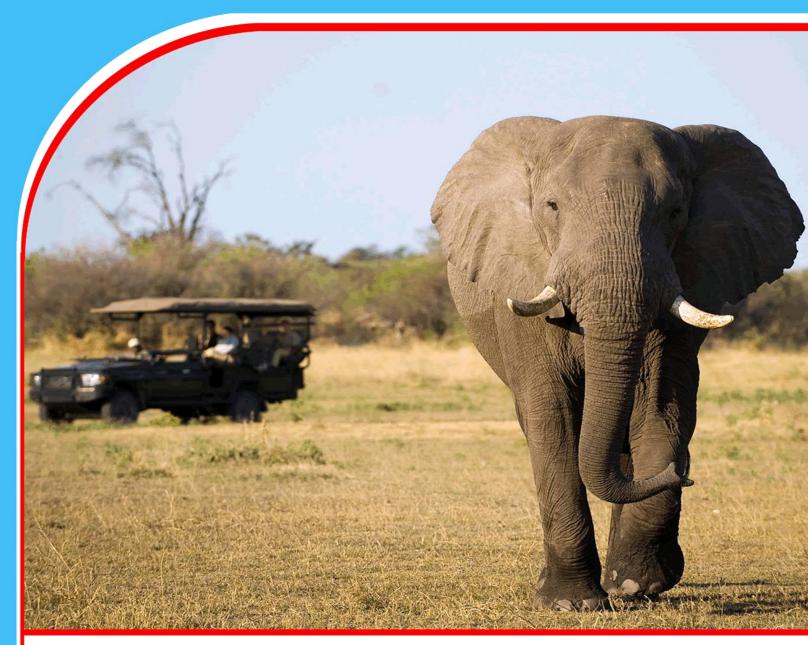# Journal of
Hospitality and Tourism
(JHT)

Service Delivery Digitalization as a Tool for COVID- 19 Recovery in Fast-Food Restaurants in Nairobi, Kenya

Kennedy Maithya Maingi and Dr. George Otieno Obonyo

AJPO

Service Delivery Digitalization as a Tool for COVID- 19 Recovery in Fast-Food Restaurants in Nairobi, Kenya

Kennedy Maithya Maingi[1*] and Dr. George Otieno Obonyo[2]

[1]Postgraduate Student, Maseno University

[2]Lecturer, Maseno University

[*]Corresponding Author's Email: kennedymaithya92@gmail.com

Abstract

Purpose: The goal of this study was to assess the influence of the adoption of service delivery digitalization tools on Covid-19 recovery in fast-food restaurants in Nairobi.

Methodology: To collect and analyze data for this study, correlational research design was used. A total number of 89 questionnaires were administered to fast-food senior managers in Nairobi. The collected data was analyzed in SPSS using descriptive statistics and regression analysis.

Findings: In an aim to identify the service delivery digital tools adopted to enhance COVID-19 recovery in fast-food restaurants, the results indicated that contactless payment systems, online delivery apps, digital menus, KDS and POS were the highest adopted tool with a mean of 1.00. Service robots and touch less elevators were not adopted in the fast-food restaurants in this study with a mean of .00. The other tools adopted were self-service kiosks with .84, ORS with .71 and drive thru systems with .71. On determining the level of COVID-19 recovery in fast food restaurants in Nairobi, the results indicated that the rate of restaurant sales increasing had a mean of 3.09. This means that it was to a large extent, increase in the restaurant operations had a mean of 3.21, while increase in the number of customers had 3.02. Increase in customer satisfaction had 3.08 and increase in customer loyalty had 3.21 which also meant that the level of all measures of COVID-19 recovery were to a moderate extent. On determining the influence of service delivery digitalization on COVID-19 recovery level, the tools significantly and positively influenced level of COVID-19 recovery (β = .430, t = 4.446, p<.05). The study also found that online delivery apps, digital menus and contactless payment systems also significantly and positively influenced the level of COVID-19 recovery in fast food restaurants in Nairobi (β = .600, t = 6.999, p<.05; β = .614, t = 7.254, p<.05 & β = .580, t = 6.649, p<.05 respectively).

Contribution to theory and practice: The newly acquired insights in this study will contribute to the academic literature on the adoption of service delivery digitalization tools and their impact on COVID-19 recovery in fast food restaurants. In addition, the results from the study could be helpful to the management of fast food restaurant in improving customer satisfaction, loyalty and sales after a pandemic. Since the results present a way fast food restaurants have adopted to recover from the effects of COVID-19 pandemic.

Keywords: *Service delivery digitalization tools, COVID-19 recovery, fast-food restaurants.*

Introduction

Service Delivery Digitalization

Service delivery is a concept that has been widely investigated and a majority of studies have been published addressing service delivery and its importance to the restaurant industry (Johnston & Clark, 2008; Kong & Jogaratnam, 2007; Lightfoot et al., 2011). Johnston et al. (2008) pointed out that the service delivery process is part of customer experience creation. Kong et al. (2007) further added that restaurants that deliver outstanding service are the most successful and can compete globally. They also added that the restaurant industry derives its success from its ability to deliver satisfying experiences to customers. Restaurants and the service industry as a whole are developing measures to improve the efficiency and efficacy of their service delivery in this situation.

With the emergence of digital tools, the internet, technology, and the increased demand for improved service delivery, restaurants are now digitalizing their service delivery. Restaurants have shifted from the manual system to the usage of digital technologies in their service delivery (Zeithaml, 2002). The author also pinpoints that digitalization of service delivery affects both the nature and the characteristics of services since it leads to reorganization of the service delivery process. Even though many studies have been carried out on service delivery digitalization in the restaurant industry, scholars and experts have defined the term as changes in organization's business model as well as restructuring business systems (Unruh & Kiron, 2017; Lerch & Gotsch 2015; Brennen & Kreiss, 2016). The authors argued that service delivery digitalization is usually perceived in three levels in terms of intensity, that is, pure presentation and information (website), sales channel function (e-commerce), and business process integration (e-business). Kiel et al. (2016) added that these service innovations strengthen the various collaborations that are between organizations, their customers, and all other stakeholders. However, service delivery digitalization can be generalized as using digital technology tools to restructure the service delivery process to improve customer experience and in turn increase customer satisfaction.

The main service delivery digital tools that have been adopted in the restaurant industry are online delivery, digital menus, and drive-thru systems (Idenedo & Wali, 2021). They also added that those service delivery digital technologies are gaining popularity in most restaurants given their usefulness in delivering satisfying products and services to customers despite the laid down restriction. Alert restaurants have adopted a fast-paced way of life of using food delivery apps such as Glovo, Jumia foods and Uber eats to ensure their customers can choose their favorite food anywhere, they get fresh food delivered on time and at their preferred location. According to Idenedo et al. (2021), restaurants that fully engage in online delivery without dine-in services are known as 'ghost kitchens'. Online delivery apps have enabled restaurants to continue providing food and beverage items and improve the number of customers patronizing their organizations (Gursoy & Chi, 2020).

