An Analysis of the Demand for AC Repair and Services Via Online Platforms in Vadodara

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Abstract: **The increasing usage of air conditioners with the advancement of digital technology has provided a complete set of challenging parameters for online AC repair and service sites. This study is an attempt to examine the different emotions of consumer behaviour in refreshing service of air conditioner through online sector in Vadodara city and also it concentrates on service challenges.**

This is because most consumers believe that online booking for service is more convenient than traditional repair. The study analyses drivers of customer choice, such as service quality, price transparency, ease of booking and technician reliability.

Primary data was collected through surveys and interviews among customers and service providers in Vadodara. There are more numbers of on-line AC repairing service availability, which offer multiple advantages like approved expert, immediate response and transparent price etc. However, inconsistent service quality, price volatility and a lack of trust continue to hinder penetration. The report also discusses competition among online service platforms, the role of independent technicians, and inconsistency in seasonal demand. Customer The trust can be gained, service delivery can be maximized, and market base can be expanded.

Overall, this study provides strong information to web service platforms themselves, so that they can adjust the service-oriented strategy according to the needs of consumers. At the end of this paper some recommendations are made which will increase to trust of customers, the service will become more reliable and the online AC repair services industry in Vadodara will further consolidate.

Keywords: **AC Repair Services, Online Service Platforms, Consumer Behaviour, Digital Technology, Service Quality, Price Transparency, Ease of Booking, Technician Reliability, Customer Satisfaction, Market Trends.**

INTRODUCTION

As we all know, comfort is a compromise, and thus we should make sure air conditioners and systems are functioning efficiently in cities like Vadodara, and for this reason, there has been increasing demand for a trustworthy AC repair and maintenance services. The website service sites obtain similar job equipment from online retailers as traditional practices of obtaining repair services through word of mouth. These services make sure shoppers with a few clicks can reserve to clear prices from a certified technician visiting at a specified time and thus become the most preferred choices over traditional service staff.

By conducting research on the determinants of consumer preference and prevailing trends in the market, this study has been conducted under the umbrella of online sites for demand of AC repair services in Vadodara. The research seeks to examine the perceived factors like service quality, price affordability, customer confidence and flexibility towards online platforms that could be the deciding factors in customers' decisions to use online repair services. The research also identifies issues experienced by consumers and service providers alike, such as inconsistencies in service quality, prices and seasonal fluctuations.

With the increasing role of digital platforms in the home service sector, knowing what impact it has on accessibility of service, customer interaction and business growth is critical. In the context of consumer behaviour and industry dynamics, this study brings to the fore how online AC repair platforms can improve service effectiveness, establish trust with customers, and increase their market reach. The findings of this research will direct service providers to position their strategies in accordance with consumers' requirements; it will also assist in comprehending the online AC repair service business growth and survival in Vadodara.

PROBLEM STATEMENT

As the heat in India sets in, so does the demand for air-conditioners and AC repair services during that time of the year. A local around you AC repair service has changed the way service providers works but they also are a matter of gossips. People are satisfied with convenience and certified experts but not with service quality, responsiveness, price transparency, and technician reassurance. Service Providers are facing issues in summers, with peak demand, Quality level management, Retain and skill set Challenges more in Gujarat area due to hot summers which causes peak demand and at this time service delivery gets affected.

You have to see how these problems have been dealt with by websites too. There are mobile apps, scheduling tools, GPS monitoring, and so on that technology encourages increasing productivity and enabling services scales. Understanding the Seasonal, Geographical, Vadodara heat does not spare anyone, and most of the service providers will have a good inventory to meet the demands.

The findings in this paper indicate zonal potential for producers and for consumers along with the technology chasm to be crossed where consumer fantasies exceed deliverables. This study articulates visions of home services (i.e. companion robots) through the lens of the digital tipping point including consumer needs, quality criteria to meet, and producer dilemmas. Paper aims to identify the drivers for improving service quality, to create new trust establishment mechanisms, and to analyse how the new AC repair vertical can help in enhancing business processes.

LITERATURE REVIEW

1. Kaur, P., Dhir, A., & Singh, N. (2021) - Consumer adoption of online home services: Insights from AC repair services.

This study investigates consumer adoption trends for online home services, specifically focusing on AC repairs. It highlights factors driving this shift, including convenience and digital accessibility. The findings suggest that familiarity with technology significantly influences consumer decisions. Overall, the research underscores the importance of understanding consumer needs in the digital age.

2. Verma, P., & Prakash, S. (2020) - Role of Digital Platforms in Shaping Consumer Preferences for Home Repair Services.

This paper examines how digital platforms shape consumer preferences in home repair services, emphasizing ease of use and accessibility. It explores how online reviews and ratings affect decision-making. The authors argue that digital platforms enhance consumer confidence in choosing service providers. Ultimately, the study highlights the significant role of technology in modern consumer behaviour.

3. Singh, R., & Sharma, A. (2019) - An Analysis of the Growing Demand for AC Repair Services on E-commerce Platforms in India.

This research analyzes the increasing demand for AC repair services on e-commerce platforms in India. It identifies key factors driving growth, such as increased internet access and changing consumer expectations. The authors highlight the role of competitive pricing and service variety offered by online platforms. The study concludes that e-commerce is reshaping the AC repair market.

4. Gupta, M., & Sinha, R. (2022) - Emergence of On-demand Home Services in India: A Study on Urban Company's Success in AC Repair.

This study explores the success of Urban Company in providing on-demand AC repair services in India. It identifies customer satisfaction, service quality, and effective marketing strategies as key success factors. The authors argue that a strong brand reputation plays a crucial role in consumer trust. Overall, the study emphasizes the potential of on-demand services in transforming home repairs.

5. Joshi, P., & Chawla, S. (2021) - Technological Disruption in Home Services: A Study of Online Platforms for AC Repair.

This paper discusses the technological disruptions in the home services sector, focusing on online AC repair platforms. It explores how technology enhances service delivery and customer engagement. The authors analyse the impact of mobile apps and online booking systems on consumer preferences. The study concludes that continuous innovation is essential for competitive advantage.

6. Patel, N., & Mehta, K. (2020) - The Role of Consumer Trust in the Growth of Online AC Repair Services.

This study examines the critical role of consumer trust in the growth of online AC repair services. It identifies factors influencing trust, including service reliability and transparency. The authors argue that building trust is essential for long-term customer relationships. The findings suggest that service providers must prioritize trust-building strategies to enhance growth.

7. Kumar, A., & Gupta, S. (2022) - Consumer Satisfaction in Online Platforms for AC Repair Services.
This paper investigates factors contributing to consumer satisfaction in online AC repair services. It emphasizes the importance of service quality, timely delivery, and effective communication. The authors find that positive customer experiences lead to repeat business and referrals. The study highlights the need for continuous improvement in service offerings.

8. Reddy, P., & Rao, S. (2021) - Online Platforms for AC Services: An Examination of Service Quality and Customer Experience.
This research examines the relationship between service quality and customer experience in online AC repair platforms. It identifies key quality dimensions, including responsiveness and reliability. The authors argue that high service quality is crucial for customer retention. The findings indicate that enhancing customer experience should be a priority for service providers.

9. Sharma, V., & Aggarwal, R. (2020) - A Comparative Study of Online and Offline AC Repair Services: The Indian Market Perspective.
This comparative study analyses customer satisfaction between online and offline AC repair services. It identifies key differences in service delivery, pricing, and consumer expectations. The authors find that online services generally offer higher convenience and accessibility. The study concludes that understanding these differences can help improve service strategies.

RESEARCH METHODOLOGY

Research Component	Details
Title	AN ANALYSIS OF THE DEMAND FOR AC REPAIR AND SERVICES VIA ONLINE PLATFORMS IN VADODARA
Type of Research	Descriptive research
Source of Data	The study combines data from surveys together with market reports and research articles and statistical data. The project relies on industry reports along with online research articles and market trends along with statistical data as secondary data sources.
Data Collection Method	The researchers collected data via both Internet-based surveys and surveys distributed physically along with formal discussions with representatives from service provider and customer respondents.
Population	In Vadodara there exists a group of residents in need of AC repairs along with providers who conduct both online and traditional AC maintenance services.
Sampling Method	Convenience Sampling / Random Sampling
Sampling Size	The study contains two segments: 200 consumers from Vadodara who access or need AC repair services online and 101 professionals involved in AC repair operations in the same area.
Data Collection	Structured questionnaire (Google Forms for online responses)
Data Analysis	Quantitative: Statistical analysis (descriptive statistics, chi-square, ANNOVA)

Objectives of the study:
- To Examine Consumer Behaviour in the AC Repair Services Market
- To Identify Seasonal and Regional Demand Patterns for AC Repair Services
- To Investigate the Role of Technology in Enhancing AC Repair Service Delivery
- To Evaluate the Challenges Faced by Service Providers on Online Platforms

Analysis:

Hypothesis
Null Hypothesis (H_0):
There is no significant variation in demand for AC repair services across different seasons.
Alternative Hypothesis (H_1):
There is a significant variation in demand for AC repair services based on seasonal.

Through seasonal changes that occurred in summer and winter as well as during monsoon season. 200 of the total 301 responses came from consumers and 101 came from service providers.

Season	Observed Requests (O)
Summer	275
Winter	6
Monsoon	20
Total	301

Based on the uniform demand assumption we should obtain 100.33 requests per season given the total requests amount to 301 and the number of seasons is 3.

The derived E value amounts to 301 divided by 3 equalling 100.33.

Chi-Square Calculation (Chi-Square Goodness of Fit Test)

The Chi-Square (X^2) value requires computation through this following mathematical formula:

$$X2=\sum(O-E)^2/E$$

Season	Observed Requests (O)	Expected Requests (E)	(O - E)	(O - E)²	(O - E)² / E
Summer	275	100.34	174.66	30514.11	304.11
Winter	6	100.33	-94.33	8908.42	88.78
Monsoon	20	100.33	-80.33	6453.14	64.14
Total	301	301	—	—	457.03

The computation results of Chi-Square reached 457.03.

