

## TRANSFORMING CONSUMER BEHAVIOR THROUGH CLOUD KITCHEN AND DIGITALIZATION BOOSTING MSMES SUSTAINABILITY IN THE F&B

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**Abstract:** Cloud kitchen is a system that allow business owner to serve customers without facilitate a dining-in establishments. The idea of cloud kitchen has proof its usefulness due to COVID-19 pandemic, where many food and beverage (F&B) sector owners especially the medium, small, and micro enterprises (MSMES) suffer because they could not provide their service due to government-imposed measures to limit the movement of people and activities in an effort to control the spread of COVID-19. This research aims to explore the concept of cloud kitchen further, as well as examining the relation between the rapid development of technology has allow many F&B sector owner to survive during and post pandemic. This research employed a systematic literature review with a qualitative approach. A total of 329 studies were identified and 12 are selected and included in the review. These 12 journals were selected based on their relevance to the research topic, the quality and impact factor of the journal, the reputation of the authors who publish in the journal, and the rigor of the peer review process. The results indicate that cloud kitchen is a promising business model for F&B sector, it has maintain the sustainability during pandemic and still keep it relevancy after pandemic. Several start-ups such as Gojek and Grab provide a food delivery service that allow partnership with MSME business owner, contributing in their effectiveness and efficiencies.

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**Keywords:** consumer behavior, MSMES, food and beverages, cloud kitchen

**Abstrak:** Cloud kitchen adalah sistem yang memungkinkan pemilik bisnis melayani pelanggan tanpa memfasilitasi tempat makan. Ide cloud kitchen ini menjadi bukti kegunaannya akibat pandemi COVID-19, dimana banyak pemilik sektor makanan dan minuman (F&B) khususnya pelaku usaha menengah, kecil, dan mikro (UMKM) yang merugi karena tidak dapat memberikan jasanya akibat kebijakan Pembatasan Sosial atau Pembatasan Sosial Berskala Besar (PSBB) pemerintah. Penelitian ini bertujuan untuk mengeksplorasi konsep cloud kitchen lebih jauh, serta mengkaji hubungan antara pesatnya perkembangan teknologi yang memungkinkan banyak pemilik sektor F & B bertahan selama dan pasca pandemi. Metode yang digunakan dalam penelitian ini adalah tinjauan pustaka sistematis dengan pendekatan kualitatif. Sebanyak 329 studi diidentifikasi dan 12 dipilih dan dimasukkan dalam tinjauan. Ke-12 jurnal tersebut dipilih berdasarkan relevansinya dengan topik penelitian, kualitas dan faktor dampak jurnal, reputasi penulis yang mempublikasikan di jurnal tersebut, dan ketatnya proses penelaahan sejawat. Hasil penelitian menunjukkan bahwa cloud kitchen merupakan model bisnis yang menjanjikan untuk sektor F&B, telah menjaga keberlanjutan selama pandemi dan tetap relevan setelah pandemi. Beberapa perusahaan rintisan seperti Gojek dan Grab menyediakan layanan pesan antar makanan yang memungkinkan kemitraan dengan pemilik usaha UMKM, berkontribusi dalam efektivitas dan efisiensinya.

**Kata kunci:** perilaku konsumen, UMKM, makanan dan minuman, cloud kitchen

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## INTRODUCTION

Technological progress in recent years has been progressively better, enforcing digitalization across all sectors and industries. Correspondingly, consumer behavior also has swiftly evolved alongside technology, creating the emergence of an online retail marketplace. The growth of opportunities in the Food & Beverage sector encouraged by mobile technology and wireless internet access has been transforming the way consumers purchase food. Digitalization has also enabled F&B establishments to streamline their internal operations for more efficient delivery. This leads to improved service quality and faster deliveries, thereby enhancing customer satisfaction.

According to data from the Ministry of Cooperatives, Small and Medium Enterprises, there are currently 64.2 million MSMEs, out of which 40% are involved in the food and beverage sector and around 44% of MSMEs have joined the online channel e-commerce, but there are still many who have not, especially for micro-enterprises and small companies (Shimomura, 2020). Cloud kitchen in Indonesia is growing rapidly and has been present in various major cities such as in the Jabodetabek area, Surabaya, Bandung and Medan. In fact, according to a survey conducted by Savills Research and Consultancy in early 2021, there are at least 70 cloud kitchens operating in the Jakarta area involving more than 500 cloud kitchen-based culinary trademarks. Based on Nielsen's pre-pandemic research conducted in 2019, a significant 95% of the 1,000 surveyed Indonesian consumers regularly ordered ready-to-eat food, with a substantial 58% relying on food delivery applications for their orders (Sulistyowati, 2020). This same survey further revealed that the convenience afforded by food delivery applications is a major motivator for their use among Indonesian consumers.