Idenedo et al. (2021) also added that restaurants have also adopted a contactless menu also called a digital menu. The contactless menu system has been majorly displayed in form of PDF documents where customers download and view the menu and make choices. This system has eliminated the need for a waiter to take an order in front of the guest but alternatively, the guest can access the menu through a table tablet ordering system then place their order, and even make payment. The order is printed within the shortest period and the meal is immediately served. Digital menu is also displayed as QR codes where the customers can peruse food and beverage

selections on an online digital menu by scanning QR codes on contactless menus with their smartphones' cameras. These tabletop postcard-sized contactless menus are typically found in eateries (Intal et al., 2020).

Restaurants have also adopted digital payment systems which are fast, easy to use, secure, and contactless (Au & Kauffman, 2008; Hayashi, 2012). Digital payment systems improve customer experience and satisfaction and impact positively the growth of various businesses (Xu, 2014). The most used digital payment systems are commercial bank transfers, mobile money, and internet transfers. Kasavana (2006) added that contactless payment methods such as mobile payment systems ensure quick service and are beneficial in fast food restaurants. He added that continual usage of contactless payment methods enhances service delivery and improves business performance.

The use of drive-thru systems has also been beneficial to restaurants. Drive-thru is a form of take-out service offered by restaurants that allows customers to order food without having to leave their vehicles. Customers using drive-thru systems can dine in with friends, colleagues, and families (Diaz, 2020). This has enabled restaurants to increase their sales and improve service delivery. Additionally, authors and experts also added that restaurants have also adopted Point of sale systems as well as online reservation systems to improve their service delivery (Ramos & Ojeda, 2017; Devanarayana & Thelijjagoda, 2016). Ramos and Ojeda (2017) added that a POS RFID reader, which can initiate an automatic logon at a POS station when a server wearing an RFID wristband is within range, is the most recent invention. Shreeja and Vigneshwar (2019) noted that mobile POS systems are gaining popularity in the restaurant industry in recent days and this has facilitated service delivery and further increased customer satisfaction.

With the growth in Artificial intelligence (AI), service robots have become common in hospitality. Wirtz et al. (2018) defined service robots as a technological system that enables an organization's customers to engage, communicate, and receive service. Service robots are different from other self-service machines because of their core interactive and communicative features, which result in unprecedented human-technology interactions within the hospitality industry. Wirtz et al. (2018) also added that within the service delivery process, service robots assist frontline staff in all their service activities. For example, a robot concierge assists employees with guest greetings upon arrival, transporting luggage, guiding guests, and delivering room service as well as communicating in multiple languages.

Self-service kiosks are other technologies that are gaining popularity in the restaurant industry. Self-service kiosks as noted by Ketimin and Shami (2021) are technological interfaces that allow the customer to produce service without an employee being involved. Reduced costs, optimized resource utilization, increased employee productivity and work efficiency, optimized supply chains, increased customer satisfaction, loyalty, and a sustained competitive edge are all benefits of the service delivery digital tools mentioned herein, as well as others not mentioned (Lerch & Gotsch, 2015).

As evidenced, service delivery digital tools have been adopted in the fast food restaurants even before the emergence of COVID-19 pandemic and even during the pandemic but none has been documented to have been used in improving the level of COVID-19 recovery. Fast food restaurants have been hit with adverse effects of the pandemic. With the current uplifting of the restrictions it is still unclear on the service delivery digitalization tools being used to enhance recovery of the

fast food restaurants from the pandemic. Therefore, this research seeks to identify the adopted digital tools in restaurant service delivery to enhance recovery from the effects of COVID-19 pandemic.

COVID-19 Recovery

The proliferation of the COVID-19 pandemic has paralyzed the global economy and caused various organizations to struggle or even collapse (Ozili & Arun, 2020). Restaurants have lost customers and in turn, their revenue has greatly declined during the COVID-19 pandemic. With the easing of the protocols imposed by the government such as curfew, lockdown, capacity restrictions, and movement restrictions restaurants are now aiming to recover from the COVID-19 pandemic.

Recovery has been investigated under different concepts by various authors. Authors have defined recovery as a stage characterized by a period of improving business activity following a recession (Piercy et al., 2010; Ok, 2004). Given the above definition, COVID-19 recovery in the restaurant perspective can be generalized as a period of improving restaurant operations post COVID-19. During the COVID-19 pandemic, many restaurants struggled, failed, and went out of business while others cut back on activities to reduce costs in face of decreased number of customers patronizing their establishments (Vince, 2020). With the number of infections reducing, restricted ions lifted and most people vaccinated, restaurants are now rushing to find ways of recovering from COVID-19 impacts (Yost et al., 2021)

The recovery process and period can last for long and therefore it is not easy to determine whether an organization has fully recovered or not (Ok, 2004). However, it is agreed that organizations can only determine the level of recovery after a pandemic. Recovery has been documented in the restaurant industry to have a variety of indicators but the main being sales growth and customer satisfaction. Increased sales brought about by an increased number of customers visiting an organization will enhance the recovery of the restaurant from the impacts of the COVID-19 pandemic. However, Zheng, Farrish, and Wang (2013) denote that recovery also has a lagging indicator which is employment. Because few firms will hire additional staff unless they are reasonably convinced that there is a long-term need for new hires, unemployment will likely remain high even as the restaurant begins to improve.

On understanding recovery, it is imperative from literature above that it is increase in the operations of a business after a recession. COVID-19 pandemic greatly affected the operations of most if not all fast food restaurants. Operations were reduced, customers reduced, sales reduced, customer satisfaction was at minimal and even customer loyalty diminished. But with the lifting of the restrictions and protocols set, it is unclear and not documented of the level of recovery in those fast food restaurants after the COVID-19. It is still unclear of the strategies that have been adopted to ensure high level of recovery. Therefore, this research sought to assess the level of COVID-19 recovery in fast-food restaurants as well as the digital strategies that have been adopted to enhance recovery from the COVID-19 pandemic.

In view of the above gaps identified, the researcher carried out a research to identify the service delivery digitalization tools adopted after COVID-19 pandemic, assess the level of COVID-19 recovery and examine the influence of the adoption to the recovery. In order to achieve that, the following research questions and hypotheses were examined;

RQ1: What are the service delivery digitalization tools adopted by fast-food restaurants in Nairobi, Kenya for post COVID-19 recovery?

RQ2: What is the level of COVID-19 recovery in fast-food restaurants in Nairobi, Kenya?

H1: Adoption of service delivery digitalization tools significantly influences COVID-19 recovery in fast-food restaurants in Nairobi, Kenya

H2: Adoption of online delivery apps significantly influences COVID-19 recovery in fast-food restaurants in Nairobi, Kenya

H3: Adoption of digital menus significantly influences COVID-19 recovery in fast-food restaurants in Nairobi, Kenya

H4: Adoption of contactless payment systems significantly influences COVID-19 recovery in fast-food restaurants in Nairobi, Kenya

Literature Review

Theoretical Review

According to Ngechu (2006), theories form the principles upon which a research subject is based and are beneficial in that they provide more understanding of the research activities. This research is however anchored and guided by the resilience theory developed by Norman Garmezi in 1971. This theory contends that it is not the type of tragedy that matters, but rather how we respond to it. Resilience allows us to bounce back, survive, recover, and prosper in the face of adversity, catastrophes, or calamities. The argument goes on to say that, just as people can learn to bounce back and adapt in the face of adversity, so can businesses. Organizational resilience, according to Everly (2011), can be defined as "a culture of resilience" that presents itself as a sort of "psychological immunity" to gradual and revolutionary changes. According to resilience theory, businesses can bounce back after a crisis by implementing a number of tactics.