Statistical Decision

Degrees of Freedom (df) = Number of categories - 1 = 3 - 1 = 2

Critical Value (X^2critical) at $\alpha = 0.05$, df = 2 = 5.99

p-value: 5.71×10^{-100} (effectively 0)

Interpretation

The results indicate X^2calculated (457.03) surpasses X^2critical (5.99) while the p-value also remains below 0.05 so we must reject H_0.

AC repair service demands show significant variations depending on the season of each year.

Highest demand in the Summer

Moderate demand in Monsoon

Lowest demand in Winter

The study shows summer season serves as the main time when people request air conditioning unit repair services due to period effects on such services.

ANNOVA: Single Factor of (Service provider respond only)

SUMMARY

Groups Peak Demand During Summer	Count	sum	average	variance
Demand for AC repair services is highest during the summer season.	101	472	4.673267	0.442178
I receive more service requests in summer compared to winter and monsoon.	101	441	4.366337	0.454455
Customers are more willing to pay extra for faster service during summer.	101	436	4.316832	0.698614
Managing customer bookings in summer is more challenging due to high demand.	101	446	4.415842	0.525347
Service delays are more common in summer due to technician shortages.	101	444	4.39604	0.501584

ANNOVA

Source of Variation	SS	df	MS	F	P - value	F crit
Between Groups	7.809901	4	1.9524	3.7230	0.005357	2.389767
Within Groups	262.2178	500	0.524436			
Total	270.0277	504				

Interpretation:

The research hypothesis stands valid when rejection occurs for the null hypothesis which states the group mean values should not be statistically different. Here's why:

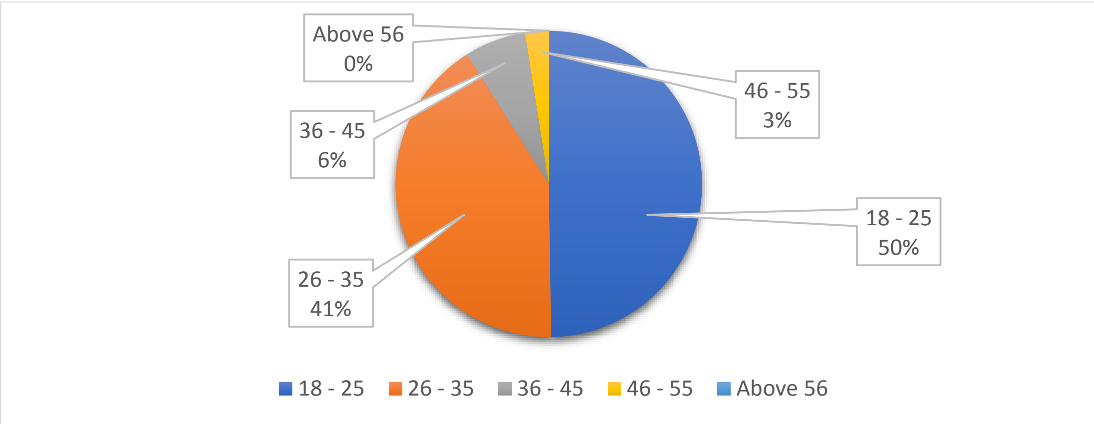
The computed F value 3.723003 surpasses the corresponding F critical value 2.389767.

A significance value of P = 0.005357 drops below the established statistical threshold of 0.05.

The data produces two significant indicators which enable the rejection of the null hypothesis indicating the existence of a meaningful difference between group averages.

Consumer's Data:
(Q.1) Age group.

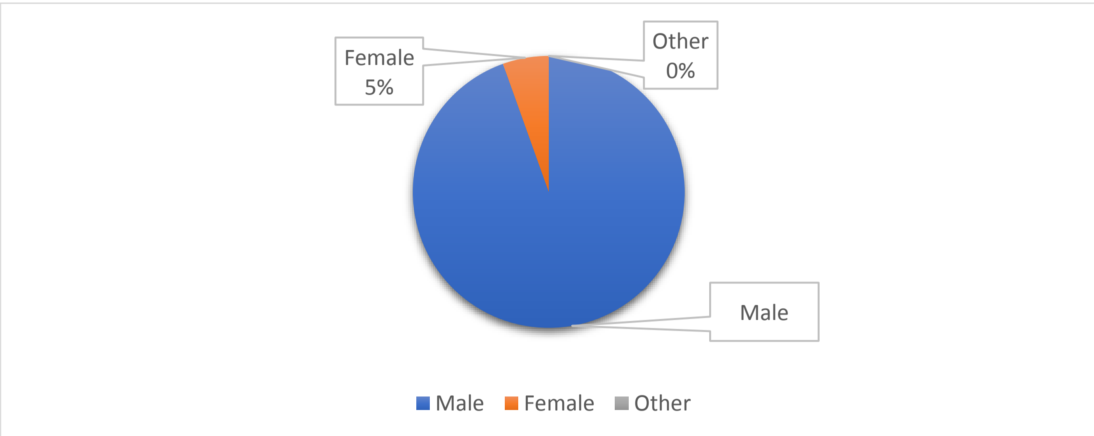
Age Group	Frequency (%)	Valid Percent (%)	Cumulative Percent (%)
18-25	50%	50%	50%
26-35	41%	41%	91%
36-45	6%	6%	97%
46-55	3%	3%	100%
Above 56	0%	0%	100%



Interpretation
Most of the respondents are aged 18-55. Survey participants between 18 and 25 years old dominate since they make up 50% of the population studied while people between 26 and 35 make up the remaining 41%. The study population covering individuals between 36 to 45 years contains 6% of participants whereas 3% of participants come from the group spanning 46 to 55 years. Every likelihood of the respondents from ages 18-55 appeared within the sample range which evenly distributed all total survey participants across these age groups.

(Q.2) Gender.

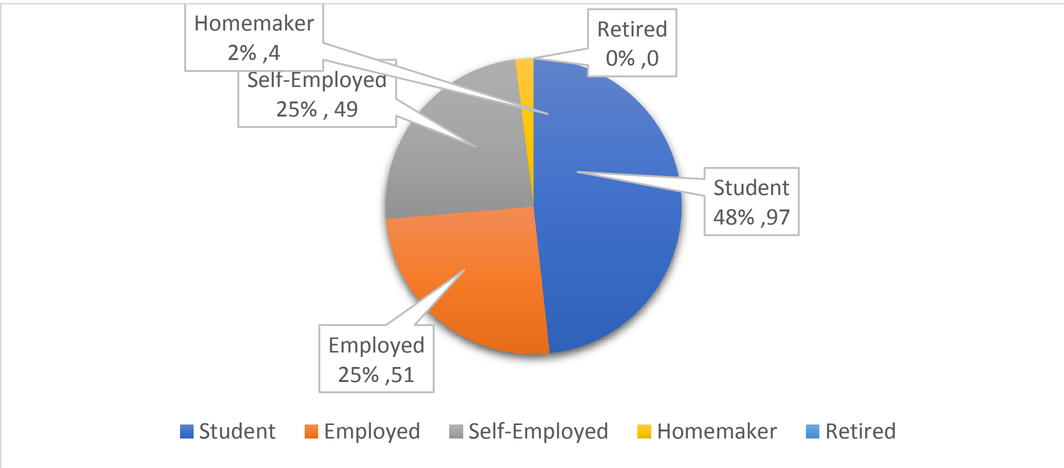
Gender	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Male	190	94.8%	94.8%	94.8%
Female	11	5.2%	5.2%	100%
Other	0	0%	0%	100%



Interpretation
The survey exclusively contained males responding to the questions because they accounted for 94.8% of respondents while 5.2% participated from female participants. No respondents selected Other among the participants. All female survey participants selected either one of the choices indicating that 100% of survey results included the female demographics.

(Q.3) Occupation:

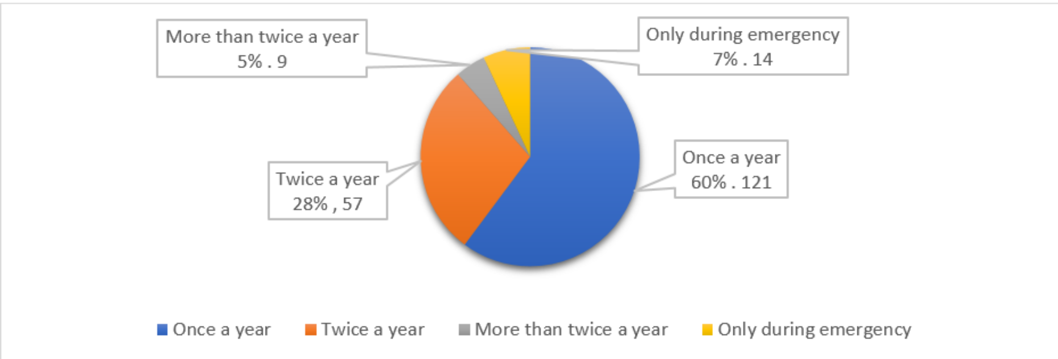
Category	Frequency	Percent	Valid Percent	Cumulative Percent
Student	97	48%	48%	48%
Employed	51	25%	25%	73%
Self-Employed	49	25%	25%	98%
Homemaker	4	2%	2%	100%
Retired	0	0%	0%	100%
Total	201	100%	100%	100%



Interpretation:
Students made up 48% of the participants and they were followed by employed individuals at 25% along with self-employed people at 25% among the total sample group. The research participants demonstrated homemaker involvement was less than 5% but retirees were not present in the study's data. The majority of respondents between students and working adults comprised most of the studied population.

(Q.4) How frequently do you require AC repair/services in a year?

