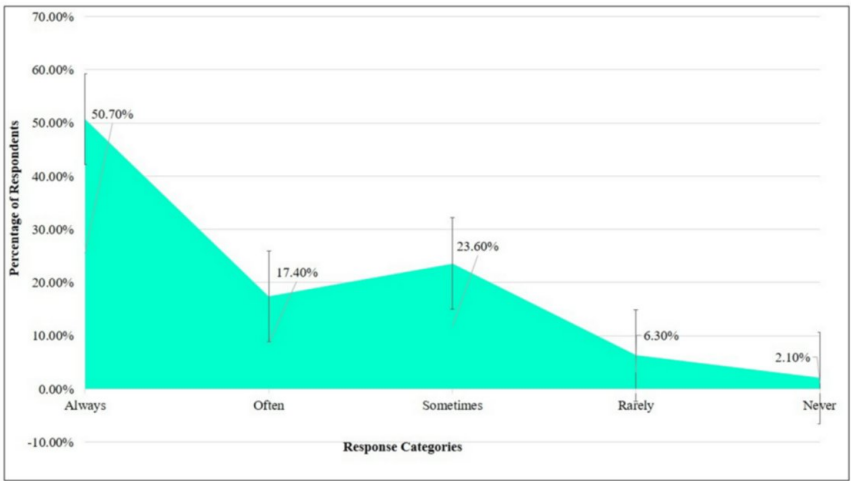


FIGURE 16: Preference for human support in complex issues

Note: Responses to the survey question: "For complex issues, do you prefer interacting with a human customer support agent?"

Source: Author's own work

Preference for human support in complex issues: When faced with more complex issues, a clear majority of users (50.70%) consistently prefer interacting with human customer support agents. This strong preference suggests that users do not view chatbots as reliable or competent enough to handle intricate problems or more detailed queries. A further 40.90% of respondents indicated that they often or sometimes prefer human support for complex matters, highlighting that while chatbots may serve a role in basic support, human intervention remains essential for higher-level customer service.

Only 8.40% of users reported rarely or never seeking human support (Figure 16), which suggests that there is still potential for chatbots to improve in handling complex issues. This small percentage of users may represent those who are highly comfortable with technology or who have encountered fewer complex issues in their interactions with these platforms.

Implications for food aggregator platforms: The data offer crucial insights into user behavior and expectations, highlighting both the strengths and limitations of chatbot-driven customer support on platforms like Zomato and Swiggy. While chatbots provide the convenience and efficiency required for routine inquiries, they fall short in addressing more complex issues, where human support is clearly preferred. For platforms like Zomato and Swiggy, this indicates an opportunity to enhance chatbot functionality, particularly by incorporating more advanced AI-driven solutions capable of handling complex issues with greater accuracy and personalization. Thus, this gap in satisfaction reveals a crucial opportunity for platforms to innovate.

The high percentage of neutral satisfaction suggests that users find chatbots functional but not impressive. To elevate user experiences, platforms must focus on improving chatbot personalization and problem-solving capabilities. Advanced AI solutions that can handle intricate customer queries with accuracy and context-driven responses would not only increase satisfaction but also instill greater user confidence in chatbot interactions.

Moreover, by enhancing the conversational dynamics and effectiveness of chatbots, companies could reduce the dependency on human agents for complex issues. This shift would streamline operations, offer a more seamless user experience, and set a new benchmark for customer support in the digital space.

Finally, while chatbots play a vital role in customer service, significant improvements are necessary. Platforms that prioritize more sophisticated, AI-powered solutions will be better positioned to meet evolving user expectations, ensuring higher satisfaction and reducing the need for human intervention.

Data Privacy and Security Concerns

Zomato and Swiggy leverage AI to analyze user behavior patterns and detect potentially fraudulent activities, playing a crucial role in safeguarding user data and financial information. For example, Zomato employs machine learning algorithms to monitor user transactions and has introduced Vinifera, a system designed to proactively detect and mitigate accidental data leaks (Zomato, 2024). Swiggy has integrated SHIELD's device-first risk intelligence platform to prevent fraud such as promo abuse and false-account creation, alongside AI-powered anomaly detection to flag suspicious activity in real time (Cash Platform, 2024).

However, despite these efforts, data privacy and security remain significant concerns for users on these platforms. The data reveal diverse levels of concern, experiences with security breaches, and varying confidence in the platforms' ability to protect sensitive personal and financial information as given in Figures 17-19.

