BOHR International Journal of Computer Science
2023, Vol. 2, No. 1, pp. 32–37
DOI: 10.54646/bijcs.2023.22
www.bohrpub.com

METHODS

Consumer behavior disruption in the pandemic era: A study on food consumption patterns in Bengaluru North, Karnataka

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Received: 16 February 2023; **Accepted:** 13 March 2023; **Published:** 15 May 2023

The study was conducted to assess the consumer's behavior patterns pertaining to online food purchasing during COVID-19 in Bengaluru North district of Karnataka. The primary data were collected from 60 consumers. The study revealed that, based on consumer behavior over e-platforms in the past 6 months, a large number (63.33%) of respondents chose food and grocery delivery apps for shopping. The food categories purchased online were fast food (53.30%). Of the sample respondents, 70.00 (prior pandemic) and 71.67% (post-pandemic) indicated convenience as the main reason to purchase food online. Around 60.00, 45.00, and 46.67% of the respondents purchased online one to five times per month pre-pandemic, during the pandemic, and post-pandemic, respectively. About 33.33% of the respondents were ready to pay 1–5% as a premium. Among the respondents, the majority (46.70%) of them were ready to pay only Rs. 10–20 as delivery charges, and 33.33% positively responded to trying monthly subscription services. The study also revealed that more than 50.00% of them were concerned about the quality of the food, whereas in the case of groceries/ready-to-eat food, only 43.33% of the consumers were concerned about the quality. About 60.00% of consumers were not willing to purchase meat online.

Keywords: e-commerce, online shopping, consumer behavior

Introduction

A chain is a network between a company and its suppliers to produce and distribute a specific product to the final buyer. This network includes different activities, people, entities, information, and resources. Supply chain management is a crucial process because an optimized supply chain results in lower costs and a faster production cycle.

Efficiency in the supply chain is crucial for large and developing economies, particularly India. One of the most important drivers of economic growth is a supply chain management system that is effective and sustainable. Through decreased input costs, an efficient supply chain directly impacts competitiveness across economic sectors.

With a USD 215 billion logistics business and a CAGR of 10.50%, India's supply chain and logistics sector is one of the largest in the world (1). India's supply chain is hampered by an imbalanced logistics mode mix, high indirect costs, subpar infrastructure, disjointed networks, and a lack of technology adoption, despite its size and importance to economic growth.

Electronic commerce (e-commerce) refers to companies and individuals that buy and sell goods and services over the Internet. e-Commerce operates in different types of market segments and can be conducted over computers, tablets, smartphones, and other smart devices. Nearly every imaginable product and service is available through e-commerce transactions, including food, books, music, plane tickets, and financial services such as stock investing and online banking. As such, it is considered a very disruptive technology.

The COVID-19 pandemic has highlighted supply chain flaws, with roughly 75.00% of businesses reporting

TABLE 1 | Socio-economic profile of the respondents (n = 60).

S. no.	Particulars	Number	Percentage of total
A.	**Age (years)**		
1.	<26	27	45.00
2.	26–30	21	35.00
3.	>30	12	20.00
	Total	**60**	**100.00**
B.	**Gender**		
1.	Male	42	70.00
2.	Female	18	30.00
	Total	**60**	**100.00**
C.	**Marital status**		
1.	Single	35	58.33
2.	Married	25	41.67
	Total	**60**	**100.00**
D.	**Occupation**		
1.	Student	22	36.67
2.	Working professionals	38	63.33
	Total	**60**	**100.00**

TABLE 2 | Consumer behavior over e-platforms in the past 6 months (n = 60).

S. no.	Particulars	Number	Percentage
A.	**Online shopping experiences in past 6 months**		
1.	Groceries (including fruits and vegetables)	29	48.30
2.	Direct from restaurant	21	35.00
3.	Deliver app	38	63.33
4.	I have not purchased food online	8	13.30
B.	**Food categories that were brought in past 6 months**		
1.	Fast food	32	53.30
2.	Fruits and vegetables	21	35.00
3.	Dairy products	11	18.30
4.	Bakery	8	13.30
5.	Non-perishables	3	5.00
6.	Fully prepared meals	22	36.70
7.	Meat Products	8	13.30
8.	Beverages	7	11.70
9.	Ready to eat/cook	11	18.30
10.	I have not purchased food online	8	13.30

interruptions globally (1). Even worse, according to most businesses, there is no backup plan in place to handle a crisis of this kind.