Frequency Category	Frequency	Percent	Valid Percent	Cumulative Percent
Once a year	121	60%	60%	60%
Twice a year	57	28%	28%	88%
More than twice a year	9	5%	5%	93%
Only during an emergency	14	7%	7%	100%

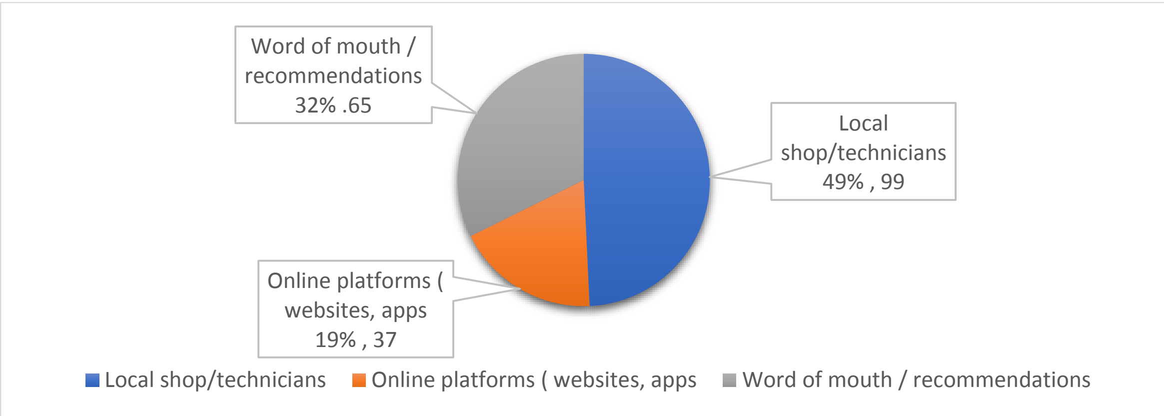


Interpretation:
According to the data analysis sixty percent of participants need annual AC repair services and twenty-eight percent need repairs two times per year. The survey indicates that 7% of users need emergency repairs but a larger 12% need servicing at least twice annually and the majority 60% need repairs once a year. Most AC users stick to scheduled

maintenance routines although a significant part of the market depends on repairing their units only when they break down which signals opportunities for preventive maintenance programs.

(Q.5) How do you usually find AC repair/services?

Responses	Frequency (f)	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Local shop/technicians	99	49.0	49.0	49.0
Online platforms (websites, apps)	37	19.0	19.0	68.0
Word of mouth/recommendations	65	32.0	32.0	100.0
Total	201	100.0	100.0	100.0

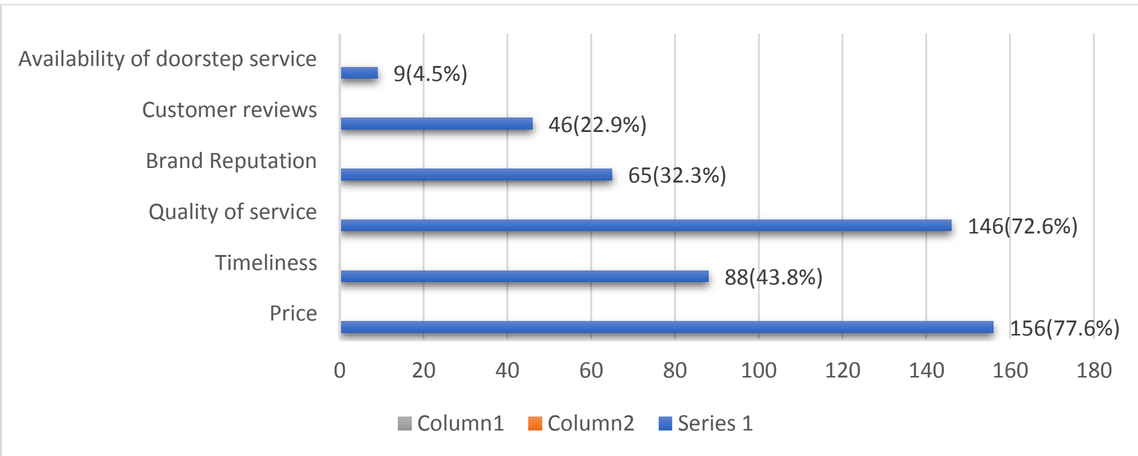


Interpretation:

Local repair shops along with their technicians receive 49% of customer choices but personal recommendations follow close behind with 32% and online-to-local services receive 19% preference. Customers from this industry choose traditional trust-based methods instead of digital solutions since they prioritize maintaining personal connections in this field.

(Q.6) What factors influence your choice of an AC repair/service provider?

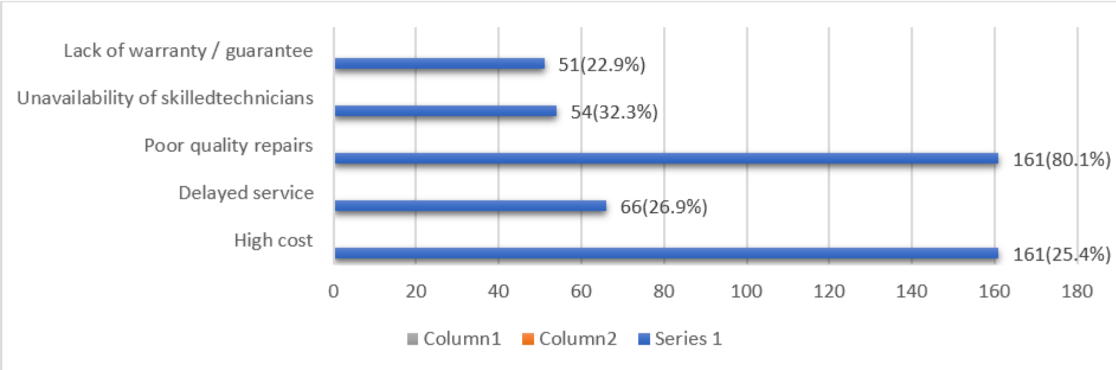
Rank	Factor	Frequency	Valid Percent (%)
1	Price	156	77.6%
2	Quality of service	146	72.6%
3	Timeliness	88	43.8%
4	Brand Reputation	65	32.3%
5	Customer Reviews	46	22.9%
6	Availability of Doorstep Service	9	4.5%



Interpretation:
Consumers prioritize Price (77.6%) at the highest level for travel decisions and then select Quality of Service (72.6%) second followed by Timeliness (43.8%). Price gives customers the strongest impact (77.6%) when choosing travel decisions while Quality of Service (72.6%) takes second place as decisive factors along with Brand Reputation (32.3%) and Customer Reviews (22.9%). The lowest ranking factor which influences choice is Availability of Doorstep Service (4.5%).

(Q.7) What are the biggest challenges you have faced when hiring an AC repair/service provider?

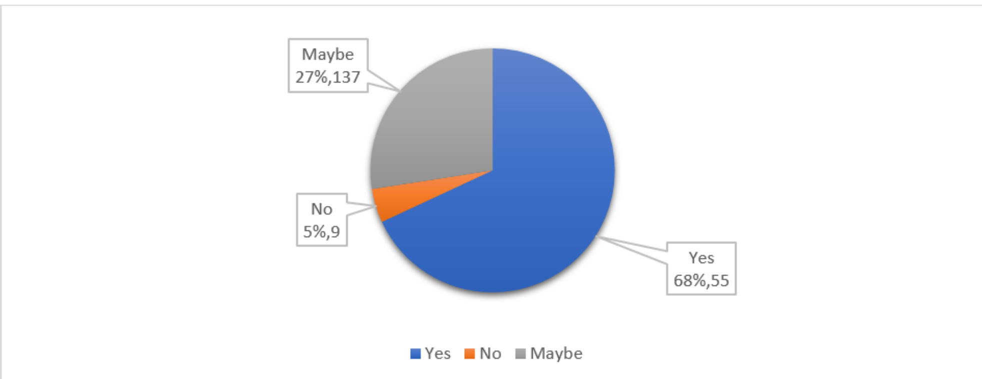
Rank	Factor	Frequency	Valid Percent (%)
1	High cost	161	80.1%
2	Poor quality repairs	161	80.1%
3	Unavailability of skilled technicians	54	32.3%
4	Delayed service	66	26.9%
5	Lack of warranty/guarantee	51	22.9%



Interpretation:
Poorest quality along with highest costs represent 80.1% each of total complaints against Oxitec Solutions yet unsatisfied customers reached 32.3% because of skilled technician shortages. Among all reported problems Delayed Service (26.9%) and Lack of Warranty/Guarantee (22.9%) come third after High Cost (80.1%) along with Poor-Quality Repairs (80.1%).

(Q.8) If an online platform provided reliable AC repair/service in your area, would you consider booking through it?

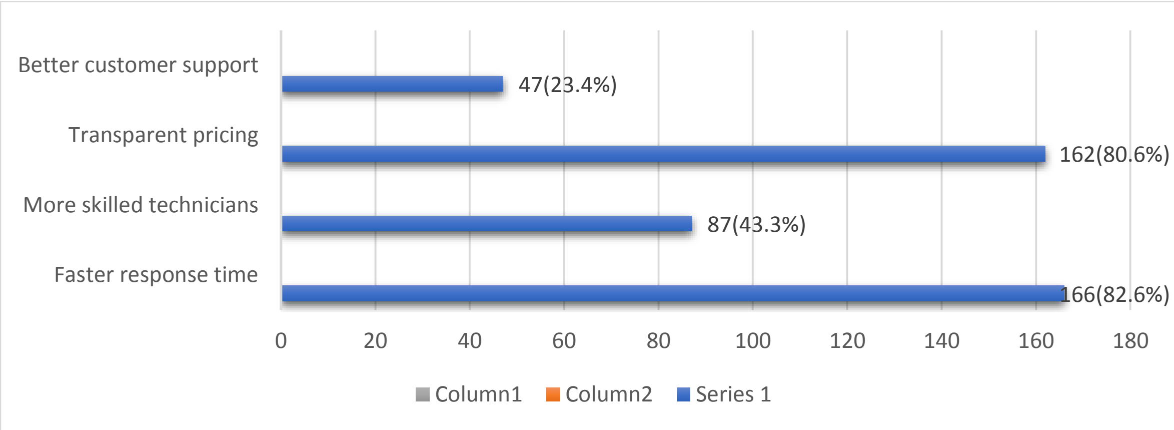
Response	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Yes	55	68%	68%	68%
Maybe	137	27%	27%	95%
No	9	5%	5%	100%
Total	201	100%	100%	100%



Interpretation:
According to the pie chart results 68 percent of the respondents (55 people) expressed this preference with a yes answer. A small percentage of 5% (9 respondents) indicated their disagreement while the other 95% (147 respondents) supported the statement. A large number of participants selected Maybe with their responses by a total of 137 individuals. A positive inclination exists despite the need for addressing concerns and hesitations which affect Maybe respondents' acceptance.

