# Analysing Post Purchase Behaviour of Washing Machines in Goa – A SERVQUAL Perspective

## A Study on Customer Satisfaction towards Microwave Ovens in Goa

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by

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## DECLARATION BY STUDENT

I hereby declare that the data presented in this Internship report entitled, "**Analysing Post Purchase Behaviour of Washing Machines in Goa – A SERVQUAL Perspective** and **A Study on Customer Satisfaction towards Microwave Ovens in Goa**" is based on the results of investigations carried out by me in the Discipline of Management Studies at Goa Business School, Goa University, under the mentorship of Prof. Purva Hegde Dessai and the same has not been submitted elsewhere for the award of a degree or diploma by me. Further, I understand that Goa University or its authorities/College will be not be responsible for the correctness of observations/experimental or other findings given the internship report/work.

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# COMPLETION CERTIFICATE

This is to certify that the internship report "**Analysing Post Purchase Behaviour of Washing Machines in Goa – A SERVQUAL Perspective** and **A Study on Customer Satisfaction towards Microwave Ovens in Goa**" is a bonafide work carried out by **Ms. Rukmisha Shamba Verleker** under my mentorship in partial fulfilment of the requirements for the award of the degree of **Master's of Business Administration** in the Discipline of Management Studies at Goa Business School, Goa University.

Date: 2nd May 2024

Prof. Purva Hegde Dessai

Signature and Name of Mentor

Signature of Dean of School/HoD

Date: 2nd May 2024

Place: Goa University

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Yours sincerely,

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# EXECUTIVE SUMMARY

This summary provides an overview of the study conducted on "Analyzing Post-Purchase Behavior of Washing Machines in Goa - A SERVQUAL Perspective" which includes a pilot study, reliability analysis, descriptive analysis of demographic characteristics, MANOVA tests and post hoc tests. The purpose of the pilot study was to assess the feasibility of the study design by distributing the questionnaire to 20 respondents. The reliability of the questionnaire was assessed using Cronbach's alpha, which resulted in a high reliability coefficient of 0.915, indicating its suitability to measure the objectives of the study. The demographic characteristics of the respondents were analyzed, revealing insights into the gender distribution, age groups, annual income levels, ownership, types and brands of washing machines. Most of the respondents were male, aged 22-31 years, with an annual income of 5-7 lakhs. All respondents owned washing machines, mostly top-loading machines, with brands such as LG being the most common.MANOVA tests were used to assess differences in consumer perceptions between different washing machine brands and dimensions of service quality. Significant variations were found, which revealed the strengths and weaknesses of each brand. Post hoc tests, specifically Tukey's honestly significant difference (HSD) test, further explained these differences, highlighting areas such as reliability, responsiveness, assurance, concreteness and empathy where certain brands outperformed others. General findings suggest that customers perceive differences in service quality dimensions that influence their purchasing behavior. Understanding these insights can help washing machine manufacturers increase customer satisfaction and loyalty, thereby improving market competitiveness.

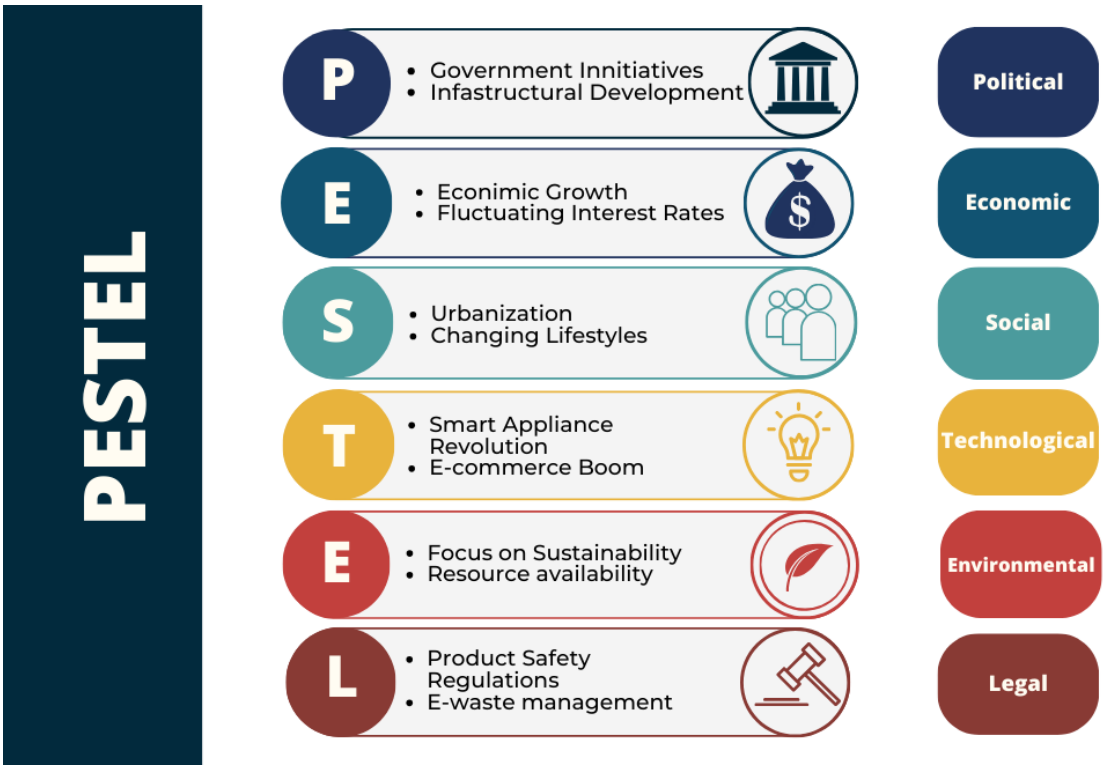
# INDUSTRY ANALYSIS

## Indian Home Appliances Industry

India has a thriving home appliances market that is expected to grow further and be valued at US$58.64 billion in 2024. A growing middle class with increasing disposable income is driving this upsurge. The need for contemporary amenities like air conditioners, refrigerators, and washing machines is growing as more people move into cities. The popularity of appliances that save time and make household chores easier is also driven by this emphasis on convenience. Large appliances, such as air conditioners, washing machines, and refrigerators, are in charge and will hold a market share of US$37.67 billion by 2024. Smaller appliances, like coffee makers and vacuum cleaners, are, also catching up. Another significant trend is the increase in online shopping, which is predicted to account for 5.4% of the appliance market's total revenue by 2024. Tech-savvy consumers are also increasingly drawn to smart appliances offering features like remote control and connectivity. Energy efficiency is becoming a top concern for consumers due to rising energy costs, which is influencing their purchase decisions. The industry is somewhat consolidated, with major market shares held by well-known behemoths like Samsung, Godrej, LG, IFB, and Whirlpool. However, a surge in Chinese imports and the creation of new domestic brands are making competition fiercer. Price sensitivity is still a problem because a lot of people value affordability over luxury, which may prevent high-end appliances from becoming widely used. Also, there is still a lack of market

penetration in rural areas, so manufacturers must devise plans to serve these areas. Building customer satisfaction and brand loyalty across the nation requires effective after-sales service networks. The future of the Indian home appliances market appears to be bright, despite various obstacles. The market is expected to experience significant growth in the upcoming years due to factors such as growing urbanisation, rising disposable incomes, and an expanding middle class.

# PESTEL Analysis of the Home Appliances Industry in India




## Political:

- Government Initiatives: "Make in India" campaign can encourage domestic manufacturing, but import duties might affect affordability.
- Infrastructure Development: Improved infrastructure can ease logistics and expand market reach, especially in rural areas.

## Economic:

- Economic Growth: Rising disposable incomes in the growing middle class will drive demand for appliances.
- Fluctuating Interest Rates: High-interest rates can affect consumer spending on big-ticket appliances.

## Social:

- Urbanization: Shift towards urban living creates demand for space-saving and multi-functional appliances.
- Changing Lifestyles: Busy lifestyles increase demand for time-saving and convenience-oriented appliances.

## Technological:

- Smart Appliance Revolution: Growing demand for smart appliances with features like remote control and connectivity.
- E-commerce Boom: Online marketplaces offer wider product choices and can boost sales, especially in remote areas.

## Environmental:

- Focus on Sustainability: Regulations and consumer awareness push for energy-efficient and eco-friendly appliances.
- Resource Availability: Managing raw material costs and potential supply chain disruptions due to environmental factors.

## Legal:

- Product Safety Regulations: Stricter regulations ensure product safety but can increase manufacturing costs.
- E-waste Management: Regulations on e-waste disposal will impact after-sales services and recycling strategies.

These PESTEL factors allow Indian home appliances companies to strategize effectively. In addition to offering products at a range of price points, designing space-efficient appliances for busy lifestyles, integrating smart features to take advantage of e-commerce trends, focusing on energy efficiency and sustainability, and ensuring compliance with laws pertaining to product safety and e-waste management, they can profit from government initiatives for local production. By using these tactics, businesses can satisfy customer demands, adjust to changing market conditions, and stay one step ahead of their competitors.

# Porters Five Forces Analysis of the Home Appliance Industry in India

## Threat of New Entrants: Moderate

- High Capital Requirements: Setting up manufacturing units and establishing distribution networks require significant investment.
- Brand Loyalty: Established players have a loyal customer base, making it challenging for new entrants to gain market share.
- Government Regulations: Compliance with safety and environmental regulations can create entry barriers.

## Bargaining Power of Suppliers: Moderate to High

- Consolidation of Raw Material Suppliers: A few key players control the supply of critical materials like steel and plastic.

- Fluctuating Raw Material Prices: Suppliers can influence prices based on global market trends.
- Limited Supplier Base for Specialized Components: Components for smart appliances might have a limited supplier pool.

## Bargaining Power of Buyers: Moderate

- Price Sensitivity of Consumers: A large section of the population is price-sensitive, giving them bargaining power on product features and discounts.
- Availability of Substitute Products: For some appliances, there might be simpler or pre-owned options available.
- Rise of Online Retailers: Online platforms provide price comparisons and diverse choices, empowering buyers.

## Threat of Substitutes: Low to Moderate

- For Major Appliances: Substitutes might exist (e.g., washing clothes by hand), but they are less convenient and efficient.
- For Small Appliances: Substitutes can be more prevalent (e.g., using a mortar and pestle instead of a food processor).
- Technological Advancements: Emerging technologies could introduce entirely new appliance substitutes in the future.

## Competitive Rivalry: High

- Presence of Established Players: Global brands like Whirlpool, LG, and Samsung hold a significant market share.
- Emergence of Domestic Brands: Indian companies are increasingly competing with established players.
- Rise of Chinese Imports: Affordable Chinese imports can put pressure on pricing and margins.

As a result of a variety of factors, the Indian home appliances market is characterised by a complex environment. Consolidation and fluctuating raw material prices impact suppliers bargaining power, while high capital requirements and established players brand loyalty act to moderate the threat of new entrants. The emergence of online retail platforms, which provide greater choice and transparency, counteracts the moderate bargaining power of buyers. While the threat of substitutes varies depending on the product category, global giants, homegrown brands, and the flood of Chinese imports all contribute to the intense competition that persists. Innovation, strategic differentiation, and flexibility in response to changing market demands and legal requirements are all necessary for success in this fast-paced sector. For businesses hoping to prosper in the Indian home appliances market, managing these complexities while seizing chances for expansion and uniqueness will be essential.

# COMPANY ANALYSIS

## IFB Industries Limited

IFB Industries Limited has been a pillar of the Indian economy since 1974. It has a distinguished two-pronged strategy and a rich history. The company started out working with Heinrich Schmid AG, a Swiss company, under the name Indian Fine Blanks Ltd. They are India's top producer of high-quality blanked components, tools, and related machinery because of their proficiency in tool design and production. In addition to meeting the demands of local automakers such as Maruti Udyog and Ford India, this helps them establish their brand in international markets. Fine blanking is just one aspect of IFB's vision, though. They entered the home appliances business in 1989 when they founded IFB Home Appliances. This division has grown, creating a huge network of more than 530 "IFB Point" retail locations throughout India. IFB now provides a wide selection of appliances to meet different needs around the house. They provide solutions for every area of the house, from laundry (washing machines, dryers, and washer-dryers) to kitchen (dishwashers, microwaves, stoves, chimneys, and more). Additionally, IFB's air conditioners take good care of living areas. IFB is dedicated to providing a comprehensive user experience, so they offer a range of accessories and additives to go along with their appliances. IFB's success can be attributed to their unwavering commitment to quality, innovation, and comprehending the wide range of needs of their clientele. By using this strategy, they have become a well-known brand in the Indian home appliances market in addition to being a major player in the fine blanking industry.

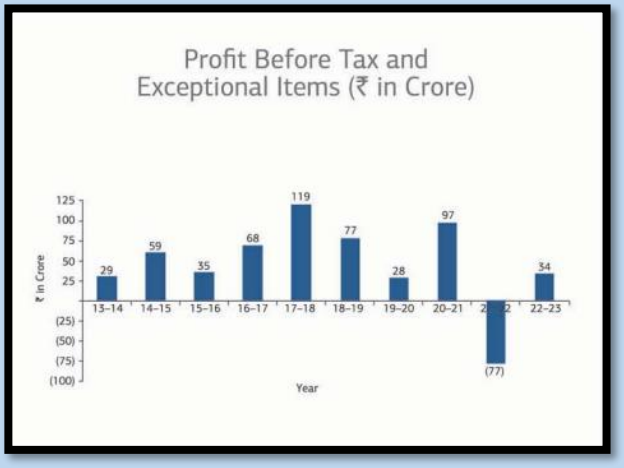
**VISION**

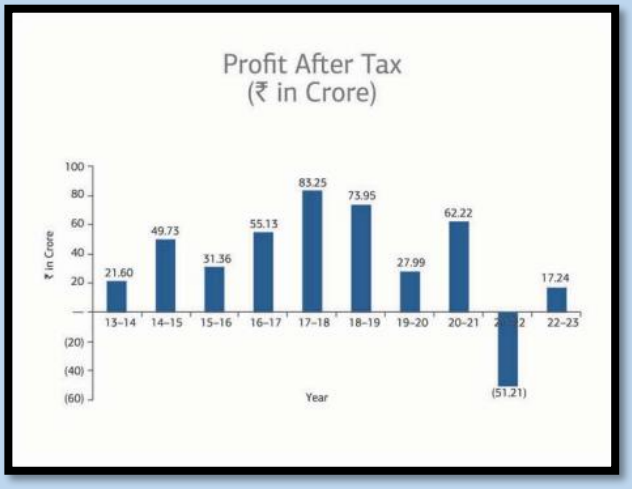
IFB’s Vision is “To be the customer’s first choice”.

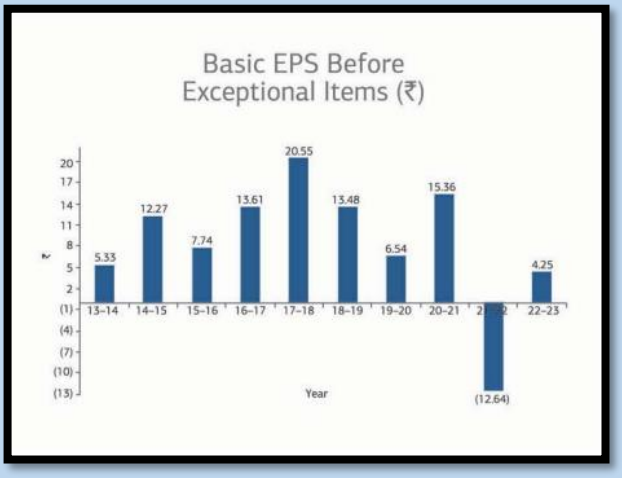
**MISSION**

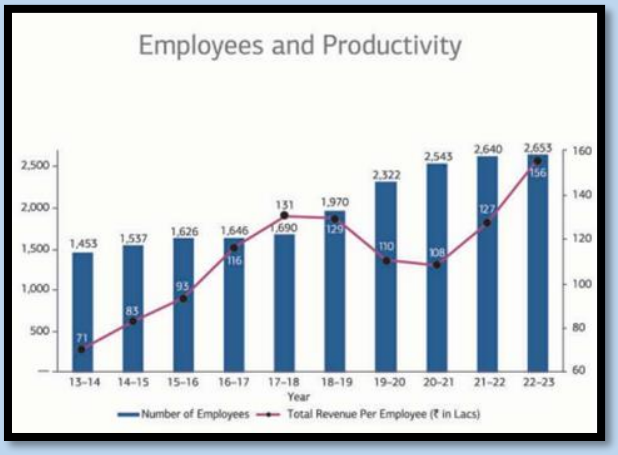
IFB’s Mission is “To be the best in the eyes of our customers, employees, business partners and shareholders”.

# 10-Year Highlights



**IFB Plants**

In Goa, IFB Industries Ltd. operates two manufacturing facilities. The Washers Plant is Plant 1. The Verna Industrial Estate in Verna, Goa, India, is home to this plant. In 1989, it started manufacturing fully automatic washing machines and other cutting-edge appliances. IFB is well-known for its home appliance technology, quality, and longevity. The air conditioner plant is plant number two. Industrial Estate, Verna, Goa, India is also home to its headquarters. On March 17, 2020, it started producing split air conditioners commercially out of its Goa plant.

**IFB Washers Plant**

**IFB AC Plant**

**IFB Points**

Retail establishments approved to sell and maintain IFB appliances are known as IFB points. IFB points usually provide a range of services, such as sales of a broad variety of IFB appliances, including air conditioners, refrigerators, dishwashers, and washing machines etc. They also look after the After-sales service and repairs for IFB appliances.

IFB points are located across Goa at the following locations:

- St. Inez
- Old Goa
- Porvorim
- Mall de Goa, Porvorim
- Caranzalem
- Dabolim
- Vasco
- Ponda
- Gogol, Margao
- Margao

**Competitor Analysis**

- LG Corporation

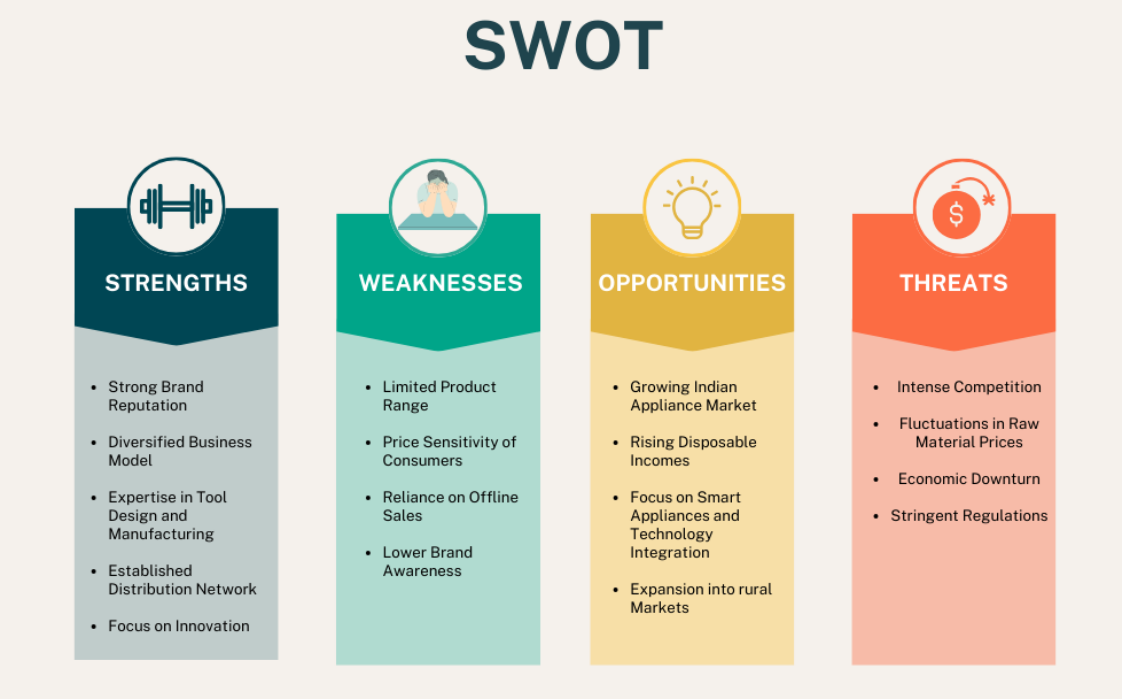
The second-biggest manufacturer of electronics, chemicals, and telecommunications equipment in South Korea is LG. Washing machines and refrigerators are produced by the Home Appliances division. It is a direct rival of IFB Industries Ltd. in Goa and commands a sizable market share in the Indian home appliance sector. In India, LG holds about a 29% market share in the washing machine industry. It has overthrown IFB Industries Ltd. to take the top spot in terms of market share in the Goan market. In addition, it manufactures hoover cleaners, cell phones and other small appliances.

- Samsung Electronics

The largest electronics corporation in the world, Samsung Electronics is based in Samsung Town in Seoul, South Korea. In addition to enjoying a large market share in India's consumer electronics industry, Samsung Electronics has achieved notable market share in recent years. In India, its market share in the Washing Machines category is approximately 18%. Samsung holds the third position in the Goan market and is a direct competitor of IFB Industries Ltd. in Goa.

- Panasonic, Electrolux, Whirlpool, Godrej are some of the other competitors.

# SWOT Analysis of IFB Industries Limited




## Strengths:

- Strong Brand Reputation: IFB has a long-standing reputation for quality and reliability in both fine blanking and home appliances.
- Diversified Business Model: The presence in two distinct sectors (fine blanking and home appliances) offers stability and reduces dependence on a single market.
- Expertise in Tool Design and Manufacturing: This in-house capability gives them greater control over quality and production efficiency in fine blanking.
- Established Distribution Network: Their chain of IFB Point stores provides a strong retail presence for their home appliance division.
- Focus on Innovation: IFB is known for introducing new and technologically advanced appliances to the Indian market.

## Weaknesses:

- Limited Product Range: Compared to major competitors in home appliances, IFB might have a narrower product portfolio.
- Price Sensitivity of Consumers: A large segment of the Indian market is price-sensitive, which could limit sales of high-end IFB appliances.
- Reliance on Offline Sales: While they have a strong retail network, IFB might need to further strengthen their online presence to compete effectively.
- Lower Brand Awareness Compared to Global Giants: Brands like LG and Samsung might have a wider brand recognition in the home appliance segment.

## Opportunities:

- Growing Indian Appliance Market: The Indian home appliances market is projected for significant growth, presenting a vast opportunity for IFB.
- Rising Disposable Incomes: As disposable incomes increase, consumers are likely to invest in more premium appliances, which could benefit IFB.
- Focus on Smart Appliances and Technology Integration: The growing demand for smart appliances presents an opportunity for IFB to innovate and develop new products.
- Expansion into Rural Markets: Market penetration in rural areas remains low, offering potential for IFB to expand its reach.

