

# The Impact of COVID-19 on e-Commerce Through a Systematic Review

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**Abstract:** The novel coronavirus (COVID-19) has changed the world in a catastrophic way. The impact of COVID-19 brought in regulative measures such lockdown and human movement restrictive regulations; safety precautions needed to be put in place to help people stay safe from the virus infection. Some of the regulation included limiting traveling and implementing lockdown. The business sector was heavily affected and needed a solution immediately. The supply chain needed to continue to function hence the application of e-commerce was the most lucrative opportunity. The purpose of this study was to determine the impact of COVID-19 on e-commerce, both the negative and positive impacts were considered for this study. The suitable and utilised research approach for this study was the systematic review known as the PRISMA Protocol (PRISMA-P). Qualitative research method was chosen for this research paper, using search strings on the Emerald database to collect data. 50 Journal articles from the Emerald Insight database search were identified, these articles were further screened by analysing the title and abstract of the articles to assess their eligibility to be included in the study final analysis. After the eligibility criteria and exclusion process, 4 article were fully assessed and included in the study. This process of exclusion was done through the Mendeley website and the captured in the PRISMA flow diagram. The research findings indicate a correlation between the proliferation of the COVID-19 pandemic and the profitability of businesses conducting online transactions. Findings further indicate that COVID-19 improved digitisation, online shopping, and sales. In conclusion, this study has shown ways in which the e-commerce industry benefited from Covid-19, highlighting on the increase in sales and the use of digital platforms. Also, the novel coronavirus led to the increased digitisation of business processes and services.

**Keywords:** COVID-19; e-commerce; digitisation; online shopping; online services; systematic review.

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## 1. Introduction

Setting clear objectives for studies has grown more important for scientists during the last two decades (Mele, Russo-Spena & Kaartemo, 2021). Identifying and defining knowledge gaps in the research issue determine the development of a study topic (Gummesson & Mele, 2010). Although researchers adhere to the standards set by their predecessors, the format of research papers might change in response to events on a global scale (Finsterwalder & Kuppelwieser, 2020)

The pandemic first came to existent in China late December 2019 and slowly became an epicentre in China to USA, eventually to Europe which has now killed countless people for years (Inzamam Ul Haqand &Tahir Mumtaz Awan, 2020). The magnitude of the pandemic was huge as there were more than 159 million conformed cases and 3.3 million deaths has occurred throughout the globe (Chiara, Paolo, & Mario, 2021). The rapid global spread of the COVID-19 pandemic has a significant impact on how organisations conduct their day-to-day operations due to the social distancing enforce by countries worldwide (Brown & Arnholz, 2020). The global pandemic pushed businesses to move faster toward digital operations as a result of the limitations they faced. Business owners needed to rethink their approaches to trade in light of the Fourth Industrial Revolution and the global pandemic and consider e-commerce as a means of business continuity (Mele et al, 2021). E-commerce has been a commodity when businesses are planning to move into a new market (Al-Khalidi Al-Maliki, 2021). It is very cheap and easier which has led to improvement of value chains and operations (Al-Khalidi Al-Maliki, 2021). It has created a new era where business strategies are shifted from traditional trade to more focused advance technology trade (Alzahrani, 2018). Some people refer to e-commerce as simple conducting business online, but a more fitting description would be a platform that allow business to sell products through the internet and communication technology (Alzahrani, 2018). With the development of COVID-19, e-commerce became the top choice for people making purchasing selections to avoid getting the virus or adhere to national restrictions and lockdowns (Al-Khalidi Al-Maliki, 2021).

This report presents the results from a systematic review of the impact of COVID-19 on e-commerce, conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis reporting guidelines (PRISMA). The PRISMA model is used to determine the smallest set of items that need to be examined, as stated

by Kaur, Sood, & Grima, (2022). This article will firstly state the research aim and objective, the literature review, followed by the research design and methods section, the limitations of the study will be discussed followed by the results and discussion and finally the conclusion and the reference list.