The urgent need to utilize disruptive technology for increased resilience has emerged as one of the most important revelations in the pandemic period for the food sector. The pandemic has boosted demand-side adoption of digital technology in India. This resulted from the online grocery retailers' being compelled to restrict access

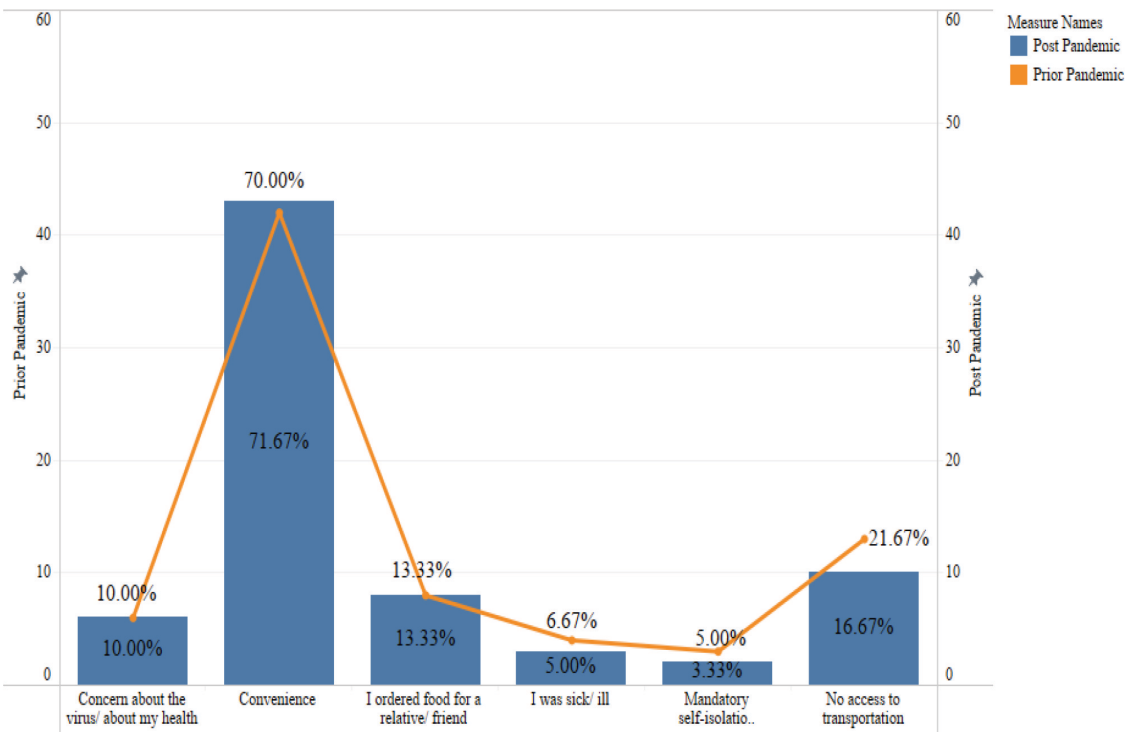

FIGURE 1 | Reasons for online food purchase during pre and post-pandemic period.

for current customers in April and May 2020 due to the tremendous demand they were seeing. Decision-makers were compelled to redesign the nation's supply chain management because of these disruptive events.

This is the moment for the Indian food supply chain and logistics sector to reconfigure and redesign supply chains with greater thought to disruptive technologies and risk management, especially considering the resilience required in the consumer-packaged goods. With this backdrop, the present study was conducted to analyse the consumer behavior patterns pertaining to online food purchasing during COVID-19.

Methodology

The present study was carried out during April–June 2022 in Bengaluru North district of Karnataka to analyse the behavior of respondents towards e-commerce platforms during COVID-19. The total sample size was 60 respondents, the respondents were randomly selected, and the primary data were collected using pre-tested questionnaire using Google Forms. To achieve the objective of the study, given the nature and extent of information, appropriate quantification techniques were used and computed with the aid of averages, frequencies, and percentages to obtain meaningful results.

Results and discussion

Table 1 depicts the socio-economic characteristics of the sample respondents. The profile includes age, gender, marital status, and occupation of the respondents. Among the sample respondents, 45.00% of them were under the age group of less than 26 years, followed by 35.00% of 26–30 years, and only 20.00% of them were more than 30 years age group. It could be concluded that the majority (45.00%) of the respondents were less than 26 years and hence belonged to Generation Z.