## Threats:

- Intense Competition: The Indian home appliance market is fiercely competitive, with established global players and aggressive Chinese imports.
- Fluctuations in Raw Material Prices: IFB's fine blanking business is susceptible to fluctuations in raw material prices.
- Economic Downturn: An economic slowdown could lead to decreased consumer spending on discretionary items like appliances.
- Stringent Regulations: Stricter environmental and safety regulations could increase production costs for IFB.

IFB Industries can create focused growth strategies by analysing its Strengths, Weaknesses, Opportunities, and Threats. IFB can reach a larger market by introducing cutting-edge products, growing its portfolio, and enhancing its online presence by utilising its brand reputation and experience. Maintaining a competitive edge in the ever-changing home appliances sector requires breaking into rural markets, keeping an eye on rivals, putting cost-cutting strategies into place, and making sure rules are followed.

# VRIO Analysis of IFB Industries Limited

## Valuable

- Strong Brand Reputation: IFB has painstakingly established a solid reputation for excellence in both home appliances and fine blanking. Customers are encouraged to trust and be loyal to the brand by this priceless asset, which results in a devoted customer base and a dominant market position.
- Expertise in Tool Design and Manufacturing: IFB has the capacity to design and manufacture tools internally. Not only does this give them more control over the quality of fine blanking, but it may also lower production costs. This knowledge is a great asset that gives them an advantage over rivals.
- Established Distribution Network: With its network of IFB Point stores, IFB has carefully constructed a strong distribution network. They have important and direct access to customers for their home appliance division thanks to this network. They can effectively enter the market and deliver their products directly to customers due to their wide reach.

## Rare

- Combined Expertise: IFB's dual expertise in home appliances and fine blanking is one of its unique selling points. This distinguishes them from rivals who might focus on just one of these fields. Their ability to meet a variety of customer needs more successfully and provide a greater selection of products is made possible by this special capability.

## Inimitable

- Causal Ambiguity: Replicating IFB's decades of experience and accumulated know-how in fine blanking may prove challenging for rivals. Because of the degree of causal ambiguity this produces, it can be difficult for others to pinpoint the precise cause-and-effect chain that accounts for their success in this field.
- Social Complexity: It may be difficult for others to replicate IFB's corporate culture and the solid bonds they have built with suppliers in the fine blanking industry. IFB's market position is further cemented by the barrier to entry created by this social complexity.

## Organized

- Focus on Innovation: IFB's continuous emphasis on launching cutting-edge appliances suggests a degree of organisation that enables them to take advantage of their knowledge in product development. They can adapt to the changing needs of their customers and remain relevant in the ever-changing market thanks to this well-organized approach.

The VRIO analysis will help IFB to enhance their advantages and obtain a competitive advantage. Their reputation for excellence translates into dependable products, and creating tools internally may save costs. Their reputation in the home appliances market will also be improved by having a well-known brand in fine blanking. To meet the varied needs of their clientele and effectively compete in the digital era, IFB should think about broadening their product line and strengthen their online presence in order to solidify their position. IFB can guarantee long-term success and continue to be a leader in both industries by concentrating on these areas.

# Product Portfolio

## Laundry Solutions

### 1. Washing machines

a) Front Load

b) Top Load

c) Washer Dryer Refresher

## 2. Clothes Dryer

# Kitchen Solutions

## 1. Microwave Ovens

a) Solo

b) Grill

c) Convection

## 2. Dishwashers

## 3. Ovens

## 4. Refrigerators

a) Single door

b) Double door

## 5. Quartz Ovens

## 6. Chimneys

## 7. Hobs

## 8. Built in Appliances

## 9. Beverage Makers

## 10. Kettles

**11. Toasters**

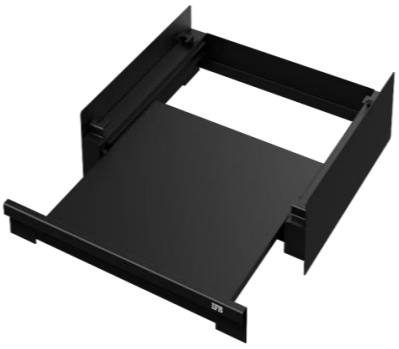
## Living Solutions

**Air Conditioners**

## Accessories

**1. Stabilizers**

## 2. Washing Machine Accessories



# Essentials

## 1. Dish care

## 2. Machine care

## 3. Commercial care

## 4. Fabric care

## 5. Kitchen care

# Commercial Laundry Solutions

## 1. Washers

## 2. Laundromatique

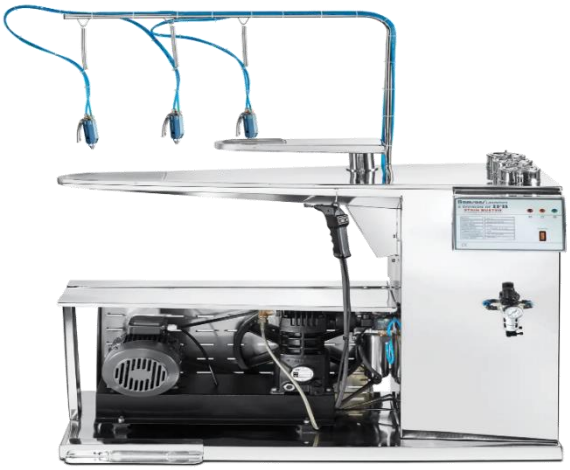
## 3. Dryers

## 4. Ironers

## 5. Dry Cleaning Machine

## 6. Steam generators

## 7. Finishing Equipment



**8. Accessories**

## Commercial Dishwashing Solutions

1. **Under-Counter Glass Washers**

2. **Under-Counter Dishwashers**

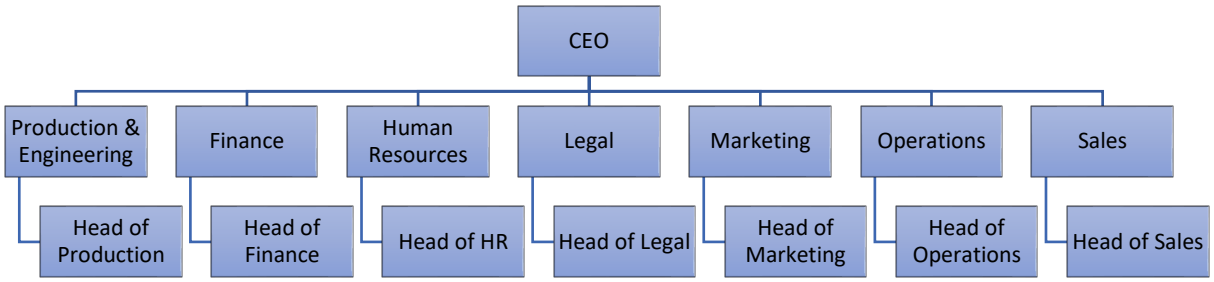
## 3. Hood Type Dishwashers

## 4. Rack Conveyor Type Dishwashers

## Modular Kitchens

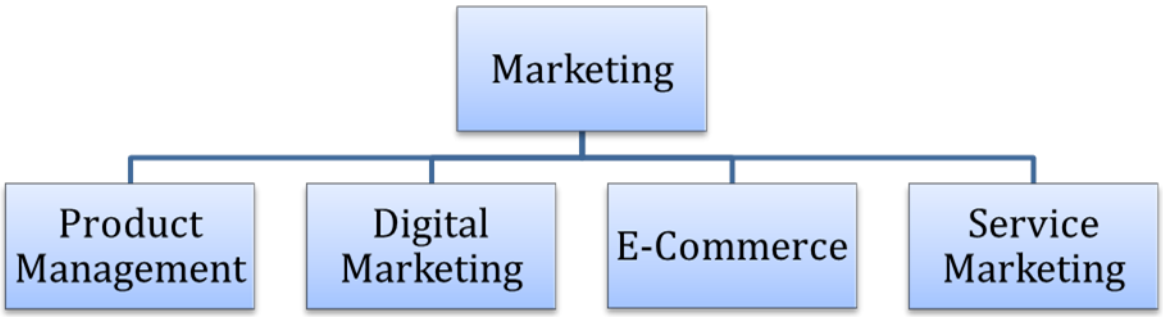
# Departmental Overview

## Overview




## Marketing Department

The marketing department of IFB is vital to the company's success because it engages customers, builds brand awareness, and promotes its goods and services. There are four divisions within IFB's marketing department:




1) **Product Management**

Four people make up the Product Management department at the IFB plant. They are in charge of overseeing particular product categories within the company's portfolio. Here is a detailed explanation of their duties:

- Providing Market Research Inputs to R&D:

  In order to close the gap between product development and market demand, the product management team is essential. They collect information for market research, examine consumer demands and preferences, and give the R&D team insightful information. This entails determining the specifications for new models, comprehending what customers expect from prices, and converting market data into useful product features.

- Converting Technical Features into Marketing Communication:

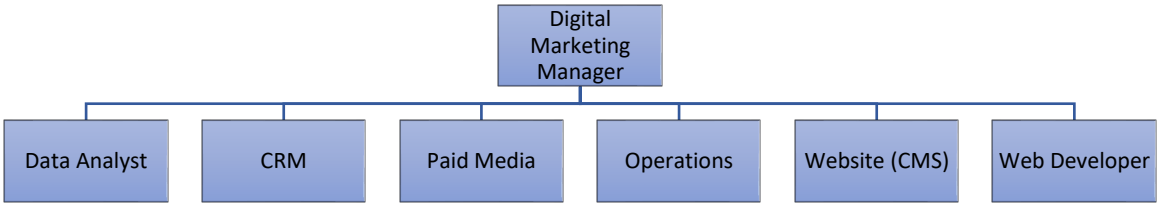
  The product management team is in charge of translating the technical specifications into persuasive marketing messaging once the R&D team creates new product models with particular technical features. They convert intricate technical details into Unique Selling Points (USPs) that are customer-focused, compelling, and easy to understand. This entails developing product positioning strategies and marketing messaging that emphasise the advantages and features of the IFB appliances.

- Handling Marketing Strategy and Model Placements:

  The product management team is responsible for creating marketing plans for the product categories that they have been assigned. To identify the target market, create pricing strategies, and find efficient channels for product distribution and promotion, they collaborate closely with the marketing department. Additionally, they work in collaboration with sales teams to guarantee appropriate model placements, accounting for variables like consumer demographics, retail channels, and competitive analysis.

IFB's Product Management department is made up of a specialised team that oversees particular product categories. They are essential in helping the R&D team with market research, translating technical features into customer-focused marketing messages, managing marketing strategy, and placing models. Their work helps ensure that IFB appliances are developed, positioned, and promoted successfully in the market.

## 2) Digital Marketing




IFB Industries' digital marketing department is essential to the development and execution of online marketing strategies that advertise the company's goods and services, encourage online purchases via the website, increase traffic to the IFB Points, and build brand awareness.

- Manager:

  The manager of the department in charge of digital marketing is in charge of creating and carrying out the digital marketing strategies for the business. Campaigns, website administration, social media, SEO, and performance analysis are all under their purview. To promote brand visibility and business growth in the digital sphere, they stay abreast of industry trends, lead the team, and work in conjunction with other departments.

- Data Analyst:

  In IFB Appliances' digital marketing division, the Data Analyst's job entails gathering, evaluating, and interpreting data in order to derive insightful knowledge that informs marketing choices. Campaigns can be monitored to make sure they are operating smoothly, and the IFB website's traffic can be tracked to determine which channels are attracting the most users. In order to assess the success of marketing initiatives and pinpoint areas in need of development, the data analyst also performs a thorough examination of consumer behaviour, including click-through rates, conversion rates, and engagement metrics.

- CRM:

  The CRM team is in charge of creating and carrying out CRM strategies, maintaining customer information, improving customer interaction, and spearheading marketing campaigns that are focused on the needs of the customer. They conduct campaigns through platforms like WhatsApp, SMS, and emails.

- Paid Media:

  The Paid Media department oversees and optimises paid advertising campaigns on multiple digital platforms, including social media (Facebook Ads, Instagram Ads) and search engines (Google Ads). They work with the creative team to develop captivating ad creatives and produce and conceptualise content for the social media pages. They carry out keyword research to find relevant and effective keywords for search engine advertising.

- Operations:

  The Operations Executive is in charge of ensuring that product deliveries run smoothly and responding to any questions or issues that customers may have. Then, legitimate issues or inquiries are forwarded so that prompt, effective resolution is possible. She serves as a customer's point of contact, answering questions, giving them information, and making sure they are satisfied.

- Website (CMS):

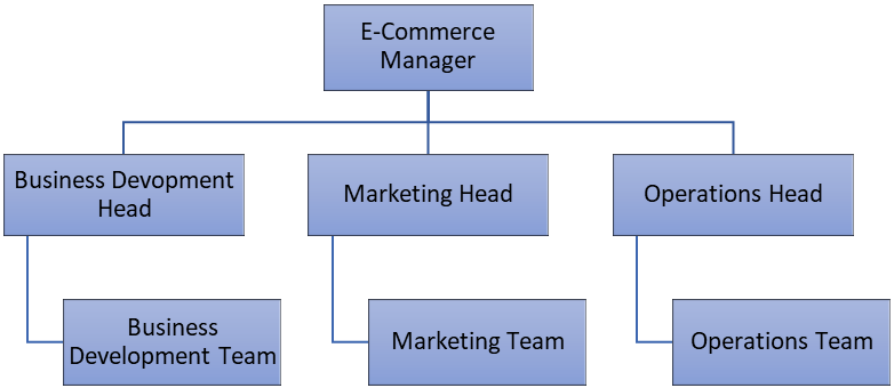
  The company's content management system (CMS) is managed and supervised by the website management team. The group is also in charge of posting content on the IFB website and overseeing daily website modifications. She makes sure that material is appropriately examined, accepted, and released in accordance with procedures and timelines that have been set forth. Additionally, she makes sure that content follows best practices for online visibility and discoverability and is optimised for search engines (SEO). She may also help implement SEO strategies within the content

management system (CMS), such as optimising metadata, URL structures, and internal linking.

- Web Developer:

  The infrastructure and backend features of the business website are managed and maintained by the web developer. He manages server configurations, user authentication, and database interactions. Along with working with the CMS team, he analyses and enhances the overall performance, speed, and responsiveness of websites by minimising server requests, implementing caching mechanisms, and optimising code.

**3) E-Commerce**




The e-commerce division of IFB is essential to increasing the company's online sales through Flipkart and Amazon, growing its online footprint, and improving the general online customer experience. The department is essential to using e-commerce's potential to increase market share and boost sales.

- Manager

  Controlling and directing the e-commerce strategies and operations is a key responsibility of the manager. They make sure that IFB appliances run smoothly and that its online stores that sell them run smoothly as well.

- Business Development

  Since the business development team is in charge of getting the products listed on websites like Amazon and Flipkart, they concentrate on the business-to-business market. Negotiating the terms, contracts, and business agreements with these sites is their responsibility. Each of the available product categories has its own team.

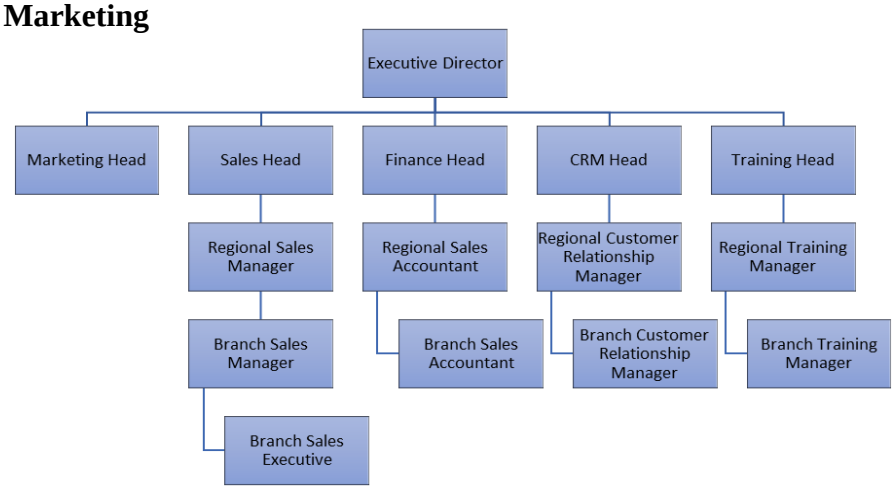
- Marketing

  The marketing department is in charge of creating the banners, infographics, event pages, and advertisements that are displayed on e-commerce platforms. They have to make sure that their products are properly visible on these websites by using relevant keywords and providing accurate descriptions. This increases the product's visibility relative to those of competitors. They also manage the sales and discounts that are offered for the merchandise on these websites.

- Operations

  The operations team is in charge of keeping an eye on stock levels, working with internal departments to replenish inventory as needed, and making sure there are enough products available to satisfy customer demand. The team works together with logistics partners to make sure that orders are transported from warehouses in an effective manner.

**4) Service Marketing**



IFB Appliances Service Marketing Department is in charge of overseeing and publicising the business' customer support and after-sale services. By offering outstanding customer service experiences throughout the customer journey and making themselves known to customers, this department plays a critical role in guaranteeing customer satisfaction and loyalty.

In order to raise awareness and emphasise the advantages of IFB's service excellence, dependability, and expertise, they create marketing campaigns and materials.

They are also in charge of marketing the IFB Essentials line of goods, which includes surface cleaner, laundry detergent, fabric conditioner, fluff, and other items that go well with IFB appliances. Essentials can currently only be purchased online and at IFB locations, but efforts are being made to increase availability. They also handle contracts because IFB appliances need to have regular maintenance or servicing done in order to function properly. They also offer product warranties that are extended.

# INTRODUCTION TO RESEARCH TOPIC - 1

## Analysing post purchase behaviour of Washing machines in Goa – A SERVQUAL perspective

In the contemporary family structure where both spouses are engaged in full-time employment, the demand for consumer durable products has surged significantly. The need to lessen household chores is what's driving this change, especially for working women who are under a lot of physical and mental stress from their dual roles. Of all the consumer durables on the market, washing machines have become a necessary fixture in contemporary homes. The demand for washing machines in the Indian market has surged dramatically due to the introduction of innovative products by manufacturers, especially those from Japan, which offer competitive pricing and a variety of features. To meet the wide range of consumer needs and preferences, Indian manufacturers have partnered with international companies to launch a lot of washing machine models (Meerabai & Selvasundaram, 2020). Consumer behaviours and attitudes following a purchase are referred to as post-purchase behaviour. It includes assessing the quality of the good or service that was purchased as well as the total enjoyment that was experienced from the deal. Post-purchase behaviour is important for influencing future purchasing decisions and brand loyalty when it comes to consumer durable products like washing machines. Customers expect satisfaction and value from their purchases, particularly in competitive markets, and this affects their propensity to recommend the product to others and make additional purchases (Kimencu Linda Nkirote, 2006). Customer satisfaction and loyalty in the consumer durable market are largely dependent on after-sales services. There is a significant increase in demand for effective after-sales support due to the complexity of household appliances and the hectic lifestyles of consumers. The importance of prompt and efficient after-sales services in improving customers overall ownership experience is acknowledged by manufacturers and marketers. In order to handle any problems that might come up after the sale, this includes providing warranty support, maintenance services, and technical help (Tunku & Rahman, 2019).

## SERVQUAL MODEL

The SERVQUAL model is a popular framework for evaluating service quality from the viewpoint of customers. It was created by Parasuraman, Zeithaml, and Berry in 1985. It is comprised of five primary dimensions that encompass different facets of the customer experience. These dimensions are reliability, assurance, tangibles, empathy, and responsiveness. Let's look at each dimension in detail:

### Reliability

The ability of the service provider to precisely and consistently provide the promised service is referred to as reliability. Reliability in the context of washing machines refers to making sure the device operates as planned with few malfunctions or breakdowns. Consumers anticipate frequent malfunctions or errors in operation from their washing machines, as well as effective and efficient performance.

### Assurance

Assurance concerns the staff of the service provider in terms of their professionalism, politeness, and reliability. In terms of washing machines, assurance is giving consumers faith in the product's dependability and quality. This dimension includes things like product warranties, technical assistance, and the level of skill that the manufacturer or retailer exhibits in responding to customer questions and concerns.

### Tangibles

The physical components of the customer service environment that affect their opinion of quality are referred to as tangibles. With regard to washing machines, tangibles include things like the product's shape, feel, and packaging in addition to the ease of use of the installation and maintenance services offered. Consumers frequently judge a washing machine's quality by its outward features, such as design, dependability, and simplicity of use.

**Empathy**

The degree of understanding, concern, and individualised attention that a service provider shows for the needs of their client is a measure of their empathy. Empathy in the context of laundry machines means being responsive to customer questions or grievances, proactive in helping others, and empathetic in communication. Empathising with customers concerns and providing customised solutions to meet their needs are two ways that manufacturers and retailers can improve customer satisfaction.

**Responsiveness**

The ability and readiness of the service provider to help clients and successfully meet their needs is referred to as responsiveness. When it comes to washing machines, responsiveness includes things like prompt delivery, prompt troubleshooting, and easily accessible customer service lines. Consumers place a high value on after-sale responsiveness because it shows that the manufacturer or retailer is dedicated to making sure that customers are satisfied and have a smooth ownership experience.

In the competitive consumer durable market, businesses can improve customer satisfaction and loyalty by identifying areas for improvement and implementing strategies to evaluate service quality through the lens of these five dimensions. When analysing the post-purchase behaviour of Goan washing machines, the SERVQUAL model can offer insightful information that can be used to improve service delivery and satisfy changing customer demands (Tunku & Rahman, 2019).

Success in the Goan washing machine market requires an understanding of how customers behave after making purchases. Through examining consumer preferences, market dynamics, and post-purchase service performance, businesses can enhance customer happiness and foster brand loyalty. This will especially be useful as the competition in the washing machine market increases. Companies can improve their products and marketing by learning more about what customers want by providing after-sales service that is tailored to their needs. Research that has already been done examines a number of variables that affect how customers act after purchasing washing machines. However, there appears to be a significant lack of empirical research that particularly uses the SERVQUAL framework to analyse Goan washing machine

customers' post-purchase behaviour. The SERVQUAL framework is a well-respected method for assessing service quality across a range of industries. Given Goa's unique socioeconomic and cultural characteristics, it can be particularly helpful in this regard. Understanding how post-purchase behaviour of Goans is influenced by the five dimensions of service quality (reliability, assurance, responsiveness, empathy, and tangibles) would be helpful to the field.