(Q.9) What improvements would you like to see in online AC repair and services?

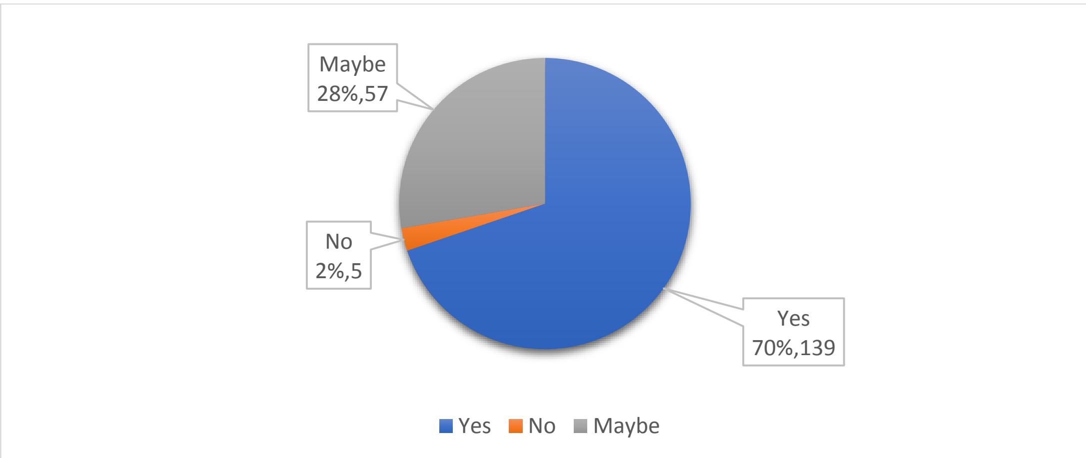
Rank	Factor	Frequency	Valid Percent (%)
1	Faster response time	166	82.6%
2	Transparent pricing	162	80.6%
3	More skilled technicians	87	43.3%
4	Better customer support	47	23.4%



Interpretation:
Faster Response Time at 82.6% and Transparent Pricing at 80.6% stand as the top needs of customers according to the research data. Better Customer Support (23.4%) is less critical despite its relevance to the overall service delivery among customers but More Skilled Technicians (43.3%) have a significant impact and Faster Response Time (82.6%), Transparent Pricing (80.6%) remain essential.

(Q.10) Do you believe the use of technology (e.g., apps, service tracking, digital payment) has enhanced the quality of services delivery?

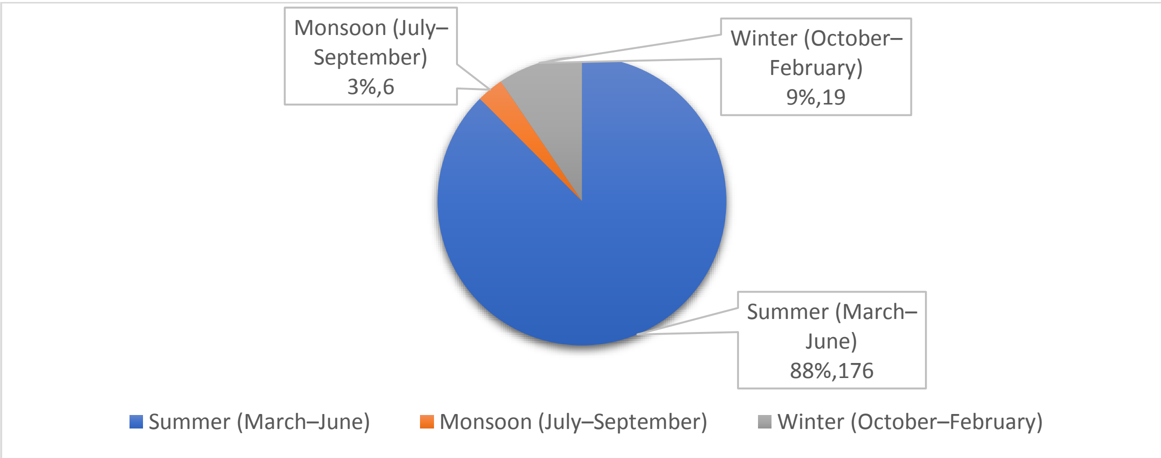
Response	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Yes	139	70%	70%	70%
Maybe	57	28%	28%	98%
No	5	2%	2%	100%



Interpretation:
A large group of 70% of the participants expressed agreement while another 28% responded with uncertainty to this question. Most respondents chose "Yes" while "No" received responses only from less than two percent of participants.

(Q.11) During which seasons do you usually require AC repair and service providers?

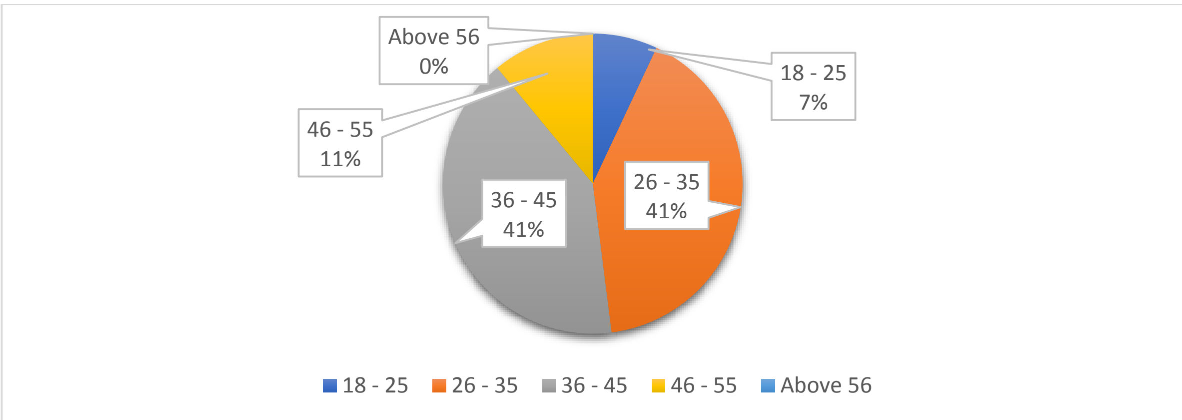
Season	Frequency	Percent (%)
Summer (March–June)	176	88%
Winter (October–February)	19	9%
Monsoon (July–September)	6	3%



Interpretation:
Striking majority of 88% declared Summer (March–June) as their preferred time of year. The second choice among respondents belongs to Winter (October–February) with 9% of voters selecting this time frame. Few respondents prefer the rainy season of July–September because they select it only 3% of the time.

Service Provider's Data:
(Q.1) Age group.

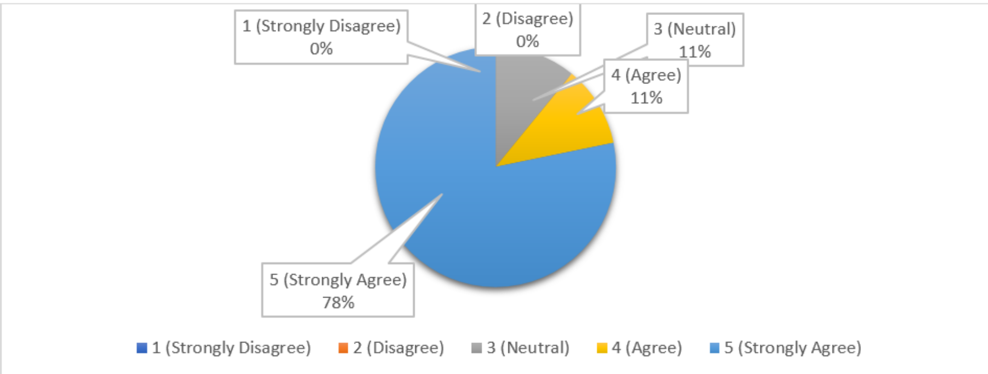
Age Group	Frequency (f)	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
18 - 25	14	7.0	7.0	7.0
26 - 35	82	41.0	41.0	48.0
36 - 45	82	41.0	41.0	89.0
46 - 55	22	11.0	11.0	100.0
Above 56	0	0.0	0.0	100.0
Total	200	100.0	100.0	100.0



Interpretation:
The document showcases the age ranges between survey participants. Forty-two percent of respondents (82 individuals) belong to the age brackets between 26-35 years and between 36-45 years which makes these age groups the most prominent segments. The age group of 46-55 has 11% participation with 22 respondents whereas only 7% (14 respondents) belong to the youngest category (18-25). The data showed that seniors older than 56 did not complete the survey because the older population refused to partake. The research shows that persons between 26-45 years represent 89% of participants indicating this group forms the main audience for study analysis.

(Q.2) Demand for AC repair services is highest during the summer season.

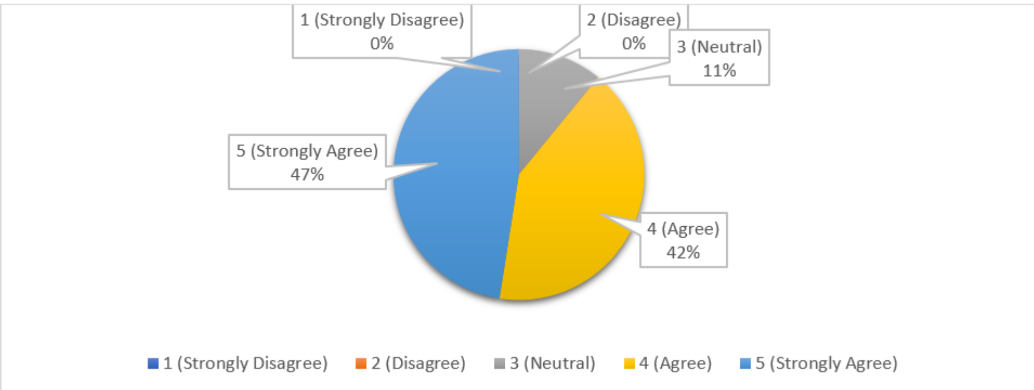
Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
1 (Strongly Disagree)	0	0%	0%	0%
2 (Disagree)	0	0%	0%	0%
3 (Neutral)	11	11%	11%	11%
4 (Agree)	11	11%	11%	22%
5 (Strongly Agree)	79	79%	79%	100%
Total	101	100%	100%	-



Interpretation:
Ninety percent of survey participants agree that air conditioner repair activities achieve their highest point during summer months. A large majority of survey participants agreed with the statement while 11% displayed neutral opinion and no one disagreed with this assessment. The findings confirm summer represents the peak season for air conditioning maintenance thus forcing service companies to prepare for higher employee requirements.