Of the total respondents, about 70.00% were male and 30.00% were female. This showed that males (70.00%) were willing to purchase more online food/food products than females.

Among the respondents, 58.33 were single and 41.67% were married. About 63.33% of respondents were working professionals, and 36.67% of them were students. It revealed that working professionals preferred online shopping for better time management.

Table 2 reveals the consumer behavior over e-platforms in the past 6 months, of which the online experience of consumers showed that a large number (63.33%) of respondents chose delivery apps for shopping, followed by groceries (48.30%), direct from restaurants (35.00%), and non-consumers of online food (13.30%), respectively. The food categories purchased online were fast food (53.30%), followed by fully prepared meals (36.70%), fruits and vegetables (35.00%), dairy products, and ready-to-eat/cook 18.30% each, bakery, meat products, and I have not purchased food online (13.30%), beverages (11.70%), and non-perishables (5.00%). The results show that the majority of consumers buying patterns are such that the consumers purchased more perishables or real-time consumables than non-perishable products.

Figure 1 describes the reasons for purchasing food online prior and post-pandemic. Of the respondents, 70.00% pre-pandemic and 71.67% post-pandemic indicated convenience as the main reason to purchase food online, followed by no access to transportation (21.67 and 16.67%), I ordered food for a relative/friend (13.33% each), concern about the virus/my health (10.00% each), I was sick/ill (6.67 and 5.00%), and mandatory isolation (5.00 and 3.33%), respectively. It can be concluded that the majority of the

TABLE 3 | Frequency of food ordered online per month (n = 60).

Sl. no.	Particulars	Number	Percentage
A.	**Number of times per month food ordered online (e.g., takeout food/groceries/meal kits) during pre-pandemic**		
1.	0	5	8.33
2.	1–5	36	60.00
3.	6–10	8	13.33
4.	11–15	3	5.00
5.	16–20	1	1.67
6.	More than 20	2	3.33
7.	I didn't order food online prior to the pandemic	5	8.33
B.	**Number of times per month food ordered online (e.g., takeout food/groceries/meal kits) during pandemic**		
1.	0	9	15.00
2.	1–5	28	46.67
3.	6–10	9	15.00
4.	11–15	5	8.33
5.	16–20	1	1.67
6.	More than 20	3	5.00
7.	I didn't order food online prior to the pandemic	5	8.33
C.	**Estimate of online food order in the next 6 months**		
1.	0	5	8.33
2.	1–5	28	46.67
3.	6–10	13	21.67
4.	11–15	2	3.33
5.	16–20	1	1.67
6.	More than 20	4	6.67
7.	I don't have plan to order food online	7	11.67