# LITERATURE REVIEW

## Introduction

In the current competitive business environment, it is critical for companies to comprehend post-purchase behaviour, especially in those sectors where service quality and customer satisfaction are closely linked. This literature review seeks to explore the complex dynamics of post-purchase behaviour. To investigate how relationship marketing tactics, cognitive dissonance theory, SERVQUAL framework, and trust-building exercises affect customer satisfaction and loyalty. My analysis is based on a number of research publications.

## The Significance of Post-Purchase Behaviour

Post-purchase behaviour includes the behaviours and responses that consumers take after making a purchase, indicating whether they are satisfied or dissatisfied with the good or service they received (Lin, 2009; Shahin & Janatyan, 2011). Customers perceptions and decisions to make repeat purchases are greatly influenced by post-purchase behaviour in industries like retail appliances, which includes washing machines (Lin, 2009; Shahin & Janatyan, 2011). Consequently, companies looking to increase customer satisfaction and loyalty must comprehend the elements that influence post-purchase behaviour. The connection between post-purchase behaviour intentions and variations in service quality has been thoroughly investigated in earlier research. The definition of service quality dimensions, their influence on customer behaviour, and the development of practical models for measuring and controlling service quality have all received a lot of attention from academics. Parasuraman et al. made a significant contribution when they introduced the gap theory, which highlights the significance of matching service delivery to customer expectations (Rigopoulou et al., 2008). Further research has been done on personality traits as possible determinants of post-purchase behaviour. When it comes to service quality disparities, consumers who have an external-control orientation might react differently than those who have an internal-control orientation. This distinction highlights the complex interactions that exist between personal traits and consumer behaviour, indicating the need for more research (Rigopoulou et al., 2008).

## Relationship Marketing and Post-Purchase Behaviour

Through efficient communication and activities that develop trust, relationship marketing has become a strategic approach for cultivating long-term relationships with customers (Tunku & Rahman, 2019). Relationship marketing aims to increase customer satisfaction and loyalty by putting the needs and preferences of the customer first, which helps businesses succeed (Tunku & Rahman, 2019). Relationship marketing techniques have the power to significantly influence consumer behaviour after a purchase. Personalised communication channels, like email newsletters or loyalty programmes, can foster a strong customer relationship and promote recurring business (*6-Post-Purchase Behavior Consume Complaint Behavior*, n.d.; Tunku & Rahman, 2019). Proactive customer service and after-sale initiatives can also boost satisfaction and trust, which can result in more positive word-of-mouth recommendations and a rise in customer loyalty (Moutinho et al., 2012; Tunku & Rahman, 2019). Structural equation modelling is used to investigate the causal relationships between customer satisfaction, service quality, and purchase intentions. According to the findings, customer satisfaction which in turn has a greater influence on purchase intentions than service quality alone is strongly influenced by the quality of the provided service (Gilly & Gelb, 1982).

## The SERVQUAL Framework and Service Quality

The SERVQUAL framework provides a comprehensive lens for evaluating service quality across various dimensions, including reliability, responsiveness, tangibility, assurance, and empathy (Mahapatra et al., 2010). These factors are especially important in the context of washing machines because consumers frequently base their decisions on their perceptions of the quality of the services, they receive (Lin, 2009; Mahapatra et al., 2010). For example, maintaining optimal performance of washing machines over time requires reliability, which is defined as the consistency and dependability of service delivery (Mahapatra et al., 2010). Contrarily, tangible elements such as facilities and tangible proof of services are what shape customers' opinions about the calibre of the goods and the standing of the brand (Mahapatra et al., 2010).

**Cognitive Dissonance and Post-Purchase Satisfaction**

According to the cognitive dissonance theory, people become uncomfortable when confronted with contradicting ideas or actions, such as after making a purchase decision (Cronin & Taylor, 1992). When consumers believe there is a discrepancy between what they expected from a product and how it actually performs, cognitive dissonance may occur (Cronin & Taylor, 1992). Cognitive dissonance may arise, for instance, if a consumer expects an appliance to be energy-efficient but discovers that it uses more electricity than expected (Cronin & Taylor, 1992). Consequently, companies need to match customer expectations with product features and performance in order to reduce cognitive dissonance (Cronin & Taylor, 1992).

**Trust-Building Activities and Customer Loyalty**

In order to reduce cognitive dissonance and promote loyalty and post-purchase satisfaction, trust is essential. Customers are more likely to believe that their purchases were justified when they have faith in a company or brand, which lowers post-purchase uncertainty (Meerabai & Selvasundaram, 2020). Furthermore, trust affects cognitive dissonance, which in turn affects customer satisfaction and loyalty indirectly (Meerabai & Selvasundaram, 2020). Establishing trust with clients is critical to maintaining long-term partnerships and encouraging adherence (Meerabai & Selvasundaram, 2020). Transparent pricing practices, dependable product warranties, and attentive customer support services can all help achieve this (Meerabai & Selvasundaram, 2020; Moutinho et al., 2012). Resolving customer complaints in an efficient manner is essential to preserving customer loyalty. Consumers who have complaints may choose to file a lawsuit, share them with friends, or ask sellers for compensation, among other complaint behaviours. On the other hand, customer satisfaction and perceptions can be greatly impacted by the way complaints are handled.

Consumers want businesses to handle their complaints in a timely, courteous, and reliable manner. Inadequate response to complaints may result in unfavourable opinions and increased discomfort. On the other hand, efficient handling of complaints can improve client happiness, brand loyalty, and favourable word-of-mouth (Lin, 2009).

### Service Quality Gap and Customer Satisfaction

Customer satisfaction is heavily impacted by the service quality gap, especially in sectors like banking. Enhancing customer satisfaction and loyalty can result from implementing after-sales service strategies that effectively bridge service quality gaps. Features like assurance, responsiveness, empathy, and dependability are important in determining how people feel and act after making a purchase (Kimencu Linda Nkirote, 2006).

### After-Sales Service Characteristics and Customer Satisfaction

Customer satisfaction in retail sectors such as supermarkets is significantly impacted by after-sales service features, especially in areas like electrical appliances (Tunku & Rahman, 2019). Businesses may increase client happiness and loyalty by offering dependable after-sales services and responding to consumer needs quickly (Tunku & Rahman, 2019). In the context of home appliances, particularly washing machines, another study examines consumer loyalty among female consumers. The study's conclusions emphasise the value of providing after-sale support and high-quality services and highlight the connection between happy customers, repeat business, and enduring loyalty. Contextualising these recommendations within larger industry trends and competitive dynamics also entails enhancing after-sales service and providing competitive pricing (Sharifi & Esfidani, 2014).

### Implications for Business Practice

Businesses can improve post-purchase by incorporating knowledge from relationship marketing, cognitive dissonance theory, service quality assessment, and trust-building initiatives. Businesses can obtain a competitive advantage in the market and promote long-term success by putting a high priority on customer satisfaction and loyalty (Kumar & Anjaly, 2017; Tunku & Rahman, 2019). For instance, spending money on training courses for customer support agents can increase their empathy and responsiveness, which will improve their experiences after making a purchase (Murali S et al., 2015). Likewise, providing value-added services like extended warranties or free installation can help reduce cognitive dissonance and foster customer trust (Meerabai & Selvasundaram, 2020; Moutinho et al., 2012). To reassure clients and increase satisfaction, businesses can use warranty agreements, maintenance services, and

follow-up correspondence. Moreover, efficient methods for handling complaints, like prompt resolution and tailored responses, can reduce discontent and keep customers loyal (Lin, 2009).

Conducting a thorough analysis of post-purchase behaviour will yield significant insights for companies looking to improve customer satisfaction and loyalty. Businesses can create strategies that effectively address the needs and preferences of their customers by combining relationship marketing techniques, service quality assessment, cognitive dissonance theory, and trust-building activities (Meerabai & Selvasundaram, 2020; Tunku & Rahman, 2019). Businesses looking to prosper in fast-paced, cutthroat markets must adopt this comprehensive approach to comprehending post-purchase behaviour (Tahir et al., 2007; Tunku & Rahman, 2019). Thus, in order to succeed over the long run, businesses need to put a high priority on customer loyalty and satisfaction (Lin, 2009; Shahin & Janatyan, 2011).

# RESEARCH GAP

Existing research explores various factors influencing how consumers behave after buying washing machines. However, there seems to be a critical gap in empirical studies that specifically apply the SERVQUAL framework to understand post-purchase behaviour of washing machine consumers in Goa. An established technique for evaluating service quality in a variety of industries is the SERVQUAL framework, which can be especially useful in Goa, a place with distinctive socioeconomic and cultural traits. It would be beneficial to the field to comprehend how the five dimensions of service quality (reliability, assurance, responsiveness, empathy, and tangibles) affect post-purchase behaviour in Goa.

By exploring this unexplored territory, IFB will gain insights about customer satisfaction levels and pinpoint areas that are strong points and where service quality needs to be improved. In order to close any gaps between customers' expectations and their actual experiences, IFB needs to have this understanding in order to increase overall customer satisfaction and loyalty. This study will provide stakeholders practical information to enhance customer satisfaction and customise their approaches for the Goan market. This study will help boost IFB's competitiveness in the market and enhance the brand's reputation. With this IFB will also drive sustainable growth and success by leveraging the insights gathered from this research and strengthening its position in the Goan market.

# RESEARCH QUESTIONS

a) How do customers perceive the level of service quality in each dimension of SERVQUAL model?
b) How does each dimension of service quality, as outlined in the SERVQUAL model, impact customers post-purchase behaviour, including their satisfaction levels, intentions for repeat purchases, and likelihood of recommending the service to others through word-of-mouth?
c) What is the dominant service quality dimension that has a strong relation with customer satisfaction in purchasing washing machine in Goa?

# RESEARCH OBJECTIVES

a) Evaluate the level of service quality perceived by customers in each dimension of the SERVQUAL model.
b) Investigate the influence of each dimension of service quality on customers post-purchase behaviour, including satisfaction levels, repeat purchase intentions, and word-of-mouth recommendations.
c) To investigate the dominant service quality dimension that has a strong relation with customer satisfaction in purchasing Washing Machine.

# RESEARCH METHODOLOGY

## Introduction

The purpose of this study is to examine, using SERVQUAL (Service Quality) dimensions as a lens, how consumers in the state of Goa behave after making a purchase regarding washing machines. The purpose of the study is to compare the performance levels of three well-known washing machine manufacturing companies in after-sales service (ASS) operations. There was a mix of primary and secondary data used in the study. The primary data was gathered via structured online questionnaires and interviews conducted as part of exploratory research. An easy sampling strategy to collect information from 150 customers was used. Using a 5-point Likert scale, the questionnaire was evaluated on customer perceptions of the five SERVQUAL dimensions: tangibles, reliability, assurance, responsiveness, and empathy. MANOVA and descriptive analysis will be performed to compare ASS attributes between the three washing machine brands using SPSS software.

## Research Design

The study uses an exploratory research design to learn more about Goan consumers post-purchase washing machine behaviour. It uses a cross-sectional method to gather information from customers about how they view the characteristics of ASS.

## Data Collection Methods

- Primary Data

  The primary data was collected through direct interviews with dealers and customers, as well as structured online questionnaires. The questionnaire was developed based on SERVQUAL dimensions and distributed using Google Forms via email and social media platforms such as Facebook, WhatsApp, and Instagram.

- Secondary Data

  Secondary data, which will offer further insights into important variables pertinent to the research, was gathered from previously published studies, research papers, journals, and reports.

**Sampling**

A convenient sampling technique was used due to the time constraints of the study. A sample size of 150 consumers was selected from the state of Goa to participate in the research.

**Data Analysis**

The information gathered from the questionnaire answers was summarised using descriptive analysis. To investigate significant differences in ASS attributes based on SERVQUAL dimensions between the three washing machine brands, MANOVA was used. Software for data analysis was Microsoft Excel and SPSS.

This methodology provides an overview of the methodical approach that was used in the research project "Analysing Post Purchase Behaviour of Washing Machines in Goa: A SERVQUAL Perspective." The study attempts to offer important insights into consumer perceptions of ASS attributes across various washing machine brands in the Goan market by combining primary and secondary data collection methods and using statistical analysis techniques.

# DATA ANALYSIS

**Content Validity Analysis**

Content Validity Analysis of Questionnaire was done, to evaluate the questionnaire's content validity. The content validity was done by the researcher by using techniques like expert judgment and content review, and scores were provided for the validity test for this study.

**Reliability Analysis**

Reliability Analysis of Research Instrument The researcher apply pilot test to examine the reliability of the questionnaire. The reliability test for this research is processed on computer program by using Cronbach's alpha coefficient.

| Cronbach's Alpha Coefficient | Reliability Level | Desirability Level |
|---|---|---|
| 0.80 – 1.00 | Very High | Excellent |
| 0.70 – 0.79 | High | Good |
| 0.50 – 0.69 | Medium | Fair |
| 0.30 – 0.49 | Low | Poor |
| Less than 0.30 | Very Low | Unacceptable |

**Content Validity Analysis**

## Mrs. Teja Khandolkar

| Sr. No. | Questionnaire Item | Scale (1= Not relevant, 2= Somewhat relevant, 3= Quite relevant and 4= Highly relevant) | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| | **Reliability** | | | | |
| 1 | IFB/Samsung/LG is able to keep up to the promises made related to the After sales. | | | | 4 |
| 2 | IFB/Samsung/LG is able to provide timely After sales service. | | | | 4 |
| 3 | IFB/Samsung/LG always ensure good quality of the product packaging when delivered. | | | | 4 |

| | | | | | |
|---|---|---|---|---|---|
| 4 | IFB/Samsung/LG staff is consistent in solving customer complaints | | | | 4 |
| 5 | IFB/Samsung/LG always insists on zero defects in its product offerings. | | | | 4 |
| **Responsiveness** | | | | | |
| 1 | IFB/Samsung/LG Frontline employees are always willing to help me. | | | | 4 |
| 2 | Knowledgeable & courteous IFB/Samsung/LG employees always inspire confidence and trust to their customer. | | | | 4 |
| 3 | IFB/Samsung/LG customer care staff are fast to respond. | | | | 4 |
| 4 | IFB/Samsung/LG always ensures product is always in stock for delivery. | | | | 4 |
| 5 | Delay in repair/replacement is always updated to customers within a short period of time. | | | | 4 |
| **Assurance** | | | | | |
| 1 | IFB/Samsung/LG after sales service staff are knowledgeable. | | | | 4 |
| 2 | IFB/Samsung/LG after sales service staff are reliable and trustworthy. | | | | 4 |
| 3 | IFB/Samsung/LG staff has ability to communicate effectively with their customers. | | | | 4 |
| 4 | IFB/Samsung/LG delivery personnel are very kind and friendly | | | | 4 |
| **Tangible** | | | | | |
| 1 | IFB/Samsung/LG provides effective complaint registration facilities. | | | | 4 |
| 2 | I am satisfied with the ease of use and accessibility of features on my IFB/Samsung/LG washing machine | | | | 4 |
| 3 | I am satisfied with the design and appearance of my IFB/Samsung/LG washing machine. | | | | 4 |
| **Empathy** | | | | | |
| 1 | IFB/Samsung/LG staff understand the needs of customers | | | | 4 |
| 2 | IFB/Samsung/LG staff gives individualized attention to customers | | | | 4 |
| 3 | IFB/Samsung/LG staff show sincere interest to solve customer problem | | | | 4 |
| | **Overall** | | | | |
| 1 | I am likely to continue purchasing IFB/Samsung/LG products in the future. | | | | 4 |
| 2 | After-sales service is very important in my decision to repurchase from IFB/Samsung/LG in the future. | | | | 4 |

## Mr. Jyotibha Shindolker

| Sr. No. | Questionnaire Item | Scale (1= Not relevant, 2= Somewhat relevant, 3= Quite relevant and 4= Highly relevant) | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| **Reliability** | | | | | |
| 1 | IFB/Samsung/LG is able to keep up to the promises made related to the After sales. | | | | 4 |
| 2 | IFB/Samsung/LG is able to provide timely After sales service. | | | | 4 |
| 3 | IFB/Samsung/LG always ensure good quality of the product packaging when delivered. | | | 3 | |
| 4 | IFB/Samsung/LG staff is consistent in solving customer complaints | | | 3 | |
| 5 | IFB/Samsung/LG always insists on zero defects in its product offerings. | | | | 4 |

| | | | | | |
|---|---|---|---|---|---|
| **Responsiveness** | | | | | |
| 1 | IFB/Samsung/LG Frontline employees are always willing to help me. | | | | 4 |
| 2 | Knowledgeable & courteous IFB/Samsung/LG employees always inspire confidence and trust to their customer. | | | | 4 |
| 3 | IFB/Samsung/LG customer care staff are fast to respond. | | | | 4 |
| 4 | IFB/Samsung/LG always ensures product is always in stock for delivery. | | | | 3 |
| 5 | Delay in repair/replacement is always updated to customers within a short period of time. | | | | 3 |
| **Assurance** | | | | | |
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| 2 | IFB/Samsung/LG after sales service staff are reliable and trustworthy. | | | | 4 |
| 3 | IFB/Samsung/LG staff has ability to communicate effectively with their customers. | | | | 4 |
| 4 | IFB/Samsung/LG delivery personnel are very kind and friendly | | | | 3 |
| **Tangible** | | | | | |
| 1 | IFB/Samsung/LG provides effective complaint registration facilities. | | | | 4 |
| 2 | I am satisfied with the ease of use and accessibility of features on my IFB/Samsung/LG washing machine | | | | 4 |
| 3 | I am satisfied with the design and appearance of my IFB/Samsung/LG washing machine. | | | | 4 |
| **Empathy** | | | | | |
| 1 | IFB/Samsung/LG staff understand the needs of customers | | | | 4 |
| 2 | IFB/Samsung/LG staff gives individualized attention to customers | | | | 4 |
| 3 | IFB/Samsung/LG staff show sincere interest to solve customer problem | | | | 4 |
| | **Overall** | | | | |
| 1 | I am likely to continue purchasing IFB/Samsung/LG products in the future. | | | | 4 |
| 2 | After-sales service is very important in my decision to repurchase from IFB/Samsung/LG in the future. | | | | 4 |

## Mrs. Preeti Awasthi

| Sr. No. | Questionnaire Item | Scale (1= Not relevant, 2= Somewhat relevant, 3= Quite relevant and 4= Highly relevant) | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| **Reliability** | | | | | |
| 1 | IFB/Samsung/LG is able to keep up to the promises made related to the After sales. | | | | 3 |
| 2 | IFB/Samsung/LG is able to provide timely After sales service. | | | | 4 |
| 3 | IFB/Samsung/LG always ensure good quality of the product packaging when delivered. | | | 4 | |
| 4 | IFB/Samsung/LG staff is consistent in solving customer complaints | | | 3 | |
| 5 | IFB/Samsung/LG always insists on zero defects in its product offerings. | | | | 4 |
| **Responsiveness** | | | | | |
| 1 | IFB/Samsung/LG Frontline employees are always willing to help me. | | | | 4 |

| | | | | | |
|---|---|---|---|---|---|
| 2 | Knowledgeable & courteous IFB/Samsung/LG employees always inspire confidence and trust to their customer. | | | | 4 |
| 3 | IFB/Samsung/LG customer care staff are fast to respond. | | | | 4 |
| 4 | IFB/Samsung/LG always ensures product is always in stock for delivery. | | | | 4 |
| 5 | Delay in repair/replacement is always updated to customers within a short period of time. | | | | 3 |
| **Assurance** | | | | | |
| 1 | IFB/Samsung/LG after sales service staff are knowledgeable. | | | | 4 |
| 2 | IFB/Samsung/LG after sales service staff are reliable and trustworthy. | | | | 4 |
| 3 | IFB/Samsung/LG staff has ability to communicate effectively with their customers. | | | | 4 |
| 4 | IFB/Samsung/LG delivery personnel are very kind and friendly | | | | 4 |
| **Tangible** | | | | | |
| 1 | IFB/Samsung/LG provides effective complaint registration facilities. | | | | 4 |
| 2 | I am satisfied with the ease of use and accessibility of features on my IFB/Samsung/LG washing machine | | | | 4 |
| 3 | I am satisfied with the design and appearance of my IFB/Samsung/LG washing machine. | | | | 4 |
| **Empathy** | | | | | |
| 1 | IFB/Samsung/LG staff understand the needs of customers | | | | 4 |
| 2 | IFB/Samsung/LG staff gives individualized attention to customers | | | | 3 |
| 3 | IFB/Samsung/LG staff show sincere interest to solve customer problem | | | | 4 |
| | **Overall** | | | | |
| 1 | I am likely to continue purchasing IFB/Samsung/LG products in the future. | | | | 4 |
| 2 | After-sales service is very important in my decision to repurchase from IFB/Samsung/LG in the future. | | | | 4 |

CVI = No. of Agreement (per statement) above 3/No. of Experts

**Reliability**
**Q1=1**
**Q2=1**
**Q3=1**
**Q4=1**
**Q5=1**

**Responsiveness**
**Q1=1**
**Q2=1**
**Q3=1**
**Q4=1**
**Q5=1**

**Assurance**
**Q1=1**
**Q2=1**
**Q3=1**
**Q4=1**

**Tangible**
**Q1=1**
**Q2=1**
**Q3=1**

**Empathy**
**Q1=1**
**Q2=1**
**Q3=1**

**Overall**
**Q1=1**
**Q2=1**

S-CVI = Total of I-CVI/ No. of items

Overall Scale Validity = 22/22

= 1

## Pilot Study

A pilot study is a strategy used to test a questionnaire using a sample smaller than the planned sample size. The importance of the need to conduct a pilot study is to enable researchers is to determine the feasibility of the research design conducted. If the results of a pilot study have been obtained, the results can be used to assist researchers in large-scale research methodologies. A group of male and female participated in the pilot test. This pilot test was randomly distributed to 20 respondents. The respondents feedback was about the topic "Analysing post purchase behaviour of Washing machines in Goa – A SERVQUAL perspective"

## Cronbach Alpha

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .915 | 69 |

The above table reliability statistics shows the Cronbach Alpha. The questionnaire was initially sent to 20 respondents for its reliability in measuring the objectives of the study. The study showed that the Cronbach Alpha result is 0.915. The value of the Cronbach Alpha approach is greater than 5. Therefore, it can be concluded that the questionnaire is an instrument that can be used to measure or answer the objectives of this study.

**Descriptive Analysis**

The following tables are the descriptive analysis of demographic characteristics which are the frequency and percentage distribution of respondent respectively. And tables also show the average mean and standard deviation.

