

Consumer Awareness and Trust Towards Cloud Kitchens in Online Food Delivery Platforms

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ABSTRACT

Online cloud kitchens, often referred to as virtual or ghost kitchens, are a type of food delivery service where customers have their meals prepared in a typical restaurant kitchen before having them delivered to their residences or places of business. The concept has grown in popularity in recent years, especially during the COVID-19 pandemic, as more individuals have been ordering takeout instead of dining in. By putting speed, convenience, and efficiency first, cloud kitchens-delivery-only restaurant models-are revolutionizing the food service sector. In this digital-first approach, perceived food quality-including taste, hygiene, packaging, and delivery experience-determines customer happiness more than ambience. The goal of the current study is to ascertain customer purchasing intentions with reference to cloud kitchens, including how views will shift in response to perceived innovativeness (PI), food variety, cost, food safety, and social impact. Additionally, the study looked at how consumer trust functions as a mediator between attitude and purchase intentions. We will talk about this in this paper "Customers' knowledge of and confidence in cloud kitchens in online food delivery services".

KEYWORDS: *Consumer Awareness, Cloud Kitchens, Online Food Delivery Platforms, Digital-First Format, Consumer Satisfaction, Perceived Innovativeness, Brand Visibility, Data-Driven Insights, Multi-Brand.*

INTRODUCTION

A cloud kitchen is a type of foodservice business concept where meals are prepared in a commercial kitchen and then sent straight to customers. This type is sometimes referred to as a dark kitchen, ghost kitchen, or virtual kitchen. This idea is also known as a virtual kitchen, cloud kitchen, or dark kitchen. The term "cloud" alludes to the idea that the meals are prepared exclusively for delivery and that the kitchen is situated off-site, usually in a central location. Customers cannot physically visit the storefront.

The cloud kitchen is a revolutionary and highly scalable strategy that has emerged as a result of the food service industry's rapid transformation in the digital age. These delivery-only businesses, often known as ghost kitchens or virtual kitchens, don't have a physical storefront or dine-in area. Cloud kitchens, which provide convenience, speed, and variety at the touch of a screen, have revolutionized the way food is cooked, advertised, and consumed

with the spectacular expansion of food aggregator platforms like Zomato, Swiggy, and Uber Eats. According to this approach, non-traditional touchpoints including mobile app interfaces, packaging aesthetics, delivery schedules, and hygiene assurance significantly influence the customer's opinion of quality. Understanding what motivates customer happiness and loyalty in this format is essential for long-term sustainability as competition heats up and customer expectations rise. [1]

The rise of numerous user-friendly online food delivery applications has caused a major shift in the food sector in recent years. As a result, the idea of cloud kitchens also known as virtual kitchens, ghost kitchens, or dark kitchens has become more well-liked by customers. A cloud kitchen is an online restaurant that doesn't have a physical location that customers can visit. Rather, it relies on online orders placed via several food delivery apps.

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Cloud kitchens, particularly the multi-brand concept, are among the most disruptive technologies in this business. These operations integrate multiple restaurant brands into a single kitchen space without any physical dining spaces, relying solely on online platforms for order placement and customer interaction. Because they reduce overhead costs and enable a wider range of services from a single location, multibrand cloud kitchens provide unique opportunities for scalability and operational efficiency. Their business model has drawbacks as well, such as restricted control over customer data, reliance on outside delivery services, and the challenge of building enduring customer loyalty in a highly competitive electronic environment.

Cloud Kitchen in India

In India, cloud kitchens have become a disruptive force in the foodservice sector, changing how consumers obtain food. Cloud kitchens prepare food just for delivery, operating solely through food delivery platforms, in contrast to typical restaurants that offer a dine-in option. These kitchens are more affordable than traditional restaurants because they don't need a physical storefront or customer-facing services. Because of their flexibility, minimal overhead, and capacity to meet the rising demand for online meal delivery, cloud kitchens have grown in popularity in urban areas.

The need for cloud kitchens has increased due to the growth of meal delivery apps like Zomato, Swiggy, and Uber Eats. These platforms, which provide a convenient way to get meals from a range of cuisines right to their door, have become an essential part of people's everyday life. Cloud kitchens are well-positioned to satisfy the growing demand for online meal ordering without the costly real estate or high operating expenses associated with traditional dining establishments. Cloud kitchens may concentrate on food preparation and delivery with less infrastructure investment, passing on the cost benefits to customers. The cost-effectiveness of cloud kitchens is one of the main factors driving their quick expansion in India.