## **2. Research aim and objective**

E-commerce will be more crucial in the future as the world continues its transition towards the fourth industrial revolution, COVID-19's restrictions on enterprises have increased the importance of e-commerce for future success. This study aims to analyse whether COVID-19 presented new opportunities for companies to invest in digital aids for e-commerce and the challenges that businesses had to face during the COVID-19 pandemic. While online shopping has been around for quite some time, it has become more commonplace lately which has sparked the interest in e-commerce. This kind of investigation is often backed by a qualitative method. Its primary goal is to get a fresh understanding of pressing challenges and the potential of e-commerce. The studies objectives were:

- The impact of COVID-19 on e-commerce.
- The limitations that covid imposed on businesses.
- Mention the benefits of covid-19 on e-commerce.

To accomplish these three objectives, the researchers provided a historical framework for understanding COVID-19, its impact on e-commerce and defined definitions and their significance. This research paper aims to introduce the research topic by conceptualising the key terms; COVID-19 and e-commerce, provide literature findings that other scholars have discovered based on the impact and benefits of COVID-19 on e-commerce, furthermore outline the research design that was utilised to collect and analyse data, present results that have been extracted from selected and fully analysed articles, lastly provide a discussion of the findings of the impact and benefits on COVID-19 that the researchers have identified.

## **3. Literature Review**

During the COVID-19 period, there was a surge in the number of transactions that took place online, which enabled businesses to keep in touch with both their customers and their suppliers. Companies used e-commerce in place of more conventional ways of product distribution as those options became unavailable (Mele et al, 2021). There is mounting evidence to show that the advent of COVID-19 corresponds with the emergence of e-commerce.

The global economy has entered the deepest recession since Globe War II as a direct result of the devastating impact that the COVID-19 outbreak has had everywhere in the world (World Bank, 2020). U.N. Economic Commission for Europe (2022) reports that the COVID-19 pandemic hindered economic global economic activity throughout global commerce, supply networks, and labour markets. This trend has been hastened by the COVID-19 pandemic, as many workers were forced to self-isolate or work from home and internet shopping, healthcare, communication, and education have become the "new normal" (Edvardsson & Tronvoll, 2021). This has an impact on demand and creates uncertainty in the supply chain for the e-commerce (Elsayed, 2022). More people have utilised digital tools in COVID-19 since these technologies provided several people to engage with one another. On the other hand, given that engagement has traditionally been tied to face-to-face contacts, it has hampered some fundamental components of connection in B2B contexts (Gereffi, 2020).

According to (Nakhate and Jain, 2020) the word e-commerce refers to any kind of commercial transaction that includes the movement of information over the internet. E-commerce refers to the use of electronic transact and/or commercial transactions that include the exchange of values or services. Furthermore, electronic commerce (e-commerce) refers to the exchange of products and services and the transfer of money or data on a digital network such as the World Wide Web. These transactions might be B2B (Business to Businesses), B2C (businesses to consumers), C2C (consumer to consumers), or C2B (consumers to businesses) (Kaur et al., 2020). In a recent report, the World Trade Organization (WTO) said that now is the moment for e-commerce to rescue the global economy, and that the WTO should step in with full force to demonstrate e-significance commerce's and efficacy in the realms of trade and online purchasing (WTO,2020).

## **4. Research design and methods**

The systematic review research approach known as the PRISMA Protocol (PRISMA-P) was used in this study. During the research investigation, the most recent revision of the PRISMA 2020 approach was taken into

consideration. The Prisma protocol is a method developed within the medicine domain now used by other fields. Within the sphere of information and knowledge management, the PRISMA protocol is seen as a system that functions as an instrument that helps in decision making (Chlomoudis, Konstantinou, Kostagiolas & Pallis, 2022). According to (Ashiq, Usmani & Naeem, 2020) further emphasis on the fact that the procedure assists writers with reporting systematic literature review and meta-analysis. A flowchart known as the Prisma flow diagram was used to sift through all the available literature in order to locate relevant facts. The identification, screening, and eligibility checks were incorporated in the filtering process (Ashiq, Usmani & Naeem, 2020). This study takes a purely qualitative method throughout. Within the period of 2019-2022, the topic "how COVID-19 impacted e-commerce" was utilised to collect data from the Emerald Insight database.