The advent of a digital food landscape has spawned opportunities for food retailers to sell their products online, with offline delivery or pick-up options. Although there exists a mass of digital food retail services, this research will prioritize the discussion on the digitization of sustainable Micro, Small and Medium Enterprises (MSMEs) through the application of Cloud Kitchens. Currently, consumers are prioritizing value, convenience, efficiency, and worth in their buying practices. This pattern is particularly noticeable in the food industry, where there's a rising demand for diverse,

premium food delivered quickly and easily. This shift in consumer behavior provides a substantial opportunity for the growth and sustainability of delivery systems and cloud kitchens.

A centralized kitchen hub prepares and delivers food to satellite outlets (spokes), where it is then distributed to customers. These "cloud kitchens" operate solely as takeaway outlets and do not offer on-site dining facilities (Choudhary, 2019). Cloud kitchens are specialized food preparation and cooking facilities set up for the preparation of delivery-only meals, without any dine-in areas for customers and they operate via online orders from various delivery platform services. The advantages of this model include lower operational costs due to the absence of dine-in services, ability to quickly adapt to changing food trends, and increased efficiency by focusing solely on food preparation. Additionally, with the rise of technology, these kitchens can leverage data to optimize their processes, menu offerings, and target their marketing efforts more effectively. Moreover, delivery systems have evolved to become more effective and efficient.

Therefore, as consumer behaviors continue to evolve towards seeking efficiency and effectiveness, delivery systems and cloud kitchens are positioned to seize these opportunities for growth and sustainability. They are not only meeting present market needs but are also setting the path for the food sector's future. Collaborative cloud kitchen initiatives present a potent avenue for fostering the growth of Micro, Small, and Medium Enterprises (MSMEs) in Indonesia. The concept of cloud kitchens is not a new thing in the DKI Jakarta region, with at least seven currently operating within the city. However, the growth of Cloud Kitchen in other provinces and cities needs to be enhanced to establish the MSMEs in the F&B Industry.

A key advantage of cloud kitchens for MSMEs is the lower operational costs compared to traditional restaurants. Physical dining spaces require significant investments in rent or property purchase, interior design, utilities, and staffing for both kitchen and front-of-house operations. However, cloud kitchens eliminate these expenses by focusing solely on food production and delivery. This reduction in overheads makes it more financially feasible for MSMEs to enter the competitive F&B sector or expand their existing operations.

Cloud kitchens also offer scalability, enabling MSMEs to test new market areas without the financial risk associated with opening a physical outlet. With a cloud kitchen, businesses can explore different locations and adjust their strategies based on real-time data from food delivery platforms. For instance, if a cloud kitchen finds that a certain dish is performing well in a specific locality, they can adapt their menu to cater more to that area, optimizing their offerings for maximum customer satisfaction and revenue. Innovative concepts around shared kitchen spaces can address community demands, they're believed to boost local economies, serve as a stepping stone for food start-ups and caterers, and provide a suitable production environment for food local entrepreneurs (Winsome and Sukada, 2021).

The rise of food delivery platforms also offers MSMEs access to a broad customer base without the need for extensive marketing campaigns. Cloud kitchens can easily list their offerings on these platforms and leverage their reach to get orders. Given that these platforms also provide customer data, MSMEs can better understand their consumers' preferences, peak order times, and feedback, which they can use to refine their offerings and improve their service. The cloud kitchen market's success largely stems from shifts in consumer attitudes and practices, including a demand for thorough detailed product information to make a purchase. The diverse product range offered by this delivery service serves as a key factor for consumers, alongside the convenience of saving time and energy by avoiding long queues (Choudary, 2019)

This study investigated the willingness of food business actors and food and beverage MSME business owners to adopt Cloud Kitchen as a business solution. In addition, this research can also be used to determine the concept and popularity of cloud kitchens in Indonesia, and can be used for sustainability research regarding cloud kitchens and digitalization related to the sustainability of the f&b industry.