Online Food delivery and Cloud Kitchen:

In recent years, online dining has become a hot topic. Online ordering has started to become commonplace due to its accuracy, simplicity, and ability to combine payments. Home cooking may eventually become obsolete due to widespread on-demand and subscription meal delivery. The food and beverage business has been greatly impacted by COVID-19 ever since. Because of this, cloud kitchens gained a lot of traction and became a popular trend. Customers' attitudes toward placing online food orders fluctuate according to a variety of factors, including the ease

and utility of online meal delivery procedures, technological innovation, store trust, and other outside factors. [2]

Customers Perception towards Cloud Kitchen:

Customers' perceptions of cloud kitchens are frequently greatly impacted by how they actually utilize the service. For many customers, the convenience and time savings of being able to order meals online and have it delivered straight to their door is a major selling factor. Cloud kitchens offer a quick and simple way to enjoy restaurant-quality food without having to leave the comforts of home. Although customers may have different opinions on the meals' flavor, freshness, and look, they all place a high value on the food's quality. Aspects including how long it takes for orders to be delivered, the kind of packaging they receive, and the price may all have an impact on customers' opinions of cloud kitchens. While some consumers may prefer the traditional dining experience that a restaurant offers, others would enjoy the personalized and adjustable possibilities that cloud kitchens offer. Customers' opinions of cloud kitchens can generally be complex and multifaceted, depending on a variety of factors as well as personal preferences. [3]

Changing Consumer Preferences and Urban Lifestyles

India's burgeoning urban landscape is witnessing a dramatic shift in consumer behavior, fueled by a confluence of factors that are significantly impacting the food and beverage industry.

These evolving preferences and lifestyles are creating a fertile ground for the rapid expansion of cloud kitchens, also known as ghost kitchens or virtual restaurants.

This section delves into the key consumer trends propelling this growth.

1. The Rise of Convenience and On-Demand Culture:

- Modern urban life is characterized by a fast-paced, time-constrained environment.
- Consumers are increasingly seeking convenience in all aspects of their lives, and food is no exception.
- The proliferation of smartphones and food delivery apps has fostered an on-demand culture where instant gratification is the norm.

2. Experimentation and Diversification of Palates:

- Indian consumers are becoming increasingly adventurous with their food choices.
- They are eager to explore new cuisines and flavors, moving beyond traditional dishes.

- Cloud kitchens are uniquely positioned to capitalize on this trend.

3. Value for Money and Affordability:

- While convenience is a major driver, affordability remains a crucial factor for many Indian consumers.
- Cloud kitchens are often able to offer competitive pricing compared to traditional restaurants.

Technology Integration and Data-Driven Optimization:

- Cloud kitchens are inherently tech-savvy, leveraging technology to streamline operations, optimize delivery, and personalize the customer experience.

Challenges Faced by Cloud Kitchens:

1. Low Profit Margins in the Face of Vigorous Competition- Although cloud kitchens save on staffing and infrastructure costs, food aggregators like Swiggy and Zomato charge them high commission fees (20–30% of sales). Cloud kitchens only rely on delivery, which frequently erodes potential savings through platform fees and regular discounts, in contrast to traditional restaurants that supplement delivery income with dine-in sales.
2. Problems with Brand Visibility and Trust- Because there are no physical shops, consumers are not exposed to the brand frequently or have memorable dining experiences, which reduces organic brand recall.
3. Multi-Brand Strategies' Operational Complexity- In order to dominate aggregator platforms and serve a variety of cuisines, many cloud kitchens grow by introducing various brands.
4. Workplace Hygiene Issues- Some kitchens disregard hygienic requirements in the absence of client inspections, which results in poor working conditions. Staff difficulties are made worse by inadequate ventilation and small workspaces, and reputations are harmed by recurring regulatory inspections that reveal cleaning lapses.
5. Limited Flexibility in Pricing Consumers- frequently view cloud kitchens as low-cost alternatives, anticipating cheaper costs than those of dining establishments. Because of this, businesses are forced to rely on sales and discounts, which reduces profit margins and draws in bargain-hunting clients who don't really contribute to steady revenue development.