Concerning this study, this theory underscores the imperativeness of the adoption of service delivery digitalization technologies in adapting to the economic crisis induced by the COVID-19 pandemic. Since the situation may not go back to normal and the customers may be reluctant to dine together in restaurants due to fear of contracting the virus, as well as government imposed protocols, reaching customers with specific digital technological tools can be crucial in ensuring post COVID-19 resilience and creating a competitive edge over competitors. Therefore, it is against this backdrop that the researcher adapted the resilience theory as the guiding theory of the research.

Empirical Review

Service Delivery Digitalization in Fast-food Restaurants

The service industry is the main industry that emphasizes more on creating excellent customer experience through enhancing service delivery. As noted in the introduction, service delivery is part of a customer's experience creation (Johnston et al., 2008). Authors unanimously agree that restaurants that offer excellent service are the most successful and can compete effectively (Kong et al., 2007; Lightfoot et al., 2011). Customers, service concept, service encounters, and the service delivery system are all part of the service delivery process design. (Ponsignon & Maull, 2007).

Restaurants have switched from manual systems to digital technologies in their service delivery process, with the purpose of providing excellent service to their guests (Zeithaml, 2002). The concept of service delivery digitalization has over the past years attracted study interest. Service delivery digitalization can be generalized as reorganizing the service delivery process with the aid of digital technology solutions in order to enhance customer satisfaction. From the literature, it is evident that fast-food restaurants have adopted digital technologies in their service delivery process (Aissa, 2019; Wang, 2012 & Gobble, 2018).The main technologies adopted are online delivery, digital menus, contactless payment systems, and drive-thru systems.

Online Delivery

Online delivery is becoming popular in fast-food restaurants in recent times (Aissa, 2019). Restaurants are increasingly investing in introducing delivery services, either through direct delivery service or through the use of online delivery apps (Ramos 2021). Ramos also added that restaurants have increased their intensity of using online delivery apps. The main online delivery apps used in Kenya during COVID-19 pandemic are; Uber eats, Glovo, Jumia food, Yum delivery, Chandarana Food plus, Domino's Pizza, El-daily Kenya, Take Eat Easy, Galitos, and Dial-a-delivery among others. These platforms according to Ramos (2021) offer a cost-effective solution for restaurant owners and managers to handle online ordering, delivery and to track the status of the orders. Aissa (2019) pinpoints that online delivery platforms allow restaurants to extend the location of where customers can access their services as well as improve customer experience. Customers now have access to restaurant services even if their location is not within the vicinity of the restaurant.

Aissa (2019) adds that digitalizing service delivery in restaurants through online delivery has enabled the widening of customer base by integrating and/or subcontracting delivery services to distribute everywhere. The author also adds that around two-thirds of the population have already ordered food online. A study by Yeo, Goh, and Rezaei (2017) shows that online orders and delivery enhance customer experience by saving time and being able to choose products freely.

Digital Menus

The emergence of contactless digital menus via tablet computers in form of Portable Document Format (PDF) is gaining popularity in the restaurant industry. Studies have shown that customers are more satisfied and provide positive feedback after using the digital menu (Wang, 2012). Digital menus are also being used to portray pictures of foods, therefore, allowing customers to place an order and in some restaurants pay their bills. Customers are also able to see 'pop-ups' with suggestions on wine to match their food, side dishes, and even extra portions (Aissa 2019). The use of this technological tool has been documented to provide a more versatile service to the customer and improve customers' experience (Marr, 2017; Aissa 2019). The digital menus as added by Marr (2017) and Naveena and Kumar (2019) allow the customer to order while seated and have an intuitive customer interface. Customers can personalize their dishes, access entertainment while waiting for their food, and even add loyalty points to their digital loyalty programs every time they check in the restaurant (Gobble, 2018).

Contactless Payment Systems

Restaurants are adopting several means of payment for their businesses to simplify the payment process for their customers. Aissa (2019) adds that the rise in usage of mobile phones has made

some restaurants launch their own branded mobile apps for customers to make their payments. Gobble (2018) gives an example of The American restaurant chain cheesecake factory which created 'cake pay', a mobile app where customers can order, and pay, and even split payment. In other restaurants, instead of using their mobile apps, they are using external payment mobile apps such as M-Pesa, mobile banking apps, Airtel money, skrill, PayPal, I pay, pesapal, payU, and Rave among others (Lacmanovic, Raduloric, & Lacmanovic, 2010; Mallat & Tuunainen, 2008). Contactless payment systems have enhanced customer experience thus creating customer satisfaction. However, it has not been documented on the whether online delivery apps, digital menus, and contactless payment systems among others have been adopted in fast food restaurants post COVID-19 and whether they play a role in enhancing the level of COVID-19 recovery.

COVID-19 Recovery

The emergence of COVID-19, popularly known as the corona virus, has significantly affected the restaurant industry (Vince 2020; NRA 2020; Idenedo et al., 2021). Many restaurants were closed or partially closed for in-home dining due to the government-imposed protocols. Since the government has erased the protocols, some restaurants may never open. NRA (2020) pointed out that many restaurants that had closed will have a tough time recovering. Restaurant owners and managers are now contemplating the recovery issue. Authors have viewed recovery in restaurants as a stage characterized by a period of improving business activity following a recession (Jiang, 2019; Ok, 2004). Allen & Toder (2004) further refer to recovery as the process of recuperating from the disruption caused by a traumatic event. From the above definitions, COVID-19 recovery in fast food restaurants can be generalized as the process of improving restaurant activities and operations following the drastic effects caused by the COVID-19 pandemic.

Authors have also added that restaurant recovery is a process that takes long. Depending on the alertness of the fast-food restaurant, the level of recovery differs. Some restaurants may recover quickly while others may take longer to recover. As noted by Zheng, Farrish, & Wang (2013) the restaurant industry took eleven years from the great recession. Ok (2004) noted that it is difficult to determine whether an organization has fully recovered from a recession or not. It is agreed that organizations can only determine the level of recovery after a pandemic such as COVID-19. Organizations that are in the process of recovery are characterized by an increase in overall sales (Gonzalez et al., 2010), improved customer satisfaction and customer loyalty (Jiang, 2019), and an increased number of dine-in customers (Ok, 2004). From the literature, it is evident that organizations can determine their level of recovery through their overall sales, number of dine-in customers as well as the level of customer satisfaction (Gonzalez et al., 2010; Ok, 2004).

COVID-19 pandemic adversely affected fast food restaurants by decreasing the number of customers patronizing the restaurants, decreased restaurant operations, decreased sales, low customer satisfaction and low customer loyalty. Restaurants are now in a rush to turn around the effects. In order to identify the level of COVID-19 recovery in the fast food restaurants, this research measured the level of COVID-19 recovery by examining the extent of increase restaurant sales, restaurant operations, number of customers visiting, customer satisfaction and customer loyalty.