This study used pragmatic paradigm to practically investigate the impact of COVID-19 on the e-commerce industry. The scientific method and a structuralist orientation are characteristics of older approaches, whereas naturalistic techniques and a freewheeling attitude are characteristics of contemporary practices. Pragmatism is a paradigm that promises to bridge this gap between the two (Creswell 2013). The PRISMA procedure was used to conduct systematic reviews to search the Emerald database for relevant Journal articles, and then that information was analysed to determine the extent to which online commerce had benefited or been hindered by the COVID-19 pandemic. Throughout the investigation, inductive reasoning was applied to bolster the reliability of the findings. The study utilised the PRISMA procedure to obtain high-quality textual data from the Emerald database and conducted qualitative research. Multiple scholarly publications were analysed, however only data from a specific period was used for the analysis in this research. A selected sample of academic, peer-reviewed publications in the fields of Information and Knowledge Management were used in the study.

The criteria for the included papers were determined using a PRISMA diagram. The utilisation of Boolean search strings; "E-commerce" AND "benefit" AND "COVID-19" yielded many results from the preferred database. Duplicates were removed from the submitted articles. Full-text articles containing relevant textual information were used as the criterion for article eligibility. The study used 50 of the sources found to be eligible to do the research, this was completed using a data extraction form which consisted of an eligibility criterion for exclusion and inclusion of data sources (Figure 1). Based on our in-depth analysis of each article, the researchers identified 4 articles from the Emerald Insight database as suitable for inclusion in the study (as shown in the figure 1: PRISMA flowchart). Additional papers that presented an accurate characterization of the issues related to the topic and understanding were also included into this study.

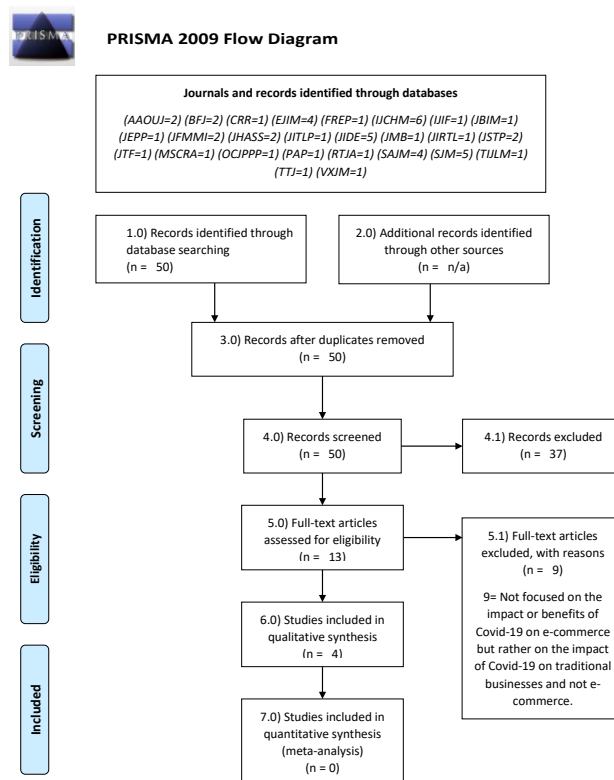


Figure 1: PRISMA Flow diagram for Knowledge Management Capabilities during 2019-2020 (adapted from Moher, Liberati, Tetzlaff & Altman, 2009).

Some sources were excluded from the data analysis as they were irrelevant to the research aim and objective. The method of qualitative research was chosen for this investigation. Qualitative research is a special study encompassing a wide range of sectors, topics, and problems.

The research strategy carried out in this study was done in English because the relevant material is only accessible in that language. The period that was examined was from 2019 to 2022. The Emerald database used Open Access, a free and open-source software application that facilitates the administration, organisation, and processing of literary data for any purpose (Zotero, 2019). When doing any literature searches, the researchers made sure to include the terms "e-commerce," "benefit," and "COVID-19" whenever possible within the title and abstract sections of the research.