## METHODS

This research is a systematic literature review that employs a descriptive and qualitative approach to examine the business development of several brands that use the "Cloud Kitchen" concept. Regardless of the field of study, constructing and connecting research

with existing knowledge forms the fundamental basis for all academic research projects. As a result, making accurate integration a priority for all academics becomes crucial. This is why, the literature review as a research method has become increasingly pertinent. The literature review is a systematic and comprehensive examination of existing research on a particular topic (Figure 1). A well-conducted review of the literature is a foundational step in advancing knowledge and developing theories (Snyder, 2019). The following keywords were used to search the Scopus database, which is indexed by Crossref. Keywords: "Consumer", "Behavior", "Post", "Pandemic" OR "Digitalize", "Sustainability", "Food", "Beverages" OR "Cloud", "Kitchen". This query can be written as Customer AND Behavior AND Post AND Pandemic OR Digitalize AND Sustainability AND Food AND Beverages OR Cloud AND Kitchen.

## RESULTS

### Food & Beverages Development in Indonesia

After the pandemic, the F&B sector has managed to recover fairly quickly despite has to suffer from the government's Social Restrictions or Large-Scale Social Restrictions (PSBB) policy in mid-June 2020. Restaurants in Greater Jakarta has increased the number of visit by 35% and 54%, in July and August, respectively. This only possible due to the sector's ability to adapt by turning their services using online delivery system to meet the consumer needs, this flexibility allows them to sustain even after pandemic is over.

Euromonitor International (2021) describes the process of continuous transformation of the food and beverage business, especially restaurants, which can be presented as follows:

1. The first step of food delivery platform development (1998–2010) was characterized by aggregation. Third-party companies, such as Grubhub and Just Eat, created delivery marketplaces that connected consumers with restaurants that offered in-house delivery.
2. The second step (Expansion) of the food delivery industry, from 2010 to 2015, was characterized by the launch of new platforms such as UberEats and Meituan Dianping. These platforms connected consumers with delivery couriers, making it possible

- for any food and beverage vendor to offer delivery.
- From 2015 to 2020, the third step (Adaptation), restaurants adapted to the growing demand for delivery by opening ghost kitchens. Ghost kitchens are commercial kitchens that are dedicated to preparing food for delivery. They allow existing operators to optimize their delivery services by reducing overhead costs and focusing on food that is well-suited for delivery.
  - The fourth step in the evolution of the restaurant industry, from 2020 to the present, is the rise of virtual restaurants. These restaurants are designed specifically for delivery, allowing them to operate with lower overhead costs and pass those savings on to consumers. As a result, there are fewer physical restaurants and more virtual restaurants, which is driving down prices for consumers.

The growth of online food delivery services has demonstrated its effectiveness in supporting the sustainability of the F&B sector. As a result, the concept of cloud kitchens has emerged as an essential requirement for progress. Cloud kitchens are a type of restaurant that does not have a dining room. They prepare food for delivery only (Juliana et al. 2020). They made out of common kitchen used by culinary staffs, working together with food delivery.

Business owners are compelled to develop more robust business strategies in order to not only stay in business, but also ensure the long-term sustainability of their businesses. A limitation of this research is the focus on micro and small businesses within the food and beverage sector, with a relatively small sample size. Future research endeavors could benefit from expanding the scope of the study to include a wider range of businesses across diverse industries, thereby enhancing the generalizability of the findings.

### The Characteristics of Research

A literature review of 329 documents retrieved from the Scopus database was conducted to identify research exploring the intersection of the themes “Consumer Behavior” or “Digitalization,” “Sustainability,” and “Food & Beverages” or “Cloud & Kitchen” within the past two years (2022-2023). The search results were further refined to 109 documents by limiting the keywords to exact matches. Limiting journal reviews to the last 2 years offers several advantages in the context of academic research and staying up-to-date with the latest developments in a particular field Relevance, Accuracy, Emerging Concepts, Publication Trends and also this research is issued to Post Pandemic.