User concern about data privacy: A large portion of users express apprehension regarding data privacy when using these platforms (Figure 17). Specifically, 45.10% of respondents report being "very concerned," while an additional 30.60% are "somewhat concerned." This means that over three-quarters (75.70%) of users have some level of concern about the protection of their personal and financial data, underscoring a pressing issue for these companies to address. Only 3.50% of respondents are "not very concerned," and none report being "not concerned at all." This overwhelming concern may reflect broader societal anxieties about data privacy, particularly in light of recent global discussions about data breaches and cybersecurity.

Incidence of security issues: Despite the widespread concern, a relatively low percentage of users (16.70%) have actually experienced security issues such as fraudulent transactions on these platforms. The vast majority, 83.30%, report no such incidents, indicating that while apprehensions are high, the occurrence of actual security breaches is comparatively low (Figure 18). This disparity between perceived risk and actual incidents could highlight an opportunity for food aggregator platforms to improve communication about their security measures and build greater trust with users.

User confidence in platform security: User confidence in the platforms' ability to protect personal and financial information is somewhat divided (Figure 19). Only 5.60% of users feel "very confident," and 26.40% are "confident" in the platforms' security. However, the largest group of respondents (40.30%) reports feeling "neutral," suggesting a level of uncertainty or ambivalence toward the platforms' data protection efforts.

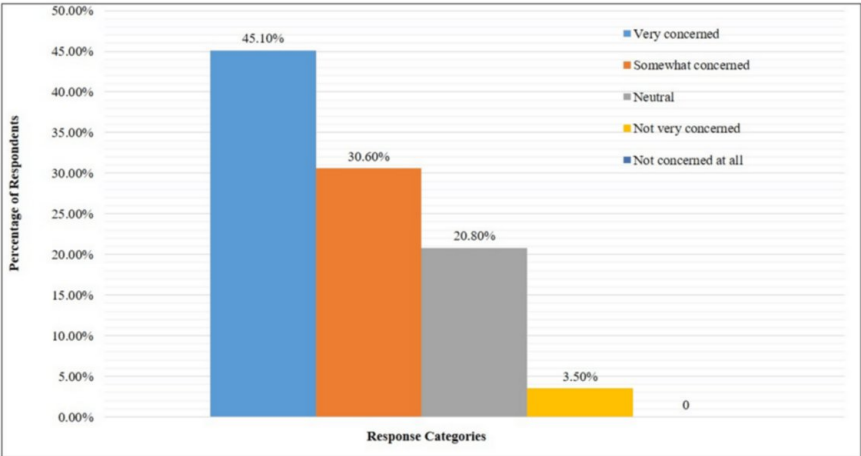


FIGURE 17: User concerns about data privacy on food aggregator platforms

Note: Responses to the survey question: "How concerned are you about data privacy when using these online food aggregator platforms?"

Source: Author's own work

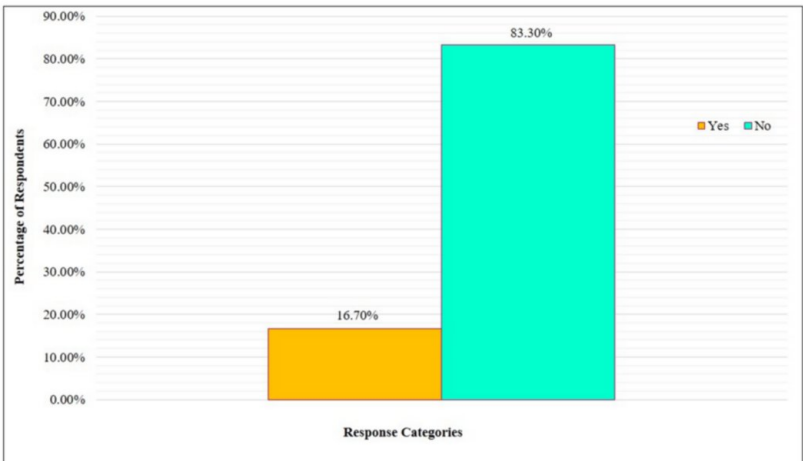


FIGURE 18: User experience of security issues on food aggregator platforms

Note: Responses to the survey question: "Have you ever experienced any security issues (e.g., fraudulent transactions) on these platforms?"