(Q.3) I receive more service requests in summer compared to winter and monsoon?

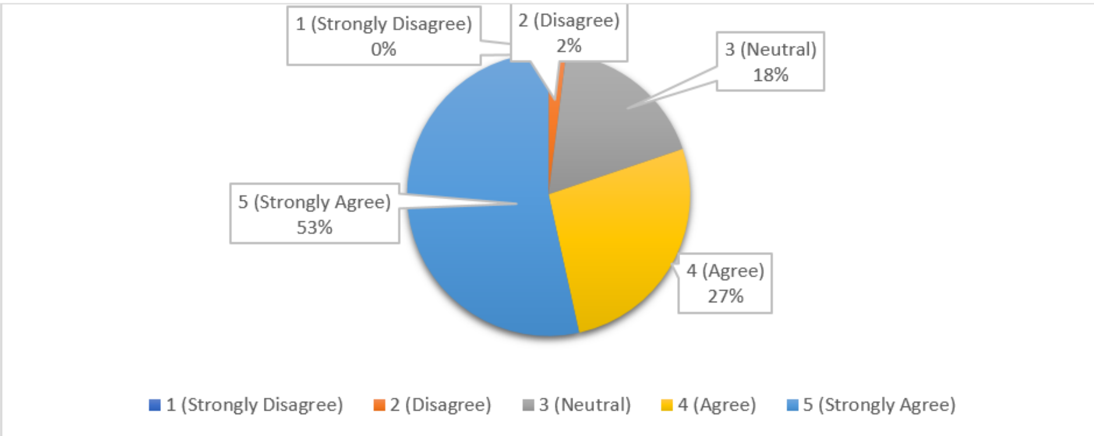
Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
1 (Strongly Disagree)	0	0%	0%	0%
2 (Disagree)	0	0%	0%	0%
3 (Neutral)	11	11%	11%	11%
4 (Agree)	42	42%	42%	53%
5 (Strongly Agree)	48	48%	48%	100%
Total	101	100%	100%	-



Interpretation:
The survey results show that 90% of respondents verified summer service delays stem from technician shortages although 11% did not express any opinion and no one disagreed with this notion. The seasonal peak in AC repair services produces major operational difficulties because it requires improved workforce management for summer months.

(Q.4) Customers are more willing to pay extra for faster service during summer?

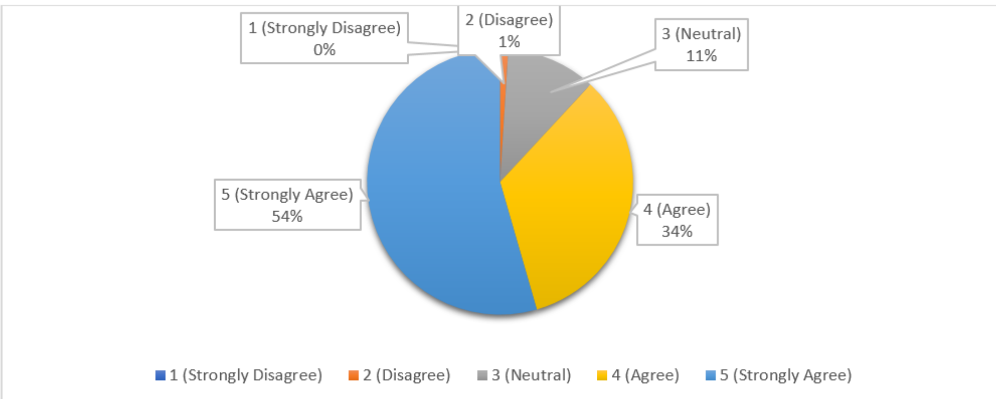
Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
1 (Strongly Disagree)	0	0%	0%	0%
2 (Disagree)	2	2%	2%	2%
3 (Neutral)	18	18%	18%	20%
4 (Agree)	27	27%	27%	47%
5 (Strongly Agree)	54	54%	54%	100%
Total	101	100%	100%	-



Interpretation:
Data indicates that 81% of respondents support the idea that summer brings increased service delays because of technical staff shortages yet 18% maintain a neutral stance and 2% disagree with this statement. The majority of customers face delivery delays throughout summer periods indicating a direct need for improved workforce management and service optimization.

(Q.5) Managing customer bookings in summer is more challenging due to high demand?

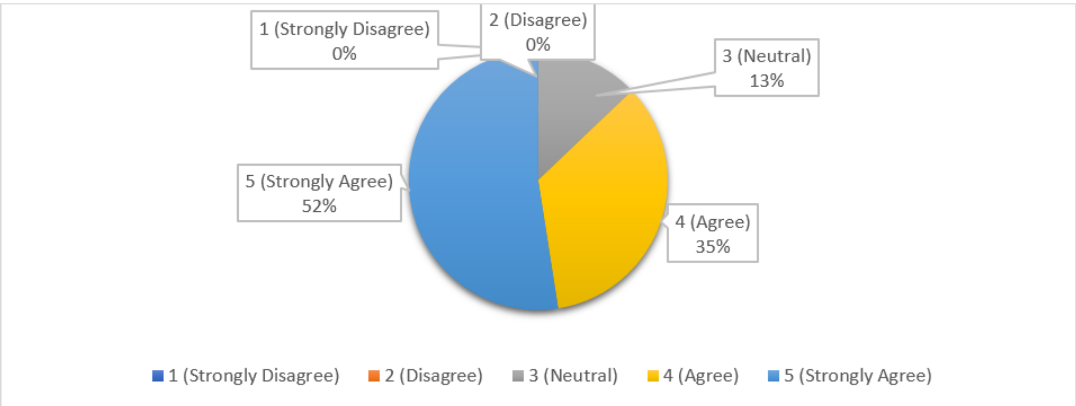
Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
1 (Strongly Disagree)	0	0%	0%	0%
2 (Disagree)	1	1%	1%	1%
3 (Neutral)	11	11%	11%	12%
4 (Agree)	34	34%	34%	46%
5 (Strongly Agree)	55	55%	55%	100%
Total	101	100%	100%	-



Interpretation:
A majority of 89 percent of respondents confirmed their belief that summer brings more frequent service delays as a result of technician shortages according to the survey results. Large numbers of customers experience delayed services throughout the summer season which indicates the necessity for improved workforce planning for peak usage times.

(Q.6) Service delays are more common in summer due to technician shortages?

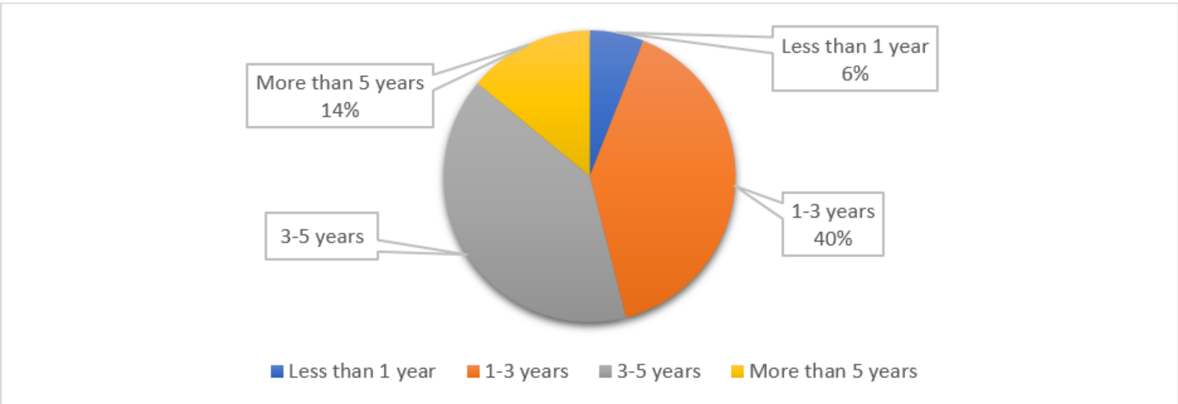
Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
1 (Strongly Disagree)	0	0%	0%	0%
2 (Disagree)	0	0%	0%	0%
3 (Neutral)	13	13%	13%	13%
4 (Agree)	35	35%	35%	48%
5 (Strongly Agree)	53	53%	53%	100%
Total	101	100%	100%	-



Interpretation:
According to survey participants 88% acknowledge that summer brings about longer wait times because of insufficient technicians and 13% choose neutrality. Not one respondent disagreed with this view. The results indicate widespread understanding among people about service delays caused by seasonal worker shortages which demonstrates the necessity of workforce solutions for peak periods.

(Q.7) How long have you been providing AC repair and services?