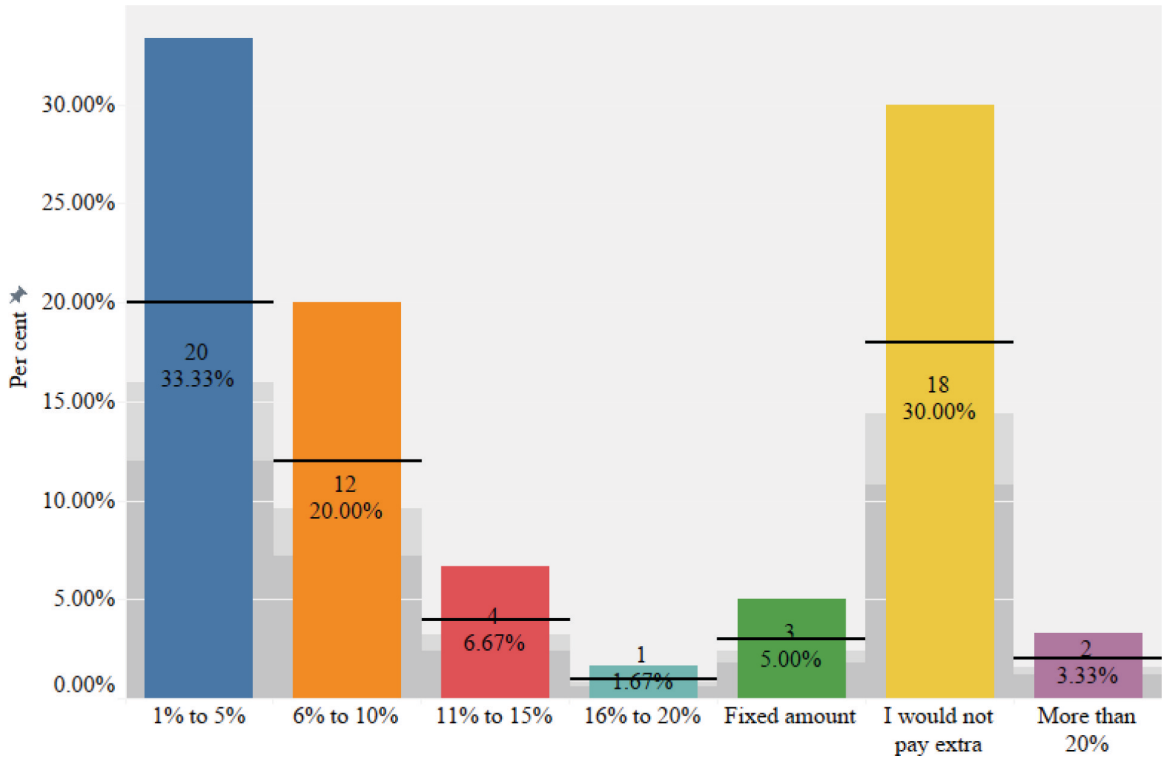

FIGURE 2 | Premium amount consumers willing to pay for delivery services.

respondents ordered food online for their convenience rather concerned about health.

Table 3 reveals how many times per month respondents had purchased online prior to the pandemic, at the start of the pandemic, and plan to purchase after the pandemic.

Prior to the pandemic, most respondents (60.00%) purchased 1–5 times per month, 13.30% ordered 6–10 times, about 8.30% of the respondents did not order food, and only a few respondents ordered more than 15 times. Since the start of the pandemic, most of the respondents (45.00%) purchased 1–5 times per month, 20.00% ordered 6–10 times, about 13.30% of the respondents did not order food, and only a few respondents ordered more than 20 times. Among the respondents, 46.67% were ready to purchase 1–5 times per month after the pandemic, followed by 21.67% of them willing to purchase 6–10 times, 11.67% of them are not ready to purchase, 6.67% of them opined as to purchasing more than 20 times per month, and only a few respondents (1.67–3.33%) are ready to purchase 11–20 times. The study revealed that purchases through online platforms had decreased slightly at the start of the pandemic compared to pre pandemic due to the lockdown. Whereas, thinking ahead after the pandemic, 68.34% of the respondents had planned to order food online 1–10 times in a month.

Figure 2 presents information about what percentage of premium respondents are ready to pay for online delivery platforms to buy food. About 33.33% of the respondents are ready to pay 1–5% as a premium, whereas 30.00% are not ready to pay extra for delivery services, 20.00% of them are ready to pay a 6–10% premium, 6.67% of them are willing to pay 11–15% of premium, 5.00% of them are ready to pay a fixed amount of premium, 3.33% of the consumers are ready to pay more than 20% as premium, and only 1.67% of them are willing to pay 16–20% of a premium. As the results indicate 30.00% of the consumers are not interested in paying the premium amount as more competition prevails

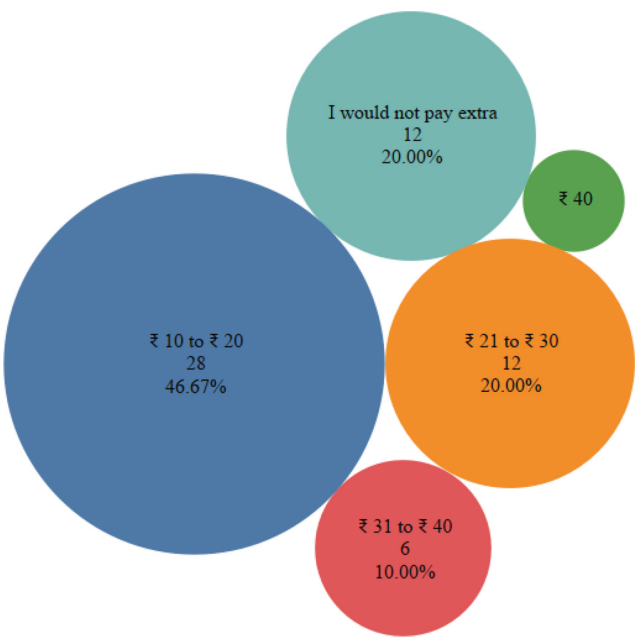

FIGURE 3 | Charges for delivery services.