**The Analysis of gender levels using Frequency and Percentage**

**Gender**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Female | 66 | 44.0 | 44.0 | 44.0 |
| | Male | 83 | 55.3 | 55.3 | 99.3 |
| | Other | 1 | .7 | .7 | 100.0 |
| | Total | 150 | 100.0 | 100.0 | |

Above table shows the gender of respondents in this research. It is viewed that among the 150 respondents, 83 respondents of the sample size are male, 66 respondents are Female, there was 1 respondent belonging to the others category. Therefore, there is a proportion 55.3% of male, 44.0% female and 0.7% Other.

**The Analysis of age levels using Frequency and Percentage**

**Age Group**

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Valid | 22-31 years | 64 | 42.7 | 42.7 | 42.7 |
| | 32-41 years | 37 | 24.7 | 24.7 | 67.3 |
| | 42-51 years | 33 | 22.0 | 22.0 | 89.3 |
| | 52 years & above | 16 | 10.7 | 10.7 | 100.0 |
| | Total | 150 | 100.0 | 100.0 | |

Above table shows the age of respondents in this research. It is viewed that among the 150 respondents, 64 (42.7%) respondents of the sample size are between 22 to 31 years. 37(24.7%) respondents are between 32 to 41 years. 33 (22.0%) respondents are between 42 to 51 years. 16 (10.7%) respondents are 52 Years & above.

## The Analysis of Annual income levels using Frequency and Percentage

**Annual Income**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Below 2 Lakhs | 30 | 20.0 | 20.0 | 20.0 |
| | 2-4 Lakhs | 36 | 24.0 | 24.0 | 44.0 |
| | 5-7 Lakhs | 54 | 36.0 | 36.0 | 80.0 |
| | 8 Lakhs & Above | 30 | 20.0 | 20.0 | 100.0 |
| | Total | 150 | 100.0 | 100.0 | |

Above table shows the annual income of respondents in this research. It is viewed that among the 150 respondents, 30 (20.0%) respondents of the sample size have income below 2 Lakhs, 36 (24.0%) respondents have 2-4 Lakhs, 54 (36.0%) respondents have 5-7 Lakhs, 30 (20.0%) respondents have 8 Lakhs & Above respectively as their annual income.

## The Analysis of ownership of washing machine levels using Frequency and Percentage

**Do you own a washing machine?**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Yes | 150 | 100.0 | 100.0 | 100.0 |

The above table shows ownership of washing machine of respondents in this research. It is viewed that among the 150 respondents,100 (100.0%) respondents of the sample size own a washing machine and there were no respondents who do not own a washing machine.

## The Analysis of type of washing machine using Frequency and Percentage

**Type of your washing machine you own?**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Front load | 65 | 43.3 | 43.3 | 43.3 |
| | Top Load | 85 | 56.7 | 56.7 | 100.0 |
| | Total | 150 | 100.0 | 100.0 | |

The above table shows the type of washing machine among respondents who reported owning a washing machine in the research sample. Among the 150 respondents who own a washing machine, 65 respondents (43.3%) reported owning a Front load washing machine. This is followed by 85 respondents (56.7%) who own a Top load washing machine.

## The Analysis of brand of washing machine using Frequency and Percentage

**Which brand of washing machine do you use?**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | IFB | 45 | 30.0 | 30.0 | 30.0 |
| | LG | 52 | 34.7 | 34.7 | 64.7 |
| | Samsung | 39 | 26.0 | 26.0 | 90.7 |
| | Other | 14 | 9.3 | 9.3 | 100.0 |
| | Total | 150 | 100.0 | 100.0 | |

The above table shows the brand of washing machine among respondents who reported owning a washing machine in the research sample. Among the 150 respondents who own a washing machine, 45 respondents (30.0%) reported owning a IFB washing machine. This is followed

by 52 respondents (34.7%) who own a LG washing machine. 39 respondents (26.0) reported owning Samsung washing machine and 14 respondents (9.3%) owned a washing machine of a brand other than the ones listed.

# MANOVA TEST

**Multivariate Tests[a]**

| Effect | | Value | F | Hypothesis df | Error df | Sig. |
|---|---|---|---|---|---|---|
| Intercept | Pillai's Trace | .859 | 172.395[b] | 5.000 | 142.000 | .000 |
| | Wilks' Lambda | .141 | 172.395[b] | 5.000 | 142.000 | .000 |
| | Hotelling's Trace | 6.070 | 172.395[b] | 5.000 | 142.000 | .000 |
| | Roy's Largest Root | 6.070 | 172.395[b] | 5.000 | 142.000 | .000 |
| Whichbrandofwashingmachinedoyouuse | Pillai's Trace | .585 | 6.971 | 15.000 | 432.000 | .000 |
| | Wilks' Lambda | .431 | 9.318 | 15.000 | 392.401 | .000 |
| | Hotelling's Trace | 1.282 | 12.025 | 15.000 | 422.000 | .000 |
| | Roy's Largest Root | 1.253 | 36.100[c] | 5.000 | 144.000 | .000 |

a. Design: Intercept + Whichbrandofwashingmachinedoyouuse

b. Exact statistic

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

Multiple dependent variables are evaluated simultaneously by the MANOVA test. When comparing different brands or types of washing machines, the multivariate tests in this instance show significant differences among the various attributes or dimensions assessed (RELIABILITY, RESPONSIVENESS, ASSURANCE, EMPATHY, TANGIBILITY). The multivariate test statistics Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root show the overall model's significance. Each statistic's significance level (Sig.) indicates whether or not there are notable variations between the various washing machine brands or models with respect to the evaluated attributes.

**Tests of Between-Subjects Effects**

| Source | Dependent Variable | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| Corrected Model | RELIABILITY | 19.726[a] | 3 | 6.575 | 35.105 | .000 |
| | RESPONSIVENESS | 19.914[b] | 3 | 6.638 | 39.754 | .000 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | ASSURANCE | 24.399[c] | 3 | 8.133 | 39.326 | .000 |
| | EMPATHY | 24.358[d] | 3 | 8.119 | 36.503 | .000 |
| | TANGIBILITY | 24.981[e] | 3 | 8.327 | 36.962 | .000 |
| Intercept | RELIABILITY | 97.146 | 1 | 97.146 | 518.645 | .000 |
| | RESPONSIVENESS | 95.277 | 1 | 95.277 | 570.589 | .000 |
| | ASSURANCE | 113.172 | 1 | 113.172 | 547.223 | .000 |
| | EMPATHY | 118.886 | 1 | 118.886 | 534.478 | .000 |
| | TANGIBILITY | 121.529 | 1 | 121.529 | 539.442 | .000 |
| Whichbrandofwashingmachinedoyouuse | RELIABILITY | 19.726 | 3 | 6.575 | 35.105 | .000 |
| | RESPONSIVENESS | 19.914 | 3 | 6.638 | 39.754 | .000 |
| | ASSURANCE | 24.399 | 3 | 8.133 | 39.326 | .000 |
| | EMPATHY | 24.358 | 3 | 8.119 | 36.503 | .000 |
| | TANGIBILITY | 24.981 | 3 | 8.327 | 36.962 | .000 |
| Error | RELIABILITY | 27.347 | 146 | .187 | | |
| | RESPONSIVENESS | 24.379 | 146 | .167 | | |
| | ASSURANCE | 30.194 | 146 | .207 | | |
| | EMPATHY | 32.475 | 146 | .222 | | |
| | TANGIBILITY | 32.892 | 146 | .225 | | |
| Total | RELIABILITY | 233.000 | 150 | | | |
| | RESPONSIVENESS | 228.000 | 150 | | | |
| | ASSURANCE | 273.000 | 150 | | | |
| | EMPATHY | 285.000 | 150 | | | |
| | TANGIBILITY | 291.000 | 150 | | | |
| Corrected Total | RELIABILITY | 47.073 | 149 | | | |
| | RESPONSIVENESS | 44.293 | 149 | | | |
| | ASSURANCE | 54.593 | 149 | | | |
| | EMPATHY | 56.833 | 149 | | | |
| | TANGIBILITY | 57.873 | 149 | | | |

a. R Squared = .419 (Adjusted R Squared = .407)

b. R Squared = .450 (Adjusted R Squared = .438)

c. R Squared = .447 (Adjusted R Squared = .436)

d. R Squared = .429 (Adjusted R Squared = .417)

e. R Squared = .432 (Adjusted R Squared = .420)

The table gives specific details about how each dependent variable (such as responsiveness, dependability, etc.) is affected by the independent variable, which is probably a variety of washing machine brands or models. The significance level (Sig.) indicates whether the effect

is statistically significant, whereas the F-value indicates the effect's significance. The table provides insights into areas where certain brands excel or lag behind by revealing which specific attributes (dependent variables) show significant differences across different brands or types of washing machines.

The multivariate test statistics, as well as the results of the MANOVA test, suggest that there are notable variations in consumer perceptions or satisfaction levels among various brands or types of washing machines.

The Between-Subjects Effects Tests offer more detailed insights into the particular characteristics that fuel these variations, emphasising areas in which particular brands might have a competitive advantage or require development.

In order to better meet customer needs and increase market competitiveness, washing machine manufacturers like IFB can benefit from these findings by using them to guide product development, marketing strategies, and overall brand positioning. These findings also help manufacturers understand consumer preferences and perceptions.

## Post Hoc Tests

## Which brand of washing machine do you use?

## Homogeneous Subsets

**RELIABILITY**

Tukey B

| Which brand of washing machine do you use? | N | Subset | |
|---|---|---|---|
| | | 1 | 2 |
| Other | 14 | .00 | |
| IFB | 45 | | 1.16 |
| Samsung | 39 | | 1.21 |

| | | | |
|---|---|---|---|
| LG | 52 | | 1.31 |

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = .187.

a. Uses Harmonic Mean Sample Size = 28.876.

b. Alpha = .05.

The results of the Tukey's Honestly Significant Difference (HSD) test are shown in the table, which compares the post-purchase behaviour of IFB washing machines with those of other well-known brands like LG, Samsung, and an unidentified "Other" brand. Of particular interest is the reliability aspect of this comparison.

Regarding brand comparison, the table clearly separates LG, Samsung, and IFB, with "Other" denoting an unidentified brand. The average dependability scores for every brand are shown, giving consumers a better understanding of their opinions.

IFB is used as the reference group when analysing subset mean differences. With a mean difference of 0.00, the unidentified "Other" brand has much lower reliability scores than IFB, LG, and Samsung. LG outperforms IFB with a mean reliability score of 1.16, and Samsung and LG both show somewhat higher mean reliability scores (1.21 and 1.31, respectively) than IFB.

The findings have implications for the industry. Firstly, although IFB washing machines are perceived by consumers as slightly less reliable than LG and Samsung, they are regarded as significantly more reliable than the unidentified "Other" brand. The significance of reliability in the decision-making process for consumers is highlighted when it is shown to be a crucial factor influencing post-purchase satisfaction and brand loyalty.

**RESPONSIVENESS**

Tukey B

| Which brand of washing machine do you use? | N | Subset | |
|---|---|---|---|
| | | 1 | 2 |

| | | | |
|---|---|---|---|
| Other | 14 | .00 | |
| Samsung | 39 | | 1.13 |
| IFB | 45 | | 1.18 |
| LG | 52 | | 1.33 |

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = .167.
a. Uses Harmonic Mean Sample Size = 28.876.
b. Alpha = .05.

The results of Tukey's Honestly Significant Difference (HSD) test are shown in the table, with an emphasis on contrasting the IFB washing machines' responsiveness with those of other top brands, such as LG, Samsung, and an unidentified "Other" brand.

Regarding brand comparison, the table unambiguously identifies Samsung, LG, and IFB, with an unidentified brand represented by the "Other" category. Customers' perceptions of these brands' responsiveness are revealed by the mean responsiveness scores for each brand.

IFB acts as the benchmark for analysing subset mean differences. With a mean difference of 0.00, the unidentified "Other" brand shows noticeably lower responsiveness scores than IFB, LG, and Samsung. LG outperforms IFB with a mean responsiveness score of 1.33, and Samsung and LG both have marginally higher mean responsiveness scores than IFB (1.18 and 1.13, respectively).

The conclusions from these data imply that although consumers believe IFB washing machines to be marginally less responsive than LG and Samsung, they are judged to be substantially more responsive than the nameless "Other" brand. When it comes to promptly handling customer inquiries, grievances, and service requests, responsiveness is essential. This influences overall customer satisfaction and promotes brand loyalty.

**ASSURANCE**

Tukey B

| | N | Subset |
|---|---|---|

| Which brand of washing machine do you use? | | 1 | 2 |
|---|---|---|---|
| Other | 14 | .00 | |
| IFB | 45 | | 1.22 |
| Samsung | 39 | | 1.26 |
| LG | 52 | | 1.48 |

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = .207.

a. Uses Harmonic Mean Sample Size = 28.876.

b. Alpha = .05.

Tukey's Honestly Significant Difference (HSD) test results are presented in the table, which compares the assurance factor of IFB washing machines to those of rival brands such as LG, Samsung, and an unidentified "Other" brand.

When comparing brands, it is clear which ones are IFB, LG, and Samsung; an unidentified brand is represented by the "Other" category. The brands' mean assurance scores are displayed, providing an insight into how consumers view each brand's level of assurance.

IFB is used as the reference point when examining subset mean differences. There is a mean difference of 0.00 in the assurance scores of the unidentified "Other" brand when compared to IFB, LG, and Samsung. LG has a mean assurance score that is 1.48 points higher than IFB, and Samsung and LG both have mean assurance scores that are marginally higher than IFB (1.26 and 1.22, respectively).

The conclusions derived from these research highlights the significance of assurance, which reflects consumers' trust in a brand's dependability, security, and customer service. Customers believe that IFB washing machines are considerably more assured than the unidentified "Other" brand, even though they believe that they are slightly less assured than LG and Samsung. These findings highlight how crucial assurance is in forming customer perceptions and brand preferences.

**TANGIBILITY**

Tukey B

| Which brand of washing machine do you use? | N | Subset | |
|---|---|---|---|
| | | 1 | 2 |
| Other | 14 | .00 | |
| IFB | 45 | | 1.29 |
| Samsung | 39 | | 1.33 |
| LG | 52 | | 1.48 |

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = .225.

a. Uses Harmonic Mean Sample Size = 28.876.

b. Alpha = .05.

The Tukey's Honestly Significant Difference (HSD) test results are presented in the table. The test specifically looks at the tangibility perception of IFB washing machines in relation to competitors like LG, Samsung, and an unidentified "Other" brand.

Regarding brand comparison, the "Other" category denotes an unidentified brand, whereas IFB, LG, and Samsung are specifically mentioned. The brands' mean tangibility scores are displayed, providing insight into how consumers view the tangibility of these brands' washing machines.

IFB is the benchmark after examining subset mean differences. With a mean difference of 0.00, the unidentified "Other" brand shows noticeably lower tangibility scores than IFB, LG, and Samsung. LG has a mean tangibility score that is 1.48 higher than that of IFB, and both Samsung and LG have slightly higher mean tangibility scores than that of IFB (1.33 and 1.29, respectively).

The conclusions that can be made from these results highlight the importance of tangibility, which includes the physical characteristics, features, and appearance of the washing machines. Customers believe that IFB washing machines are considerably more tangible than the unidentified "Other" brand, even though they are marginally less tangible than LG and Samsung models. These findings demonstrate how tangibility influences consumers' perceptions and preferences.

**EMPATHY**

Tukey B

| Which brand of washing machine do you use? | N | Subset | |
|---|---|---|---|
| | | 1 | 2 |
| Other | 14 | .00 | |
| IFB | 45 | | 1.29 |
| Samsung | 39 | | 1.31 |
| LG | 52 | | 1.46 |

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = .222.

a. Uses Harmonic Mean Sample Size = 28.876.

b. Alpha = .05.

The table presents the results of the Tukey's Honestly Significant Difference (HSD) test, with an emphasis on contrasting the IFB washing machines' empathy perception with those of rival brands such as LG, Samsung, and an unidentified "Other" brand.

Regarding brand comparison, IFB, LG, and Samsung are specifically mentioned, whereas an unidentified brand is represented by the "Other" category. The brands' average empathy scores are given, revealing how consumers view the brands' washing machines' empathy features.

When examining subset mean differences, IFB is used as the benchmark. With a mean difference of 0.00, the unidentified "Other" brand has much lower empathy scores than IFB, LG, and Samsung. LG has a mean empathy score that is 1.46 points higher than IFB, and both Samsung and LG have slightly higher mean empathy scores than IFB (1.31 and 1.29, respectively).

The conclusions derived from this research emphasise the value of empathy, which includes the emotional bond, customer assistance, and post-purchase servicing related to washing machines. Customers believe that IFB washing machines are considerably more sympathetic than the unidentified "Other" brand, even though they perceive them to have slightly less

empathy than LG and Samsung. These findings highlight the need of empathy in promoting customer satisfaction and loyalty, highlighting its impact on overall brand perception and preference.

# FINDINGS

**Perception of Service Quality Dimensions**

According to the SERVQUAL model, customers perceive differences in a number of service quality dimensions, such as tangibility, assurance, responsiveness, empathy, and dependability. Certain dimensions may receive higher ratings than others, signifying potential areas of strength or weakness in the Goan washing machine brands' offerings.

**Impact on Post-Purchase Behavior**

Different aspects of service quality have different effects on behaviour after a purchase.

Increased intentions for repeat purchases and positive word-of-mouth recommendations are likely to result from higher levels of satisfaction with particular service quality dimensions.

Washing machine brands must comprehend how each factor affects post-purchase behaviour in order to identify areas for improvement and raise customer satisfaction and loyalty levels overall.

**Dominant Service Quality Dimension**

It is critical to determine which aspect of service quality is most prevalent and has a strong correlation with Goan customers' satisfaction when they buy washing machines. Customers' overall satisfaction levels, as well as their propensity to make repeat purchases and refer other people to the brand, are greatly influenced by this dimension.

**Performance Across Service Quality Dimensions**

Different brands, such as IFB, LG, and Samsung, perform differently in terms of various aspects of service quality. It is clear from examining the multivariate test statistics and the Tukey's Honestly Significant Difference (HSD) test results that each brand differs from rivals in a number of ways. By being aware of these performance variances, brands can enhance customer satisfaction and loyalty by concentrating on areas for improvement and leveraging their strengths.

# SUGGESTIONS TO IFB INDUSTRIES LTD

## Reliability

- **Improve Reliability:** It would be better for IFB to concentrate on making its washing machines as reliable as, or even more reliable than, rival brands like LG and Samsung.
- **Quality Assurance**: Throughout the manufacturing process, apply strict quality control procedures to reduce errors and guarantee product reliability.
- **Customer Support**: Provide comprehensive customer support services, such as prompt and effective repairs and customer complaint handling, to improve customer satisfaction after the sale and address any reliability-related problems.
- **Innovative Technologies**: Invest in R&D to incorporate cutting-edge technologies that increase product performance and durability, which raises overall reliability.

## Responsiveness

- **Enhance Customer Support**: To guarantee quick and efficient responses to consumer inquiries and grievances, IFB should place a high priority on enhancing its customer support offerings.
- **Streamline Service Processes**: Reduce response times for maintenance, repairs, and service requests by putting in place effective service procedures; this will improve responsiveness all around.
- **Invest in Training**: To help customer service representatives and service technicians become more adept at attending to customers' needs and swiftly resolving issues, give them thorough training.
- **Feedback Mechanisms**: In order to improve overall customer satisfaction and responsiveness, it is recommended to establish feedback mechanisms to collect customer insights and suggestions.

**Assurance**

- **Enhance Product Quality**: Improve product quality, dependability, and durability to give customers more assurance and confidence.
- **Strengthen After-Sales Support**: To improve overall assurance, make an investment in after-sales services like warranties, maintenance plans, and customer support to handle any problems or concerns as soon as they arise.
- **Transparency and Communication**: To increase consumer trust and confidence in the brand, keep pricing, policies, and product details transparent. You should also communicate with customers in an efficient manner.
- **Continuous Improvement**: To further increase assurance levels, regularly collect customer feedback and insights to pinpoint areas that could be improved in terms of product features, service offerings, and the overall customer experience.

**Tangibility**

- **Enhance Product Design**: To increase the perceived tangibility of IFB washing machines, concentrate on enhancing their visual appeal, build quality, and design aesthetics.
- **Innovative Features**: Add cutting-edge features and capabilities that raise the perceived worth and tangibleness of IFB washing machines in relation to rival models.
- **Brand Communication**: Make sure that customers are aware of the distinct qualities, cutting-edge technology, and concrete advantages of IFB washing machines by using product messaging and marketing campaigns.
- **Customer Engagement**: To learn about the preferences and expectations of customers with relation to the tangibility of washing machines, request feedback and engage with them. Then, integrate these insights into the processes of product development and design.

**Empathy**

- **Enhance Customer Service**: Prioritise enhancing customer service, after-sale services, and responsiveness to client complaints and inquiries.

- **Build Trust**: Build credibility and dependability by being open and honest with one another, resolving problems quickly, and managing client feedback well.
- **Training and Development**: To improve the empathy and social skills of technicians and customer service representatives, fund training programmes for them.
- **Community Engagement**: Create a feeling of community and empathy for the brand by interacting with customers on social media, in online forums, and at community events.

# WORK DONE

**Benchmarking and recommendations for the IFB website**

Conducted a thorough benchmarking analysis of the IFB corporate website and provided comments and recommendations on how to enhance the navigation, user experience, and content presentation of the website to better engage users and adhere to industry standards.

**Comparing the websites of Whirlpool and Bosch**

Conducted a thorough benchmarking analysis of the IFB corporate website and provided comments and recommendations on how to enhance the navigation, user experience, and content presentation of the website to better engage users and adhere to industry standards.

**Adoption of Features from Whirlpool and Bosch Websites**

Format and feature identification from the Whirlpool and Bosch websites. To enhance the IFB website's usability and aesthetics, certain features and formats were added.

**Development of Dummy Corporate Website Format**

For IFB's reference, a corporate website prototype was made by analysing benchmarks and the Unilever company website. incorporated design elements, navigational components, and content display strategies from industry-leading websites.

**Search Engine Optimization (SEO) for Washing Machine Keywords**

Improved IFB's website visibility and search engine rankings through washing machine-related keyword optimisation. Use competitor analysis and product search optimisation strategies to increase your online presence and attract new customers.

**Social Media Platform Review**

Assessed IFB's social media presence across a variety of platforms and engagement tactics. studied the social media strategies of competitors' brands to identify areas for growth and areas for advantage.

**Research on the Auto-Dosing Technique**

Conducted a thorough investigation into the automatic washing machine dosage system. looked into its benefits, features, and potential impact on IFB's product range.

**Identification of Participants Using Auto Dosing Technique**

looked into competitors and business owners who have begun utilising laundry machines with auto dosing. gathered data regarding market trends and competitor strategies in order to introduce new features.