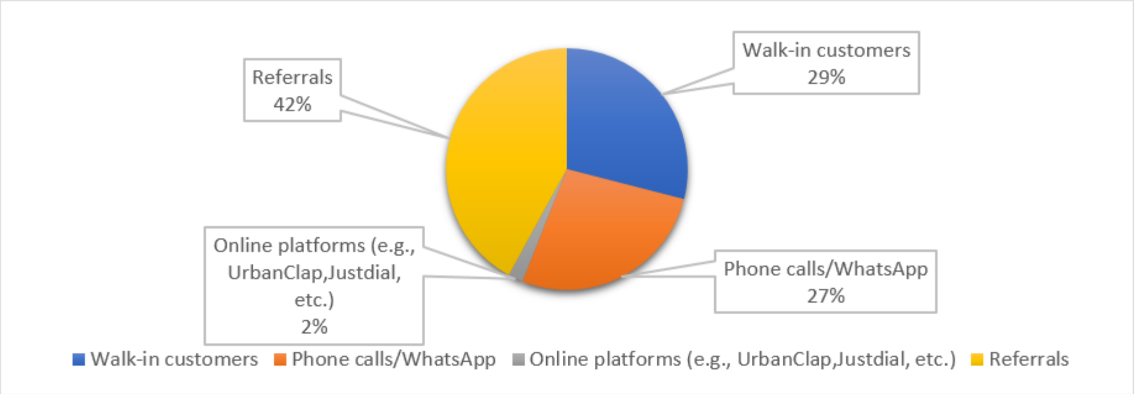
Sales Experience	Frequency (f)	Percentage (%)	Valid Percent (%)	Cumulative Percentage (%)
Less than 1 year	6	6.00	6.00	6.00
1-3 years	40	40.00	40.00	46.00
3-5 years	40	40.00	40.00	86.00
More than 5 years	14	14.00	14.00	100.00
Total	100	100.00	100.00	100.00



Interpretation:
Data shows that participants possess sales experience that falls mainly within the two categories of 1-3 years and 3-5 years because each accounts for 40% of the total respondents. People with mid-level expertise form the majority because the workforce experiences significant stability. Professional sales staff with greater than five years of experience make up only 14 percent according to the data table. The 6% population working less than a year signifies low entry into the field since this segment represents the minimum group. Nearly nine out of ten sales employees work between one and three years or three to five years thus establishing that sales experience follows an average distribution ratio as opposed to senior experts and novices.

(Q.8) How do you currently receive most of your service requests?

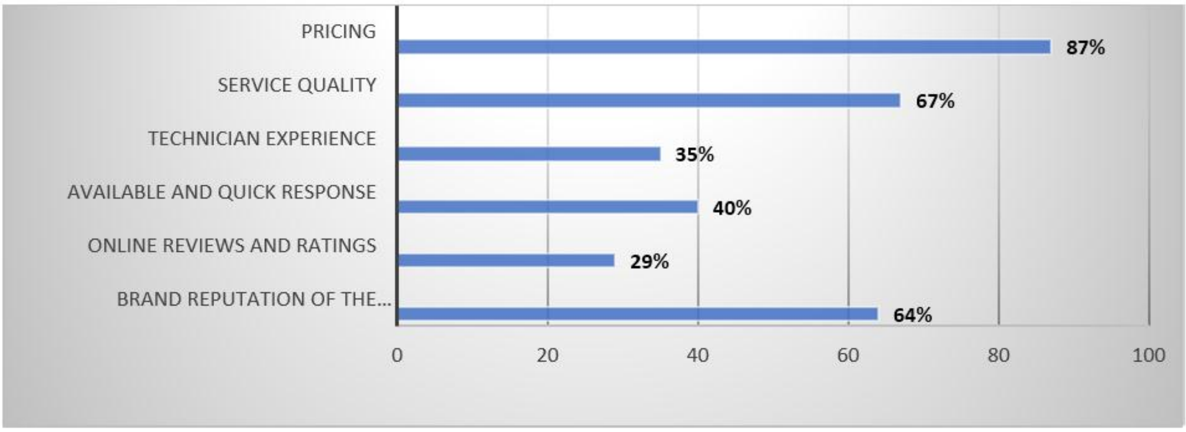
Source of Customers	Frequency (f)	Percentage (%)	Valid Percent (%)	Cumulative Percentage (%)
Referrals	42	42.00	42.00	42.00
Walk-in customers	29	29.00	29.00	71.00
Phone calls/WhatsApp	27	27.00	27.00	98.00
Online platforms (e.g., UrbanClap, Justdial)	2	2.00	2.00	100.00
Total	100	100.00	100.00	100.00



Interpretation:
Referrals have established themselves as businesses' main source of customers since they account for 42% of the total customer numbers. Direct interactions with clients at the reception counter and phone or WhatsApp contacts level with customers to represent almost half of the business's inbound inquiries. The business receives very few customers from online sources as these channels represent only 2% of its total customer base. Direct engagement and personal referrals bring 71% of the company's new customers to its establishments. Digital growth potential exists since the business primarily relies on traditional methods rather than the internet making it possible to reach new customers through digital platforms.

(Q.9) Based on your experience, what factors influence a customer's decision to book AC repair and services? (You may select multiple options)

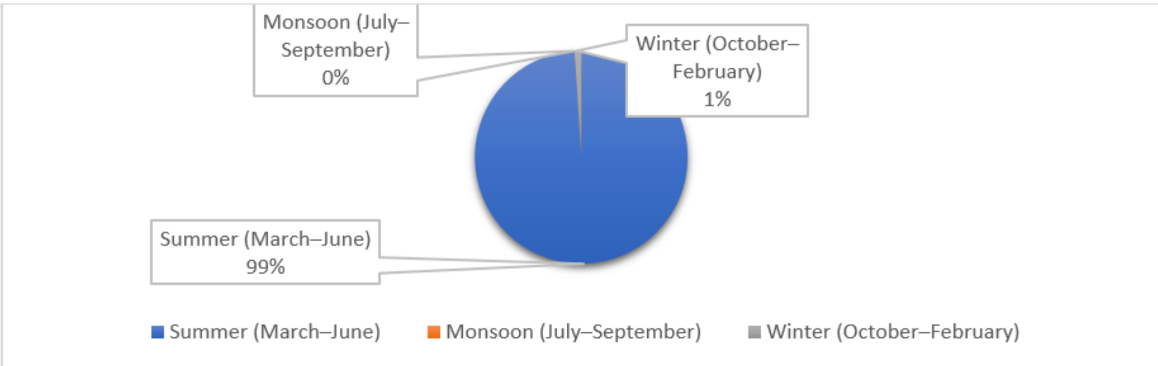
Rank	Factor	Frequency (%)
1	Pricing	87%
2	Service Quality	67%
3	Brand Reputation of the Service Provider	64%
4	Available & Quick Response	40%
5	Technician Experience	35%
6	Online Reviews & Ratings	29%



Interpretation
The research shows Pricing emerges as the essential factor affecting customer choices because most customers name it as their top priority at 87% followed by Service Quality with 67% and Brand Reputation with 64%. Customer preferences heavily rely on the three key factors of pricing and service quality together with brand reputation. Customers place both efficiency and expertise at equal levels of importance based on the findings that show Available & Quick Response (40%) alongside Technician Experience (35%) as moderate influencing factors. Online Reviews & Ratings (29%) establish the lowest priority for customers although these reviews are important according to this survey data.

(Q.10) In which seasons do you receive the highest service requests?

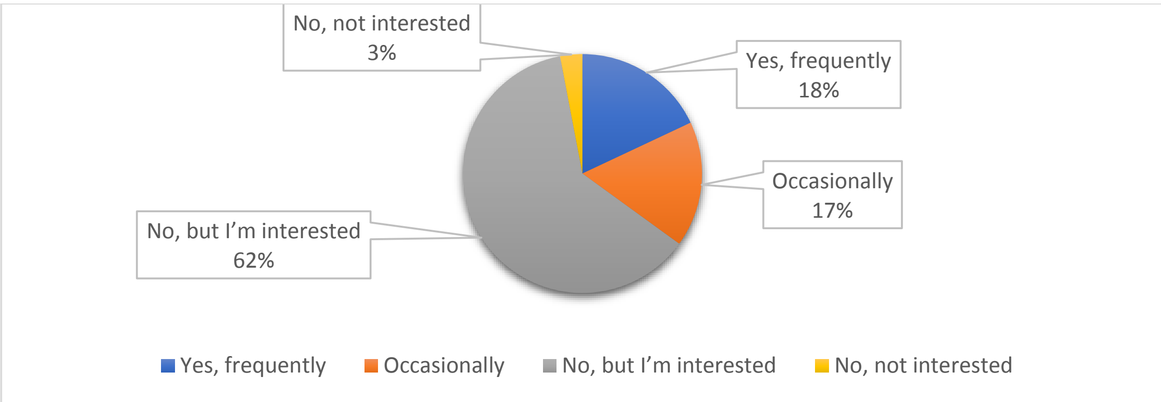
Season	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Summer (March–June)	99	99%	99%	99%
Monsoon (July–September)	1	1%	1%	100%
Winter (October–February)	0	0%	0%	100%



Interpretation
The majority of occurrences during the research period (March–June) comprise 99% of the total reported events. The Monsoon season records only 1% occurrence while Winter season shows no occurrences (0%). The data analysis indicates that the summer season contains most of the accounted activities or trends.

(Q.11) Have you used any online platforms to get service bookings?

Response	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Yes, frequently	18	18%	18%	18%
Occasionally	17	17%	17%	35%
No, but I'm Interested	62	62%	62%	97%
No, not interested	3	3%	3%	100%

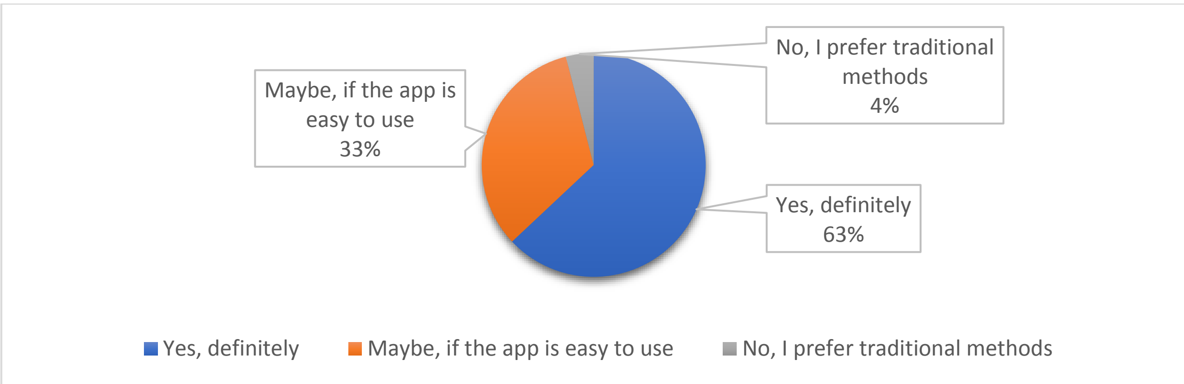


Interpretation

Respondents who are neither actively participating nor disinterested make up 62% of the total survey participants. The data shows that often participation happens to 18% of the respondents with occasional engagement being reported by 17% of participants. The majority does not show full disinterest yet at 3%. The current level of active participation shows potential mobility since people who are interested can transform passive interest into active involvement.

