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A Data-Driven Study on Customer Satisfaction in Smart Home Automation Services

Dr. S. Ramasubramanian[1], Charlie Thomas V[2], Madeshwaran R[3]

[1]*Associate Professor, Department of Aviation, Vels Institute of Science, Technology and Advanced Studies Chennai – 600117, Tamil Nadu, India*

[2]*Assistant Professor, Department of Aviation, MH Cockpit Private Limited, Tamil Nadu – 600117, India*

[3]*Student (MBA – Aviation & Airport Management), Department of Aviation, Vels Institute of Science, Technology and Advanced Studies, Chennai – 600117, Tamil Nadu, India*

***Abstract*--** **In this study, the perceptions and level of customer satisfaction towards smart home automation services delivered by the organization, Chennai have been explored. It is important to provide high quality and efficient services to meet customer expectations, as the competition in this industry of IT and automation has increased significantly over time. A descriptive research approach was followed, collecting primary data through a survey questionnaire conducted on 200 customers within three months. The data analysis involved use of statistical methods such as percentage, Chi-Square test and ANOVA. The findings reveal that although customers are mostly satisfied with the services, there is need for improvement in areas such as promptness, communication and reliability. Service delivery, technical support and clear communication are the most important factors contributing to customer satisfaction. The main conclusion is that through customer-oriented service and improving service quality, it is possible to increase customer satisfaction and loyalty in order to achieve sustainable growth in the industry.**

***Keywords*--Smart Home Automation; Customer Satisfaction; Customer Perception; Service Quality; IT Services; Responsiveness; Reliability; Technical Support; Customer-Centric Strategy; the organization**

I. INTRODUCTION

There has been tremendous development in the field of information technology. It has changed various aspects of work and personal life. Smart home automation has become one of the key applications of IT enabled services. They use advanced software tools, networks, cloud computing technologies, and technical services to provide better efficiency and convenience. Due to rapid expansion in this sector, the expectations of customers from such IT enabled services have also evolved.

In this regard, customer perception and customer satisfaction are important parameters that reflect the effectiveness of such services. Customer satisfaction is a sign of positive customer experience. A satisfied customer becomes a loyal customer who does not hesitate to go back again to the same service provider.

Moreover, their positive perception helps build a good reputation in the market. On the other hand, dissatisfaction leads to losing customers and bad reviews which may be damaging to service providers. Thus, it is important to understand customer expectations in a very competitive IT automation industry.

Customer satisfaction can be affected by various factors like quality of service, delivery time, technical skills of service provider, communication, customizability, cost of services and security of personal data. Responsiveness and effective communication are two of the most critical dimensions in service-oriented industries that require continuous customer interaction.

A) Problem Statement

However, even though customers have an increasing demand for automation services and IT solutions, ensuring customer satisfaction consistently is one of the major challenges that service providers are facing. Some of the main reasons include delayed response time, inefficacy of the communications process, unreliability of the services provided, and inconsistencies between customer expectations and the real services provided.

In the particular case of the organization, despite the variety of services offered, it is necessary to carry out an analysis of the level of customer satisfaction and the aspects influencing it. Without performing this analysis, it is quite impossible to identify possible gaps in services offered and improve them to increase the level of client satisfaction.

The purpose of the current study is to conduct research on the level of customer satisfaction and perception based on primary information gathered through questionnaires completed by the company's clients in Chennai. Nevertheless, this study has some limitations associated with the methods used, such as the use of surveys, as well as the number of respondents and the duration of the study.

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B) Motivation

There have been many recent advances made in the field of home automation systems and technology as well as the increase in the number of businesses using information technology to provide their services. The increased dependence on technology and automation in businesses calls for organizations to come up with high-quality products and services. Customer satisfaction has been identified as one of the major aspects in the field of business operations and management in competitive markets. There are various factors which are responsible for influencing the satisfaction levels of customers, including communication and reliability among others.

This study is necessitated by the need to evaluate how the customers perceive the smart home automation services provided by various companies. More specifically, the study will seek to explore some of the key factors which have been found to influence the level of customer satisfaction. The research will be carried out in the context of the organization.

II. Literature Review

Service quality is identified in prior research as one of the key determinants of customer satisfaction with IT services. For instance, Sharma (2026) [1] and Kumar (2026) [2] have pointed out that factors such as reliability, responsiveness, and technical know-how are among those which affect customer perception. Besides improving customers' experience of services, high service quality increases their level of trust and loyalty. The timely delivery of services is another factor considered important to customer satisfaction.