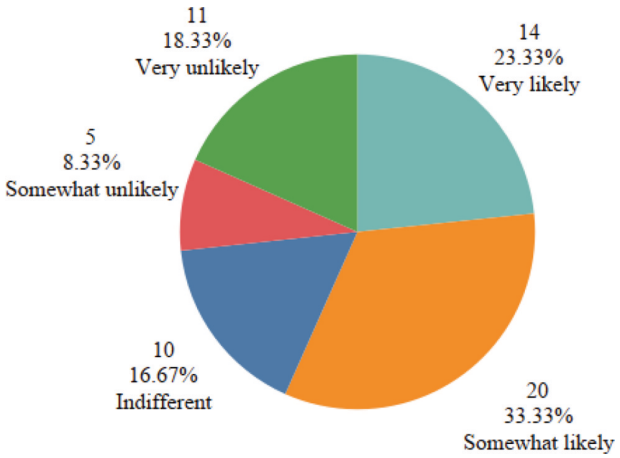

FIGURE 4 | Monthly subscription for food services.

in e-platform sector, customers have a wide range of opportunities to get free delivery through discounts and coupons as selling strategies by the competitors.

Figure 3 reveals the opinion of respondents on the fixed delivery charges imposed by Zomato, Swiggy, or Amazon Fresh. Among the respondents, the majority (46.70%) of them were ready to pay only Rs. 10–20, followed by 20.00% who were ready to pay Rs. 21–30, about 20.00% were not ready to pay for delivery charges, about 10.00% were ready to pay Rs. 31–40, and only a few were ready to pay more than Rs. 40. The majority of the respondents opined that they were willing to pay a fixed price of Rs. 10–20 for all kinds of delivery charges. By fixing the above-mentioned price as charges for delivery services, it will be a win-win situation for both e-platform companies and consumers.

Figure 4 represents the opinion of the respondents about subscribing to a monthly food service. Among the respondents, 33.33% were positively responded to try the service, 23.33% were ready to subscribe to the service, 18.33% were not ready to subscribe, 16.67% were neutral, and 8.33% were unsure about subscription. The graph revealed that 56.67% of the respondents were willing to purchase a monthly subscription because the consumers believed that it was better to have a subscription rather than paying delivery charges for each order online.

Figure 5 analyses the factors that respondents dislike most while ordering takeaway food online/groceries/ready to eat. Among the respondents who order takeaway food, more than 50.00% opinionated that they were concerned about the quality of the food, followed by 28.33% felt that packaging is not environmentally friendly, 23.33% ignored it as it took too long to arrive, 21.67% revealed that they could not see the food before purchasing, 16.67% disliked it as they had to give out credit information and address details, about 10% of them disliked it as product substitutions were unconfirmed, 8.33% did not like ordering food online, some of them (6.67%) disliked food touched by others, and 3.33% disliked it as they did not like using technology to order food.

To order groceries/ready-to-eat food, the majority of the respondents were not ready to order online, followed by some of them were concerned about quality (43.33%), packaging is not environmentally friendly (30%), takes too long to arrive (18.33%), cannot see the food before purchasing (18.33%), product substitutions are unconfirmed (18.33%), to give out credit information and address details (15%), do not like using technology to order food (13.33%), and dislike food touched by others (3.33%). As the results indicate, a greater