This investigation was limited to the Emerald database; consequently, the researchers moved on to a more extensive search by permitting Open Access publication. In addition, there was a limitation within the period of 2019 to 2022, which should be mentioned here. The presented results are based on articles that were published in academic journals. No constraints were placed on the documents based on the nations in which they were published. This was done so that the literature evaluation would not exclude significant research.

#### 4.1 Limitation of the study:

- The research was conducted on a single database.
- Conducted in the years between 2019-2022.
- Could lead to biased results based on the time period it was conducted.

Though there were constraints, the PRISMA methodology was helpful in producing the desired results. The Mendeley reference management application was used to store all of the data, and both virtual and in-person meetings were organised to guarantee participation from all team members.

### 5. Results and discussion

The study question that was posed was as follows: "In what ways has COVID-19 impacted e-commerce?" After conducting the analysis of the papers that were obtained from the Emerald database, the results are presented in this section. The bibliometric method outlined in the Research Methodology Section was used to arrive at the findings of this investigation, which may be seen below. The findings were obtained by searching the Emerald database for papers on topics such as COVID-19 and e-commerce.

As shown in Figure 2 below, studies that were included in the findings of the paper amounted to 4 articles. By making use of an excel spreadsheet, the articles were thoroughly assessed using characteristics that determine the type of each article and the findings that articles contain which were distinguished by different colours and categorised according to their colours.

**Table 1: Study characteristics for each study (final 4 articles) from which data was extracted.**

ARTICLES				
<b>Study characteristics</b>	A cross-cultural analysis of the motivation factors and profitability of online wine tastings during Covid-19 pandemic	Evaluating the customers' dining attitudes, e-satisfaction and continuance intention toward mobile food ordering apps (MFOAs): evidence from Bangladesh	Impact of e-banking service quality on e-loyalty in pandemic times through interplay of e-satisfaction	Understanding motivations to use online streaming services: Integrating the technology acceptance model (TAM) and the uses and gratifications theory (UGT)
<b>Citation</b>	Szolnoki, G., Lueke, M.N., Tafel, M., Blass, M., Ridoff, N. and Nilsson, C. (2021), "A cross-cultural analysis of the motivation factors and profitability of online wine tastings during Covid-19 pandemic", <i>British Food Journal</i> , Vol. 123 No. 13, pp. 599-617. <a href="https://doi.org/10.1108/BFJ-04-2021-0438">https://doi.org/10.1108/BFJ-04-2021-0438</a>	Al Amin, M., Arefin, M.S., Sultana, N., Islam, M.R., Jahan, I. and Akhtar, A. (2021), "Evaluating the customers' dining attitudes, e-satisfaction and continuance intention toward mobile food ordering apps (MFOAs): evidence from Bangladesh", <i>European Journal of Management and Business Economics</i> , Vol. 30 No. 2, pp. 211-229. <a href="https://doi.org/10.1108/EJMBE-04-2020-0074">https://doi.org/10.1108/EJMBE-04-2020-0074</a>	Camilleri, M.A. and Falzon, L. (2021), "Understanding motivations to use online streaming services: Integrating the technology acceptance model (TAM) and the uses and gratifications theory (UGT)", <i>Spanish Journal of Marketing - ESIC</i> , Vol. 25 No. 2, pp. 217-238. <a href="https://doi.org/10.1108/SJME-04-2020-0074">https://doi.org/10.1108/SJME-04-2020-0074</a>	Ul-Haq, I. and Awan, T.M. (2020), "Impact of e-banking service quality on e-loyalty in pandemic times through interplay of e-satisfaction", <i>Vilakshan - XIMB Journal of Management</i> , Vol. 17 No. 1/2, pp. 39-55. <a href="https://doi.org/10.1108/XJM-07-2020-0039">https://doi.org/10.1108/XJM-07-2020-0039</a>
<b>Sample size</b>	After first conducting 40 in-depth interviews in Germany, a global online poll was launched with 1,423 wineries from more than 40 countries, yielding a 14% response rate.	The respondents received 580 questionnaires in all. 277 replies were given in response to these. A total of 250 respondents (43.10% response rate) were retained for data analysis after the incomplete replies were discarded	A local email and messaging marketing company sold the information on 3000 account holders. A total of 1,102 responses were submitted; 976 of them were judged suitable for further study, and the other 126 were rejected because they were unfinished.	More than 10,000 students, both full-time and part-time, were enrolled in this institution and had willingly agreed to receive requests to take part in academic studies. There were 491 respondents that finished their survey.
<b>Research methodology</b>	Qualitative approach, Quantitative approach	Qualitative research method	Qualitative research methodology	Qualitative research methodology
<b>Benefits of e-commerce during covid-19</b>	Customer loyalty - Increase implementation of OWT - Positive impact - Increase in brand awareness - New consumer acquisition - Direct sales increases	Positive impact - E-commerce benefits - Operational benefits - Relational benefits - Customer health benefits	E - Banking satisfaction - E - Banking loyalty - Customer service support - Relational benefits - E-Banking service quality - Increase in digital banking usage	Consumer benefits - Site commitment - Impulsive use of online services - Positive impact
<b>Impact of covid-19 on e-commerce</b>	Negative impact - Innovation - Profitability - Challenges of OWTs - Green and	Covid-19 impact on online purchases - Improved online experience - Consumer behaviour	Privacy and security - Reliability - Website design - Website design	Covid-19 impact on online streaming services - Consumer behaviour
<b>Industry in which the research was conducted</b>	Online Wine Tasting	Mobile food ordering apps (MFOAs)	Electronic banking	Online streaming services