The Benefits of Cloud Kitchens

- Lower Overhead: By doing away with the need for actual eating areas, cloud kitchens save money

on rent, utilities, and front-of-house personnel. Food enterprises may focus on food production and quality while operating on reduced budgets because to this cost-efficiency, which eventually increases profitability.

- Quicker Market Entry: Cloud kitchens allow food entrepreneurs to swiftly join the market without having to open a traditional restaurant. Their quick setup gives them a competitive advantage in the quick-paced food market by enabling them to take advantage of emerging trends or unmet demand.
- Increased Reach through Delivery services: To reach a larger clientele, cloud kitchens make use of third-party delivery services. Cloud kitchens can serve clients over large geographic areas, much beyond the boundaries of a physical location, by collaborating with services like Uber Eats, DoorDash, or Grubhub.
- Data-Driven Insights: To optimize operations, cloud kitchens mostly rely on technology and data analytics. Operators can improve customer happiness and business performance by making well-informed decisions about menu changes, ingredient procurement, and marketing tactics by monitoring client preferences and sales trends.
- Effective Use of Space and Resources: Cloud kitchens that function only as kitchens can make effective use of their space by concentrating only on food preparation. A delivery-focused business model requires improved control over quality and consistency, which is made possible by this specialization's optimization of workflow and reduction of waste. [4]

Emerging Trends in Online Food Delivery and Cloud Kitchens:

- Hyperlocal Delivery Models: By facilitating quicker delivery times and serving specialized clientele, the emergence of hyperlocal delivery services is further propelling the expansion of cloud kitchens.
- Ghost Brands and Virtual Restaurants: The distinction between regular restaurants and cloud kitchens is becoming increasingly hazy as the idea of ghost brands and virtual restaurants that only operate online is gaining popularity.
- Integration of Automation and Technology: Cloud kitchens are using automation and technology more and more to improve customer satisfaction, increase productivity, and streamline operations. This covers the utilization of data

analytics tools, automated ordering systems, and kitchen management software.

- **Emphasis on Sustainability and Eco-Friendly Practices:** Cloud kitchens are increasingly implementing sustainable practices, like using eco-friendly packaging and cutting down on food waste, as customer awareness of environmental issues rises.

Review of Literature:

Building and maintaining consumer trust is crucial to the food industry's success. Customers are more likely to buy from companies they trust, but if they don't trust a brand, they can be reluctant to make a purchase or come back. Numerous studies have shown that the main problems with cloud kitchens are those related to food safety and quality. Customers' decisions on cloud kitchen services are heavily influenced by trust because they are unable to observe how the food is cooked or preserved in a physical storefront (Cai et al., 2022). Cloud kitchen operators can increase their chances of success in the fiercely competitive food market by fostering trust through open and compliance food safety practices. In a similar vein, cloud kitchens may endeavor to build and maintain customer trust, which may ultimately influence purchase decisions and advance corporate success. Prioritizing openness, reliability, brand reputation, and ongoing consumer feedback will help achieve this. [5]

The food industry, particularly the meal delivery service sector, has experienced significant transformations from phone-based to app-based online ordering, home delivery, takeout, etc., in order to meet the always evolving needs of consumers. Customers are now so reliant on technology that they do everything online, including ordering prepared cuisine via online delivery services (G. See-Kwong, 2017). Digital services can only be provided via internet-based channels, and services are intangible in nature (Dr. Neha Parashar, 2017). The market for online meal delivery services is one example of a digital service. Enhancing client convenience is the primary driving force behind the creation of this sector. Online food ordering facilitates 24/7 one-on-one communication between the seller and the customer (Suryadev Singh Rathore, 2018). In order to increase their profitability and operational efficiency, businesses are now experimenting with alternative models through various innovations. [6]