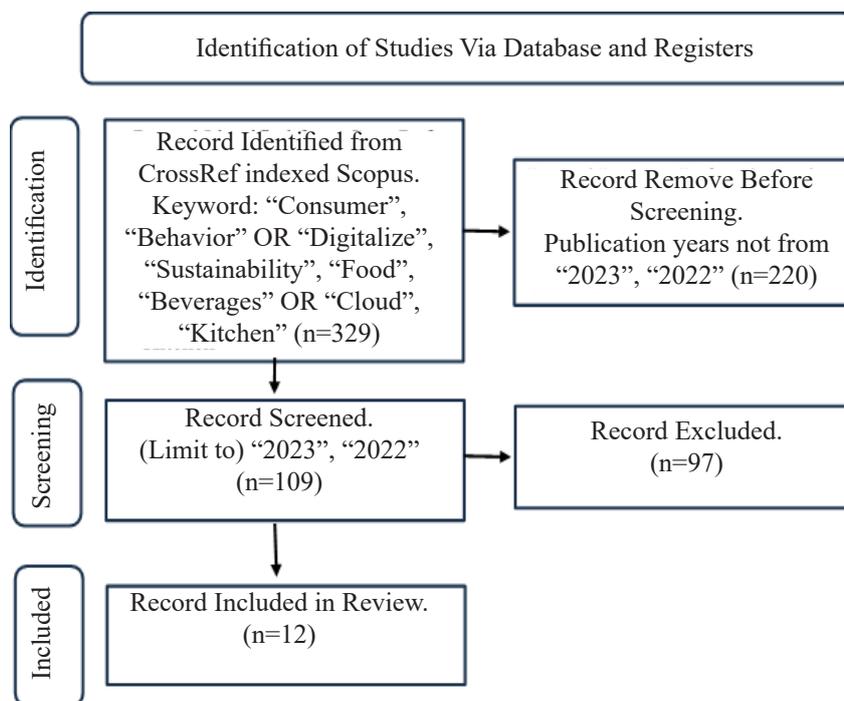


Figure 1. The Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) for this study

Several potential factors driving the research on cloud kitchens offer valuable insights into evolving consumer preferences and behavior. Understanding these shifts can help Micro, Small, and Medium Enterprises (MSMEs) adapt their offerings to meet changing market demands, thus enhancing their long-term sustainability. Also, by exploring cloud kitchen sustainability, researchers can contribute to the body of knowledge in entrepreneurship, sustainability studies, and the broader food industry domain.

### **Limited Subject Area Covered**

The research with the keywords Consumer Behavior OR Digitalize Sustainability Food Beverages OR Cloud Kitchen was covered in several sectors which are Economy, Engineering, Entrepreneurships, Social Implications, Environmental Sciences and Urban Planning.

### **Possibility using Technology Development F&B for MSMEs Sustainability**

The growth of technology and information era has an important position in business and economy because the development of technology can contribute to facilitate business improvement, so it is fairly profitable for business owner. In the wake of the COVID-19 pandemic, widespread behavioral changes have spurred significant innovation. Notably, consumer behavior has shifted towards increased reliance on delivery services, leading to a remarkable 500–600% growth in the online food market (Lukman, 2020). The increasing use of delivery services, as reported by Kim et al. (2021), with a growth of 1.2%, has compelled business owners in the food and beverage (F&B) industry to adopt a new perspective. This necessitates exploration and adoption of innovative approaches, technologies, and data-driven solutions to address consumer demand for contactless dining experiences while ensuring long-term sustainability.

This study investigated the level of acceptance of Cloud Kitchen as a business solution among food and beverage MSME owners during the COVID-19 pandemic. Employing the Technology Acceptance Model (TAM), it examined whether the fundamental variables of Perceived Usefulness and Perceived Ease of Use significantly influence MSME owners' Behavioral Intention to adopt Cloud Kitchen (Nurul et al. 2022).

In the realm of technological adoption, the intricate dance between user perception and behavioral intention comes to light. Drawing from the insightful research conducted by Nurul et al. (2022) a compelling narrative unfolds, underscoring the symbiotic relationship between perceived ease of use, perceived usefulness, and the subsequent behavioral intention to embrace technology.

The findings of this study suggested that a positive correlation exists between the perceived ease of use and the perceived usefulness of a given technology. In simpler terms, when users find a technology easy to navigate and comprehend, they are more likely to perceive it as valuable and beneficial to their needs.

But the interplay does not end there. The research underscores the collective influence of perceived ease of use and perceived usefulness on the variance in behavioral intention to use technology. It's not just about the individual impact of each factor; rather, it's the harmonious collaboration between the two that significantly shapes users' inclinations towards technological adoption.

The technology is not only user-friendly but also perceived as highly beneficial, it creates a synergistic effect. This synergy, as illuminated by the study's results, becomes a potent force in steering users towards a more resolute intention to integrate the technology into their daily lives.

As we reflect on the findings presented by Nurul et al. (2022) we gain valuable insights into the delicate equilibrium that exists in the user's mind. It's not merely about making technology easy or useful in isolation; it's the delicate fusion of these elements that holds the key to unlocking users' willingness to embrace and integrate technology into their routines. In the evolving landscape of human-technology interaction, these research revelations serve as guideposts, helping us navigate the intricate terrain of user perceptions and behavioral intentions.