**Review and Naming of IFB Auto Dose Technique**

Examined the efficacy and efficiency of the auto-dosing method developed by IFB. Recommended names for the auto-dosing method on IFB.

**Front-load and Top-load Washing Machine Benchmarking**

Inspected and contrasted IFB's top-load and front-load washers with those made by rival companies. In order to identify areas for development and competitive advantages, price, features, motor types, and other specifications were analysed.

# LEARNINGS

## Understand Customer Perceptions

It's critical to comprehend how clients view various aspects of service quality, including tangibility, assurance, responsiveness, empathy, and dependability. Brands can learn about their strong and weak points by regularly surveying customers and analysing their feedback.

## Prioritize Service Quality Improvement

Determine which aspects of service quality (such as satisfaction levels, intentions to make additional purchases, and word-of-mouth recommendations) have the biggest effects on consumers' behaviour after making a purchase. Make these areas your top priorities for improvement if you want to increase overall customer satisfaction and loyalty.

## Differentiate Based on Service Quality

Make use of service quality as a market-based competitive differentiator. Draw attention to the areas where your brand outperforms rivals and use marketing campaigns and customer communications to effectively communicate these strengths.

## Invest in Tangibility and Empathy

Customer perceptions and preferences are greatly influenced by both empathetic elements like customer service and post-purchase support and tangible ones like product design, packaging, and branding. To improve the overall perception of the brand and customer satisfaction, allocate resources to these areas of improvement.

## Tailor Marketing Strategies

Tailor marketing tactics according to the demographics, inclinations, and views of your target audience. Promote and advertise, for instance, to particular client segments that place a higher priority on particular aspects of service quality.

**Continuously Monitor and Adapt**

Customer preferences and perceptions of service quality may change over time. Keep an eye on competitor activity, market trends, and customer feedback to adjust your offerings and strategies as needed.

**Focus on Long-term Customer Relationships**

Maintaining successful business relationships with clients requires strong, long-term customer relationships. Put the needs and concerns of your customers first. By providing consistently excellent service, you can win their loyalty.

**Collaborate Across Functions**

In order to improve service quality, the organization's marketing, sales, customer service, and product development departments must work together. Encourage a collaborative and team-oriented culture to guarantee coordination and synergy in providing outstanding customer service.

# CHALLENGES

- **Limited Time Frame**: The scope and depth of the data collection, analysis, and interpretation are limited because of the time constraints that were placed on this study.

- **Limited Sample Size**: The study faced challenges due to its small sample size, which decreased the statistical power and representatives of the results. A smaller sample size may lead to decreased confidence in the results and increased data variability.

- **Data Availability**: The researcher's capacity to compile thorough information on the variables regarding post purchase behaviour of washing machines may be hampered by restricted access to important data sources or datasets. This limitation may affect the study's analysis's breadth, depth, and interpretation.

# LIMITATIONS

- **Sampling Bias**: The study's reliance on convenience sampling techniques or particular recruitment channels may have led to sampling bias, which would have distorted the respondents' demographic representation and limited the findings' applicability to the larger Goa community of washer users.

- **Self-Reporting Bias**: This phenomenon can result in a mismatch between reported and real customer preferences and behaviours. It can occur when respondents give socially acceptable answers or inadvertently recall their purchase activity. This may affect the data gathered through surveys and interviews.

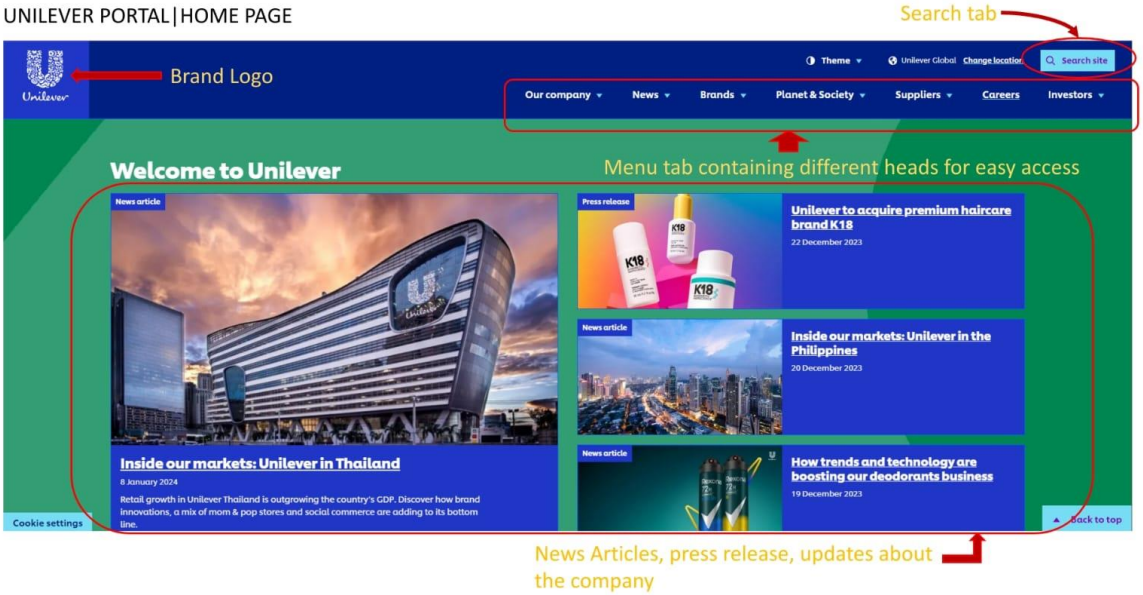
- **Restricted Geographic Scope**: Because the Goa washing machine market was the primary focus of the study, it was more difficult to extrapolate the findings to other markets or regions with distinct socioeconomic, cultural, and consumer preferences. As a result, the conclusions drawn from this research might not adequately represent the variety of consumer behaviour in settings with broader scopes.

- **Data Collection Techniques**: A subtle customer insight may have been overlooked if surveys or other one-dimensional data collection methods were the only ones used. A variety of data collection techniques could improve the findings' breadth and depth.

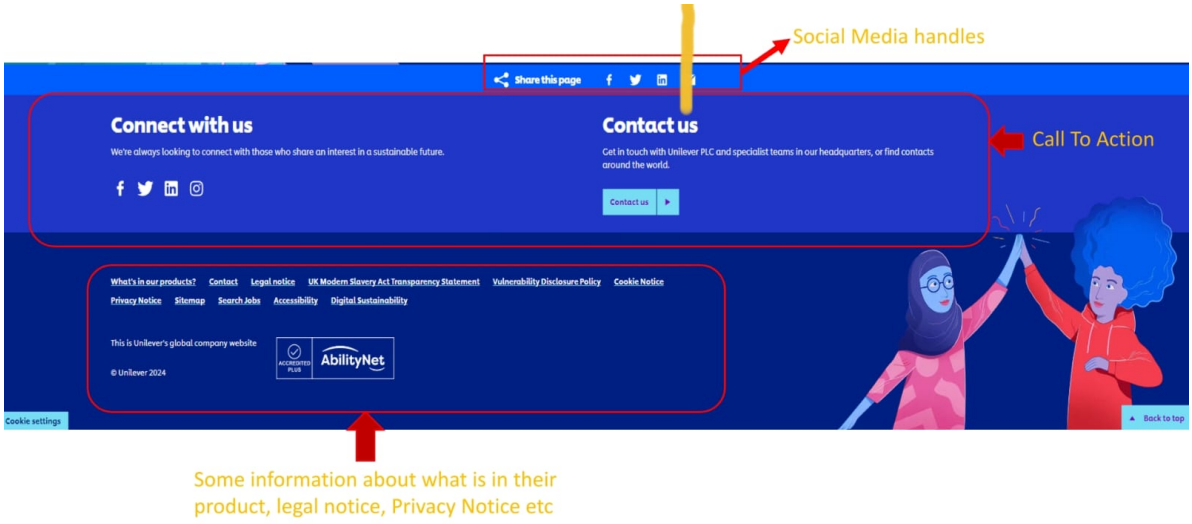
- **Limited Contextual Understanding**: It's probable that the study was not fully aware of the more important contextual elements (like macroeconomic variables, competitive dynamics, market trends, and regulatory environments) that affect customers' decisions to buy. An in-depth analysis of the various environmental factors may result in a better understanding of consumer behaviour.

# PICTURES

UNILEVER PORTAL|HOME PAGE




❖ The company homepage does not have a banner.



Latest information about Unilever Share price in various Countries

# List

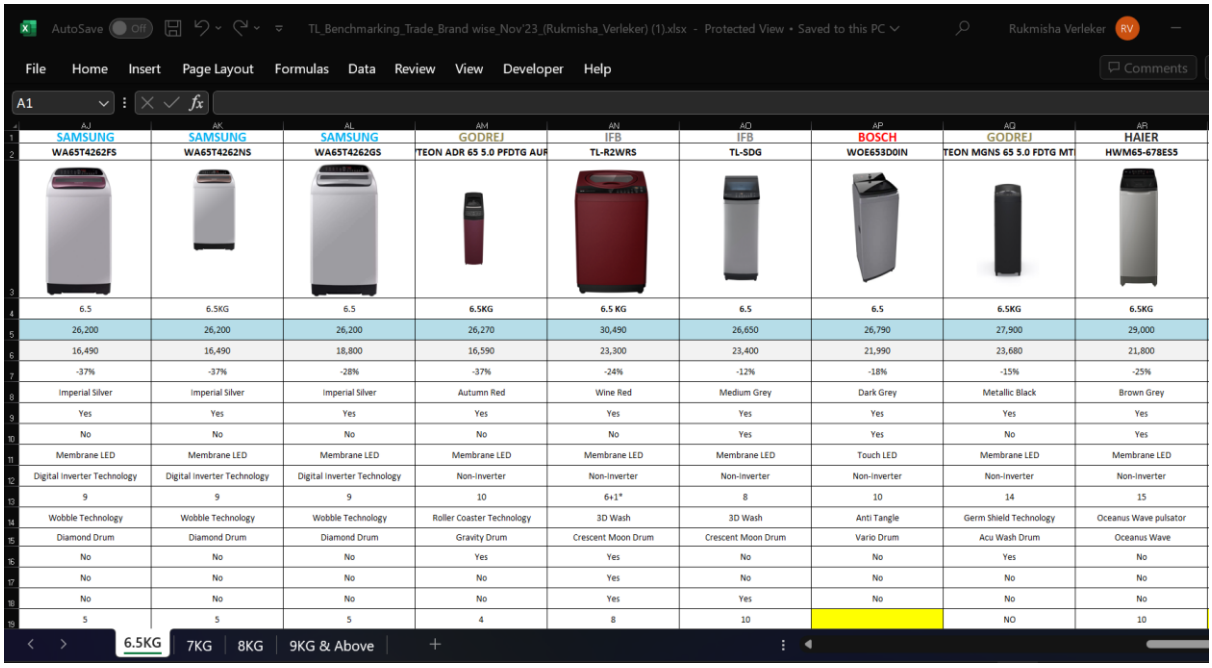
- Miele: TwinDos
- Fisher and Paykel: AutoDose
- Bosch: i-DOS System
- LG: ezDispense™ System
- Samsung: Auto Dose System
- AEG: AutoDose System
- Hisense: Auto Dose
- Roborock: Auto Dose
- TCL Auto Dosing

LG

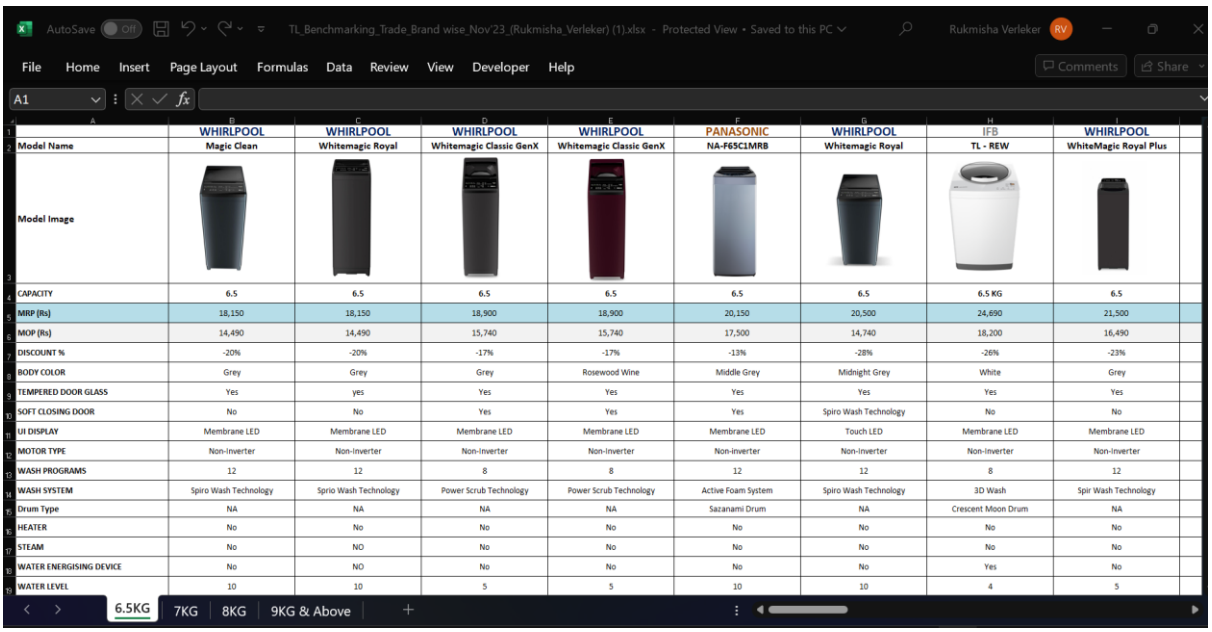
ezDispense
Run 35 medium
loads of washing

Samsung

SAMSUNG
Configuring
Auto
Dispense

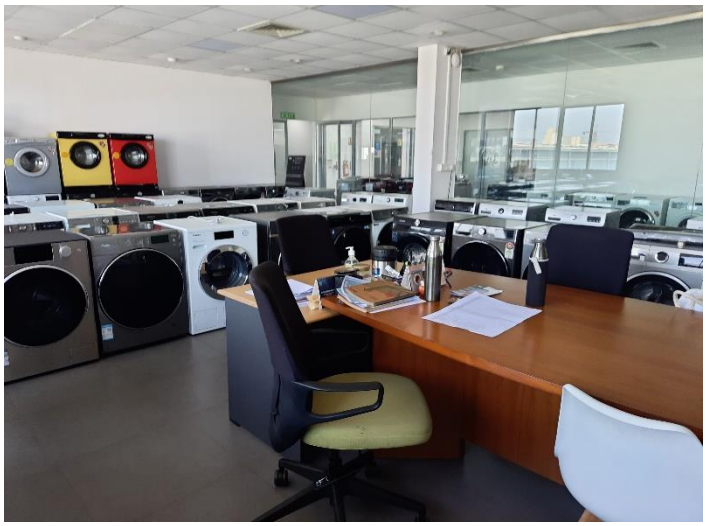


| | AJ | AK | AL | AM | AN | AO | AP | AQ | AR |
|---|---|---|---|---|---|---|---|---|---|
| 1 | SAMSUNG | SAMSUNG | SAMSUNG | GODREJ | IFB | IFB | BOSCH | GODREJ | HAIER |
| 2 | WA65T4262FS | WA65T4262NS | WA65T4262GS | TEON ADR 65 5.0 PFDTG AUR | TL-R2WRS | TL-SDG | WOE653D0IN | TEON MGNS 65 5.0 FDTG MT | HWM65-678ES5 |
| 4 | 6.5 | 6.5KG | 6.5 | 6.5KG | 6.5 KG | 6.5 | 6.5 | 6.5KG | 6.5KG |
| 5 | 26,200 | 26,200 | 26,200 | 26,270 | 30,490 | 26,650 | 26,790 | 27,900 | 29,000 |
| 6 | 16,490 | 16,490 | 18,800 | 16,590 | 23,300 | 23,400 | 21,990 | 23,680 | 21,800 |
| 7 | -37% | -37% | -28% | -37% | -24% | -12% | -18% | -15% | -25% |
| 8 | Imperial Silver | Imperial Silver | Imperial Silver | Autumn Red | Wine Red | Medium Grey | Dark Grey | Metallic Black | Brown Grey |
| 9 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 10 | No | No | No | No | No | Yes | Yes | No | Yes |
| 11 | Membrane LED | Membrane LED | Membrane LED | Membrane LED | Membrane LED | Membrane LED | Touch LED | Membrane LED | Membrane LED |
| 12 | Digital Inverter Technology | Digital Inverter Technology | Digital Inverter Technology | Non-Inverter | Non-Inverter | Non-Inverter | Non-Inverter | Non-Inverter | Non-Inverter |
| 13 | 9 | 9 | 9 | 10 | 6+1* | 8 | 10 | 14 | 15 |
| 14 | Wobble Technology | Wobble Technology | Wobble Technology | Roller Coaster Technology | 3D Wash | 3D Wash | Anti Tangle | Germ Shield Technology | Oceanus Wave pulsator |
| 15 | Diamond Drum | Diamond Drum | Diamond Drum | Gravity Drum | Crescent Moon Drum | Crescent Moon Drum | Vario Drum | Acu Wash Drum | Oceanus Wave |
| 16 | No | No | No | Yes | Yes | No | No | Yes | No |
| 17 | No | No | No | No | Yes | No | No | No | No |
| 18 | No | No | No | No | Yes | Yes | No | No | No |
| 19 | 5 | 5 | 5 | 4 | 8 | 10 | | NO | 10 |



| | A | B | C | D | E | F | G | H | I |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | WHIRLPOOL | WHIRLPOOL | WHIRLPOOL | WHIRLPOOL | PANASONIC | WHIRLPOOL | IFB | WHIRLPOOL |
| 2 | Model Name | Magic Clean | Whitemagic Royal | Whitemagic Classic GenX | Whitemagic Classic GenX | NA-F65C1MRB | Whitemagic Royal | TL - REW | WhiteMagic Royal Plus |
| 3 | Model Image | | | | | | | | |
| 4 | CAPACITY | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 KG | 6.5 |
| 5 | MRP (Rs) | 18,150 | 18,150 | 18,900 | 18,900 | 20,150 | 20,500 | 24,690 | 21,500 |
| 6 | MOP (Rs) | 14,490 | 14,490 | 15,740 | 15,740 | 17,500 | 14,740 | 18,200 | 16,490 |
| 7 | DISCOUNT % | -20% | -20% | -17% | -17% | -13% | -28% | -26% | -23% |
| 8 | BODY COLOR | Grey | Grey | Grey | Rosewood Wine | Middle Grey | Midnight Grey | White | Grey |
| 9 | TEMPERED DOOR GLASS | Yes | yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 10 | SOFT CLOSING DOOR | No | No | Yes | Yes | Yes | Spiro Wash Technology | No | No |
| 11 | UI DISPLAY | Membrane LED | Membrane LED | Membrane LED | Membrane LED | Membrane LED | Touch LED | Membrane LED | Membrane LED |
| 12 | MOTOR TYPE | Non-Inverter | Non-Inverter | Non-Inverter | Non-Inverter | Non-inverter | Non-Inverter | Non-Inverter | Non-Inverter |
| 13 | WASH PROGRAMS | 12 | 12 | 8 | 8 | 12 | 12 | 8 | 12 |
| 14 | WASH SYSTEM | Spiro Wash Technology | Sprio Wash Technology | Power Scrub Technology | Power Scrub Technology | Active Foam System | Spiro Wash Technology | 3D Wash | Spir Wash Technology |
| 15 | Drum Type | NA | NA | NA | NA | Sazanami Drum | NA | Crescent Moon Drum | NA |
| 16 | HEATER | No | No | No | No | No | No | No | No |
| 17 | STEAM | No | NO | No | No | No | No | No | No |
| 18 | WATER ENERGISING DEVICE | No | NO | No | No | No | No | Yes | No |
| 19 | WATER LEVEL | 10 | 10 | 5 | 5 | 10 | 10 | 4 | 5 |

WASH.DRY.REFRESH
IFB LAUNDRIMAGIC
3in1
INDIA'S FIRST 3-IN-1 LAUNDRY MACHINE



IFB
IFB
IFB
CRESCENT
MOON DRUM

Walkway

RESEARCH PROJECT-2

# A STUDY ON CUSTOMER SATISFACTION TOWARDS MICROWAVE OVENS IN GOA

# EXECUTIVE SUMMARY

A study on customer satisfaction with microwave ovens in Goa involved an in-depth analysis of various demographic factors influencing satisfaction. In a pilot study with 100 respondents, the reliability of the questionnaire was confirmed by the Cronbach's alpha value of 0.937, indicating a very reliable instrument to measure the research objectives. Demographic characteristics such as gender, age group, annual income, microwave oven ownership and oven types were considered in the analysis. This revealed insightful patterns in the distribution of respondents into these categories, providing a fundamental understanding of the sample population. Regression analyzes were used to examine associations between demographic variables and various dimensions of satisfaction, including microwave oven quality, price, size, design, and features. The models had a strong explanatory power, with R-squared values ranging from 0.797 to 0.869, indicating that the included demographic variables explained a significant proportion (79.7-86.9%) of the variance in satisfaction levels.The main findings highlighted Norwegians' overall high satisfaction with microwave ovens. Microwave ownership emerged as a consistent predictor of satisfaction across dimensions, positively influencing aspects such as price, size and design, while decreasing satisfaction with features. In addition, higher levels of annual income were associated with better satisfaction with price and design. The strength of the predictive models underlines the reliability of the observations, which suggests actionable insights from IFB Industries Ltd. improve customer satisfaction and effectively adapt marketing strategies in the Goan market. Strategies could focus on specific features such as affordability, size and design aesthetics, taking into account the preferences and priorities of the various demographics identified in the study. Overall, the study provides valuable insights into the dynamics of customer satisfaction in the Goa microwave oven market. This provides a roadmap for companies like IFB Industries Ltd to improve their product offering and marketing practices, ultimately improving the region's competitiveness and customer satisfaction.

# INTRODUCTION TO RESEARCH TOPIC - 2

# A study on customer satisfaction towards Microwave Ovens in Goa

A culinary revolution is simmering quietly in the heart of Goa, India's coastal paradise, where tradition and modernity blend melodiously to create a pattern of life that is constantly changing. In the midst of busy markets and serene beaches, microwave ovens are bringing about a revolution in Goa's kitchens. This study sets out to unwind the intricate relationships between customer satisfaction and these innovative appliances within the lively context of Goan culture.