(Q.12) Would you be interested in using a dedicated mobile app for managing bookings, payments, and customer communication?

Response	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Yes, definitely	63	63%	63%	63%
Maybe, if the app is easy to use	33	33%	33%	96%
No, I prefer traditional methods	4	4%	4%	100%

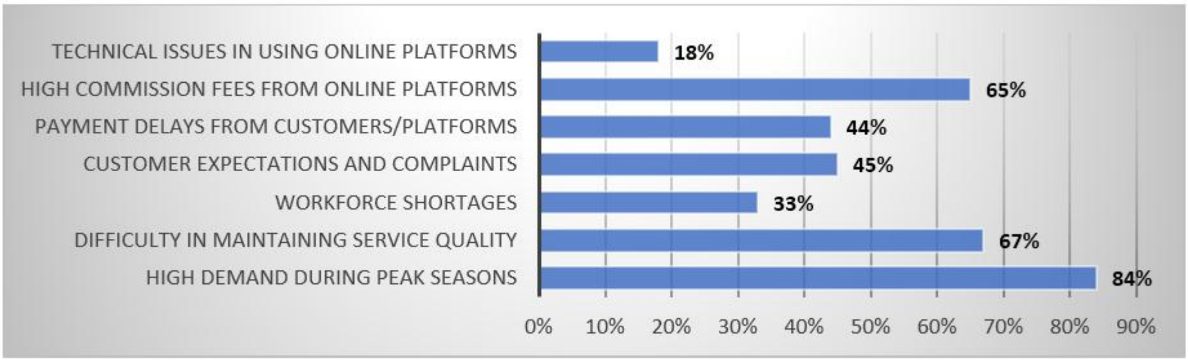


Interpretation

Results indicate that most participants (63%) express absolute willingness to use the app as they find it acceptable. The respondents show interest in using the app since 33% would consider it yet they need an intuitive user experience to make their decision. The data shows that traditional methods receive minimal support from the respondents because only 4% still prefer these methods.

(Q.13) What are the biggest challenges you face while providing services through online platforms?

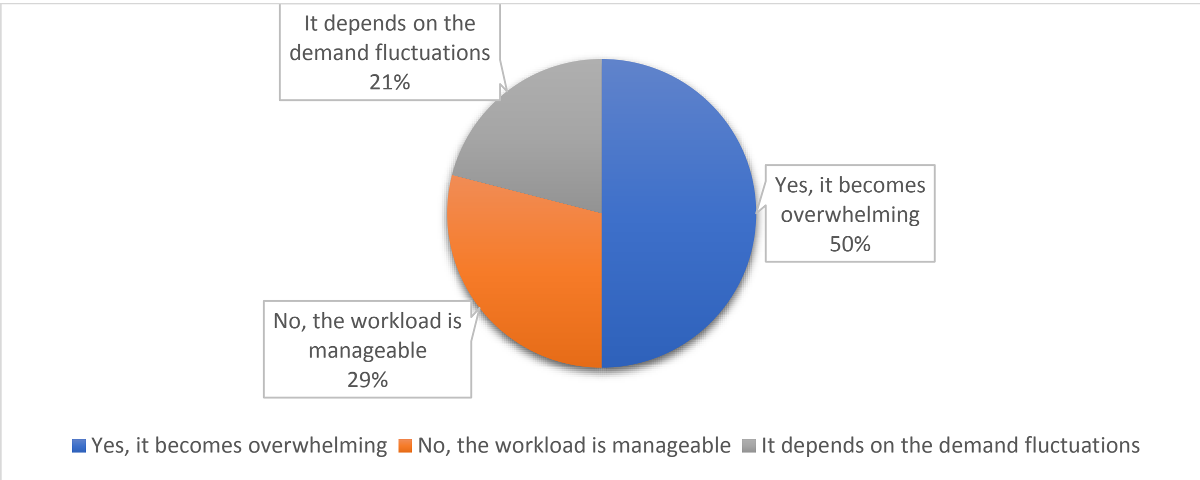
Rank	Factor	Frequency (%)
1	High demand during peak seasons	84%
2	Difficulty in maintaining service quality	67%
3	High commission fees from online platforms	65%
4	Customer expectations and complaints	45%
5	Payment delays from customers/platforms	44%
6	Workforce shortages	33%
7	Technical issues in using online platforms	18%



Interpretation
High peak season customer demand stands as the main operational challenge faced by hotels (84%). Better resource management would address this issue. Service quality maintenance along with internet platform commission fees represent major concerns for hoteliers at levels of 67% and 65% respectively. Technical problems represent the least problematic sector even though Customer expectations, payment delays and workforce shortages create average challenges.

(Q.14) Do you experience challenges in managing your workload during peak seasons (e.g., summer)?

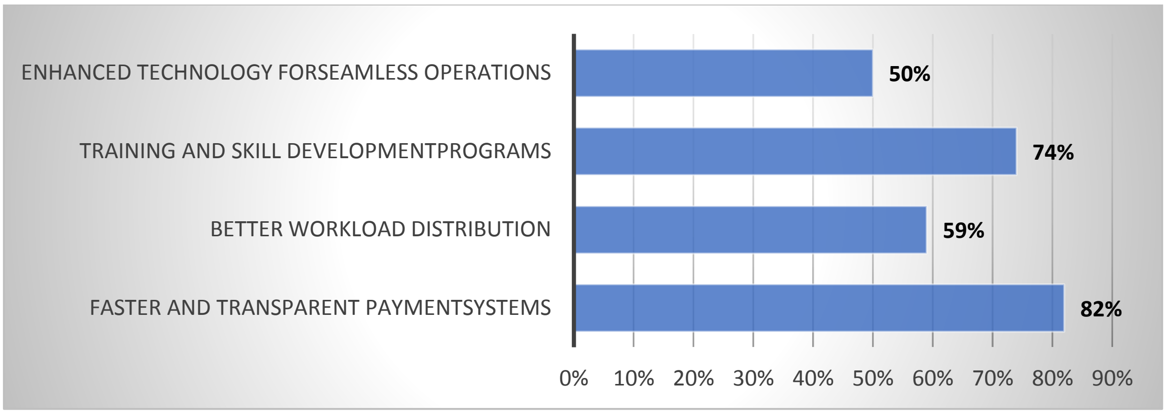
Response Option	Frequency (%)	Valid Percent (%)	Cumulative Percent (%)
Yes, it becomes overwhelming	50%	50%	50%
No, the workload is manageable	29%	29%	79%
It depends on the demand fluctuations	21%	21%	100%



Interpretation
Available data shows half of the healthcare providers (50%) experience overwhelming workloads while another 29% finds their workload manageable and the remaining 21% indicates workload intensity depends on demand levels.

(Q.15) What improvements do you think online platforms should implement to address these challenges?

Rank	Factor	Frequency (%)
1	Faster and Transparent Payment Systems	82%
2	Training and Skill Development Programs	74%
3	Better Workload Distribution	59%
4	Enhanced Technology for Seamless Operations	50%

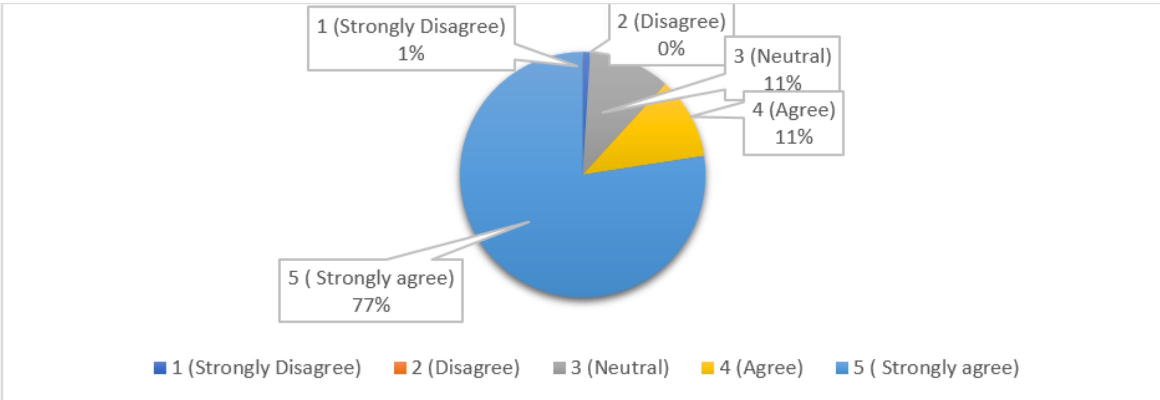


Interpretation

Fast and transparent payment systems emerge as the primary improvement factor for stakeholders with 82% of the voters selecting this option (82%). Training alongside skill development programs stand as the second most important factor (74%) shown to be vital for workforce upgrading. Better workload distribution (59%) is recognized as a crucial factor together with enhanced technology for seamless operations (50%) which proves to be less important than other improvement factors.

(Q.16) AC repair demand is higher in urban areas compare to semi- urban regions?

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
1 (Strongly Disagree)	1	1%	1%	1%
2 (Disagree)	0	0%	0%	1%
3 (Neutral)	11	11%	11%	12%
4 (Agree)	11	11%	11%	23%
5 (Strongly Agree)	77	77%	77%	100%
Total	100	100%	100%	-



Interpretation

Research findings demonstrate positive reactions from those who participated in the survey. Seven in ten respondents demonstrate strong agreement with this statement according to survey results. The survey data shows additional support from 11% of respondents who agreed with the given statement. The majority of respondents demonstrated neutrality about the statement by making up 11% of the sample while the remainder declined to take a position. A minimal number of participants expressed incorrectly through the responses since only 1% strongly disagreed while no one disagreed. The data compilation indicates that most participants showed agreement while negative opinions remained scarce. The high level of agreement from participants demonstrates a positive mindset toward the studied subject.