A few major companies that focused exclusively on food delivery, such Zomato, Swiggy, Food Panda, and others, gradually came to dominate the online meal delivery services market. The majority of conventional eateries sought to improve their

technology in order to obtain a competitive edge. Changing from "brick and mortar" to "brick and click" by outsourcing online meal delivery services to such reputable internet businesses in the industry was their simplest method of doing this. As a result, they have established an internet presence. India began to see a lot of creative start-ups in this sector as the food delivery industry began to center around these lone meal delivery businesses. The young Indians began to embrace the different difficulties of meeting the constantly shifting wants of consumers. The four top businesses in this sector-Zomato, Swiggy, Food Panda, and Fasso-were the subject of a study that examined and evaluated the several creative tactics they used to improve both their profitability and customer convenience (Kanteti, 2018). Additionally, according to user preferences, the different food apps were ranked as follows: Swiggy, Zomato, Food Panda, Uber Eats, Food Kourts, and Enjoy Foods (I. Karthika, 2018). These all demonstrate how the technologically advanced online meal delivery system has drastically altered the restaurant industry's culture and provided customers with a brand-new, incredible comfort zone (Gupta, 2019). [7]

In the June 2024 study "Effectiveness of Digital Marketing on Instagram: A Study on Eat Sure Multi-Brand Cloud Kitchen," Paul et al. examine EatSure's Instagram marketing tactics and how they affect consumer satisfaction. The study outlines the various tactics employed to draw in and involve clients. The study demonstrated the efficacy of these tactics, offering insightful information for marketing and managerial choices in the multi-brand cloud kitchen industry. [8]

Objectives:

- To explore the various dimensions of perceived food quality in cloud kitchens.
- To study the concept of cloud kitchen.
- To explain customers perception towards cloud kitchen.
- To multi-brand cloud kitchens for diverse offerings.
- To study the business model of cloud kitchens.

Research Methodology:

In order to investigate the relationship between perceived food quality and customer satisfaction in the cloud kitchen business model, the current study uses a conceptual and research-based method, depending on secondary data sources. The study only uses secondary data from a variety of reliable and pertinent sources, such as:

- Scholarly Databases: Scopus, Web of Science, Google Scholar
- International Journal of Contemporary Hospitality Management, Journal of Retailing and Consumer Services, and International Journal of Business and Management are peer-reviewed journals.
- Industry Reports: Consultancy whitepapers and market research reports (e.g., Deloitte, McKinsey, FICCI reports on food services)
- Digital Platforms & User Feedback: Examining online review sites, social media conversations, including user reviews and comments on aggregator apps like Zomato and Swiggy.

Result and Discussion:

A restaurant that specializes only in takeout is called a cloud kitchen. There are no dine-in options available at these establishments. Only food production takes place in these establishments. Only online orders are accepted, and the food is delivered to the consumer as takeout. Popular examples of Cloud Kitchens include Yumist, Spoonjoy, Box8, ITiffin, Biryani by Kilo, Fresh Menu, Eatlo, Hello Curry, and more. [9]

Below is an explanation of the cloud kitchen concept in terms of supply and demand.:

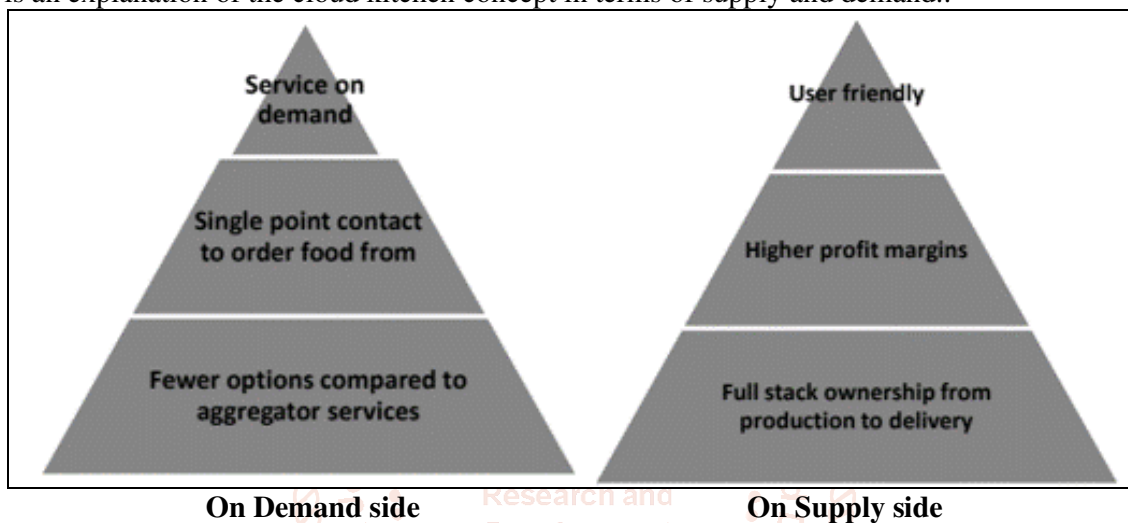


Figure 1: Demand and Supply

The idea of a cloud kitchen is relatively new in India, but it has gathered momentum since COVID. As a result, research on India as a nation is scarce. Additionally, it was noted that not much research has been done to comprehend how consumer trust, attitude, and purchase intentions relate to cloud kitchen services in India. In light of these limitations, the study sought to identify the key determinants of consumer behavior and explore the ways in which these determinants affect consumers' intents to use cloud kitchens in India. Figure 2 depicts the suggested structural mediation model. [10]

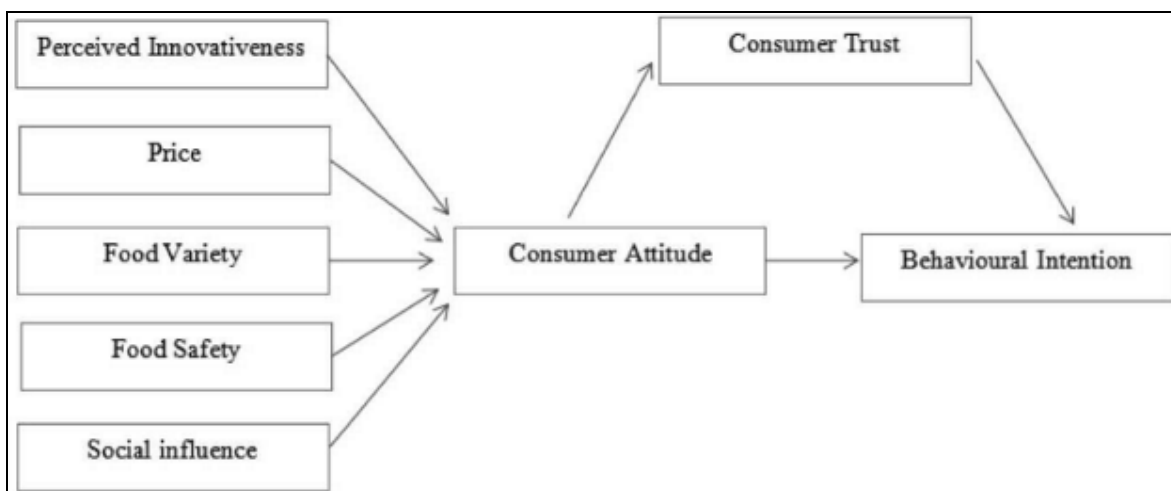


Figure 2. Proposed Structural Mediation Model.

In recent years, the Indian online food delivery market-which comprises internet kitchens and aggregators-has grown dramatically. The consumer and its surroundings have changed significantly as a result of technology. The Internet of Things has a lot of potential in the kitchen. It was found that 24% of people who cook for

themselves or even for others use smartphones in the kitchen to find recipe information or cooking tools. Cloud computing, which employs a local area network to assist in providing services to end users, has made it possible for people to distribute their cooked food around their networks. By adopting a number of innovations, such as delivering meals from "cloud kitchens" located in various locations for clients who require home-cooked cuisine, these firms have changed the way customers dine. In the future, cloud kitchens will be a huge trend. The \$15 billion Indian market is anticipated to expand quickly.

How people choose to spend their time, money, and effort on consuming goods that satisfy their needs is known as consumer behavior. It includes what individuals purchase, why they purchase, when they purchase, how they purchase, how often they purchase and use these items, and how they get rid of them when they are no longer needed. According to the planned behavior theory (Figure 3), intentions are meant to show the motivational factors that influence an action; they are signals of how hard people are willing to try and how much effort they plan to put forth to finish the task. Generally speaking, the likelihood of an activity's performance outcome increases with participation desire (Ajzen, 2020) [11]. Personal opinions, subjective standards, and perceived behavior control all have an impact on these intents. Because of this, the study was able to identify how the pandemic affected consumers' attitudes and made it possible for the cloud kitchen to assist them. Customers' intentions to buy the cloud kitchen were assessed.