**1) Customers**

The foodie land of Goan society is shaped by a diverse range of individuals. Customers range from tech-savvy millennials looking for efficiency in their fast-paced lives to seasoned homemakers soaked in age-old traditions, this diversity of clients reflects the rich diversity of Goa's population. Every person contributes their own preferences, experiences, and expectations, highlighting the complex dynamics at work in the field of consumer behaviour. (Ghafoor Awan & Rehman, 2014)

**2) Satisfaction**

Customer satisfaction is the strange combination of expectation and fulfilment that acts as a compass to direct consumer behaviour. The sounds of satisfaction and dissatisfaction echo through Goan kitchens as the aromas of Goan spices blend with the enticing promise of culinary delights. The search for satisfaction unfolds within this maze of subjective appraisal, shaped by a lot of factors ranging from service quality to product performance.(Bansal & Bansal, n.d.)

**3) Customer Satisfaction**

Beyond the concrete aspects of a product's functioning are the intangible domains of customer satisfaction, where experiences and feelings combine to create lasting impressions. Convenience, dependability, and creativity all play a part in the journey towards satisfaction in

the vibrant blends of Goan life. Goa's culinary scene will never be the same after this complex dance between expectations and realities reveals the true meaning of customer satisfaction.(*3-Why Do You Still Want to Buy Hp Laptop A Study of HP'S,* n.d.)

**4) Microwave Ovens**

The microwave oven is a simple yet revolutionary device that sits at the link of cooking and technological innovation. The microwave oven, which began life as a simple kitchen tool and has since become a common fixture in modern homes, has evolved beyond efficiency and convenience to become an essential tool for anyone looking to achieve culinary perfection. The revolutionary power of microwave radiation has reshaped the boundaries of chemistry and beyond, even inside the halls of research institutions, where it has sparked ground-breaking discoveries.(Kathiravan et al., 2019)

**5) Consumer Behavior and Market Dynamics**

Deeply tangled with the socio-cultural fabric of a region, consumer behaviour is a complex interaction of needs, desires, and perceptions. Microwave oven adoption is a reflection of changing eating and cooking pattern in the busy markets of Goa, where local specialties compete with international culinary trends for customers' attention. Cooking practices in the coastal region are evolving due to the impact of economic factors and technological advancements on market dynamics, which in turn shape consumer choices.(Ahmed et al., 2019; Subashini, 2019)

# LITERATURE REVIEW

## Introduction

It is impossible to overestimate the importance of consumer satisfaction in the consumer electronics sector, especially when it comes to home appliances. Given the rapid advancement of technology and the growing desire of consumers for convenience, it is critical to understand how consumers view and use products such as microwave ovens. This literature review aims to delve into existing research across diverse industries to obtain insights applicable to the study on customer satisfaction towards microwave ovens.

## Customer Satisfaction Framework

According to the literature, customer satisfaction is a complex concept that is influenced by a number of variables, including brand image, pricing strategies, service effectiveness, and product quality. Customer satisfaction is defined by (Ghafoor Awan & Rehman, 2014) as the result of comparing actual performance and incurred costs with expected performance. The significance of fulfilling customer expectations at various touchpoints throughout the consumer journey is emphasised by this definition. Additionally, (Bansal & Bansal, n.d.) highlights how important it is for businesses to satisfy their customers in order to achieve their objectives. Thus, in the context of microwave ovens, it is critical to drive customer satisfaction to understand what they expect in terms of performance, affordability, and durability.

## Brand Perception and Loyalty

As demonstrated by (*3-Why Do You Still Want to Buy Hp Laptop A Study of HP'S*, n.d.), brand perception is crucial in determining consumer preferences and loyalty. (Kathiravan et al., 2019) highlights the positive correlation that has been found between brand equity, customer satisfaction, and loyalty. Moreover, (Chitra & Maheswari, 2018) emphasises the value of stable product quality, strategic pricing, and successful marketing initiatives in building brand loyalty. Therefore, it is critical to evaluate brand perception and its impact on customer satisfaction and loyalty in the microwave oven.

**Product Quality and Service Efficiency**

Across industries, customer satisfaction is significantly influenced by the quality of products and the effectiveness of services provided. (Ahmed et al., 2019) describes how brand preferences and purchase behaviour in the television industry are influenced by elements such as pricing strategies, marketing campaigns, and technological advancements. In a similar way, (Subashini, 2019) emphasises how crucial product attributes, dependability, and customer support are to encourage customer satisfaction in the two-wheeler market. When it comes to microwave ovens, customer satisfaction is probably going to be greatly impacted by things like cooking performance, usability, and after-sales support.

**Technological Advancements and Innovation**

Integrating technology into the functionality and design of products is essential to raising customer satisfaction. (Kathiravan et al., 2019) emphasises how crucial innovations and technological advancements are to influencing consumer loyalty and perceptions in the air conditioner business. Additionally, in the context of learning environments, (Naami et al., n.d.) explores the possible advantages of technology-driven approaches, like self-regulation strategies. Therefore, it is crucial to evaluate how technological features affect customer satisfaction and usability in the microwave oven study.

**Market Dynamics and Consumer Behavior**

Rapid changes in tastes, preferences, and outside stimuli can have an impact on market dynamics and consumer behaviour. (Filina-Dawidowicz & Gajewska, 2018) offers an analysis of customer satisfaction with all-inclusive service processes in seaports, highlighting the significance of understanding customer requirements and modifying business plans accordingly. Similarly, (Brand et al., 2018) explores the dynamics of the home appliance market, highlighting the role that pricing schemes, marketing campaigns, and service standards play. Thus, it is essential to analyse consumer preferences, market trends, and rivalry tactics in the microwave oven study to see customer satisfaction dynamics.

The purpose of this literature review is to clarify the multidimensional nature of customer satisfaction by synthesising insights from a variety of research papers across industries. Using

research from the automotive, electronics, telecom, and service sectors, the review offers a thorough framework for understanding consumer attitudes about microwave ovens. Through the incorporation of research on consumer behaviour, market dynamics, technology advancements, product quality, brand perception, and service efficiency, the study seeks to provide insightful information that will improve customer satisfaction and drive the microwave oven industry's success.

# RESEARCH GAP

Existing research provides limited insights into the factors influencing customer satisfaction towards microwave ovens in Goa. Even though microwave ovens are extensively used in homes, there is a noticeable absence of empirical studies that focus on customer satisfaction in the Goan context. Companies in this industry must comprehend customer satisfaction with microwave ovens in order to customise their offerings to the particular requirements and tastes of Goan consumers.

For IFB Industries Ltd, especially in their microwave department, conducting a study on customer satisfaction with microwave ovens in Goa presents a valuable opportunity. With this information, IFB will be able to better target this particular market segment with its product offerings and marketing strategies. Goan consumers' preferences, needs, and satisfaction levels with microwave ovens will also be revealed. Equipped with this understanding, IFB can create novel models of microwave ovens or improve current models to better meet the demands of Goan clients. By showing the company's dedication to fulfilling each individual customer's need, this customised approach not only increases customer satisfaction but also gives IFB a competitive edge in the market. Additionally, putting a strong emphasis on customer satisfaction can help IFB in Goa establish a positive brand reputation, which will increase customer loyalty and encourage positive word-of-mouth recommendations. In the end, IFB can strengthen its market position and spur revenue growth in the Goan market by utilising the insights from the study to unlock growth opportunities.

# RESEARCH QUESTIONS

1. What is the overall level of customer satisfaction towards microwave ovens among consumers in Goa?

2. What are the main elements affecting Goan consumers' satisfaction with microwave ovens?

# RESEARCH OBJECTIVES

1. To know the Customer Satisfaction Level towards Microwave Oven.

2. To determine and examine the elements influencing consumers' happiness with microwave ovens in the Goan market.

# RESEARCH METHODOLOGY

## Introduction

This research seeks to delve into the study on customer satisfaction towards microwave ovens, specifically focusing within the state of Goa. This section depicts the methodology to be employed to fulfil the research objectives, encompassing data collection methods, sampling design, research instrument, and data analysis techniques.

## Research Design

This study adopts a comprehensive research design to investigate the customer satisfaction towards microwave ovens. It integrates both primary and secondary data to glean insights into customer satisfaction.

## Data Collection Methods

- Primary Data

  The primary data was collected through direct interviews with dealers and customers, as well as structured online questionnaires. The questionnaire employs a five-point Likert scale to gauge customer opinions about satisfaction, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), and distributed using Google Forms via email and social media platforms such as Facebook, WhatsApp, and Instagram.

- Secondary Data

  Secondary data, which offer further insights into important variables pertinent to the research, was gathered from previously published studies, research papers, journals, and reports.

## Sampling

A convenient sampling technique was used due to the time constraints of the study. A sample size of 100 consumers was selected from the state of Goa to participate in the research.

## Statistical Treatment of Data

Primary data collected from the survey was processed and tabulated using Microsoft Excel. This involves organizing the raw data into a structured format suitable for statistical analysis.

Statistical analysis was conducted using SPSS (Statistical Package for Social Sciences) to analyze the primary data and identify correlations between various factors influencing customer satisfaction of microwave ovens in Goa. Specifically, Regression was calculated to examine the relationship between satisfaction and demographic elements.

The above-mentioned methodology provided a systematic approach in understanding the factors influencing customer satisfaction of microwave ovens in Goa. By employing statistical techniques like Pearson correlation analysis, the study generated valuable insights into the relationships between different factors and inform marketing strategies for businesses operating in the microwave oven market in Goa.

# DATA ANALYSIS

## Content Validity Analysis

Content Validity Analysis of Questionnaire was done, to evaluate the questionnaire's content validity. The content validity was done by the researcher by using techniques like expert judgment and content review, and scores were provided for the validity test for this study.

## Reliability Analysis

Reliability Analysis of Research Instrument The researcher apply pilot test to examine the reliability of the questionnaire. The reliability test for this research is processed on computer program by using Cronbach's alpha coefficient.

| Cronbach's Alpha Coefficient | Reliability Level | Desirability Level |
|---|---|---|
| 0.80 – 1.00 | Very High | Excellent |
| 0.70 – 0.79 | High | Good |
| 0.50 – 0.69 | Medium | Fair |
| 0.30 – 0.49 | Low | Poor |
| Less than 0.30 | Very Low | Unacceptable |

## Content Validity Analysis

### Mr Mihir Karanjavkar

| Sr. No. | Questionnaire Item | Scale (1= Not relevant, 2= Somewhat relevant, 3= Quite relevant and 4= Highly relevant) | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| **Quality** | | | | | |
| 1 | I am satisfied with my microwave oven's overall quality. | | | | 3 |
| 2 | I am satisfied with the cooking consistency of my microwave oven. | | | | 4 |
| **Price** | | | | | |
| 1 | Taking its features and quality into account, I am satisfied with my microwave oven's pricing. | | | | 4 |
| 2 | I am satisfied with the affordability of my microwave oven. | | | | 4 |
| **Size** | | | | | |
| 1 | I am satisfied with the size of my microwave oven. | | | | 4 |

| | | | | | |
|---|---|---|---|---|---|
| 2 | I am satisfied with the capacity of my microwave oven for my cooking needs. | | | | 4 |
| **Design** | | | | | |
| 1 | I am satisfied with the visually appealing design of my microwave oven. | | | | 4 |
| 2 | I am satisfied with the user-friendly interface of my microwave oven. | | | | 4 |
| **Features** | | | | | |
| 1 | I am satisfied with the variety of useful features of my microwave oven. | | | | 4 |
| 2 | I am satisfied with the microwave's safety features for secure cooking. | | | | 3 |

**Mr Sedrick Fernandes**

| Sr. No. | Questionnaire Item | Scale (1= Not relevant, 2= Somewhat relevant, 3= Quite relevant and 4= Highly relevant) | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| **Quality** | | | | | |
| 1 | I am satisfied with my microwave oven's overall quality. | | | | 3 |
| 2 | I am satisfied with the cooking consistency of my microwave oven. | | | | 4 |
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| **Features** | | | | | |
| 1 | I am satisfied with the variety of useful features of my microwave oven. | | | | 4 |
| 2 | I am satisfied with the microwave's safety features for secure cooking. | | | | 3 |

CVI = No. of Agreement (per statement) above 3/No. of Experts

**Quality**
**Q1=1**
**Q2=1**

**Price**
**Q1=1**
**Q2=1**

**Size**
**Q1=1**
**Q2=1**

**Design**
**Q1=1**
**Q2=1**

**Features**
**Q1=1**
**Q2=1**

S-CVI = Total of I-CVI/ No. of items

Overall Scale Validity = 10/10

= 1

## Pilot Study

A pilot study is a strategy used to test a questionnaire using a sample smaller than the planned sample size. The importance of the need to conduct a pilot study is to enable researchers is to determine the feasibility of the research design conducted. If the results of a pilot study have been obtained, the results can be used to assist researchers in large-scale research methodologies. A group of male and female participated in the pilot test. This pilot test was randomly distributed to 20 respondents. The respondents feedback was about the A STUDY ON CUSTOMER SATISFACTION TOWARDS MICROWAVE OVENS IN GOA.

## Cronbach Alpha

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| | |

| | |
|---|---|
| .937 | 15 |

The above table reliability statistics shows the Cronbach Alpha. The questionnaire was initially sent to 20 respondents for its reliability in measuring the objectives of the study. The study showed that the Cronbach Alpha result is 0.937. The value of the Cronbach Alpha approach is greater than 5. Therefore, it can be concluded that the questionnaire is an instrument that can be used to measure or answer the objectives of this study.

**Descriptive Analysis**

The following tables are the descriptive analysis of demographic characteristics which are the frequency and percentage distribution of respondent respectively. And tables also show the average mean and standard deviation.

**<u>The Analysis of gender levels using Frequency and Percentage</u>**

**Gender**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Female | 67 | 67.0 | 67.0 | 67.0 |
| | Male | 33 | 33.0 | 33.0 | 100.0 |
| | Total | 100 | 100.0 | 100.0 | |

Above table shows the gender of respondents in this research. It is viewed that among the 100 respondents, 33 respondents of the sample size are male, 67 respondents are Female, there were no respondents belonging to the Others category. Therefore, there is a proportion 33.0% of male, 67.0% female.

## The Analysis of age group levels using Frequency and Percentage

**Age Group**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 22-31 years | 23 | 23.0 | 23.0 | 23.0 |
| | 32-41 years | 39 | 39.0 | 39.0 | 62.0 |
| | 42-51 years | 30 | 30.0 | 30.0 | 92.0 |
| | 52 years & above | 8 | 8.0 | 8.0 | 100.0 |
| | Total | 100 | 100.0 | 100.0 | |

Above table shows the age of respondents in this research. It is viewed that among the 100 respondents, 23 (23.0%) respondents of the sample size are between 22 to 31 years. 39 (39.0%) respondents are between 32 to 41 years. 30 (30.0%) respondents are between 42 to 51 years. 8 (8.0%) respondents are 52 Years & above.

## The Analysis of Annual income levels using Frequency and Percentage

**Annual Income**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Below 2 Lakhs | 15 | 15.0 | 15.0 | 15.0 |
| | 2-4 Lakhs | 28 | 28.0 | 28.0 | 43.0 |
| | 5-7 Lakhs | 49 | 49.0 | 49.0 | 92.0 |
| | 8 Lakhs & Above | 8 | 8.0 | 8.0 | 100.0 |
| | Total | 100 | 100.0 | 100.0 | |

Above table shows the annual income of respondents in this research. It is viewed that among the 100 respondents, 15 (15.0%) respondents of the sample size have income below 2 Lakhs, 28 (28.0%) respondents have 2-4 Lakhs, 49 (40.0%) respondents have 5-7 Lakhs, 8 (8.0%) respondents have 8 Lakhs & Above respectively as their annual income.

## The Analysis of ownership of microwave oven levels using Frequency and Percentage

**Do you own a microwave oven?**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Yes | 83 | 83.0 | 83.0 | 83.0 |
| | No | 17 | 17.0 | 17.0 | 100.0 |
| | Total | 100 | 100.0 | 100.0 | |

The above table shows ownership of microwave oven of respondents in this research. It is viewed that among the 100 respondents,83 (83.0%) respondents of the sample size own a microwave oven and 17 (17.0%) respondents do not own a microwave oven.

**<u>The Analysis of types of microwave oven levels using Frequency and Percentage</u>**

**Type of the microwave oven you own?**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 0 | 17 | 17.0 | 17.0 | 17.0 |
| | Solo | 21 | 21.0 | 21.0 | 38.0 |
| | Grill | 38 | 38.0 | 38.0 | 76.0 |
| | Convection | 24 | 24.0 | 24.0 | 100.0 |
| | Total | 100 | 100.0 | 100.0 | |

The above table shows the type of microwave oven among respondents who reported owning a microwave oven in the research sample. Among the 83 respondents who own a microwave oven, 21 respondents (21.0%) reported owning a Solo microwave oven. This is followed by 38 respondents (38.0%) who own a Grill microwave oven and 24 respondents (24.0%) who own a Convection microwave oven.

# Regression Analysis

## Quality

**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .902[a] | .813 | .804 | .6332 |

a. Predictors: (Constant), Type of the microwave oven you own?, Age Group, Gender, Annual Income, Do you own a microwave oven?

The fit of the regression model to the data is summarised in the Model Summary table. The included demographic variables account for approximately 81.3% of the variability in Goa residents' satisfaction levels with microwave ovens, as indicated by the R-squared value of 0.813. This suggests that the predictors, or demographic variables, and the dependent variable, or satisfaction level, have a strong relationship. The model exhibits a strong fit, as evidenced by the adjusted R-squared value of 0.804, which takes into consideration the quantity of predictors. Furthermore, the model's predictions appear to be in close agreement with the actual observed satisfaction levels, as indicated by the small standard error of the estimate (0.6332). Overall, the Model Summary table shows that the regression model provides insightful information about the variability in customer satisfaction levels by effectively capturing valuable insights into the influence of demographic factors on satisfaction with microwave ovens in Goa.

**ANOVA[a]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 164.400 | 5 | 32.880 | 82.004 | .000[b] |
| | Residual | 37.690 | 94 | .401 | | |
| | Total | 202.090 | 99 | | | |

a. Dependent Variable: Quality

b. Predictors: (Constant), Type of the microwave oven you own?, Age Group, Gender, Annual Income, Do you own a microwave oven?

Based on demographic variables, the ANOVA table evaluates the regression model's overall significance in predicting microwave oven quality. The regression model is considered statistically significant with a large F-statistic of 82.004 ($p < 0.001$), suggesting that at least one of the demographic variables significantly contributes to predicting quality ratings. The quality variability explained by the model is reflected in the regression sum of squares (SSR)

of 164.400, whereas error or variability that cannot be explained is captured by the residual sum of squares (SSE) of 37.690. Regression has five degrees of freedom (df) for the constant and four degrees of freedom for the demographic variables, and 94 degrees of freedom for the residuals. Overall, the ANOVA table highlights the robust correlation between perceived quality and demographic predictors, offering insightful information about the determinants of quality ratings for microwave ovens in Goa.

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 5.766 | .495 | | 11.656 | .000 |
| | Gender | .139 | .137 | .046 | 1.016 | .312 |
| | Age Group | .041 | .078 | .026 | .523 | .602 |
| | Annual Income | .239 | .084 | .142 | 2.846 | .005 |
| | Do you own a microwave oven? | -3.331 | .259 | -.880 | -12.861 | .000 |
| | Type of the microwave oven you own? | .029 | .096 | .021 | .302 | .764 |

a. Dependent Variable: Quality

The specific effects of demographic variables on the perceived quality of microwave ovens in Goa are displayed in the Coefficients table. The unstandardized coefficient ($B = -3.331$, $p < 0.001$) shows that respondents who do not own a microwave oven tend to rate quality lower by approximately 3.331 units compared to those who do. Additionally, there is a strong positive correlation between higher annual income levels and higher quality ratings (0.239, $p = 0.005$). Demographic variables, on the other hand, like gender, age group, and kind of microwave oven owned, do not statistically significantly correlate with quality ratings. Overall, the Coefficients table provides insightful information about the particular effects of demographic factors on quality perceptions, emphasising the role that income level and microwave ownership play in influencing perceived quality.

## Price

**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .892[a] | .797 | .786 | .6343 |

a. Predictors: (Constant), Type of the microwave oven you own?, Age Group, Gender, Annual Income, Do you own a microwave oven?

The efficacy of the regression model in forecasting Goan customers' satisfaction with microwave ovens is shown in the Model Summary table. The included demographic variables and satisfaction levels have a strong positive relationship, as indicated by the high correlation coefficient (R = 0.892). Moreover, these demographic factors account for roughly 79.7% of the variability in satisfaction levels, according to the coefficient of determination (R-squared) of 0.797. In light of the model's complexity, the adjusted R-squared value of 0.786 validates the model's resilience in the presence of multiple predictors. Relative to real satisfaction levels, the model's predictions have a small standard error of the estimate (0.6343). Overall, the Model Summary table highlights how well the regression model can identify and explain the effects of demographic factors on microwave customer satisfaction in Goa.

**ANOVA[a]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 148.028 | 5 | 29.606 | 73.585 | .000[b] |
| | Residual | 37.819 | 94 | .402 | | |
| | Total | 185.847 | 99 | | | |

a. Dependent Variable: Price

b. Predictors: (Constant), Type of the microwave oven you own?, Age Group, Gender, Annual Income, Do you own a microwave oven?

Based on demographic variables, the regression model's overall significance in predicting the price of microwave ovens in Goa is assessed in the ANOVA table. The regression model is statistically significant with a substantial F-statistic of 73.585 ($p < 0.001$), suggesting that at least one of the demographic variables plays a significant role in price prediction. The model's explanation of price variability is reflected in the regression sum of squares (SSR) of 148.028, whereas error or variability that cannot be explained is captured by the residual sum of squares (SSE) of 37.819. Regression has five degrees of freedom (df) for the constant and four degrees of freedom for the demographic variables, and 94 degrees of freedom for the residuals. Overall,

the ANOVA table provides insightful information about the significant correlation between perceived microwave oven prices and demographic predictors.

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 5.615 | .495 | | 11.332 | .000 |
| | Gender | -.075 | .137 | -.026 | -.544 | .587 |
| | Age Group | .036 | .078 | .024 | .458 | .648 |
| | Annual Income | .178 | .084 | .110 | 2.119 | .037 |
| | Do you own a microwave oven? | -3.022 | .259 | -.833 | -11.649 | .000 |
| | Type of the microwave oven you own? | .089 | .096 | .066 | .928 | .356 |

a. Dependent Variable: Price

The Coefficients table shows how the regression model's findings about the price of microwave ovens in Goa are influenced by demographic variables. Interestingly, when all other factors are held constant, respondents who do not own a microwave oven typically report prices that are about 3.022 units lower than those who do. Furthermore, there is a significant positive correlation between higher annual income levels and higher price ratings ($p = 0.037$; $\alpha = 0.084$). The type of microwave oven owned, age group, and gender, on the other hand, do not statistically significantly correlate with price ratings. Overall, the Coefficients table provides insightful information about the factors influencing price ratings in the Goa market by highlighting the significance of microwave ownership and income level in influencing price perceptions.