On the other hand, communication and interactions with customers help in creating positive customer experiences. According to Reddy (2026) [3] and Tiwari (2025) [4], open, transparent, and consistent communication facilitates stronger relations between clients and providers of services. Otherwise, a lack of communication often leads to misunderstandings and delays.

Technical assistance and support play an equally critical part. According to Khan (2025) [5] and Das (2025) [6], rapid problem resolution, effective handling of complaints, and after-service support greatly influence customer satisfaction levels. Slow response to technical issues may create dissatisfaction and distrust.

Customer Relationship Management (CRM) and feedback systems have also been covered extensively in the literature. As per Patel (2026) [7] and Joshi (2025) [8], CRM systems allow for better customer engagement, personalization, and communication. The use of regular feedback helps companies recognize any deficiencies and improve their services.

Likewise, Gupta (2026) [9] has explained the significance of using surveys, Customer Satisfaction Score (CSAT), and Net Promoter Score (NPS).

Moreover, technological development and automation can play significant roles in achieving client satisfaction. As explained by Nair (2026) [10] and Iyer (2026) [11], automation brings about efficiency, effectiveness, accuracy, and consistency when delivering service quality. It is important to consider that issues such as complexity and requirements for skilled staff are likely to arise.

Another factor that can help achieve client satisfaction is through the use of various models of service quality. According to Chatterjee (2025) [12], the use of the SERVQUAL model enables one to evaluate various dimensions of service quality such as reliability, responsiveness, assurance, empathy, and tangibility.

Research conducted in relation to telecommunications and other service industries suggests that pricing, trust, quality, and communication affect customers' levels of satisfaction (Pandey & Vashisht, 2019 [13]; Agyapong, 2010 [14]). All these factors can equally apply in the evaluation of IT services and smart home automation services since they operate under similar dynamics.

Furthermore, other dimensions that can be added include cost efficiency, customization, flexibility, and data security. Customized solutions, cost efficiency, and data security are some of the expectations that customers have in modern-day services, particularly those associated with technology innovations such as home automation [15] & [16].

To sum up, the reviewed literature suggests that customer satisfaction is a complex phenomenon which depends on several factors including quality of services, communication, responsiveness, technical expertise, technology adoption, cost efficiency, and customer orientation. Companies that successfully utilize these factors will find it easier to increase their levels of customer satisfaction.

III. Research Methodology

This section explains the research methodology used in conducting the research. The methodology includes the research design, sampling procedure, number of respondents, data collection methods, and data analysis techniques. The use of methodology ensures that proper data collection, analysis, and interpretation are done in relation to customer perception and satisfaction.

A) Research Design

A research design can be defined as the plan or structure of the research that is put in place in order to conduct research.

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Research design ensures that data is collected in a systematic manner and that it meets the requirements of research. This helps in collecting accurate and economic data for research purposes. In this case, a descriptive research design has been used due to its appropriateness in analyzing customer perceptions and attitudes, as well as the level of customer satisfaction.

B) Sampling Technique

The sampling technique is an important process involved in research, whereby a representative sample is drawn from a wider population for the purpose of conducting a survey. Convenience sampling has been used for this particular study since it is more convenient and straightforward in terms of data gathering. Primary data will be used in this study. The pilot study carried out earlier provided useful information regarding the validity of the questionnaire and whether the research is feasible.

C) Sample Size

Sample size of the study comprises of 200 respondents. This sample size has been chosen to represent the views of the customers of the organization. This sample size has been found appropriate for performing statistical analysis as well as forming conclusions about customer perception and satisfaction.

D) Methods of Data Collection

This study is based upon both primary as well as secondary data.

Primary Data: Primary data refers to the data that are collected for the first time from the respondents themselves and are hence original. In this study, primary data was collected through a structured questionnaire, which was given to the respondents. The questionnaire was made up of closed and open-ended questions. Closed-ended questions included multiple choices and checklists, which could facilitate quantitative analysis. Open-ended questions provided the respondents an opportunity to share their opinions.

Secondary Data: In addition to collecting the primary data, the secondary data for this study was gathered from different sources, such as books, articles, journals, and related websites. The data obtained was used in analyzing the data and forming conclusions.