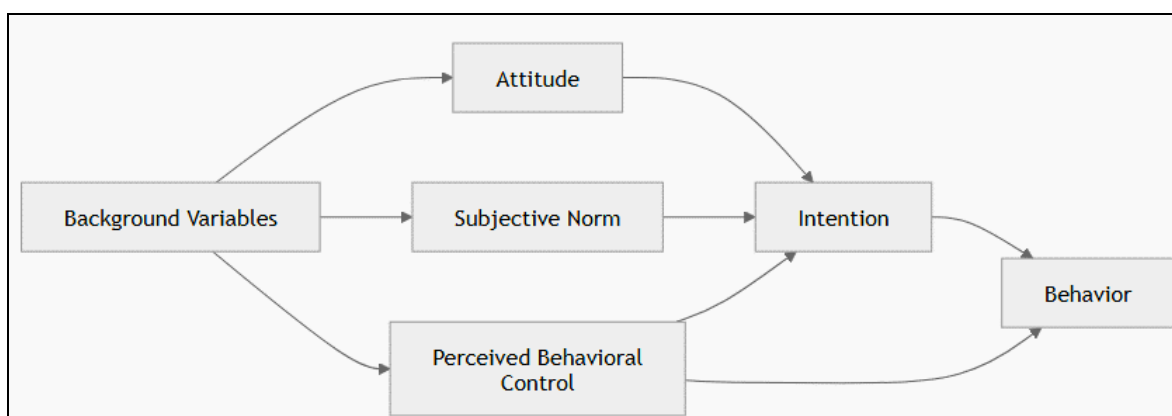


Figure 3: Theory of Planned Behavior: A Cognitive Theory.

(Source: Vallerand et al. (1992)) [12]

Multi-Brand Cloud Kitchens for Diverse Offerings

One of the key advantages of cloud kitchens is their ability to manage multiple virtual brands under one roof. This approach has been successfully applied by pioneers like Rebel Foods, Cloud Kitchens, and Kitopi, who provide a variety of cuisines from Asian specialties to nutritious vegan meals. This approach increases revenue while accommodating a variety of customer preferences.

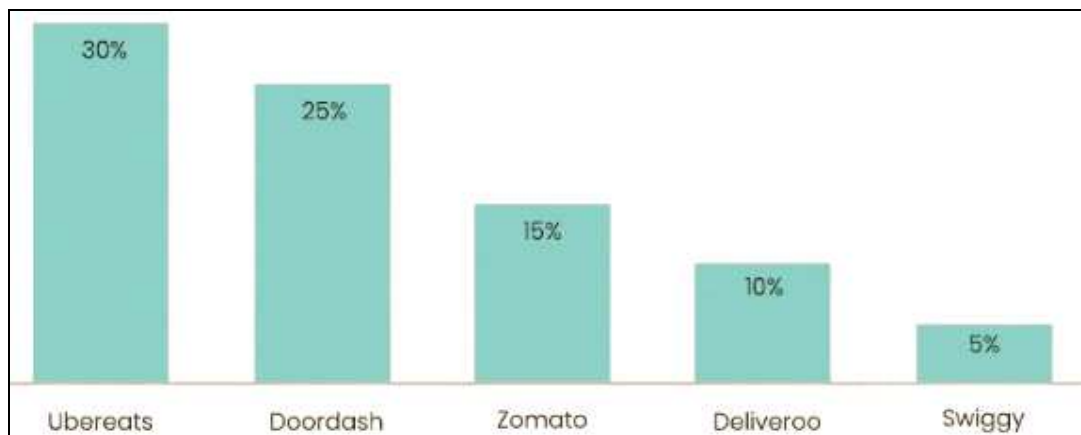


Figure 4: Influence of Food Delivery Platforms on Cloud Kitchen

(Source: <https://www.alliedmarketresearch.com>)

Business Model of Cloud Kitchens

A. Standalone/Single Brand Cloud Kitchens- Standalone and single-brand cloud kitchens are those that operate under a single concept and take online orders. They often feature a small menu with a few dishes and specialize in one or two different cuisines.