Source: Author's own work

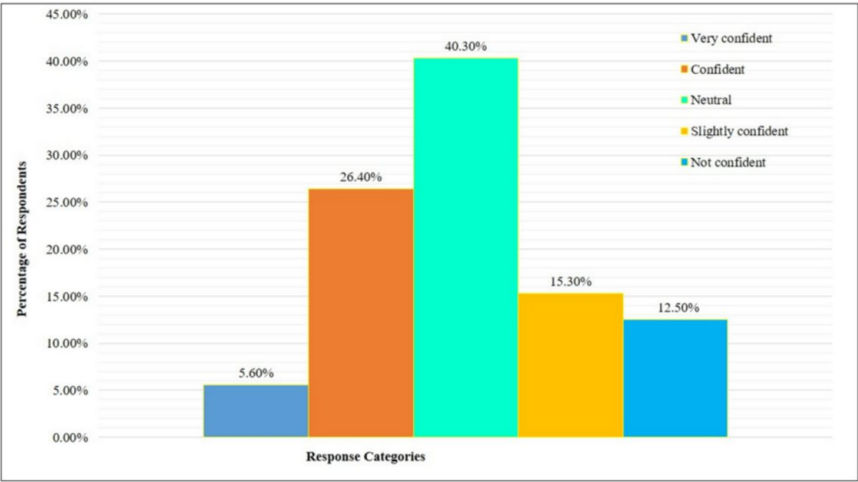


FIGURE 19: User confidence in data protection by food aggregator platforms

Note: Responses to the survey question: "How confident are you in the platform's ability to protect your personal and financial information?"

Source: Author's own work

Notably, 27.80% of users express either "slight" or "no confidence" in the platforms' ability to safeguard their information (Figure 19). This relatively high level of skepticism points to a need for Zomato, Swiggy, and similar platforms to strengthen both their security protocols and their communication strategies, ensuring users are more informed about the measures in place to protect sensitive data.

Implications for Food Aggregator Platforms: The data reveal a significant gap between user concerns about data privacy and the actual incidence of security issues. While most users have not encountered direct security problems, their lack of confidence in the platforms' ability to protect their information could hinder long-term user trust and engagement. Platforms must take proactive steps to bolster their data security infrastructure and, equally importantly, clearly convey these efforts to their user base.

Improving transparency about security protocols and addressing user concerns could enhance confidence levels and alleviate fears related to privacy. In an increasingly digital world where personal and financial data protection is paramount, online food aggregators need to prioritize robust security measures to retain customer trust and loyalty.

Future directions and challenges in AI-driven online food aggregator platforms

The integration of AI within online food aggregator platforms in India holds significant potential, as indicated by emerging trends that are transforming user interactions and operational efficiencies. This section explores promising directions for AI integration, as well as the challenges that accompany its increasing adoption. A snapshot of the future directions and challenges is depicted schematically in Figure 20.



FIGURE 20: Future directions and challenges

Source: Author's own work

Emerging Trends in AI-Driven Food Aggregation

Several key trends illustrate the future trajectory of AI in the online food aggregator sector:

Integration with IoT Devices: The convergence of IoT with AI can facilitate smart interactions between users and their kitchen appliances. For example, automatic grocery reordering based on user consumption patterns could enhance convenience and promote sustainable practices by reducing food waste.

Voice Recognition Technologies: Voice-activated food ordering through virtual assistants and smart speakers presents a promising avenue for enhancing accessibility and ease of use. By enabling hands-free ordering, voice recognition technologies can make the user experience more seamless and efficient.

Blockchain Technology: The adoption of blockchain for transaction security and data management can enhance transparency and trust in the online food ecosystem. Blockchain's decentralized and immutable structure ensures data integrity, potentially addressing key concerns related to privacy and fraud.

Despite these advancements, several critical challenges remain to be addressed, as outlined below.

Key Challenges in AI Adoption

Data Security and Privacy Concerns: As AI becomes more integrated, the importance of robust cybersecurity measures escalates. Ensuring user data privacy and safeguarding against unauthorized access are fundamental to fostering user trust.

Regulatory Frameworks: The rapid evolution of AI technologies necessitates the development of regulatory frameworks that ensure ethical implementation and mitigate biases. Without such frameworks, there is a risk of unregulated AI practices adversely impacting both users and businesses.

Ethical Considerations: Ethical vigilance is essential to ensure that AI algorithms operate fairly and without bias. This includes equitable treatment of users and restaurants in recommendation algorithms and ensuring that AI-driven marketing practices align with ethical standards.

Analysis of survey findings

To better understand user attitudes toward AI in food aggregators, a survey was conducted to assess perceptions, interests, and concerns. The data present a nuanced view of user sentiments, highlighting both enthusiasm for AI-driven features and concerns regarding transparency and data security.

User Perception of AI in Enhancing Experience

Survey responses suggest a moderately positive outlook on AI's role in improving user experience.