Service Delivery Digitalization and COVID-19 Recovery

A plethora of studies have been done in the area of service digitalization and the consumer purchasing behavior amidst the COVID-19 pandemic and authors are now researching the recovery from COVID-19 pandemic. Dogan (2020) found out that 64.71% of restaurant customers believed that usage of various service delivery digital technologies such as keyless entry, contactless digital payments, digital menus, service robots, and touchless elevators; are core strategies to improve customers' satisfaction and repeat purchase amidst COVID-19 pandemic. A study by Gursoy et al. (2020) found that integration and adoption of service delivery digital tools in the restaurant industry is significant to business performance. They also added that the recent developments in artificial intelligence and emergence of service robot technologies further facilitated the application of these digital tools in service delivery. COVID-19 pandemic precipitated the importance of these service delivery technologies for public safety reasons and trust.

In addition, Vince (2020) found that in recent years digital menus and drive-thru are increasingly gaining popularity as the leading digital strategies to increase the number of customers patronizing the restaurant. The study also reports that both digital tools have significant impacts on customer satisfaction and restaurant sales. The author further revealed that more than 60% of guests patronize firms with digital technological appeal due to the fear of contracting the virus. In a study by Kinetic consulting (2020), it was found that over 50% of customers preferred using online delivery apps and completely avoiding dining with friends outside their homes. It also added that alert restaurants have already adopted online delivery channels to improve their sales. The study also added that digital tools such as online delivery and drive-thrus have a huge influence on customer satisfaction, customer loyalty, and referral behavior. Charlene et al. (2020) also added that online delivery is one of the leading digital technologies adopted by restaurants during the COVID-19 pandemic. The authors agree with all the other authors that the use of digital technologies has greatly improved restaurant sales as well as customer satisfaction. They also revealed that customers perceive online delivery as safe and convenient.

From the literature, it is evident that usage of service delivery technologies such as keyless entry, contactless digital payments, digital menus, service robots, and touchless elevators are significant in improving customer satisfaction as well as improving restaurant sales. It is for this backdrop that it is clear that service delivery digitalization has a significant relationship on COVID-19 recovery of the fast-food restaurants. From previous studies, it is evident that service delivery digital tools have been adopted in fast food restaurants before and during the COVID-19 pandemic. However, no study that shows whether the service delivery digital tools have been adopted for COVID-19 recovery. Therefore, this study seeks to examine whether adoption of service delivery digital tools influences the level of COVID-19 recovery in fast food restaurants.

Knowledge Gap

For fast-food restaurants to fully recover or recover quickly, adequate information that will guide them is required. The reviewed literature reveals that recent studies have only been conducted before or amidst the COVID-19 pandemic. Additionally, the service delivery digital tools adopted from the literature were adopted before the emergence or during the period of the COVID-19 pandemic. Also, most authors have studied the impacts brought about by the COVID-19 pandemic but no study has been done on the imperativeness of service delivery technologies on COVID-19

recovery. It is on this premise of lack of literature on the subject that this study sought to access service delivery digital tools that have been adopted for COVID-19 recovery. The study also generated new knowledge and informed effective digital tools for fast food restaurant owners and managers to ensure their organizations recover fully from the effects of the COVID-19 pandemic.

Research Methodology

Research Design

This study was a quantitative study based on a correlational research design of fast-food restaurants in Nairobi, Kenya. The census research design was regarded appropriate for this study since it allowed the researcher to conduct the study in order to assess and understand the statistical relationship between the variables without having extraneous influences (Seeram, 2019). As a result, this design was in line with the planned study's philosophical orientation, goal, and scope. This design was believed to promote the study's desired objectivity while also providing the logistical flexibility needed for data gathering and analysis (Seeram, 2019).

The Population of the Study

The population in this study was fast-food restaurants in Nairobi, Kenya. This is because fast-food restaurants were the hardest hit by COVID-19 pandemic. Nairobi City Council registers all such premises as per the Hotel and Restaurants Act of 1986 (CAP 494). Following this, the City Council of Nairobi licensing department has 1,500 businesses that are registered and licensed as large or medium eating houses, tea/coffee houses and snacks bar in the city. According to Odoyo (2012) 80% of the licensed businesses are fast food restaurants. As at July 2022, the City council's register contained 1,200 fast food restaurants which provided the target population of this study. The target respondents were senior managers or owners of the fast-food restaurants and only those who have been in the restaurant before and during the COVID-19 pandemic. This was so because they had the information sought in the study.

Sample Selected

How accurately a sample captures the traits of the population it is intended to be a reflection of is the litmus test for any sample (Cramer & Howitt, 2004). A sample design's goal was to strike a balance between the necessary transition and the resources at hand. The City Council of Nairobi's databases were used to obtain the sampling frame. The decision to choose fast food restaurants was taken after taking the population's statistics into account. This study sampled 89 fast food restaurants based on the premise below;

Target Population: 1,200

Confidence level: 95%

Confidence Interval: 10%

Sample size was calculated using the formula below;

Sample size = $\dfrac{Z^2*(p)*(1-p)}{c^2}$

Where:

Z= Z value (e.g. 1.96 for 95% confidence level)

P= percentage picking a choice, expressed as a decimal (.5 used for sample size needed)

C = Confidence interval, expressed as a decimal

Correction for finite population

New Sample Size   =   Sample Size

$\qquad$ 1 + (Sample Size – 1)

Population

Sampling Methods

The methods of sampling can either be probability and non-probability. This study used simple random probability sampling to pick the sample size from the population. This ensured that the each fast food restaurant had the same chance of being selected and ensured there is reduction in sampling errors.

Data Collection

The study majorly relied on primary data. A questionnaire was designed to gather information on all variables in the study; service delivery digitalization and COVID-19 recovery. The respondents of the study were mainly the senior management, mainly the owner, general manager, restaurant manager and even the food and beverage manager of the fast-food restaurants. This was because they possess the required information necessary to achieve the objectives of the study.

Data Analysis

The collected data was tested for normality using Kurtosis and skewness. Kurtosis measures the flatness or peakness of data with a peaked distribution being positive and a flat one being negative. A normal distribution should have a kurtosis and skewness in the range -1.0 and + 1.00. The collected data was coded and entered into SPSS to create a data sheet that was used for analysis. Data screening was also undertaken in order to analyze the missing values, reliability of the study variables. This was in order to identify obvious errors, as well as better understand patterns within the data, detect outliers or anomalous events and find interesting relations among the variables.

Descriptive statistics and mean comparison was undertaken using SPSS to determine the service delivery digitalization tools and the level of COVID-19 recovery of fast-food restaurants in Nairobi. It was also applied to assess the extent of usage of the service delivery digitalization tools in the fast-food restaurants in Nairobi as well as compare the adoption of the digital tools before and during COVID-19 pandemic with after COVID-19 pandemic. This type of analysis was adopted because it helps make data visualization easier. It also makes it possible for data to be presented in a meaningful and understandable manner, which therefore makes it possible for the data set in question to be more easily interpreted. Inferential data analysis, analysis of variance (ANOVA) and multiple regression analysis were done to test the hypotheses. The entire hypotheses were tested at 95% confidence level. Responses were assigned numerical values which were consistent with numerical codes. The results were presented in tables.