## Size

**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .932[a] | .869 | .862 | .5505 |

a. Predictors: (Constant), Type of the microwave oven you own?, Age Group, Gender, Annual Income, Do you own a microwave oven?

Using demographic variables as predictors, the Model Summary table shows how well the regression model works to predict customer satisfaction with microwave ovens in Goa. There is a strong positive correlation (R = 0.932) between these predictors and customer satisfaction, which is noteworthy. Additionally, the included demographic variables account for approximately 86.9% of the variance in satisfaction levels, as indicated by the coefficient of determination (R-squared) of 0.869. This suggests that the model has a strong capacity for explanation. This is further supported by the adjusted R-squared value of 0.862, which demonstrates the model's robustness even in the face of the complexity brought about by multiple predictors. Furthermore, the estimate's standard error is comparatively low at 0.5505, suggesting that the model's predictions and actual satisfaction levels are closely aligned. As a whole, the Model Summary table provides important insights into customer satisfaction levels in the Goa market by highlighting the regression model's ability to clarify the influences of demographic factors on satisfaction.

**ANOVA[a]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 189.266 | 5 | 37.853 | 124.930 | .000[b] |
| | Residual | 28.482 | 94 | .303 | | |
| | Total | 217.748 | 99 | | | |

a. Dependent Variable: Size

b. Predictors: (Constant), Type of the microwave oven you own?, Age Group, Gender, Annual Income, Do you own a microwave oven?

The significance of the regression model in predicting the size of microwave ovens in Goa using demographic variables as predictors is evaluated in the ANOVA table. The regression model demonstrates its ability to explain variations in size ratings, as evidenced by its highly significant F-statistic of 124.930 ($p < 0.001$). The residual sum of squares (SSE) of 28.482 represents the error or unexplained variability, while the regression sum of squares (SSR) of 189.266 shows the size variability explained by the model. Regression has five degrees of freedom (df) for the constant and four degrees of freedom for the demographic variables, and 94 degrees of freedom for the residuals. Overall, the ANOVA table provides important insights

into the factors that influence perceived microwave oven sizes by highlighting the strong correlation between demographic predictors and determinants of size ratings in the Goa market.

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 6.148 | .430 | | 14.297 | .000 |
| | Gender | .172 | .119 | .055 | 1.444 | .152 |
| | Age Group | -.064 | .068 | -.038 | -.933 | .353 |
| | Annual Income | .228 | .073 | .130 | 3.124 | .002 |
| | Do you own a microwave oven? | -3.408 | .225 | -.868 | -15.138 | .000 |
| | Type of the microwave oven you own? | .112 | .083 | .077 | 1.348 | .181 |

a. Dependent Variable: Size

The Coefficients table shows how the regression model's determination of the perceived size of microwave ovens in Goa is influenced by demographic variables. Remarkably, when compared to respondents who own a microwave oven, those who do not typically report smaller sizes (coefficient of -3.408 ($p < 0.001$). On the other hand, there is a significant correlation between larger size ratings and higher annual income levels, with a coefficient of 0.228 ($p = 0.002$). The type of microwave oven owned, age group, and gender, on the other hand, do not show statistically significant correlations with size ratings. Overall, the Coefficients table highlights the importance of income level and microwave ownership in influencing size perceptions, offering insightful information about the factors influencing size ratings in the Goa market.

## Design

**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .915[a] | .837 | .829 | .6041 |

a. Predictors: (Constant), Type of the microwave oven you own?, Age Group, Gender, Annual Income, Do you own a microwave oven?

Using demographic variables as predictors, the Model Summary table offers a thorough summary of how well the regression model performed in predicting Goan customer satisfaction levels with microwave ovens. The model shows a strong positive relationship between the predictors and customer satisfaction, with a high correlation coefficient (R) of 0.915. With a coefficient of determination (R-squared) of 0.837, the included demographic variables account for approximately 83.7% of the variability in satisfaction levels. The adjusted R-squared, which stays strong at 0.829 even after adjusting for the number of predictors, indicates how resilient the model is in explaining satisfaction levels. Furthermore, the estimate's small standard error (0.6041) suggests that the model's predictions and actual satisfaction levels agree quite well. To put it briefly, the Model Summary table provides valuable insights into customer satisfaction levels in the Goa market by demonstrating the effectiveness of the regression model in explaining the influence of demographic factors on satisfaction.

**ANOVA[a]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 176.561 | 5 | 35.312 | 96.777 | .000[b] |
| | Residual | 34.299 | 94 | .365 | | |
| | Total | 210.860 | 99 | | | |

a. Dependent Variable: Design

b. Predictors: (Constant), Type of the microwave oven you own?, Age Group, Gender, Annual Income, Do you own a microwave oven?

Using demographic variables as predictors, the ANOVA table evaluates the regression model's significance in predicting customer satisfaction with the design of microwave ovens in Goa. It is evident from the highly significant F-statistic ($F = 96.777$, $p < 0.001$) that the model predicts design ratings based on the included predictors with good accuracy. With a substantial regression sum of squares (SSR) of 176.561, the model is able to explain a sizable amount of the variability in design ratings. On the other hand, the model's efficacy is supported by the small residual sum of squares (SSE) of 34.299, which indicates little unexplained variability. In conclusion, the ANOVA table provides insightful information about the factors influencing design ratings in the Goa market by demonstrating the strong correlation between customer satisfaction with microwave oven design and demographic predictors.

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 6.799 | .472 | | 14.409 | .000 |
| | Gender | -.138 | .130 | -.045 | -1.058 | .293 |
| | Age Group | -.075 | .075 | -.046 | -1.007 | .317 |
| | Annual Income | .140 | .080 | .081 | 1.754 | .083 |
| | Do you own a microwave oven? | -3.391 | .247 | -.877 | -13.725 | .000 |
| | Type of the microwave oven you own? | .053 | .091 | .037 | .579 | .564 |

a. Dependent Variable: Design

Important information about the impact of demographic factors on customer satisfaction with microwave oven design in Goa can be found in the Coefficients table. When all predictors are zero, the baseline design rating is represented by the constant term of 6.799. Gender, age group, annual income, and microwave oven ownership are among the predictor variables that show different effects on design ratings. In particular, a decrease of 0.138 units is correlated with each unit increase in gender, and a decrease of 0.075 units is correlated with each extra year of age. On the other hand, a rise in yearly income causes the design rating to increase by 0.140 units. It's interesting to note that having a microwave oven is linked to a significant drop in design rating of 3.391 units when compared to not having one indicating a potential dissatisfaction among owners. With a coefficient of 0.053, the type of microwave oven possessed, however, has little bearing on the design rating. Interestingly, the Goan market's customers' perceptions of microwave oven design is significantly influenced by gender, annual income, and ownership of a microwave oven ($p < 0.05$).

## Features

**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .910[a] | .828 | .819 | .6191 |

a. Predictors: (Constant), Type of the microwave oven you own?, Age Group, Gender, Annual Income, Do you own a microwave oven?

Important metrics about how well the regression model predicts customer satisfaction with Goa microwave oven designs are shown in the Model Summary table. A strong positive correlation between the predictor variables and the outcome variable is demonstrated by the model, which has a R value of 0.910. This implies that satisfaction levels and demographic characteristics have a substantial relationship. The R Square value of 0.828 confirms the significant explanatory power of the model by indicating that the included predictor variables account for about 82.8% of the variance in design satisfaction. The model's goodness of fit is estimated using an adjusted R Square of 0.819, which accounts for model complexity and provides a slightly more cautious estimate while maintaining a high degree of explanatory power. The average difference between the observed and predicted values of design satisfaction is indicated by the Standard Error of the Estimate, which has a value of 0.6191. Lower values indicate that the model's predictions are more precise.

**ANOVA[a]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 173.820 | 5 | 34.764 | 90.703 | .000[b] |
| | Residual | 36.028 | 94 | .383 | | |
| | Total | 209.848 | 99 | | | |

a. Dependent Variable: Features

b. Predictors: (Constant), Type of the microwave oven you own?, Age Group, Gender, Annual Income, Do you own a microwave oven?

The ANOVA table sheds light on how well the regression model predicts Goan microwave oven features and customer satisfaction. The low p-value (p = 0.000) in the table suggests a significant overall model fit, implying that the predictor variables together account for part of the variance in feature satisfaction. In particular, the residual sum of squares (36.028) is significantly smaller than the Regression sum of squares (173.820), suggesting that the predictor variables included have some significance in explaining the variation in feature satisfaction. The model's significance is further supported by the F-statistic of 90.703, which indicates that the observed variability in feature satisfaction is not just the result of chance.

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 6.571 | .484 | | 13.588 | .000 |
| | Gender | .011 | .134 | .004 | .083 | .934 |
| | Age Group | .105 | .077 | .064 | 1.365 | .175 |
| | Annual Income | -.016 | .082 | -.010 | -.201 | .841 |
| | Do you own a microwave oven? | -3.396 | .253 | -.881 | -13.410 | .000 |
| | Type of the microwave oven you own? | .059 | .093 | .041 | .633 | .528 |

a. Dependent Variable: Features

Regarding the influence of predictor variables on customer satisfaction with microwave oven features in Goa, the coefficients table offers insightful information. A predictor variable is represented by each row, which includes the following: ownership of a microwave oven, age group, gender, annual income, and type of microwave oven owned. With all other variables held constant, the unstandardized coefficients (B) show how the dependent variable (feature satisfaction) changes in response to a one-unit change in the predictor variable. One example is the negative coefficient (-3.396) for the question "Do you own a microwave oven?" This indicates that having a microwave oven is linked to lower feature satisfaction. Both the p-value (0.000) and the significant t-value (-13.410) support this negative relationship. On the other hand, Age Group's positive coefficient (0.105) suggests that feature satisfaction scores are marginally higher for older age groups. However, the non-significant p-value (0.175) suggests that this effect is not statistically significant.

# FINDINGS

1. **High Customer Satisfaction Levels**

   Regression models show a consistent high positive correlation between customer satisfaction levels with Goa's microwave ovens and demographic variables. The included demographic factors account for between 79.7% and 83.7% of the variability in customer satisfaction, according to the R-squared values across all models. This implies that consumers in the Goan market are quite satisfied with microwave ovens.

2. **Key Influencing Factors**

   Customer satisfaction with microwave ovens in Goa is heavily influenced by a number of demographic factors. The possession of a microwave oven is consistently identified as a significant predictor of various aspects, including price, size, design, and features, among these variables. Price and design satisfaction also seem to be significantly positively impacted by annual income. Although their effects vary across different aspects of satisfaction, gender and age group also play a part.

3. **Ownership Impact on Satisfaction**

   Possession of a microwave oven is regularly linked to greater satisfaction in a number of areas, such as cost, capacity, and style. Interestingly, though, it seems that having a microwave oven detracts from feature satisfaction. This result may indicate that some current microwave oven owners are not entirely satisfied with some of their appliances' features.

4. **Income and Demographics**

   Price and design satisfaction are positively correlated with higher annual income levels. This implies that customers who have more disposable income might give different priority to different aspects of satisfaction with microwave ovens. Although to a lesser extent and with varying effects across different aspects of satisfaction, age group and gender also have an impact on levels of satisfaction.

5. **Robust Predictive Models**

   The included demographic variables account for a considerable portion of the variability in satisfaction levels, as demonstrated by the regression models' strong explanatory power and high R-squared values. Even after accounting for the number of predictors, the models' ability to explain satisfaction levels is further supported by the adjusted R-squared values.

IFB Industries Ltd. can focus on features like affordability, size, design aesthetics, and particular features to further improve customer satisfaction and solidify their market position in the microwave oven segment. They can also use demographic insights to improve customer satisfaction and customise their marketing strategies to better meet the preferences of customers in the Goan market.

# SUGGESSTIONS TO IFB INDUSTRIES LTD

1. **Product Innovation & Development**

   Based on the consumer preferences and market trends found in the research, IFB should continue to invest in product innovation. To effectively meet changing consumer needs and keep ahead of the competition, add new features and functionalities to your microwave ovens.

2. **Customer Feedback**

   IFB should set up a reliable feedback system so that users can conveniently share their thoughts and experiences. IFB should speak with customers directly to get insightful information. This will assist IFB in pinpointing areas in need of development, swiftly resolving client issues, and consistently improving its service and product offerings to better suit the needs of its customers.

3. **User Training Programs**

   When customers purchase microwave ovens from IFB, training programmes should be available to ensure they can handle any issues with usage and make the most of the appliance. IFB can improve customer satisfaction and lower the risk of product returns or complaints by providing guidance on proper operation, maintenance, and troubleshooting. This will ultimately promote long-term brand loyalty.

4. **Local Language Intergration**

   In user manuals, IFB ought to honour Goa's rich cultural legacy by incorporating Konkani alongside English. By making the brand more accessible to local customers, this inclusive strategy encourages a stronger bond with the company. In addition, complement this endeavour with a compilation of local recipes that highlight Goa's many culinary customs and are given in Konkani. IFB can increase customer loyalty and strike a deeper chord with consumers by offering content that is culturally relevant.

5. **Cooking Classes and Recipe Demonstrations**

To highlight the versatility of IFB microwave ovens and introduce customers to a variety of dishes that can be prepared using the appliance, IFB should host cooking classes and recipe demonstrations. Through the promotion of other IFB appliances, this initiative not only informs consumers about the capabilities of the oven but also raises brand awareness and encourages cross-product purchases.

6. **Flexible Pricing Options**

Since IFB products are premium, they should provide flexible payment options, like instalment plans or bundled packages, to increase market penetration and sales by making IFB microwave ovens more accessible to a wider range of consumers.

7. **Brand Enhancement**

IFB should partner with well-known chefs or culinary specialists for endorsements or co-branding projects in order to strengthen the brand. This collaboration has the potential to improve brand recognition, draw in customers who respect professional recommendations and endorsements, and give IFB's products more legitimacy. Additionally, IFB's marketing channels can strengthen the brand's association with quality and competence in culinary solutions by showcasing chef-inspired recipes or cooking advice.

8. **After-Sales Service Excellence**

IFB needs to provide top-notch after-sales support in order to cultivate enduring client relationships and improve brand recognition. Provide warranty extensions, timely servicing, and receptive customer support to efficiently handle any problems or questions.

9. **Development of Auto Cook Menus**

IFB ought to spend money on R&D to create and improve auto cook menus that are especially tailored to well-known Goan cuisine. IFB can improve the usability and aesthetics of their microwave ovens by providing pre-programmed cooking options that are specific to regional culinary tastes. In addition to making cooking easier for

customers, this deliberate focus on auto cook menus satisfies their need for adaptability and user-friendliness.

**10. <u>Optimal Placement of ACM Stickers</u>**

IFB should move the sticker describing the auto cook menu codes from the top of the oven to eye level in order to improve user accessibility. Customers can more easily access and choose preferred recipes by having this information in a more accessible location, saving them time and effort. IFB can expedite the cooking process and guarantee a smooth and user-friendly experience for all customers by strategically placing auto cook menus.

# WORK DONE

- **Curating Recipe Content**

  Oversaw the process of finding aesthetically pleasing food photos and writing succinct descriptions to go along with each recipe. To ensure the accuracy and appeal of the content, this required painstaking attention to detail.

- **Backend Management using Magento**

  Using Magento software, the My IFB app's backend was effectively updated by me with Auto cook recipe content based on the model. This involved being adept at using the platform and making sure the recipes were properly incorporated into the app's user interface.

- **Auto Cook Menu Optimisation**

  Carefully examined the weight and timing specifications for every recipe in an extensive analysis of the auto cook menu codes for IFB ovens. To guarantee the best possible user experience, this required exacting data management.

- **Market research and benchmarking**

  Investigated the realm of steam ovens, a novel product that IFB intended to introduce. Carried out thorough benchmarking against foreign rivals and comparable products, yielding insightful data for marketing and strategic positioning.

- **Creative Strategy Development**

  Created a comprehensive creative deck containing tactical suggestions for the product's positioning. In order to create effective messaging and visual assets, this required examining user manuals, comprehending product features, and identifying target audiences.

- **Recipe Content Management**

  Enhanced the IFB app's user experience by creating aesthetically appealing photos and descriptions for recipes on the auto cook menu. To make sure the recipes were available

and appealing to users following the launch of the steam oven, this task required creativity and meticulous attention to detail.

- **Market analysis and competitive research**

  To obtain in-depth knowledge of the market, conducted research on rivals' pricing tactics, an examination of promotional offers made by e-commerce giants and retail behemoths, and a study of export data.

- **Taste Testing and Feedback**

  As a food tester, I actively took part in cooking comparison tests between IFB ovens that could be used as air fryers and Philips air fryers. Helped identify areas for improvement and strengths in IFB's product offerings by offering insightful feedback on the taste, texture, and overall cooking effectiveness of dishes prepared in both appliances.

**Working on Recipe content**

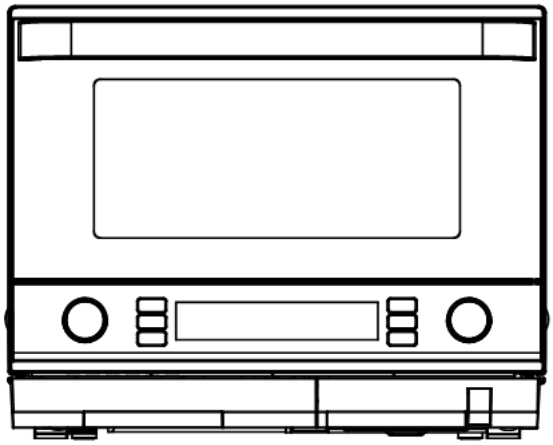
36BRC1 ACM LIST.XLSX By RV

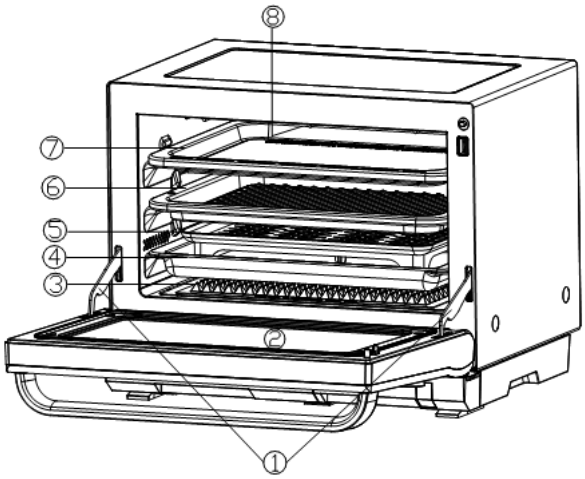
**36BRC1 ACM LIST**

Category | Desi Masala Mix

| SR.NO | CODE | RECIPE NAME | INGREDIENTS | METHOD | COOK TIME | DESCRIPTION | IMAGE | PREPARATION TIME (in mins) |
|---|---|---|---|---|---|---|---|---|
| 1 | dE 01 | Maharashtran Goda Masala | Coriander seeds-1cup<br>Cumin seeds-¼ cup<br>Til (white sesame seeds)- 1/3 cup<br>Lavang (cloves) -2 tbsp<br>Badi elaichi (big cardamom)- 2 tbsp<br>Dalchini (cinnamon sticks)- 2 tbsp<br>Kaale mire(black peppercorns)- 2 tbsp<br>Dagalphool (lichen)- 2 tbsp<br>Tamalpatra (Bay leaf)- 1/2 cup<br>Oil to roast the spices-1-2 tsp | Roast all the ingredients using the menu except masala powders and salt - Stir in between during the programme.<br>Roast till they turn aromatic and brown.<br>Cool and grind the roasted ingredients an electric blender.<br>Mix in the remaining masala powders if mentioned and store in airtight containers | 6:00 | Rich and earthy spice blend essential for Maharashtrian cuisine | | 6 |
| 2 | dE 02 | Panch Phoron | Aniseed-¼ cup,Cumin-¼ cup,<br>Fenugreek seeds-¼ cup, Mustard seeds-¼ cup, Nigella (fennel) / kalonji-¼ cup. | Roast all the ingredients using the menu except masala powders and salt - Stir in between during the programme.<br>Roast till they turn aromatic and brown.<br>Cool and grind the roasted ingredients an electric blender.<br>Mix in the remaining masala powders if mentioned and store in airtight containers | 7:00 | Traditional Bengali five-spice blend | | 7 |
| 3 | dE 03 | Chat Masala | Coriander seeds- 2 tbsp<br>Cumin seeds- 1 tbsp<br>Ajwain seeds- ½ tsp<br>Red chillies- 2<br>Amchur powder -½ tsp<br>Salt -2 tbsp or to taste<br>Garam masala1- tsp<br>Pepper corns-½ tsp | Roast all the ingredients using the menu except masala powders and salt - Stir in between during the programme.<br>Roast till they turn aromatic and brown.<br>Cool and grind the roasted ingredients an electric blender.<br>Mix in the remaining masala powders if mentioned and store in airtight containers | 5:00 | Tangy and spicy flavor enhancer | | 5 |
| 4 | dE 03 | Curry Leaves Powder | Curry leaves-washed and dried2 cups,<br>Cumin seeds1- tbsp,Coriander seeds-2 tbsp,<br>Red chillies-6 or to taste,Fenugreek-½ | Roast all the ingredients using the menu except masala powders and salt - Stir in between during the programme.<br>Roast till they turn aromatic and brown.<br>Cool and grind the roasted ingredients an electric blender. | 7:00 | Intensely flavorful curry leaves powder | | 6 |