Approximately 44.40% of respondents affirm that AI features have enhanced their experience with online food ordering platforms, suggesting satisfaction with personalized recommendations, optimized service interactions, and streamlined user interfaces. However, a considerable proportion (42.40%) remains ambivalent, potentially indicating a lack of awareness or understanding of AI's impact on their experience. This ambivalence underscores the need for further user education on AI's practical benefits. A minority of 13.20% expressed dissatisfaction with AI, indicating potential areas for improvement in the AI-driven user experience.

Interest in Future AI-Driven Features

The data reveal substantial interest in future AI applications, such as voice ordering and IoT integration. With 43.10% of users expressing interest and an additional 17.40% showing strong interest, there is evident enthusiasm for advanced functionalities that could enhance convenience and personalization. This trend aligns with a broader shift toward more intuitive, hands-free digital interactions. However, a neutral response from 26.40% of participants suggests that a sizable segment of users may require more information or demonstrations of the practical benefits of these features. Meanwhile, the minority expressing limited interest (6.30% slightly interested, 6.90% not interested) may reflect apprehensions about usability, security, or privacy implications associated with complex AI functionalities.

Key Concerns Regarding AI in Online Food Aggregators

When asked about primary concerns, respondents highlighted data privacy (29.20%) and financial information security (32.60%) as top issues. This reflects a broader societal concern about data vulnerabilities in digital ecosystems, where breaches and data misuse have become more prevalent. Concerns over recommendation accuracy (18.10%) and over-reliance on technology (18.10%) also suggest user apprehension about AI's decision-making reliability and a preference for a balance between AI automation and human oversight. Minimal concern was noted regarding the replacement of human interactions (0.70%) and the accuracy of information about restaurants (0.70%), indicating that these issues are not currently viewed as significant by users but may warrant monitoring as AI adoption increases.

Demand for Transparency in AI Usage

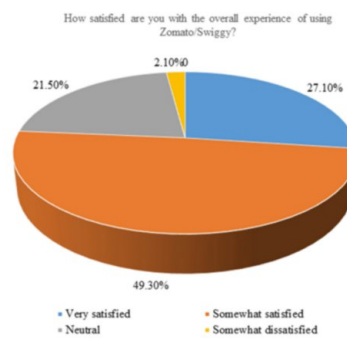
An overwhelming majority (72.90%) expressed a desire for greater transparency in AI usage on these platforms. This finding highlights a significant trust gap, where users recognize AI's benefits but are wary of its opaque mechanisms. Transparency in AI-driven systems has been repeatedly emphasized in existing literature as crucial for consumer trust, particularly in applications where data-driven decisions affect user experience directly. Only a small percentage (4.90%) opposed greater transparency, underscoring the potential benefit of clear and accessible information about AI processes. By enhancing transparency, online food aggregators have an opportunity to strengthen trust and loyalty among their user base.

Implications and Future Research

The survey results underscore a user base that is both optimistic about and cautious of AI advancements in online food aggregator platforms. There is a clear appetite for enhanced functionality through AI-driven innovations, balanced by strong expectations for transparency, data security, and ethical use. These findings suggest the need for a user-centered approach, where technological innovation is accompanied by trust-building measures, including transparent AI practices, comprehensive data protection, and user education on AI's role in the platform experience. Further research could explore these themes to inform best practices and policy frameworks, addressing evolving consumer needs and ethical considerations in AI-integrated services.

Overall experience: analysis of user satisfaction with Zomato and Swiggy

This section examines user satisfaction with the overall experience of using Zomato and Swiggy, based on survey data. Respondents were asked to rate their satisfaction levels, categorized into five options: Very Satisfied, Somewhat Satisfied, Neutral, Somewhat Dissatisfied, and Very Dissatisfied and the data thus obtained are presented below and also depicted in Figure 21.

**FIGURE 21: Overall experience**

Source: Author's own work

Satisfaction Levels

The majority of respondents reported positive experiences with these platforms. Specifically, 27.10% indicated that they were "Very Satisfied," while a substantial 49.30% were "Somewhat Satisfied." Together, these responses represent over three-quarters of the survey population (76.4%), suggesting that a significant portion of users have a generally favorable view of their interactions with Zomato and Swiggy.

This high satisfaction rate could be attributed to various factors, including user-friendly interfaces, efficient delivery processes, and personalized recommendations powered by AI, as discussed in prior sections of this study. These positive experiences reflect the platforms' success in meeting consumer expectations for convenience, quality of service, and overall engagement.

Neutral Responses

Approximately, 21.50% of respondents expressed a "Neutral" stance toward their overall experience with the platforms. This sizable neutral segment may indicate that some users find the platforms functional but not particularly compelling. This ambivalence could reflect areas where Zomato and Swiggy might have room for improvement, such as enhancing the consistency of services, addressing technical issues, or further personalizing user interactions.