E) Statistical Techniques

In order to effectively analyze the data collected, the following statistical techniques have been used:

- Percentage Analysis
- Chi-square test
- Analysis of Variance (ANOVA)

Percentage analysis is one of the ways through which information can be presented in percentages, making it easier to analyze and interpret findings. This helps in establishing how information or results have been distributed among various respondents or groups.

The Chi-Square test is an approach through which relationships between qualitative variables can be examined in order to establish their degree of significance. This is a very common technique used in hypothesis testing. The chi-square value calculated is compared with the value presented in the table at a certain level of significance and degrees of freedom.

IV. Analysis And Interpretation

This chapter deals with the analysis and interpretation of the study. For this study, primary data are collected and used for testing the hypotheses. The following statistical tools have been applied: Percentage Analysis, Chi-Square Test, and ANOVA.

A) Percentage Analysis

Percentage refers to a special kind of ratio in making comparison between two or more data and to describe relationships. Percentage can also be used to compare the relative terms in the distribution of two or more sources of data.

Gender: Out of 200 respondents, 120 (60%) are male and 80 (40%) are female. Hence, the majority of respondents are male.

Age Group: 30 (15%) belong to below 20 years, 120 (60%) are in the 20-30 years group, 30 (15%) are in the 30-40 years group and 20 (10%) are above 40 years. The majority fall in the 20-30 years age group.

Area of Residence: 90 (45%) reside in urban areas, 100 (50%) in rural areas and 10 (5%) in semi-urban areas. The majority reside in rural areas.

Educational Qualification: 40 (20%) are educated up to 10th, 50 (25%) up to 12th, 40 (20%) are graduates and 70 (35%) are postgraduates. The majority are postgraduate holders.

Occupation: 40 (20%) are self-employed/entrepreneurs, 70 (35%) in public sector, 50 (25%) in private sector and 40 (20%) are students. The majority are employed in the public sector.

Monthly Income: 70 (35%) earn up to Rs.10,000, 90 (45%) earn Rs.10,001–Rs.15,000, 30 (15%) earn Rs.15,001–Rs.30,000 and 10 (5%) earn above Rs.30,000. The majority earn Rs.10,001–Rs.15,000.

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Type of IT Services Used: 22 (11%) use software applications, 50 (25%) hardware support, 42 (21%) networking, 58 (29%) cloud services and 28 (14%) technical support. The majority use cloud services.

Reliability of IT Services: 16 (8%) rated it very poor, 34 (17%) poor, 62 (31%) average, 52 (26%) good and 36 (18%) excellent. The majority rated it as average.

Responsiveness: 24 (12%) said very slow, 36 (18%) slow, 56 (28%) neutral, 46 (23%) fast and 38 (19%) very fast. The majority expressed neutral responsiveness.

Technical Expertise: 20 (10%) rated very low, 28 (14%) low, 34 (17%) average, 70 (35%) high and 46 (23%) very high. The majority rated the expertise as high.

Problem-Solving Effectiveness: 22 (11%) said very ineffective, 16 (6%) ineffective, 50 (25%) neutral, 70 (35%) effective and 46 (23%) very effective. The majority found IT services effective.

Overall Satisfaction: 94 (47%) are very satisfied, 50 (25%) satisfied, 34 (17%) neutral, 16 (8%) dissatisfied and 8 (4%) very dissatisfied. The majority are very satisfied.

Recommendation to Others: 176 (88%) would recommend these services to others, while only 24 (12%) would not. The majority would recommend the services.

B) Chi-Square Analysis

The chi-square test has been performed to find the relationship between demographic factors and the level of customer satisfaction.

- There is no significant association between gender and customer satisfaction (calculated $\chi2 = 5.556 <$ table value 5.991). Null hypothesis accepted.
- There is a significant association between age and customer satisfaction (calculated $\chi2 = 40.509 >$ table value 12.592). Null hypothesis rejected.
- There is a significant association between area of residence and customer satisfaction (calculated $\chi2 = 40.741 >$ table value 9.488). Null hypothesis rejected.
- There is a significant association between educational qualification and customer satisfaction (calculated $\chi2 = 69.742 >$ table value 12.592). Null hypothesis rejected.
- There is a significant association between occupation and customer satisfaction (calculated $\chi2 = 29.742 >$ table value 12.592). Null hypothesis rejected.
- There is a significant association between monthly income and customer satisfaction (calculated $\chi2 = 68.783 >$ table value 12.592). Null hypothesis rejected.