The findings of the research indicate that there is a correlation between the proliferation of the COVID-19 pandemic and the profitability of businesses that conduct their transactions online. The fact that these findings are only dependent on the PRISMA procedure is a constraint on the study. These conclusions are also based on research that was done during the last two years, which implies that there was no proof presented earlier or previously. The PRISMA protocol results were evaluated with the use of the Vos viewer data visualisation tool, which uncovered the recurring phrasing across the 4 articles that were ultimately chosen.

## **5.1 The benefits of COVID-19 on e-commerce**

### *5.1.1 Increase in the use of digital platforms globally*

Due to the abrupt speed that COVID-19 spread around the globe, there was a chance that e-commerce may be utilised as a replacement for traditional commerce. E-commerce created a setting in which traditional company processes might continue to perform normally. The abrupt and unexpected event was treated as a lockdown, and it was enforced to ensure the safety of the customers. However, the implementation of the lockdown caused individuals to experience disorientation, and they needed some kind of diversion (Camillerim & Falzon, 2020). COVID-19 lockdown restrictions resulted in a large number of individuals making use of online platforms, and this prompted firms to be obliged to modify their business models.

### *5.1.2 Increase in revenue generated in the e-commerce*

Depending on the provider the e-commerce platform may either be provided at no cost or for a price. The cost of providing the free version is often covered by advertising. As a greater number of consumers utilise these platforms, there will be a rise in the number of advertising corporations that invest, which will result in an increase in income (Camilleri & Falzon, 2020). The paid price that some requested during the period of covid increased as a result of the fact that people were beginning to rely less on conventional media (Camilleri & Falzon, 2020).

### *5.1.3 The increase in Customers loyalty for organisations and brands*

The level of satisfaction that a customer felt after using one of these platforms was directly correlated to their level of brand loyalty. Convenience is the name of the game when it comes to retaining existing consumers and winning over new ones. The consumer was able to continue using the platforms since the applications could be utilized in an easy and intuitive manner (Al Amin et al., 2021). The usage of the e-commerce platform was strengthened as a result of the experience of the customer (whether C2C or B2B).