Dissatisfaction Levels

Only a small fraction of respondents (2.10%) reported being "Somewhat Dissatisfied," and none indicated being "Very Dissatisfied." This low dissatisfaction rate implies that few users have significant grievances with these platforms. However, the presence of even a small dissatisfied segment suggests that certain pain points may need to be addressed, potentially related to customer service, delivery accuracy, or reliability issues. Understanding and addressing these minor concerns could help both platforms enhance user satisfaction further and potentially convert neutral or slightly dissatisfied users into satisfied ones.

Implications and future research: The data reveal a generally positive user experience with Zomato and Swiggy, as indicated by the high satisfaction ratings. However, the neutral and somewhat dissatisfied responses highlight areas for potential improvement. Future research could explore the specific factors contributing to these neutral or mildly negative perceptions, providing further insights for platform optimization. Additionally, further investigation could assess whether satisfaction varies based on user demographics, frequency of platform usage, or exposure to AI-driven recommendations and features.

Additional Comments and Suggestions

User feedback on AI within Zomato and Swiggy presents a nuanced blend of innovation aspirations and caution. While some respondents envision advancements like sensory simulations (e.g., taste previews) and voice-enabled ordering, others highlight concerns around data privacy, security, and AI's overreach in basic functions. Key insights are as follows.

Desire for Enhanced Functionality: Suggestions for voice commands, precise Estimated Time of Arrival predictions, and dynamic customer feedback analysis indicate users' interest in AI's potential to improve convenience and interaction quality.

Human Touch and Trust Concerns: Many users express a preference for human support over chatbots for complex issues, signaling that AI cannot fully replace human customer service. Privacy concerns and skepticism around AI's intrusion into personal data are recurring themes.

Operational Improvements: Users suggested areas like improved food packaging, delivery tracking, and adherence to hygiene standards, with a specific interest in features like secure delivery identification.

Mixed Sentiment Toward AI Integration: While some find AI in food ordering beneficial, others view it as redundant or invasive, underscoring the need for a balanced approach that respects user preferences for simplicity and transparency.

This feedback illustrates a diverse perspective on AI, where users appreciate both its convenience and efficiency, but advocate for restrained, responsible innovation.

Platform analysis: AI integration in Zomato and Swiggy

A detailed platform analysis of Zomato and Swiggy was conducted to evaluate the integration of AI into their core functionalities. This analysis focuses on critical aspects of user interaction, such as search algorithms, delivery tracking, and customer support systems. By investigating these components, the study aims to highlight how AI-driven technologies enhance operational efficiency and user experience within the food aggregator ecosystem.

In the context of search functionalities, both platforms employ AI to optimize search results by learning user preferences over time. These AI models personalize search outcomes by analyzing historical data, user behaviors, and contextual factors such as location and time of day. This not only improves search accuracy but also elevates user satisfaction by providing tailored recommendations.

Similarly, AI plays a pivotal role in delivery tracking, where predictive algorithms estimate delivery times based on real-time traffic data, restaurant preparation speeds, and courier availability. Machine learning models continually refine these predictions, ensuring more accurate tracking and better user communication.

Customer support, another key component, utilizes AI in the form of chatbot interactions and automated responses. These systems are designed to handle a wide range of queries, from order status to refund requests, reducing the need for human intervention while providing quick and efficient solutions to users. AI models in customer support are typically based on natural language processing, which enables the chatbots to understand and respond to user queries with increasing sophistication.

Through this functional analysis, it becomes clear that AI is deeply integrated into multiple layers of Zomato and Swiggy's platforms, enhancing search, delivery, and customer service. Understanding these technical implementations provides a comprehensive view of how AI contributes to user satisfaction, operational scalability, and platform competitiveness in the online food delivery industry.

Company reports analysis

Annual reports and press releases from Zomato and Swiggy reveal their strategic goals and initiatives related to AI integration within their business models. Both companies are leveraging AI technologies to improve user experience, streamline operations, and maintain a competitive edge in the rapidly evolving food delivery market. As per the Research and Markets report, AI in Food & Beverages market is projected to surge from USD 9.68 billion in 2024 to USD 48.99 billion by 2029, reflecting a robust CAGR of 38.30% (Research and Markets, 2024). Driven by evolving consumer preferences for fast, affordable, and convenient options, industry leaders are increasingly adopting AI and machine learning to enhance operational efficiency and maintain competitiveness in a rapidly shifting landscape.