The model for multiple regression analysis is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Where:-

Y = Dependent variable (COVID-19 recovery)

X_1 =Independent variable #1(Online delivery apps)

X_2 = Independent variable #2(Digital Menus)

X_3 = Independent variable #3(Contactless payment systems)

$\beta_1 - \beta_3$ = Regression coefficient for each Independent variable

ε = Random or Stochastic Term.

Findings and Discussions

Response Rate

Table 1: Response rate

Questionnaires	Frequency	Percentage
Responded	89	100
Not Responded	0	0
Total	**89**	**100**

The average response rate of 100% was adequate for this study's objectives. A response rate of 70% and higher is a good for a researcher to effectively carry out a study (Mugenda & Mugenda, 2003) hence, an average of 100% response rate for this study was great for the study. **Respondents Demographics**

Table 2: Respondents demographics

Variable	Category	Frequency	Percent
Gender	Male	34	38.2
	Female	55	61.8
Period worked	2-3 years	30	33.7
	Over 3 years	59	66.3
Respondent's position	Food and Beverage manager	10	11.2
	General Manager	10	11.2
	Restaurant Manager	69	77.6

Source: Research data 2022

The participants consisted of 34 (38.2%) males and 55 (61.8%) females. All the respondents have been working in the same fast food restaurant for more than 2 years; 33.7% of the respondents have been working between 2 -3 years while 66.3% have been working for over 3 years. Most of the respondents who filled the questionnaires were in senior management; 10 (11.2%) of the respondents were food and beverage managers, 10 (11.2%) general managers and 69 (77.6%) restaurant managers.

Analysis of Study Variables

Service delivery digitalization tools adoption

Table 3: Service delivery digitalization tools

Digitalization tool	Mean	Std. deviation
Contactless Payment Systems	1.00	.000
Online Delivery Apps	1.00	.000
Digital Menu	1.00	.000
POS	1.00	.000
KDS	1.00	.000
Self-Service Kiosks	.84	.366
ORS	.71	.457
Drive Thru Systems	.71	.457
Service Robots	.00	.000
Touch-less elevators	.00	.000

From the results, fast food restaurants have adopted a variety service delivery digitalization tools. Contactless payment systems, online delivery apps, digital menus, KDS and POS were the highest adopted tool with a mean of 1.00 while service robots and touch less elevators were not adopted in the fast food restaurants in this study with a mean of .00. The other tools adopted were; self-service kiosks with .84, ORS with .71 and drive thru systems with .71. This proves that all fast food restaurants have adopted at least a service delivery digitalization tool. This is in agreement with Idenedo et al. (2021) who pointed out that with the adverse effects of the COVID-19 in the restaurant industry, service delivery digital technologies are gaining popularity in most restaurants given their usefulness in delivering satisfying products and services to customers despite the laid down restriction.

Service delivery digital tools extent of use

Table 4: Service delivery digitalization tools usage

Digitalization tools	Mean	Std. Deviation
Digital Menu	3.40	1.084
KDS	3.25	1.090
POS	3.07	1.116
Online Delivery Apps	3.04	1.097
Contactless payment systems	3.03	1.210
Self Service Kiosks	2.57	1.751
Drive Thru Systems	2.37	1.640
ORS	2.10	1.679

From the results, it is evident the usage of service delivery digitalization tools in fast food restaurants is to a moderate to a large extent. The usage of digital menus is to a moderate extent with a mean of 3.40, KDS 3.25, POS 3.07, online delivery apps 3.04, contactless payment systems 3.03, self-service kiosks 2.57, drive thru systems 2.37 and ORS 2.10.

Level of COVID-19 Recovery

COVID-19 recovery in fast food restaurants is understood as the process of improving restaurant activities and operations, sales, number of customers, customer satisfaction as well as customer loyalty following the drastic effects caused by the COVID-19 pandemic. The study sought to determine the level of COVID-19 recovery in the fast food restaurants.

Table 5: Level of COVID-19 recovery

Level of COVID-19 recovery	Mean	Std. Deviation
There is increased customer loyalty in the restaurant after the COVID-19 pandemic	3.56	1.296
The restaurant operations have increased after the COVID-19 pandemic	3.21	1.238
The restaurant sales are increasing after the COVID-19 pandemic	3.09	1.285
There is increased customer satisfaction in the restaurant after the COVID-19 pandemic	3.08	1.299
The number of customers visiting the restaurant has increased after the COVID-19 pandemic	3.02	1.288

Regression analysis

The study sought to examine the influence of adoption of service delivery digitalization tools to COVID-19 recovery in fast-food restaurants in Nairobi. The study adopted hypothesis in order to achieve the objective. The hypotheses were;

H1: **Adoption of service delivery digitalization tools significantly influences COVID-19 recovery in fast-food restaurants in Nairobi, Kenya**

From the model summary table 6, the value of variance $R^2 = 0.185$, $F (1, 87) = 19.764$, p-value <.05. This shows the prediction on the rate at which adoption of service delivery digitalization tools affects COVID-19 recovery can be done since its statically significant (p<.05).

Table 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.430ᵃ	.185	.176	.65953	.185	19.764	1	87	.000

a. Predictors: (Constant), Servicedeliverydigitaltools

ANOVA shows whether the regression model was fit to determine the predictor than using the mean comparison. From the ANOVA table 7, the regression model was suitable for predicting the outcome variable since p<.05.

Table 7: ANOVA table

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	8.597	1	8.597	19.764	.000[b]
1	Residual	37.843	87	.435		
	Total	46.440	88			

a. Dependent Variable: Recovery

b. Predictors: (Constant), Servicedeliverydigitaltools

Table 8 shows the regression weight coefficients model in this study was significant. The analysis showed that adoption of service delivery digitalization tools statistically influenced COVID-19 recovery in fast food restaurants in Nairobi ($\beta = .430$, t = 4.446, p<.05)

Table 8: Coefficient table

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
	(Constant)	2.176	.267		8.135	.000	1.644	2.707
1	Service delivery digital tools	.510	.115	.430	4.446	.000	.282	.737

From the regression analysis, the coefficient for the influence shows the service delivery digitalization tools adoption and COVID-19 recovery was positive and significant ($\beta = .430$, t = 4.446, p<.05). The hypothesis testing criteria was that the hypothesis should be accepted if $\beta \neq 0$ and p-value $\leq \alpha$ otherwise reject if the p-value $> \alpha$. However, from the above regression results, p value = 0.000 $\leq \alpha$, the study therefore accepts the hypothesis since $\beta \neq 0$ and p-value $< \alpha$ and concludes that service delivery digitalization tools adoption significantly influenced COVID-19 recovery. However, the regression results also shows that service delivery digitalization tools had low explanatory power on COVID-19 recovery in that it accounted for 18.5 percent of its variability ($R^2 = 0.185$).This is in agreement with Zeithaml (2002) that restaurants are shifting from the manual system to the usage of digital technologies in their service delivery have high chances of increasing their sales and the number of customers visiting their restaurants. Dogan (2020) found out that 64.71% of restaurant customers believed that usage of various service delivery digital technologies such as keyless entry, contactless digital payments, digital menus, service robots, and touchless elevators; are core strategies to improve customers' satisfaction and repeat purchase amidst COVID-19 pandemic.