Findings (Consumer's)

1. The survey participants within the 18 to 35 age bracket comprised 91 percent of the total respondents where 50 percent were younger than 25 years and another 41 percent within the 26 to 35 age group. The 9 percent of participants

belong to an age group spanning from 36 to 55 years old.

2. This survey received a high number of male respondents who made up 94.8% of the participants while females made up just 5.2% of the total sample. No respondents identified as "Other."
3. Students made up the biggest occupational group (48%) with 25% each of employed and self-employed people. The participant group with homemaker status included fewer than 5% whereas retirees did not participate in the survey.
4. The respondents mostly need annual maintenance (60%) and also require maintenance twice annually (28%). Year-round service maintenance falls into three categories including regular service (7%) and emergency service (7%) and seasonal maintenance (12%). Preventive maintenance opportunities exist.
5. A majority of people (49%) select local repair shops and technicians as their primary choice for services while personal recommendations trail close behind (32%), and online-to-local methods receive (19%) of the preference. The majority of people continue to use traditional trust-based processes instead of digital alternatives.
6. Customers place most importance on price as a factor (77.6%) when choosing a service followed by service quality (72.6%) and then timeliness (43.8%). The influential factors that affect brand choice include brand reputation (32.3%) followed by customer reviews (22.9%) and doorstep service availability (4.5%) is the least influential factor.
7. The most reported concerns from consumers about the service industry include repair expenses that are too costly (80.1%) as well as substandard maintenance work (80.1%) while shortages of technicians (32.3%) along with delayed services (26.9%) and warranty exclusions (22.9%) complete the list.
8. A large number of respondents showed approval for online AC maintenance (68%) but 5% expressed opposition and 27% were uncertain about these services.
9. The majority of customers (82.6% and 80.6%) place higher importance on prompt service response and clear pricing options in their expectations for service providers. The majority of customers (43.3%) worry about skilled technician availability yet only (23.4%) consider customer support as essential.
10. New service trials hold appeal to 70% of respondents while 28% remain undecided and less than 2% show complete rejection.
11. Respondents Favor summer months for their AC repair requirements because demand during this time reaches 88% and winter months stand at 9% and rainy season demand stands at only 3% of the total respondents.

Findings (Service provider's)

1. A total of 89 percent of participants are within the 26–45 age range thus creating their segment as the most significant. The participants who are aged 18–25 represent 7% of the total while those aged 46–55 make up 11% of the survey. People 56 years old and above were not included in the study.
2. In the view of 90% of participants summer represents the main period when people require AC repair services without any dissent. Additional staff hiring should become a priority during summer months.
3. Technician shortages are the main cause of delayed summer services according to 90% of participants showing that workforce planning needs enhancement.
4. A total of 81% of customers face delay problems because of staff shortages according to customer feedback, alongside 18% who maintain a neutral stance and 2% have no disagreement.
5. Research findings indicate that 89% of respondents think summer causes ongoing technician scarcity problems which highlights the requirement to enhance workforce planning methods.
6. The majority of 88% of participants indicated summer's longer wait times stem from technician staff deficiencies thereby highlighting the requirement for workforce solutions.
7. Research indicates that eighty percent of job candidates (80%) maintain between one year and five years of sales experience though forty percent each belong to the first three years bracket and the third five years cohort. The majority of salespeople have worked between 1–5 years yet the majority group spans ten percent of respondents who have five years or more experience. Moreover fourteen percent of sales staff have gained at least five years of experience yet six percent have spent less than one year in sales.

8. The combination of direct contact channels including WhatsApp and reception and phone interactions produce forty-two percent of new customer acquisition while referrals account for forty-six percent of acquisitions. Online acquisition represents less than three percent of customer acquisition sources thus showing room for digital development.
9. In customer choice considerations pricing holds the greatest significance at 87% and after that come service quality at 67% and brand reputation at 64%. The two main decision factors that affect customers include quick response (40%) and technician expertise (35%), both of which possess moderate influence. At the same time, online reviews (29%) demonstrate the lowest importance.
10. The majority of service requests (99%) arise between March–June and winter season services are absent while monsoon season reports only 1% of cases.
11. Users exhibit a combination of passive engagement according to 62% of respondents but 18% demonstrate consistent interaction, 17% participate occasionally while disinterested users amount to merely 3%.
12. Respondents show 63% willingness toward using an AC service app yet 33% require an app with user-friendly interfaces to adopt it. Only 4% prefer traditional methods.
13. Service quality maintenance (67%) stands behind high peak-season demand (84%) as the main operational challenge alongside commission fees on online platforms (65%).
14. The healthcare workforce indicates that 50% experience excessive workloads while 21% find the workload depends on patient demand fluctuations and 29% describe their workload as manageable.
15. The majority of operational improvements require quick transparent payments (82%) compared to training (74%) and workload distribution (59%). Technology upgrades are considered less important during this time period by 50% of healthcare providers.
16. Positive outlook prevails in the sense that 70% of respondents express strong agreement while 11% indicate moderate satisfaction and 11% show neutrality and 1% report strong disagreement. The collected information shows primarily positive perceptions.

Suggestions (For Consumers)

- Digital adoption for AC repair services will increase when customers develop more trust in digital booking systems because current rates demonstrate only 19% consumer involvement.
- Standardized pricing alongside service packages for regular maintenance and emergency repairs must be introduced to gain customers due to pricing being their main consideration (77.6%).
- More than three-quarters (80.1%) of consumers doubt service quality as well as maintenance expenses. Implementing an organization-based review system alongside warranty-backed maintenance services and proficient technician certification will boost consumer faith and contentment with Home-Based Services.
- Preventive Maintenance Plans should increase their scope because annual maintenance solutions are most desired by consumers with a secondary interest in bi-annual servicing which could foster loyal customer relations and decrease unplanned breakdowns.
- The successful delivery of quick services (82.6%) along with skilled technicians (43.3%) stands as the two most important factors for consumers. Service companies should combine improved team scheduling technology with better workforce planning to shorten their response times.

Suggestions (For Service Providers)

- 90% of enterprises in the service sector face an annual shortage of technicians so workforce planning must include seasonal recruitment of temporary staff.
- Digital Customer Acquisition requires investment in SEO together with social media marketing as well as Google My Business listings and app-based bookings to gain new customers who currently use referrals.
- Next-generation pricing models that include seasonal discounts need implementation by service providers because customers select their service providers based on low cost at 87%.
- A comprehensive training program along with regular quality checks and customer feedback systems should be activated since 80.1% of consumers report dissatisfactory service quality.
- Service providers need to implement CRM tools with automated scheduling systems and AI-based service tracking technology for optimizing

their workforce distribution efficiency and response time performances.
- The development of a simple and user-friendly app that enables real-time bookings along with technician tracking and straightforward payments system will appeal to the 63 percent of service providers who want mobile service management.
- Quick payment methods with transparent transactions and reduced fees on service platforms should be integrated because 82% of service providers identify delayed payments as a significant problem.

Limitations
- The location focus of Vadodara in this research cannot provide complete understanding of consumer actions together with service provider constraints throughout various places affected by distinct climate conditions and economic scenarios.
- The survey exhibits significant gender inequality through its dominant male participants (94.8%) while females contribute only (5.2%) which produces potential skewed research results. The absence of older respondents in the study diminishes the ability to generalize results since they were not included in the research.
- Because air conditioner repairs occur mostly during summer months (88%) the study results might not apply to the behavior patterns of consumers and providers during cooler periods like winter and monsoon seasons.
- The analysis depends on survey participant responses yet personal biases together with reporting inaccuracies can reduce the validity of research results.
- The study reveals low participation rates in online booking but fails to determine the specific reasons why providers and consumers avoid digital interfaces beyond ignoring marketing strategies and viewing limitations.
- The study ignores to investigate technical worker shortages fully because it lacks detailed insights about training programs and recruiting and retaining personnel within the industry.
- The research fails to compare competitors in AC service platforms charging methods and consumer satisfaction measures between traditional providers and online businesses thus reducing the value of potential strategic guidance.
- The research examines operational and service pricing elements but omits financial limitations which include equipment cost hikes and platform fee payments and technician salary increases.
- The observed data from studies may lose relevancy since consumer choices naturally transform because of technological progress. Looking ahead researchers must include recent developments such as artificial intelligence maintenance services and smart home system integration since these new approaches have not been addressed yet.
- This research shows that customer acquisition through online channels remains minimal however it fails to assess the effectiveness of promoting strategies including social media activities and localized SEO approaches as well as customer referral benefits.

CONCLUSION

Research provides essential knowledge about online AC service demand by investigating customer behavior alongside professional provider obstacles. Research demonstrates that online AC maintenance services find acceptance from 68% of consumers although 49% maintain trust in local technicians combined with 32% placing faith in personal recommendations. Consumer choice in purchasing decisions heavily depends on price elements (77.6%) whereas service quality follows closely (72.6%) and delivery speed ranks third (43.8%). Major concerns that remain about high repair expenses (80.1%) and subpar maintenance quality (80.1%) indicate a necessity for transparent quality controls in this sector.

Service providers face significant operational challenges due to summer peak-period demand which causes 90% of their technician shortages that produces both customer delays and dissatisfaction. To enhance operational efficiency workforce management systems combined with better hiring methods and technological improvements need implementation. The current customer acquisition process primarily depends on offline methods since online platforms generate new customers at only 3% rate which provides space for digital service improvement opportunities.

Online AC repair services face three major obstacles that need resolution because consumer interest continues to grow. To achieve future growth within the AC repair industry the essential step will be bridging traditional with digital service models by improving workforce planning and customer engagement while implementing digital adoption strategies. The future research direction should extend the study's geographical understanding while examining price barriers and establishing suitable digital marketing methods to boost online service popularity.

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