C) ANOVA Analysis

ANOVA analysis was used to determine whether there is any difference in customers' perception regarding IT services among demographic determinants.

- For gender, the p-value (0.000) is less than 0.05, indicating a significant difference in customer perception.
- For age, the p-value (0.000) is less than 0.05, indicating a significant difference across age groups.
- For area of residence, the p-value (0.012) is less than 0.05, indicating a significant difference between rural and urban respondents.
- For educational qualification, the p-value (0.000) is less than 0.05, indicating a significant difference in perception.
- For monthly income, the p-value (0.002) is less than 0.05, indicating a significant difference in perception.

The ANOVA results indicate that there is significant variation in customer perception about IT services in relation to their demography. These differences can arise from various reasons such as their expectations, experience, and even usage patterns. Hence, it is important for companies to ensure personalization of the service delivery and communication process.

V. RESULTS AND DISCUSSION

A) Demographic Profile and Percentages

Analysis of the demographic data suggests that most of the respondents (60%) are males who fall within the age bracket of 20–30 years (60%). This implies that young professionals make up a sizeable number of customers of IT services. It should be mentioned that half (50%) of the survey respondents hail from the rural areas. Thus, IT services have become quite popular outside of urban centers.

Regarding the level of education, one-third of respondents (35%) hold postgraduate degrees, whereas another third (35%) work in the public sector. Most of the respondents (45%) earn between ₹10,001 and ₹15,000 per month, which is indicative of IT services being quite popular among people with average incomes.

When talking about the use of IT services, it has been established that 29% of the respondents use cloud computing services. In assessing the quality of the services, nearly a third (31%) of the respondents stated that their reliability is average. Likewise, 28% of the survey respondents have neutral views concerning the speed of response of the IT support team, which indicates the necessity of improving the promptness of responses and providing better customer support.

Additionally, 35% of the survey respondents found that the IT services effectively solve their issues. A large percentage (47%) indicated their high level of satisfaction with the IT services offered. Notably, 88% declared their willingness to refer other people to these IT services.

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Interpretation: It has been identified from the analysis that the customers are happy with the technical competency of IT services but there is a requirement for improvement regarding its responsiveness and reliability. The high level of recommendations shows the trust of the customers, and improving the quality of services will increase their satisfaction.

B) Chi-Square Test Findings

From the results, demographic determinants such as age, education level, occupation, and income are key in determining customer satisfaction. However, gender has no significant effect on customer satisfaction. The result means that IT service providers need to develop tailored strategies that satisfy the expectations of diverse customers.

C) ANOVA Findings

The results from ANOVA analysis indicate that there is significant variation in customer perception about IT services in relation to their demography. These differences can arise from various reasons such as their expectations, experience, and even use. Hence, it is important for companies to ensure personalization of the service delivery and communication process.

D) Overall Discussion

The overall results show that there are several factors that affect the satisfaction level of customers using IT services. Most customers have an affirmative attitude toward IT services, especially regarding technical expertise and problem-solving capability. On the other hand, the response rate and reliability should be improved to improve the quality of customer experience.

From the statistical analysis, the results also reveal that demographic factors have a significant influence on customer perception and satisfaction levels. The findings stress the importance of a customer-oriented strategy, whereby services are provided based on the requirements of specific customer segments. Finally, service responsiveness, reliability, and feedback systems should be used to improve the quality of customer experience and create a strong relationship with the clients.

VI. Conclusion

This research shows that customers' perceptions and satisfaction levels significantly contribute to the success of IT service companies and their performance. Overall, the clients of the organization are satisfied with the offered services and their level of reliability. Nevertheless, there are aspects which require improvement in order to be able to respond to changing customers' expectations.

From the analysis conducted, it was found out that factors such as service delivery speed, technical assistance provided, communication processes, and service reliability significantly affect customers' satisfaction. It means that addressing the aforementioned issues would help improve the clients' experience and ensure their loyalty to the brand.

To address the identified shortcomings, it is proposed to adopt a customer-oriented approach in delivering services and focus on meeting all customers' needs and expectations. By doing so, it will be possible to ensure service delivery excellence and improve the company's performance in the competitive market environment.

Thus, by implementing customer-oriented approaches, the organization will be able to attract more clients, improve their satisfaction rates, and foster company growth and development.

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