Zomato

Vision and strategy: Zomato's annual reports (Zomato, 2022), (Zomato, 2023), and (Zomato, 2024) emphasize their commitment to using AI to enhance personalization. By employing machine learning algorithms, Zomato tailors food recommendations based on user preferences and order history, thereby increasing customer engagement.

Operational efficiency: The company has integrated AI to optimize delivery logistics, predicting delivery times more accurately and thus improving operational efficiency. This not only enhances user satisfaction

but also reduces costs associated with delays.

Customer support: Zomato has implemented AI-driven chatbots that provide instant support to customers, resolving queries effectively and freeing human agents to handle more complex issues (Bhutani V, 2023) (Gagneja, 2024). This approach improves response times and enhances customer service.

Swiggy

Strategic goals: Swiggy's reports highlight a focus on AI as a core component of their growth strategy. The company utilizes AI to analyze consumer behavior and market trends, allowing for more informed decision-making and strategic planning (Mathew J, 2024), (Rao M, 2023), (Somani D, 2024), and (Swiggy Diaries, 2024).

Personalization and engagement: Similar to Zomato, Swiggy employs AI to create personalized user experiences, recommending dishes and restaurants based on individual preferences. Their AI algorithms also analyze real-time data to tailor promotions and offers, thereby driving user engagement.

Data privacy and ethical considerations: Both companies acknowledge the importance of data privacy in their reports. They outline their commitment to transparent data practices and ethical AI usage, recognizing that building user trust is essential for long-term success. Swiggy, for instance, has emphasized its efforts to ensure compliance with data protection regulations, addressing potential biases in their AI systems.

Through these multi-faceted AI applications, Zomato and Swiggy exemplifies how technology can transform every aspect of a business, from customer experience to operational processes and community support, setting a benchmark for innovation in the online food aggregator industry.

Discussion

Zomato and Swiggy leverage AI-powered recommendation systems to personalize user experiences, analyzing factors like past orders, browsing history, and location to deliver tailored suggestions. These systems rely on machine learning algorithms that analyze user data to recommend relevant restaurants and food options, which not only improve user satisfaction but also increase the likelihood of frequent orders. Research shows that such recommender systems, when optimized, can significantly boost consumer engagement and platform retention, as seen in other food delivery services like Uber Eats, where AI models helped increase gross bookings by providing tailored recommendations (Habil et al., 2023) and (Stanford Report, 2024).

Furthermore, recommendation systems in platforms like Zomato and Swiggy are designed to enhance both short-term user engagement and long-term customer loyalty by addressing multiple objectives, including balancing user preferences with business goals. This approach has proven effective in improving customer retention and driving revenue growth across various industries (Habil et al., 2023) and (Stanford Report, 2024).

Numerous studies on AI-based recommendation systems explore their transformative impact on online platforms, particularly in enhancing user experiences and marketing effectiveness. These systems revolutionize marketing by employing advanced techniques such as deep learning and collaborative filtering to deliver highly personalized content, boosting user engagement and satisfaction. By tackling challenges like data sparsity, cold starts, and information overload, AI-driven tools optimize decision-making and significantly increase conversion rates in dynamic e-commerce environments (Haleem et al., 2022), (Valencia-Arias et al., 2024), (Zhang et al., 2021), and (Torkashvand et al., 2023). Innovations like sentiment analysis and knowledge graphs further refine these strategies, amplifying their impact on marketing outcomes.

The findings of this study align with existing research on the positive impact of AI in online food aggregators. Personalized recommendations, optimized delivery processes, and chatbot-driven customer support enhance user convenience and satisfaction. Despite these advancements, critical challenges remain, including data privacy concerns and algorithmic biases.

Addressing these requires Zomato and Swiggy to build trust through transparent data practices, communicating their data collection and usage practices. Furthermore, continuous monitoring and refinement of AI algorithms are essential to mitigate biases and ensure fair treatment for all users and restaurants on their platforms.

Conclusions

This study highlights the transformative role of AI in India's online food aggregator market,

demonstrating both its potential to enhance user experiences and the challenges that accompany its widespread adoption. The integration of AI by Zomato and Swiggy has significantly improved operational efficiency, personalized recommendations, and customer engagement. Survey findings indicate a largely positive reception of AI-driven features, such as personalized ordering experiences, real-time delivery tracking, and automated customer support. However, user concerns regarding data privacy, algorithmic transparency, and trust signal critical areas that require strategic attention.