H2: **Adoption of online delivery apps significantly influences COVID-19 recovery in fast-food restaurants in Nairobi, Kenya**

From the model summary table 9, the value of variance $R^2 = 0.360$, F (1, 87) =48.981, p-value <.05. This shows the prediction on the rate at which adoption of online delivery apps affects COVID-19 recovery can be done since its statically significant (p<.05).

Table 9: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.600[a]	.360	.353	.58440	.360	48.981	1	87	.000

a. Predictors: (Constant), Online Delivery Apps

ANOVA shows whether the regression model was fit to determine the predictor than using the mean comparison. From the ANOVA table 10, the regression model was suitable for predicting the outcome variable since $p<.05$.

Table 10: ANOVA table

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	16.728	1	16.728	48.981	.000[b]
1	Residual	29.712	87	.342		
	Total	46.440	88			

a. Dependent Variable: Recovery

b. Predictors: (Constant), Online Delivery Apps

Table 11 shows the regression weight coefficients model in this study was significant. The analysis showed that adoption of online delivery apps statistically influenced COVID-19 recovery in fast food restaurants in Nairobi ($\beta = .600$, t = 6.999, p<.05)

Table 11: Coefficient table

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
	(Constant)	1.936	.208		9.325	.000	1.524	2.349
1	Online Delivery Apps	.401	.057	.600	6.999	.000	.287	.515

From the regression analysis, the coefficient for the relationship shows the online delivery apps adoption and COVID-19 recovery was positive and significant ($\beta = .600$, t = 6.999, p<.05). The hypothesis testing criteria was that the hypothesis should be accepted if $\beta \neq 0$ and p-value $\leq \alpha$ otherwise reject H1 if the p-value $> \alpha$. However, from the above regression results, p value = 0.000 $\leq \alpha$, the study therefore accepts the hypothesis since $\beta \neq 0$ and p-value $< \alpha$ and concludes that online delivery apps significantly influenced COVID-19 recovery. The regression results also shows that online delivery apps had moderate explanatory power on COVID-19 recovery in that it accounted for 36.0 percent of its variability ($R^2 = 0.360$).

This is in agreement to a study by Ramos (2021) indicates that restaurants are increasingly investing in introducing delivery services, either through direct delivery service or through the use of online delivery apps. He adds that these online delivery apps offer a cost-effective solution for restaurant owners and managers to handle online ordering, delivery and to track the status of the orders.

***H3:* Adoption of digital menus significantly influences COVID-19 recovery in fast-food restaurants in Nairobi, Kenya**

From the model summary table 12, the value of variance $R^2 = 0.377$, F (1, 87) =52.626, p-value <.05. This shows the prediction on the rate at which adoption of digital menus affects COVID-19 recovery can be done since its statistically significant (p<.05).

Table 12: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.614[a]	.377	.370	.57672	.377	52.626	1	87	.000

a. Predictors: (Constant), Digital menus

ANOVA shows whether the regression model was fit to determine the predictor than using the mean comparison. From the ANOVA table 13, the regression model was suitable for predicting the outcome variable since p<.05.

Table 13: ANOVA Table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17.504	1	17.504	52.626	.000[b]
	Residual	28.937	87	.333		
	Total	46.440	88			

a. Dependent Variable: Recovery

b. Predictors: (Constant), Digital menus

Table 14 shows the regression weight coefficients model in this study was significant. The analysis showed that adoption of online delivery apps statistically influenced COVID-19 recovery in fast food restaurants in Nairobi ($\beta = .600$, t = 6.999, p<.05)

Table 14: Coefficient table

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1.923	.203		9.497	.000	1.521	2.326
	Digital menus	.411	.057	.614	7.254	.000	.299	.524

From the regression analysis, the coefficient for the relationship shows the digital menus adoption and COVID-19 recovery was positive and significant ($\beta = .614$, t = 7.254, p<.05). The hypothesis testing criteria was that the hypothesis should be accepted if $\beta \neq 0$ and p-value $\leq \alpha$ otherwise reject if the p-value $> \alpha$. However, from the above regression results, p value = $0.000 \leq \alpha$, the study therefore accepts the hypothesis since $\beta \neq 0$ and p-value $< \alpha$ and concludes that digital menus significantly influenced COVID-19 recovery. The regression results also shows that digital menus had moderate explanatory power on COVID-19 recovery in that it accounted for 37.7 percent of its variability ($R^2 = 0.377$).

This is in agreement to a study by Wang (2012) pointed out that contactless digital menus via tablet computers in form of Portable Document Format (PDF) and QR codes are gaining popularity in the restaurant industry. He added that customers are more satisfied and provide positive feedback after using the digital menu.

***H4:* Adoption of contactless payment systems significantly influences COVID-19 recovery in fast-food restaurants in Nairobi, Kenya**

From the model summary table 15, the value of variance $R^2 = 0.337$, F (1, 87) =44.204, p-value <.05. This shows the prediction on the rate at which adoption of contactless payment systems affects COVID-19 recovery can be done since its statistically significant (p<.05).

Table 15: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.580ᵃ	.337	.329	.59494	.337	44.204	1	87	.000

a. Predictors: (Constant), Contactless payment systems

ANOVA shows whether the regression model was fit to determine the predictor than using the mean comparison. From the ANOVA table 16, the regression model was suitable for predicting the outcome variable since p<.05.

Table 16: ANOVA table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.646	1	15.646	44.204	.000ᵇ
	Residual	30.794	87	.354		
	Total	46.440	88			

a. Dependent Variable: Recovery

b. Predictors: (Constant), Contactless payment systems

Table 17 shows the regression weight coefficients model in this study was significant. The analysis showed that adoption of online delivery apps statistically influenced COVID-19 recovery in fast food restaurants in Nairobi (β = .600, t = 6.999, p<.05)

Table 17: Coefficient table

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1.929	.219		8.810	.000	1.494	2.365
	Contactless payment systems	.395	.059	.580	6.649	.000	.277	.513

From the regression analysis, the coefficient for the relationship shows the contactless payment systems adoption and COVID-19 recovery was positive and significant (β = .580, t = 6.649, p<.05). The hypothesis testing criteria was that the hypothesis should be accepted if β ≠ 0 and p-value ≤ α

otherwise reject if the p-value > α. However, from the above regression results, p value = 0.000 ≤ α, the study therefore accepts the hypothesis since β≠0 and p-value < α and concludes that contactless payment systems significantly influenced COVID-19 recovery. The regression results also shows that contactless payment systems had moderate explanatory power on COVID-19 recovery in that it accounted for 33.7 percent of its variability (R^2= 0.337).

The above conclusion is in agreement to a study by Aissa (2019) points out that the rise in usage of mobile phones and other contactless payment systems has increased the number of customers visiting their restaurants.