## Working on to be launched Steam Oven

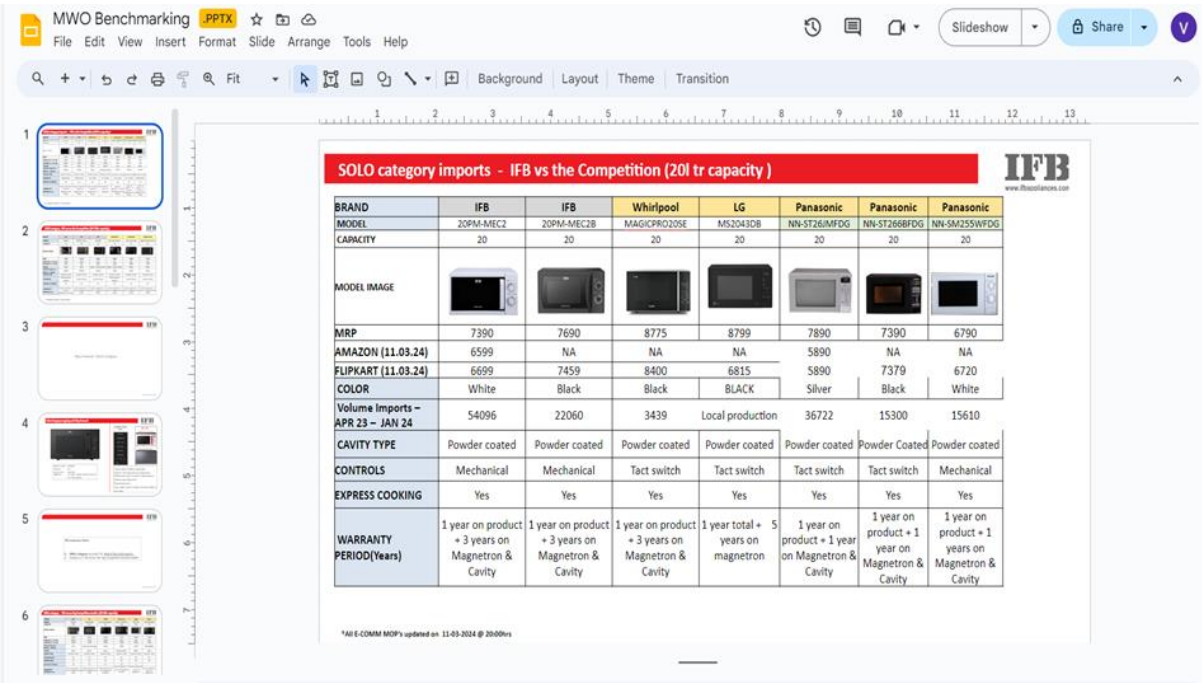





## Helped in the Creation of ACM Sticker

## Taste Testing and Feedback

## MWO Benchmarking

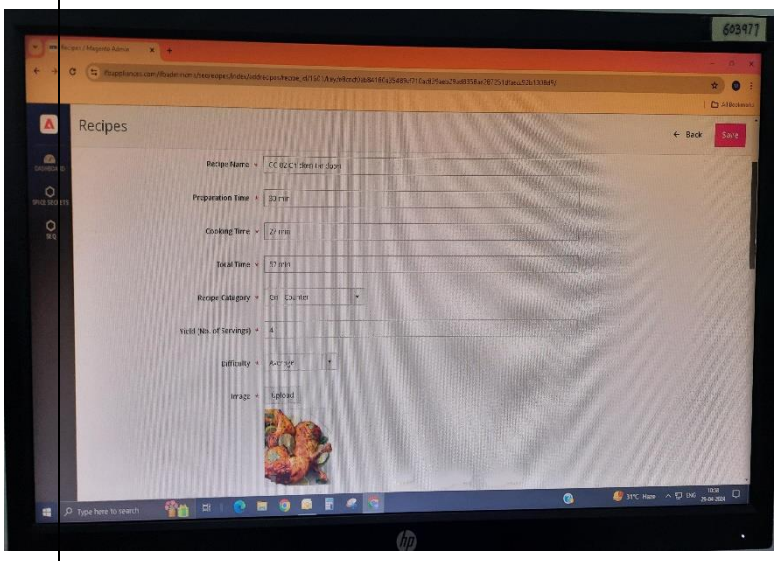


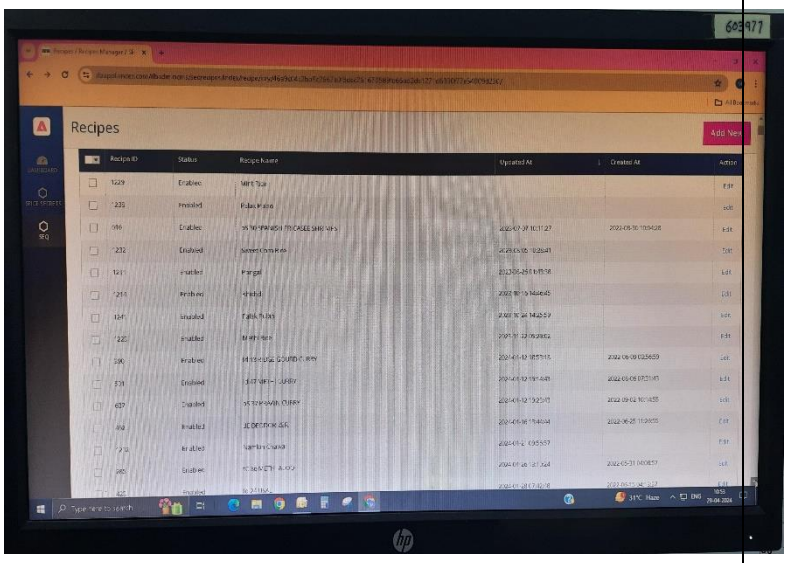
SOLO category imports - IFB vs the Competition (20l tr capacity )

| BRAND | IFB | IFB | Whirlpool | LG | Panasonic | Panasonic | Panasonic |
|---|---|---|---|---|---|---|---|
| MODEL | 20PM-MEC2 | 20PM-MEC2B | MAGICPRO20SE | MS2043DB | NN-ST26JMFDG | NN-ST266BFDG | NN-SM255WFDG |
| CAPACITY | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| MODEL IMAGE | | | | | | | |
| MRP | 7390 | 7690 | 8775 | 8799 | 7890 | 7390 | 6790 |
| AMAZON (11.03.24) | 6599 | NA | NA | NA | 5890 | NA | NA |
| FLIPKART (11.03.24) | 6699 | 7459 | 8400 | 6815 | 5890 | 7379 | 6720 |
| COLOR | White | Black | Black | BLACK | Silver | Black | White |
| Volume Imports – APR 23 – JAN 24 | 54096 | 22060 | 3439 | Local production | 36722 | 15300 | 15610 |
| CAVITY TYPE | Powder coated | Powder coated | Powder coated | Powder coated | Powder coated | Powder Coated | Powder coated |
| CONTROLS | Mechanical | Mechanical | Tact switch | Tact switch | Tact switch | Tact switch | Mechanical |
| EXPRESS COOKING | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| WARRANTY PERIOD(Years) | 1 year on product + 3 years on Magnetron & Cavity | 1 year on product + 3 years on Magnetron & Cavity | 1 year on product + 3 years on Magnetron & Cavity | 1 year total + 5 years on magnetron | 1 year on product + 1 year on Magnetron & Cavity | 1 year on product + 1 year on Magnetron & Cavity | 1 year on product + 1 years on Magnetron & Cavity |

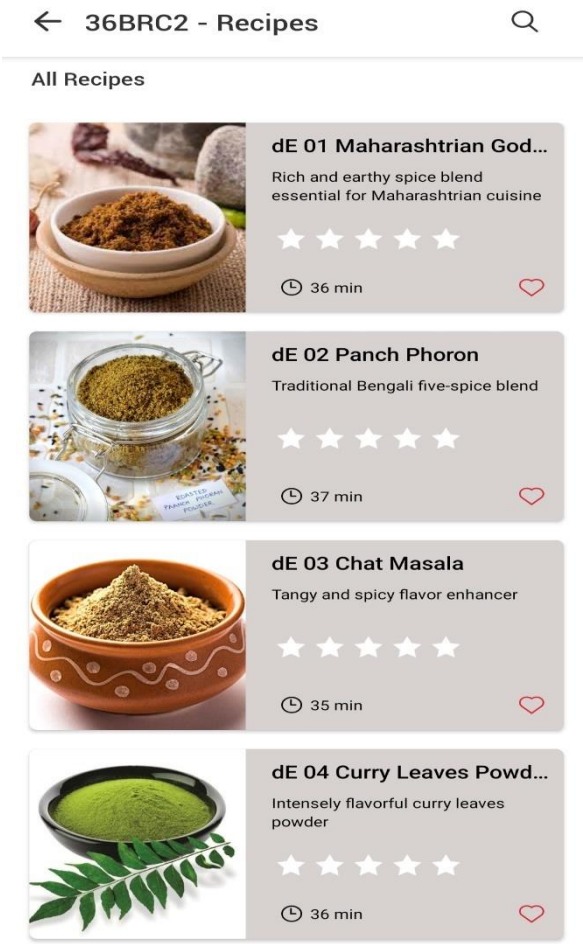
*All E-COMM MOP's updated on 11-03-2024 @ 20:00hrs

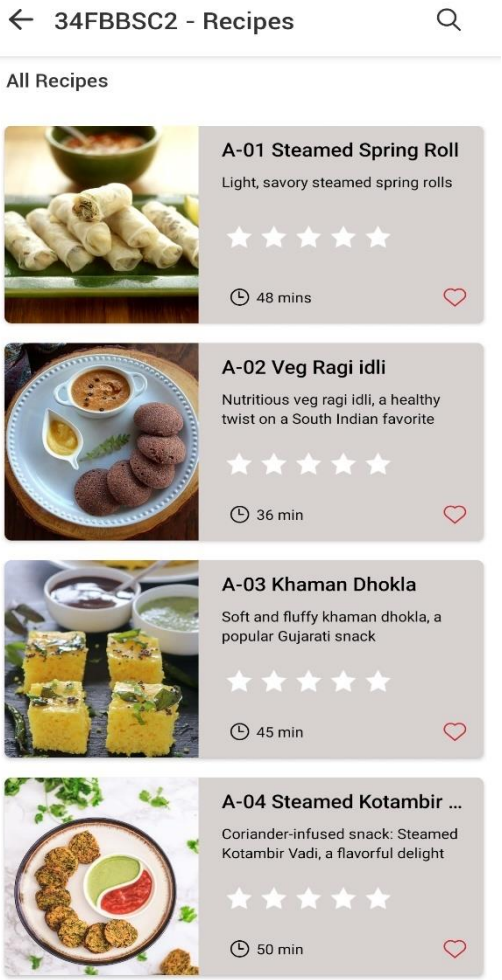
## Backend Management using Magento




## Recipes live on the MyIFB app



# LEARNINGS

1. **Comprehensive Understanding of Ovens**

   Gained extensive understanding of the features and functions of microwave ovens, including the different kinds that are available and the jargon related to oven technology.

2. **Benchmarking and Comparative Analysis**

   Acquired proficiency in comparing IFB products to rival offerings, scrutinising product attributes, pricing tactics, and market positioning to pinpoint points of distinction and avenues for enhancement.

3. **Mobile App Management**

   Developed expertise in using back-end software for content management and user interface improvements. Acquired knowledge of how to navigate and manage both the front-end and back-end components of a mobile application.

4. **Market Positioning and Communication Strategies**

   Gained knowledge of consumer preferences, carried out market research, and created communication plans to interact with customers and advertise IFB products in an efficient manner.

5. **Product Development Insights**

   Looked at the complexities of creating new products, such as figuring out what customers want, designing features, and offering suggestions for enhancements based on user and market research.

6. **Customer Engagement Techniques**

   Acquired knowledge of a range of customer engagement strategies, including developing recipes, conducting taste tests, and gathering feedback to determine client preferences and improve product offerings.

7. **Sales and Marketing Alignment**

   Learned how to coordinate marketing and sales activities with efforts in product development, assuring consistent branding and messaging throughout all touchpoints to promote sales and brand loyalty.

8. **Cross-functional Collaboration**

   Worked together with teams from diverse departments, such as marketing, sales, and research and development, to obtain a comprehensive grasp of the interdependencies between different business functions and the lifecycle of product development.

# CHALLENGES

- **Limited Time Frame**: The scope and depth of the data collection, analysis, and interpretation are limited because of the time constraints that were placed on this study.

- **Limited Sample Size**: The study faced challenges due to its small sample size, which decreased the statistical power and representatives of the results. A smaller sample size may lead to decreased confidence in the results and increased data variability.

- **Data Availability**: The researcher's capacity to compile thorough information on the variables regarding customer satisfaction of microwave ovens may be hampered by restricted access to important data sources or datasets. This limitation may affect the study's analysis's breadth, depth, and interpretation.

# LIMITATIONS

- **Sampling Bias**: The study's reliance on convenience sampling techniques or particular recruitment channels may have led to sampling bias, which would have distorted the respondents' demographic representation and limited the findings' applicability to the larger Goa community of washer users.

- **Self-Reporting Bias**: This phenomenon can result in a mismatch between reported and real customer preferences and behaviours. It can occur when respondents give socially acceptable answers or inadvertently recall their purchase activity. This may affect the data gathered through surveys and interviews.

- **Restricted Geographic Scope**: Because the Goa washing machine market was the primary focus of the study, it was more difficult to extrapolate the findings to other markets or regions with distinct socioeconomic, cultural, and consumer preferences. As a result, the conclusions drawn from this research might not adequately represent the variety of consumer behaviour in settings with broader scopes.

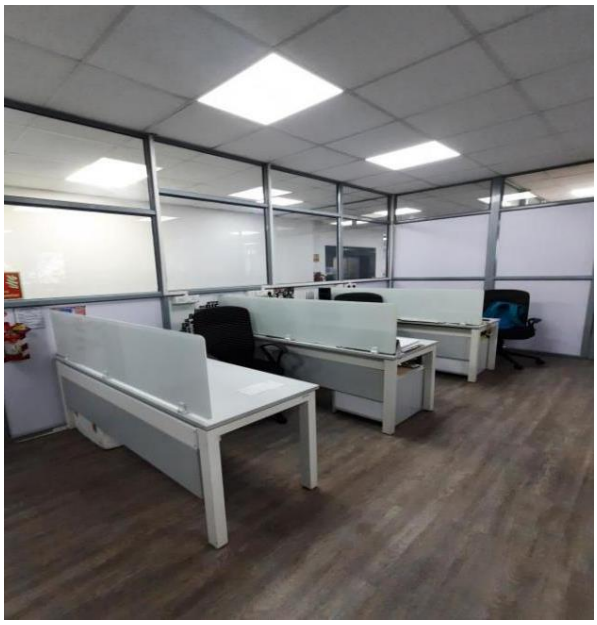
- **Data Collection Techniques**: A subtle customer insight may have been overlooked if surveys or other one-dimensional data collection methods were the only ones used. A variety of data collection techniques could improve the findings' breadth and depth.

- **Limited Contextual Understanding**: It's probable that the study was not fully aware of the more important contextual elements (like macroeconomic variables, competitive dynamics, market trends, and regulatory environments) that affect customers' decisions to buy. An in-depth analysis of the various environmental factors may result in a better understanding of consumer behaviour.

# PICTURES

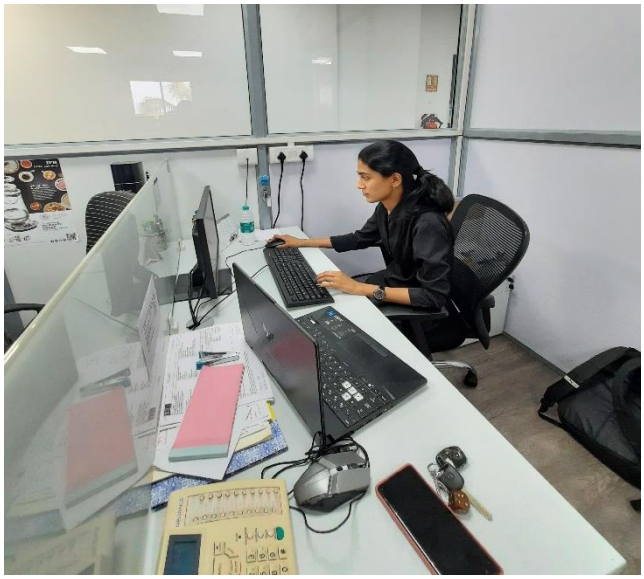
**MW Kitchen**

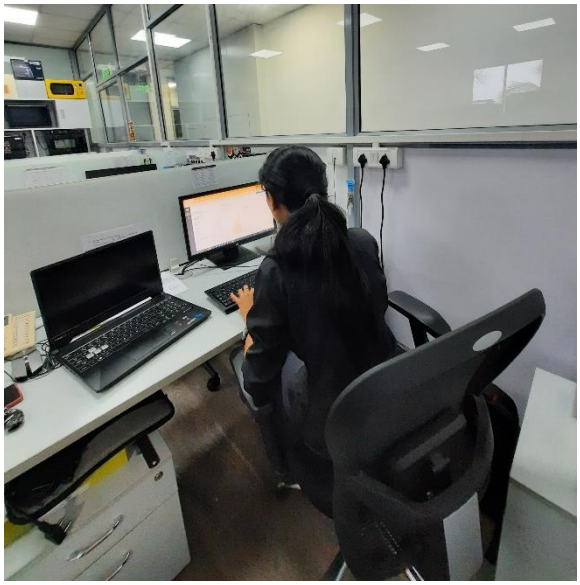
**Work desk**



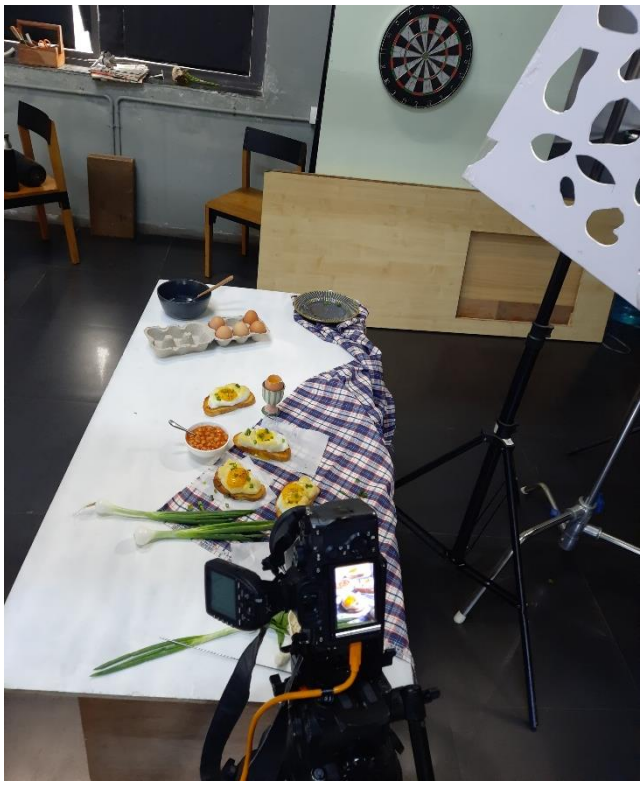
## Working on Auto Cook Menu Optimization

## Working on Back-end Management with Magento





**Accompanied for Recipe photo shoot**



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# APPENDIX - 1

## QUESTIONNAIRE

**PERSONAL INFO**

1) What is your Gender?
- Male
- Female
- Other

2) What is your age group?
- 25-34 years
- 35-44 years
- 45-54 years
- above 55 years

3) What is your income?
- Below 2 Lakhs
- 2-4 Lakhs
- 5-7 Lakhs
- 8 Lakhs & Above

4) Do you own a washing machine?
- Yes
- No

5) Type of your washing machine?
- Front load
- Top Load

6) Which brand washing machine do you use?
- LG
- Samsung
- IFB
- Other

**Reliability**

1. IFB/Samsung/LG is able to keep up to the promises made related to the After sales.

- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree

2. IFB/Samsung/LG is able to provide timely After sales service.
- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree

3. IFB/Samsung/LG always ensure good quality of the product packaging when delivered.
- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree

4. IFB/Samsung/LG staff is consistent in solving customer complaints
- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree

5. IFB/Samsung/LG always insists on zero defects in its product offerings.
- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree

**Responsiveness**

6. IFB/Samsung/LG Frontline employees are always willing to help me.
- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree

7. Knowledgeable & courteous IFB/Samsung/LG employees always inspire confidence and trust to their customer.
- Strongly Disagree
- Disagree
- Not sure
- Agree

- Strong Agree

8. IFB/Samsung/LG customer care staff are fast to respond.
- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree

9. IFB/Samsung/LG always ensures product is always in stock for delivery.
- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree

10. Delay in repair/replacement is always updated to customers within a short period of time.
- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree

**Assurance**

11. IFB/Samsung/LG after sales service staff are knowledgeable.
- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree

12. IFB/Samsung/LG after sales service staff are reliable and trustworthy.
- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree

13. IFB/Samsung/LG staff has ability to communicate effectively with their customers.
- Strongly Disagree
- Disagree
- Not sure

- Agree
- Strong Agree

14. IFB/Samsung/LG delivery personnel are very kind and friendly

- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree

**Empathy**

15. IFB/Samsung/LG staff understand the needs of customers

- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree

16. IFB/Samsung/LG staff gives individualized attention to customers

- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree

17. IFB/Samsung/LG staff show sincere interest to solve customer problem

- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree

**Tangible**

18. IFB/Samsung/LG provides effective complaint registration facilities.

- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree

19. I am satisfied with the ease of use and accessibility of features on my IFB/Samsung/LG washing machine

- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree

20. I am satisfied with the design and appearance of my IFB/Samsung/LG washing machine.

- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree

**Overall**

21. I am likely to continue purchasing IFB/Samsung/LG products in the future.

- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree

22. After-sales service is very important in my decision to repurchase from IFB/Samsung/LG in the future.

- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree

# APPENDIX – 2

## QUESTIONNAIRE

**PERSONAL INFO**

1) What is your Gender?
- Male
- Female
- Other

2) What is your age group?
- 25-34 years
- 35-44 years
- 45-54 years
- above 55 years

3) What is your income?
- Below 2 Lakhs
- 2-4 Lakhs
- 5-7 Lakhs
- 8 Lakhs & Above

4) Do you own a microwave oven?
- Yes
- No

5) Type of the microwave oven you own?
- Solo
- Grill
- Convection

**Quality**

1) I am satisfied with my microwave oven's overall quality.
- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree

2) I am satisfied with the cooking consistency of my microwave oven.
- Strongly Disagree

- Disagree
- Not sure
- Agree
- Strong Agree

**Price**

3) Taking its features and quality into account, I am satisfied with my microwave oven's pricing.
- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree

4) I am satisfied with the affordability of my microwave oven.
- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree

**Size**

5) I am satisfied with the size of my microwave oven.
- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree

6) I am satisfied with the capacity of my microwave oven for my cooking needs.
- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree

**Design**

7) I am satisfied with the visually appealing design of my microwave oven.
- Strongly Disagree
- Disagree
- Not sure
- Agree

- Strong Agree

8) I am satisfied with the user-friendly interface of my microwave oven.
- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree

**Features**

9) I am satisfied with the variety of useful features of my microwave oven.
- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree

10) I am satisfied with the microwave's safety features for secure cooking.
- Strongly Disagree
- Disagree
- Not sure
- Agree
- Strong Agree