While AI has optimized logistics and improved service personalization, the presence of neutral and mildly dissatisfied responses underscores the need for enhanced user education, strengthened security assurances, and greater AI explainability. Moving forward, a user-centered and ethically responsible approach is paramount-one that balances technological innovation with transparency, fairness, and consumer trust. Ensuring clear communication about AI's role, implementing robust data protection measures, and maintaining a hybrid service model that integrates human oversight in customer interactions will be crucial.

Sustained investment in research, ethical AI deployment, and regulatory frameworks will be essential to addressing emerging challenges, including data security risks, algorithmic biases, and the long-term impact of AI on user behavior. Future research should explore demographic variations in AI acceptance, the influence of AI-driven services on consumer loyalty, and the evolving role of AI in shaping food delivery ecosystems.

Ultimately, the success of AI in online food aggregation will depend on its ability to deliver convenience without compromising security, personalization without sacrificing user autonomy, and automation without eliminating human intervention. By fostering transparency, ethical governance, and user-centric innovation, platforms like Zomato and Swiggy can not only refine their AI strategies but also set industry benchmarks for responsible AI adoption. A commitment to these principles will not only enhance consumer trust and satisfaction but also drive long-term sustainability and growth in the sector.

Appendices

Questionnaire used for the study

Introduction:

We are researching the use of Artificial Intelligence (AI) in online food aggregator businesses in India, focusing on Zomato and Swiggy. Your responses will help us understand your experience with these platforms and how AI features are impacting your food ordering habits.

Purpose:

This survey aims to understand how AI impacts user experiences, delivery processes, customer support, and security on Zomato and Swiggy platforms.

Section 1: Demographics

1. Age:

- Under 18
- 18-24
- 25-34
- 35-44
- 45-54
- 55 and above

2. Gender:

- Male
- Female
- Non-binary
- Prefer not to say

3. Location:

- City
 - Urban
 - Suburban
 - Rural
4. Frequency of using online food delivery services:
- Daily
 - Weekly
 - Monthly
 - Rarely
 - Never used

Section 2: Usage of Zomato and Swiggy

5. Which platform do you use more frequently?
- Zomato
 - Swiggy
 - Both equally
6. How long have you been using these platforms?
- Less than 6 months
 - 6 months to 1 year
 - 1-2 years
 - More than 2 years
7. For the platform(s) you use, which features do you find most helpful? (Select all that apply)
- Personalized restaurant recommendations
 - Delivery tracking
 - Search filters (e.g., cuisine, price)
 - Reviews and ratings
 - Chatbot support
 - Other (please specify)

Section 3: Personalized Recommendations

8. How satisfied are you with the personalized food recommendations on these platforms?
- Very satisfied

- Somewhat satisfied
 - Neutral
 - Somewhat dissatisfied
 - Very dissatisfied
9. Do you feel the recommendations accurately reflect your preferences?
- Always
 - Most of the time
 - Sometimes
 - Rarely
 - Never
10. How often do you order food based on the recommendations provided?
- Always
 - Often
 - Sometimes
 - Rarely
 - Never

Section 4: Delivery Optimization

11. How satisfied are you with the typical delivery times on these platforms (Zomato/Swiggy)?
- Very satisfied
 - Somewhat satisfied
 - Neutral
 - Somewhat dissatisfied
 - Very dissatisfied
12. Have you noticed an improvement in delivery speed over time?
- Yes, significantly
 - Yes, slightly
 - No change
 - Delivery times have worsened
13. How often do you use real-time delivery tracking features?
- Always

- Often
- Sometimes
- Rarely
- Never

Section 5: Chatbots and Customer Support

14. How often do you use chatbots for customer support on these platforms

(Zomato/Swiggy)?

- Always
- Often
- Sometimes
- Rarely
- Never

15. How satisfied are you with the responses provided by chatbots?

- Very satisfied
- Satisfied
- Neutral
- Dissatisfied
- Very dissatisfied

16. For complex issues, do you prefer interacting with a human customer support agent?

- Always
- Often
- Sometimes
- Rarely
- Never

Section 6: Data Privacy and Security

17. How concerned are you about data privacy when using these online food aggregator platforms?

- Very concerned
- Somewhat concerned
- Neutral

- Not very concerned
- Not concerned at all

18. Have you ever experienced any security issues (e.g., fraudulent transactions) on these platforms?

- Yes
- No

19. How confident are you in the platform's ability to protect your personal and financial information?

- Very confident
- Confident
- Neutral
- Slightly confident
- Not confident

Section 7: Future Directions and Challenges

20. Do you believe AI features are improving your experience with online food ordering?

- Yes
- No
- Unsure

21. How interested are you in future AI-driven features (e.g., voice ordering, IoT integration)?

- Very interested
- Interested
- Neutral
- Slightly interested
- Not interested

22. What is your biggest concern regarding the use of AI in online food aggregators?

- Data privacy
- Security of financial information
- Accuracy of recommendations
- Over-reliance on technology
- Other (please specify)