### *5.1.4 Increase in brand exposure for digitally strong brands*

Using e-commerce, businesses were able to significantly expand their brand exposure (Szolnoki, Lueke, Tafel, Blass, Ridoff & Nilsson, 2021). E-commerce platforms, such as social media platforms like Facebook, Instagram, or YouTube, were used because businesses made significant investments in these platforms and were able to cultivate relationships with their clientele as a result (Camilleri & Falzon, 2020). Since the vast majority of customers utilized these platforms to amuse themselves, companies saw an opportunity to communicate with customers.

## **5.2 Negative impact of COVID-19 on e-commerce**

The data were taken from four separate journals covering four distinct industries, each of which was quite different from the others. The emphasis of each section of the publication was on a different aspect, such as online gambling, wine sampling, online banking, and online food delivery. Each research that was looked at gave results that were quite comparable to what everyone was experiencing throughout the pandemic. All these studies had one thing in common, and that was the urgent need to modify the standard operating procedure of the company to ensure that it can continue to thrive in the current climate. Because individuals were required to remain inside their houses to maintain social distance, business operations were negatively impacted (Al Amin et al., 2021). It was possible to do business, but only on the condition that all transactions be made online, and restaurants were permitted to remain open, but solely for the purpose of delivering customers' orders (Szolnoki et al., 2021). Financial institutions were obliged to spend more money on their online platforms due to the tourist industry being entirely shut down and there was a fear of being infected via contact, (Szolnoki et al., 2021). As a result, the wine tasting session was moved to an online wine tasting (OWT) (UI Haq and Awan, 2020).

The pandemic distorted the online retail industry's supposed triumph. There was already a perception among consumers that virtual reality platforms couldn't compete with the real thing; this suggests that after the pandemic is over, VR and AR will be left in the dust (Szolnoki et al., 2021). Demand for certain e-commerce platforms has increased rapidly, which has ramifications since some systems cannot accommodate a high number of customers. This, in turn, led to client discontent since their concerns were not remedied; for example, banking systems lost customers and produced irritation, resulting in dissatisfaction (Ul Haq and Awan, 2020). Even though e-commerce provided an alternate answer for companies, they nonetheless suffered due to the constrained operations it enforced. Due of these problems, the company, and restaurants in particular, lost a lot of money (Al Amin et al., 2021).

## 6. Conclusion

This research aimed to determine whether COVID-19 presented new opportunities for companies to invest in digital business for e-commerce and the challenges that businesses had to face during the COVID-19 pandemic. The study utilised the PRISMA technique as research strategy to address the above-mentioned research aim or objective. Due to its ability to filter out irrelevant information, the PRISMA technique was used in this study, a PRISMA protocol was used to screen secondary data sources and determine the most suitable articles to be analysed for the results presented. The results from the data analysis revealed that the common outcomes of e-commerce regardless of the industry catered through site commitment, impulsive use of platforms, consumer benefit and convenience. Covid-19 brought many changes which enabled the e-commerce industry to adjust their systems which catered for the changes brought, and so this led to Improved online services and consumers leaning more toward using the platform rather than the traditional methods of buying and selling products. The results of this research demonstrate the positive effects of Covid-19 on the e-commerce sector, with particular emphasis on sales growth and the increased use of digital channels, the increase in the utilisation of digital platforms and services was influenced by the restrictions that businesses had to put in place due to the global pandemic. This enabled most e-commerce companies and traditional to further improve their online offering using new advanced technologies and AI applications to improve their services.

Given the benefits that Covid – 19 had on the e-commerce industry, it also impacted the e-commerce industry negatively, online transactions placed customers and companies' information at a risk of cyber-attacks. Furthermore, another negative impact the Covid-19 imposed on the e-commerce industry was through digitising services that require physical meeting, e.g., wine tasting, wine tasting is a form of an event that require individuals to get together or meet physically thus resulting in customers being reluctant to make use of the services because the experience would not be same. In conclusion, key recommendations are to encourage the development of cutting-edge strategies and technologies for improved online services, making it possible for offline and online elements to be seamlessly integrated. Lastly, it is recommended that future research should be conducted on the strategies and tools for data privacy and security in the e-commerce environment post COVID-19.

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