### **Succes Factors of F&B business on Implementation Cloud Kitchen**

The expansion of online food delivery services has proof to be effective in maintaining the sustainability of F&B sector, the concept of cloud kitchen has began to emerge as an inevitable need to progress. Cloud

kitchens are virtual restaurants that prepare and deliver food, but do not have a physical dining space (Juliana et al. 2020). Cloud kitchens offer a significant advantage over traditional kitchens and restaurants by addressing the critical need for "time efficiency." In today's competitive and dynamically uncertain environment, particularly characterized by intense competition, cloud kitchen services require constant market analysis and adaptation through innovative strategies to maintain their position and thrive. Identifying critical success factors (CSFs) and priority factors is crucial for practitioners. By understanding CSFs, business actors gain valuable insights into the key drivers of competitive advantage, market success, and long-term sustainability (Tadic and Boljevic, 2015).

On previous research, several factors that related to customersatisfaction and product on F&B sustainability. The key drivers of success for cloud-based kitchen culinary businesses, as identified by business actors, include sales promotion, food quality, brand reputation, application ratings, product packaging, and food hygiene. The six critical success factors will be used as independent variables. The dependent variable in this study is repurchase intention while the intervening variable in this study is customer satisfaction (Sugiarto et al. 2023).

The results also revealed that buyers prioritize promotion, brand reputation, and rating on delivery apps, which have a significant impact on their consumption decisions. Meanwhile, critical success factors identified from the perspective of cloud-based kitchen culinary business actors are sales promotion, food taste, brand reputation, app rating, food hygiene and product packaging.

The study's outcomes bring to light the discerning preferences of consumers in the realm of culinary choices. Notably, purchasers place a premium on promotional activities, brand reputation, and ratings on delivery applications. These factors emerge as pivotal influencers, wielding a substantial impact on the decision-making process that governs their consumption choices. In essence, the dynamics of promotion, brand perception, and digital platform ratings play a key role in shaping the consumer landscape within the culinary domain.

The alignment between consumer priorities and business perspectives highlights the need for culinary enterprises to strategically navigate these factors to thrive in a competitive market, ensuring a symbiotic relationship between consumer satisfaction and business success.

### **Implication Manajerial**

This research provides direction and guidance for F&B business owners, especially MSMEs, in responding to and utilizing changes in consumer trends and the business environment in the post-pandemic era. F&B business owners need to consider developing a stronger business strategy, especially related to adapting to online delivery trends and the cloud kitchen concept. This includes reviewing business models, integrating technology, and adjusting marketing strategies. Adopting a cloud kitchen model provides a solution for business owners to take steps to form partnerships with online food delivery services and even consider opening ghost kitchens to increase operational efficiency and flexibility.

## **CONCLUSIONS AND RECOMMENDATIONS**

### **Conclusions**

The strategy implementation of this research is designed to identify Cloud Kitchen models for today's industry considering the competitive business world and especially the influence of the globalization era which encourages a business to continue to innovate, as well as identify success and failure factors in a sustainable Cloud Kitchen-Based culinary business.

Unlike previous Cloud Kitchen research, which focused on the accuracy of the pandemic and the environment of Jakarta and its surroundings from a single point of view. We compared the accuracy of the Cloud Kitchen model across various areas of innovation and showed better performance even on a multi-period perspective. However, there are a number of things that need to be considered as a culinary entrepreneur in running a cloud kitchen, namely challenges that include the voice of the customer, as well as challenges in terms of branding. Meanwhile, the cloud kitchen-based business success factors identified in this study; food hygiene, application ratings, product packaging, brand reputation, and also the various promos available.

With a comparatively evaluated collaborative method through Cloud Kitchen, customers can optimize and improve the quality services offered for everyday life. In addition, because the Cloud Kitchen model we suggest also influences the decisions that are made, it can help customers save them time and money. And also you hope that our research can contribute to being environmentally friendly by encouraging increased consumption.

## Recommendations

Implementation of a sustainable cloud kitchen development strategy requires continuous collaboration between stakeholders as facilitators. Through an effective marketing strategy and collaboration with delivery partners, Cloud Kitchen can reach a wider area and reach potential markets on a larger scale. Where the Cloud Kitchen Management method is used as a reference to help UMKM in carrying out activities to add value to the business and Cloud Kitchen's commitment to environmental preservation.

However, the scope is limited to the revolutionary amalgamation of culinary innovations in both internal and external environments. In order to conduct further studies, it is important to conduct a more detailed review of the effectiveness of product development by calculating both financial feasibility and product development strategy. So, to continue to improve services and grow the Cloud Kitchen business, it is important to continue to develop and strengthen online ordering systems and delivery applications according to preferences and increase customer loyalty.

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