23. Would you like to see more transparency regarding how AI is used by these platforms?

- Yes
- No

- Unsure

Section 8: Overall Experience

24. How satisfied are you with the overall experience of using Zomato/Swiggy?

- Very satisfied
- Somewhat satisfied
- Neutral
- Somewhat dissatisfied
- Very dissatisfied

Section 9: Additional Comments

25. Please provide any additional comments or suggestions regarding your experience with AI on Zomato and Swiggy.

Thank you for participating in this survey. Your responses are valuable in understanding the impact of AI in online food aggregator businesses.

Secondary research data used for this study

Secondary data used for the study are presented in Table [1](#).

Source Title	Date	Publisher/Author	Link
Online Food Delivery—India	July 2024	Statista	https://www.statista.com/outlook/emo/online-food-delivery/india#revenue
How India Eats	2024	Bain & Swiggy	https://www.bain.com/insights/how-india-eats-webinar/
How India Eats (Alternate)	2024	Hotelier India	https://www.hotelierindia.com/operations/by-2030-the-indian-food-services-market-is-expected-to-expand-by-110-million
The Role of AI and Machine Learning in Logistics	n.d.	Grydd	https://grydd.com/the-role-of-ai-and-machine-learning-in-logistics/
AI in Logistics: Transforming Operational Efficiency	May 31, 2024	Leleko and Holoborodko	https://spd.tech/artificial-intelligence/ai-in-logistics-transforming-operational-efficiency-in-transportation-businesses/
AI and ML Are Revolutionizing the Last Mile	April 11, 2024	Leigh	https://www.bringg.com/blog/delivery/ai-machine-learning-last-mile/
AI in Logistics and Supply Chain	n.d.	Takyar	https://www.leewayhertz.com/ai-in-logistics-and-supply-chain/
Transforming Logistics with AI	March 15, 2024	RTS Labs	https://rtslabs.com/ai-logistics-customer-experience
AI in Food & Beverages - Market Share Analysis	February 2024	Research and Markets	https://www.researchandmarkets.com/reports/4534520/ai-in-food-and-beverages-market-share-analysis
Zomato Annual Report 2023-24	2024	Zomato	https://b.zmtcdn.com/investor-relations/Zomato_Annual_Report_2023-24.pdf
Introducing Zomato AI: Your Foodie Buddy	September 1, 2023	Bhutani	https://blog.zomato.com/introducing-zomato-ai-your-foodie-buddy
Zomato working on AI-based features	November 1, 2024	Business Standard	https://www.business-standard.com/industry/news/zomato-working-on-ai-based-features-for-enhancing-customer-experience-123060800340_1.html
How India's delivery giants are using Gen AI	October 9, 2024	The Indian Express	https://indianexpress.com/article/technology/artificial-intelligence/zomato-myntra-how-india-delivery-giants-using-gen-ai-9611713/
Reflecting on a year of generative AI at Swiggy	February 22, 2024	Mathew	https://bytes.swiggy.com/reflecting-on-a-year-of-generative-ai-at-swiggy-a-brief-review-of-achievements-learnings-and-13a9671dc624
Swiggy's Generative AI Journey	July 20, 2023	Rao	https://blog.swiggy.com/2023/07/20/swiggys-generative-ai-journey-a-peek-into-the-future/
How Zomato, Swiggy, Myntra and others use Gen AI	October 14, 2024	Somani/Times of India	https://timesofindia.indiatimes.com/technology/tech-news/how-zomato-swiggy-myntra-and-other-delivery-giants-of-india-are-using-gen-ai/articleshow/114147626.cms
What's driving India's food services industry	July 5, 2024	Swiggy Diaries	https://blog.swiggy.com/2024/07/05/from-dining-trends-to-delivery-dynamics-whats-driving-indias-food-services-industry/

TABLE 1: Secondary data used for the study

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

Concept and design: Angad Munshi

Acquisition, analysis, or interpretation of data: Angad Munshi, Ashim Raj Singla

Drafting of the manuscript: Angad Munshi

Critical review of the manuscript for important intellectual content: Angad Munshi, Ashim Raj Singla

Supervision: Angad Munshi, Ashim Raj Singla

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Human subjects: Consent was obtained or waived by all participants in this study. **Animal subjects:** All authors have confirmed that this study did not involve animal subjects or tissue. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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