Conclusion and Recommendations

Service Delivery Digitalization Tools

From the descriptive statistics it was found that 100% of the restaurants have already adopted a variety of service delivery digital tools. The results show that contactless payment systems, online delivery apps, digital menus, KDS and POS were the highest adopted tool with a mean of 1.00 while service robots and touch less elevators were not adopted in the fast food restaurants in this study with a mean of .00. The other tools adopted were; self-service kiosks with .84, ORS with .71 and drive thru systems with .71.

Fast food restaurants were greatly hit by the COVID-19 pandemic leading to decreased number of customers patronizing their establishments and that translating to low sales. The fast food restaurants have moved swiftly to mitigate adverse effects of the pandemic by increasing the extent of use of the service delivery digital tools. Fast food restaurants have increasingly adopted use of digital tools in their service delivery

Level of COVID-19 Recovery

Since the emergence of COVID-19, popularly known as corona virus, many fast food restaurants lost their business base. Most operated below normal operational level due to the restrictions set out to reduce the spread of the disease. Customer's reduced, sales reduced, staff were laid off, and some even shutdown and many more effects due to COVID-19 pandemic. With the lifting of the restrictions and the use of vaccines, fast food restaurants are in rush to find ways and strategies to increase their operations, increase number of customers, increase customer satisfaction as well as customer loyalty.

From the descriptive statistics, it is evident that the level of COVID-19 recovery in the fast food restaurants was from moderate to a large extent. The results show that the rate of restaurant sales increasing had a mean of 3.09 which means that it was to a moderate extent in the fast food restaurants, increase in the restaurant operations had a mean of 3.21, increase in the number of customers had 3.02, increase in customer satisfaction had 3.08 and increase in customer loyalty had 3.21 which also meant that the level of all measure of COVID-19 recovery were to a moderate to a large extent. This means that the restaurants are increasing the volume of sales, operations and customer loyalty.

Adoption of service delivery digitalization tools significantly influences COVID-19 recovery in fast-food restaurants in Nairobi, Kenya

From the regression results, it was found out that there was a positive and significant relationship between service delivery digitalization tools and the level of COVID-19 recovery in fast food

restaurants in Nairobi. This means that restaurants that have adopted different service delivery digitalization tools are on an upward trajectory to recover from the effects of COVID-19 pandemic.

Adoption of online delivery apps significantly influences COVID-19 recovery in fast-food restaurants in Nairobi, Kenya

From the regression results, it was found out that there was a positive and significant relationship between use of online delivery apps and the level of COVID-19 recovery in fast food restaurants in Nairobi. This means that restaurants that have adopted use of online delivery apps such as Uber eats, Glovo, Jumia food, Yum delivery, Chandarana Food plus, Domino's Pizza, El-daily Kenya, Take Eat Easy, Galitos, and Dial-a-delivery, are increasing their level of recover from the effects of COVID-19 pandemic.

Adoption of digital menus significantly influences COVID-19 recovery in fast-food restaurants in Nairobi, Kenya

From the regression results, it was found out that there was a positive and significant relationship between use of digital menus and the level of COVID-19 recovery in fast food restaurants in Nairobi. This means that restaurants that have adopted use of digital menus such as QR codes or in PDF format, are on an increasing their level of recover from the effects of COVID-19 pandemic.

Adoption of contactless payment systems significantly influences COVID-19 recovery in fast-food restaurants in Nairobi, Kenya

From the regression results, it was found out that there was a positive and significant relationship between use of contactless payment systems and the level of COVID-19 recovery in fast food restaurants in Nairobi. This means that restaurants that have adopted use of contactless payment systems such as M-Pesa, mobile banking apps, Airtel money, skrill, PayPal, I pay, Pesapal, payU, and Rave, are increasing their level of recover from the effects of COVID-19 pandemic.

Recommendations

The study found out that there is a positive and significant influence between service delivery digitalization tools, online delivery apps, digital menus, contactless payment systems adoption to the level of COVID-19 recovery after COVID-19 pandemic in fast food restaurants in Nairobi. Since most restaurants were affected by the COVID-19 pandemic, this study recommends that managers and owners of fast food restaurants adopt a variety of service delivery digital tools, online delivery apps, digital menus, and contactless payment systems in order to increase their level of COVID-19 recovery.

Further research

The study sought to examine the relationship between service delivery digitalization tools and the level of COVID-19 recovery after COVID-19 pandemic in fast food restaurants in Nairobi. The study focused on fast food restaurants in Nairobi and there is need for studies that focuses on hotels and restaurants as well as increase the scope of the study. Lastly, further research should look at different factors that affect level of COVID-19 recovery besides service delivery digitalization tools.

References

Aissa, S. (2019). Digitalization in the restaurant sector–the French exception? The Driving Trends of International Business in the 21st Century, 137

Allen, R., & Toder, F. (2004). A model of organizational recovery. Journal of Emergency Management, 2(1), 41-45.

Au, Y. A., & Kauffman, R. J. (2008). The economics of mobile payments: Understanding stakeholder issues for an emerging financial technology application. Electronic commerce research and applications, 7(2), 141-164.

Blumberg, B., Cooper, D., & Schindler, P. (2014). EBOOK: Business Research Methods. McGraw Hill.

Brennen, J. S., & Kreiss, D. (2016). Information society. The international encyclopedia of communication theory and philosophy, 1-8.

Charlene, L. Miranda, M., & Phil, B. (2020). Review of online food delivery platforms and their impact on sustainability. Business Sustainability Review, 2(2), 2-17.

Cooper, C. R., & Schindler, P. S. (2008). Business research methods (10 ed.). Boston: McGraw-Hill.

Cramer, D., & Howitt, D. L. (2004). The Sage dictionary of statistics: a practical resource for students in the social sciences. Sage.

Devanarayana, B., & Thelijjagoda, S. (2016). Influences on Handheld POS Usage in Star Class Hotels–Sri Lanka.

Diaz, M. (2020). 9 restaurant industry trends in 2020. Food Business African Magazine, 3(2), 5-6.

Doğan, S. (2020). Identifying the Potential Effects of Coronavirus Prevention (Covid-19) on the Restaurants/Cafes and the Consumer Preferences after Post-Epidemic in Turkey. Electronic Turkish Studies, 15(6).

Everly, G. S. (2011). Building a resilient organizational culture. Harvard Business Review, 10(2), 109-138.

Gobble, M. M. (2018). Digitalization, digitization, and innovation. *Research-Technology Management*, *61*(4), 56-59.

Gonzalez, G. R., Hoffman, K. D., Ingram, T. N., & LaForge, R. W. (2010). Sales organization recovery management and relationship selling: A conceptual model and empirical test. *Journal of Personal Selling & Sales Management*, *30*(3), 223-237.

Gössling, Stefan & Scott, Daniel & Hall, Colin. (2020). Pandemics, tourism and global change: a rapid assessment of COVID-19. Journal of Sustainable Tourism. 29. 10.1080/09669582.2020.1758708.

Gursoy, D., & Chi, C. G. (2020). Effects of COVID-19 pandemic on hospitality industry: Review of the current situations and a research agenda.