- B. Virtual Restaurants Virtual restaurants- Are companies that only operate online, either through their own websites that allow online ordering or through third-party food aggregators. They employ the skills and resources of a well-known restaurant's kitchen and have a unique character. They serve food that is different from what is served in the restaurant of the virtual brand. The virtual brand's earnings will be added to the company's overall revenue, and the two brands will no longer compete.
- C. Cloud Kitchens with multiple brands- A multi-brand cloud kitchen is a large cooking area that can support the operations of multiple businesses. The operations of numerous businesses can be managed with the same kitchen infrastructure, personnel, and resources.
- D. Common Kitchen Areas Shared- Cloud kitchen areas are expansive co-working facilities with separate culinary equipment for each business. These apartments are fully furnished with all the modern amenities required for a stand-alone cloud kitchen. In addition to cleaning and dishwashing services, shared kitchen rooms typically have a shared storage space so that users can focus only on cooking.
- E. Aggregator Cloud Kitchens- Aggregator-run cloud kitchens are also massive communal kitchens. Aggregator cloud kitchens are only utilized by the aggregator's brands, which is the only difference between them and shared cloud kitchens. Orders from their own websites or any other online marketplace cannot be accepted. [13-14]

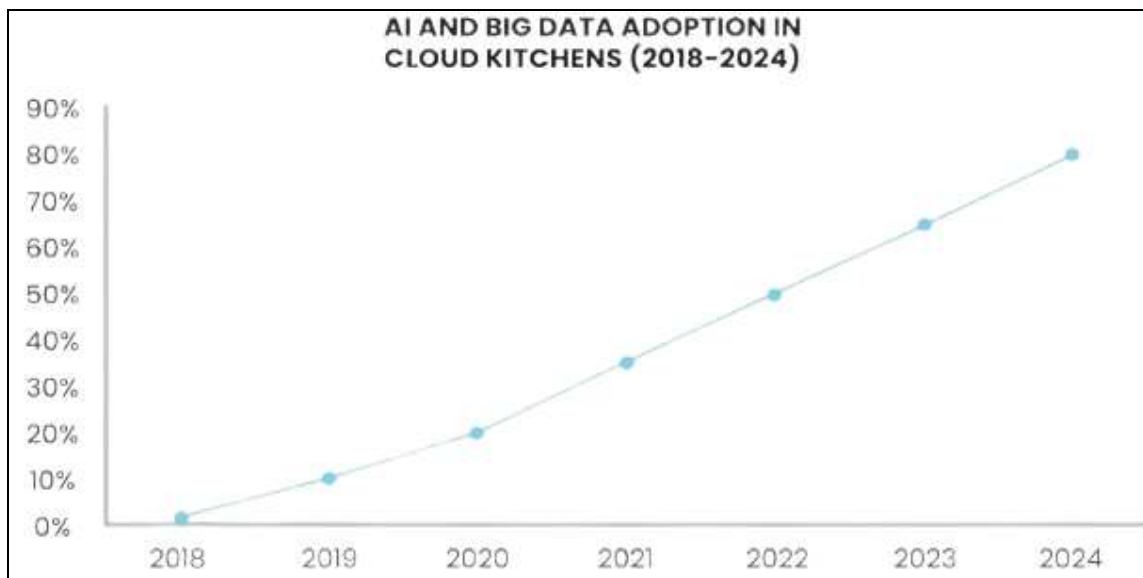


Figure 5: Business Model of Cloud Kitchens
(Source: By Google)

Conclusion:

We may conclude that the cloud kitchen sector of the food industry is expanding quickly and has a lot of promise for both consumer happiness and corporate growth. Customer loyalty and satisfaction levels can be influenced by a number of significant aspects, including the creation of strong online brand communities, attention to pricing and convenience, packaging design, service quality, and perceived value. Therefore, companies in the cloud kitchen sector should be aware of these aspects and work to enhance them in order to draw in and keep more clients as well as raise their degree of happiness and loyalty. All things considered, these results can help cloud kitchen companies create strategies that work and succeed in the long run. Researchers find that food quality, delivery time, packaging, pricing, and convenience are the main elements that affect how satisfied customers are with online cloud kitchens.

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