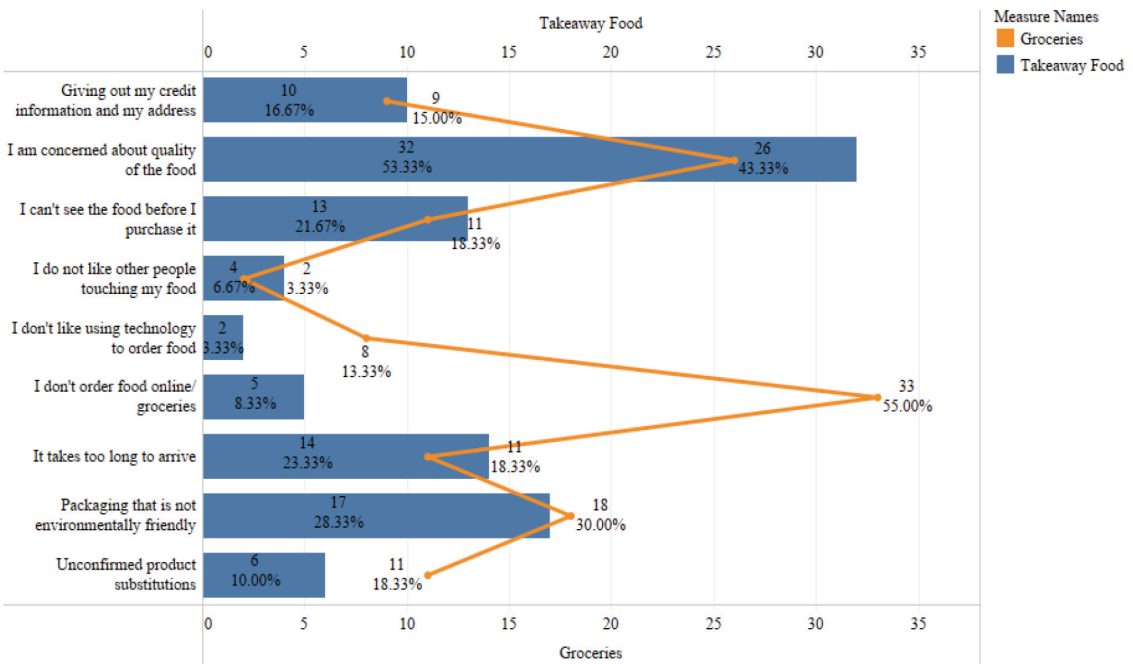

FIGURE 5 | Disliked features of ordering takeaway food online/groceries/ready to eat.

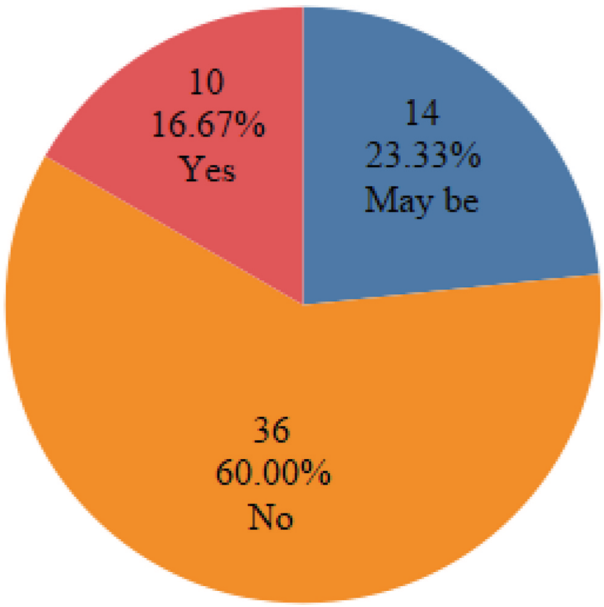

FIGURE 6 | Purchase of meat products online.

number of respondents were concerned about the quality of the food being delivered. Nearly 15–16% of the consumers were not ready to give away their credit details due to the volatility of online frauds.

Figure 6 showed how many respondents were willing to purchase meat through online apps/delivery apps. Among respondents, most were not willing to purchase meat online, i.e., 60.00%, whereas 23.30% were not sure about the purchase of meat through online apps, and about 16.70% responded positively. The above results revealed that consumers were not ready to purchase meat online due to its perishability, and most of the respondents preferred fresh meat over frozen meat.

Conclusion

The COVID-19 had brought unparalleled distress to food supply chains by blocking farm labor, processing, transportation, and logistics. It had also placed a significant shift in demand. These disruptions were a result of policies adopted to reduce the spread of the virus. The COVID-19 had led to reshaping the market structure across the world. e-Platforms had been one of the major setups that blossomed post-pandemic, and with increasing logistics and timely delivery, online commerce was growing at a rapid pace. Businesses should authenticate business transactions, control access to resources such as webpages for registered or selected users, encrypt communications, and implement security technologies such as encrypted connections and two-factor authentication, as the e-commerce industry is expanding at an increasing rate. Together with physical retail, e-commerce is changing how supply chains are managed by businesses. As distribution channels become more digital, employing cutting-edge Internet of Things will assist in moving supply chains towards being greener and improve the abilities of laborers and workers in the industry.

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