Hayashi, F. (2012). Mobile payments: What's in it for consumers?. *Economic Review-Federal Reserve Bank of Kansas City*, 35.

Idenedo, Otite & Kemkamma, Wali,. (2021). Service digitalization: a marketing tool for post-Covid-19 competitiveness among fast-food restaurants in Port Harcourt. Innovative Journal of Accounting and Management Research, 7(1), 1-10.. 7. 139-149.

Intal, G. L., Payas, J. D., Fernandez, L. M., & Domingo, B. M. (2020, April). Restaurant information system (RIS) with QR code to improve service operations of casual fine dining restaurant. In 2020 IEEE 7th International Conference on Industrial Engineering and Applications (ICIEA) (pp. 1054-1059). IEEE.

Jiang, X. (2019). Factors affecting customer loyalty to eat at "Dian Dou De" Restaurants of the customers in Guangzhou of China.

Johnston, R., & Clark, G. (2008). *Service operations management: improving service delivery*. Pearson Education.

Kasavana, M. (2006). Biometric scanning offers vending new payment options. Automatic Merchandiser, Apr, 1, 3.

Ketimin, S., & Shami, S. (2021). An Insight of Customer's Behavior Intention to Use Self-Service Kiosk in Melaka Fast Food Restaurant. *The Journal of Technology Management and Technopreneurship (JTMT)*, *9*(1), 13-24.

Kiel, D., Arnold, C., Collisi, M., & Voigt, K. I. (2016, May). The impact of the industrial internet of things on established business models. In Proceedings of the 25th international association for management of technology (IAMOT) conference (pp. 673-695).

Kinetic Consulting (2020). Coronavirus impact on the foodservice industry: Pulse survey of operators, manufacturers, and consumers. IFMA in Conjunction with kinetic Consulting.

Kong, M., & Jogaratnam, G. (2007). The influence of culture on perceptions of service employee behavior. Managing Service Quality: An International Journal.

Kothari, C. R. (2004). Research methodology: Methods and techniques. New Age International.

Lacmanović, I., Radulović, B., & Lacmanović, D. (2010, May). Contactless payment systems based on RFID technology. In The 33rd International Convention MIPRO (pp. 1114-1119). IEEE.

Lerch, C., & Gotsch, M. (2015). How digitalization can accelerate the transformation from manufacturer to service provider. Aston Centre for servitization research and practice, 18, 76.

Lightfoot, H.W., Baines, T. & Smart, P. (2011). Examining the information and communication technologies enabling servitized manufacture. Proceedings of the Institution of Mechanical Engineers. Journal of Engineering Manufacture, 2(10), 1964-1968.

Mallat, N., & Tuunainen, V. K. (2008). Exploring merchant adoption of mobile payment systems: An empirical study. E-service Journal, 6(2), 24-57.

Marr, B. (2017). Disney uses Big Data, IoT and machine learning to boost customer experience. *Revista Forbes. https://bit. ly/3kkNFn8*.

Mugenda, O. M., & Mugenda, A. G. (2003). Research methods: Quantitative and. Qualitative. Approaches. Nairobi; African Centre for Technology Studies.

National Restaurant Association (2020). Global Industry Analysis: Covid-19 & Looming Recession.

Naveena, R., & Kumar, V. M. (2019) Mobile applications impact and factors affecting online food delivery applications on the operations of the restaurant business. *Turkish Journal of Physiotherapy and Rehabilitation*, *32*, 3.

Ngechu, M. (2006). Understanding the Research Process and Methods: An Introduction to Research Methods. 1st Edition, University of Nairobi

Odoyo, C. O. (2012). Assessment of Growth and Competitive Strategies Adopted In Out-Of-Home Food Outlets: A Case of Fast Food Restaurants in Nairobi (Doctoral dissertation, Daystar University, School of Business and Economics).

Ok, C. (2004). *The effectiveness of service recovery and its role in building long-term relationships with customers in a restaurant setting*. Kansas State University.

Ozili, P. K., & Arun, T. (2020). Spillover of COVID-19: impact on the Global Economy. *Available at SSRN 3562570*.

Pallant, J. (2013). SPSS Survival Manual, Berkshire England: McGraw-Hill Education.

Piercy, N. F., Cravens, D. W., & Lane, N. (2010). Marketing out of the recession: recovery is coming, but things will never be the same again. *The Marketing Review*, *10*(1), 3-23.

Ponsignon, F., Smart, A., & Maull, R. S. (2007). Service delivery systems: the transformational context.

Ramos, K. (2021). Factors influencing customers' continuance usage intention of food delivery apps during COVID-19 quarantine in Mexico. *British Food Journal*.

Ramos, Y., & Castro, A. O. (2017). Point-Of-Sales Systems in Food and Beverage Industry: Efficient Technology and Its User Acceptance. *Journal of Information Sciences and Computing Technologies*, *6*(1), 582-591.

Sanjeev, G. M. (2007). Measuring efficiency of the hotel and restaurant sector: the case of India. International Journal of Contemporary Hospitality Management.

Seeram, E. (2019). An overview of correlational research. Radiologic technology, 91(2), 176-179.

Sekaran, U., & Bougie, R. (2013). Elements of research design. *U. Sekaran, & R. Bougie, Research Methods for Business*, 94.

T H, Shreeja & S, Vigneshwar, Integrated Restaurant Service Using POS System (October 30, 2019). International Journal of Emerging Technology and Innovative Engineering Volume 5, Issue 10, October 2019 (ISSN: 2394 – 6598), Available at SSRN: https://ssrn.com/abstract=3477725

Unruh, G. & Kiron, D. (2017). Digital Transformation On Purpose. MIT Sloan Management Review, 6th November 2017. [online] Available: https://sloanreview.mit.edu/article/digital-transformation-on-purpose/.

Vince, G. (2020). The world's largest refugee camp prepares for covid-19. *Bmj*, *368*.

Wang, Y. (2012). *Designing restaurant digital menus to enhance user experience* (Doctoral dissertation, Iowa State University).

Wirtz, J., Patterson, P. G., Kunz, W. H., Gruber, T., Lu, V. N., Paluch, S., & Martins, A. (2018). Brave new world: service robots in the frontline. Journal of Service Management.

Xu, J. (2014). Digital Payment Systems. In *Managing Digital Enterprise* (pp. 159-175). Atlantis Press, Paris.

Yeo, V. C. S., Goh, S. K., & Rezaei, S. (2017). Consumer experiences, attitude and behavioral intention toward online food delivery (OFD) services. Journal of Retailing and Consumer services, 35, 150-162.

Yost, E., Kizildag, M., & Ridderstaat, J. (2021). Financial recovery strategies for restaurants during COVID-19: Evidence from the US restaurant industry. *Journal of Hospitality and Tourism Management*, *47*, 408-412.

Zeithaml, V. A. (2002). Service excellence in electronic channels. Managing Service Quality: An International Journal.

Zheng, T., Farrish, J., & Wang, X. (2013). How did different restaurant segments perform differently through the recession? An ARIMA with intervention analysis on US restaurant stock indices. Journal of Hospitality Financial Management, 20(2), 1.