The Development of E-Commerce in Brazil: A Pre, During and Post-Pandemic Perspectives of COVID-19

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Abstract
This study aims to describe the history and development of e-commerce in Brazil and the world associated with its milestones. In addition to describing the positive and negative points and a parallel to physical trade, highlighting the differences between the two and which are complementary and not competing. Digital commerce has emerged with technological advances, the spread of Internet access, and the need to simplify the purchasing process. The COVID-19 pandemic forced several companies to invest in online commerce because restrictive measures shut down physical commerce and made e-commerce a valuable alternative. In this way, e-commerce achieved significant development in a short period. Several analyses describe that e-commerce was already a trend and with the health crisis, there was a need for investment for trade to survive and develop the economy. As a trend for the coming years, there is research that maps the consumption pattern of each region to contribute to and explain the next step of e-commerce in post-covid reality. Additionally, this study aims to implement bibliometric resources to search for data at Scopus based on the terms “e-commerce”, “Covid-19” and “pandemic” enabling the measurement and quantification of scientific production on the subject in question.

Keywords
E-Commerce, COVID-19, Brazil, Internet

1. Introduction
E-commerce is buying and selling a product or service through the internet, en-
compassing the transfer of money and data to complete the sale. According to Morrish (2020), e-commerce has become one of the most effective ways to profit and is an excellent opportunity for those who want to invest in some business.

“The trade that began as a simple exchange of goods has perfected over time, has internationalized, and today is used even as a weapon of war.” (Curado, 2019: p. 1). Trade has existed since the time of the caves with bargains of the fighters and developed along with humanity. Improvements were accurate over time in how to learn to calculate (Curado, 2019). Silva (2019) explains that the exchange system was the first form of commerce of humanity, barter was created to meet the needs of each family and thus exchange what surplus was.

According to Curado (2019), the history of trade is concomitant with significant milestones of civilization, such as the Punic Wars between Rome and Carthage in 264 B.C. a 146 B.C., conflicts because of the Mediterranean Sea, a significant commercial route. Another great example is the excellent navigation un-leashed because Europeans could not access India along the traditional way as Constantinople took it.

“E-commerce causes consumers to make transactions electronically at any time regardless of the day, time and place.” (Mendonça, 2016: p. 2). According to Tassabehji (2003) apud Mendes (2013), an English banker named Michael Aldrich, 1979 invented the online shopping system, he used a television linked to a telephone line to be able to execute his idea. At first, e-commerce was only for small products and then evolved to larger volumes.

In Brazil, the Booknet company was the pioneer in e-commerce in 1996. The company aimed to sell national and foreign books, CDs, and videos. Three years later, it was sold to Submarino.com, which in 2005 won R$574.2 million and in 2022, around R$4.4 billion. Another known company, which was one of the first to invest in online shopping, is Americanas.com which in 2000 was the most prominent Brazilian online store (Limeira, 2007).

The COVID-19 pandemic stirred the economy of several countries and made trade suffer adaptations to survive. Social isolation periods caused online purchases to grow 47% in the first half of 2020, driven by the 39% increase in orders over the previous year (schnaider, 2020). The main sectors are hobby and bookstores with evolution of 110% and drugstores with 88.7%. These increases are associated with new habits acquired during the pandemic (Vilela, 2021).

2. Advantages and Disadvantages of E-Commerce

Investment in e-commerce has several advantages because it can represent one more way to attract customers and save money. In a virtual space, there is no restriction on time or day and no geographical barrier. If trade is fully online, there are no costs of renting a physical space for the shopkeeper and possibly fewer hired employees (TURCHI, 2019).

Bernardes (2020) explains that another advantage of e-commerce is that the store itself acts as a conversion point for ads, but there are also negative points.
Juste (2021) states that implementation for online trade has a low cost but is still laborious. This deployment is purchasing a domain and hosting a site with low value, and there are companies for this type of service. In addition, to be able to use their residence as a place for assembly without the need for a commercial point, most of these types of shopkeeper (the merchants) fits as individual micro-entrepreneur (MEI).

Online purchases still enable better offers to customers, who can make price consultations in a much more practical way and do not have the discomfort of carrying heavy bags or bulky items. However, there are its disadvantages, the lack of confidence in making personal data available, the value of freight, and delayed delivery; these are reasons for certain people to prefer physical commerce (Santos, 2020).

Another reason is the lack of contact with the customer; there is no seller to answer doubts, and they cannot feel and try the product. For this reason, the descriptions on the websites should be as completely possible, with photos at various angles, dimensions, mode of use, indication, and contraindication. In some segments, there is intense competition, further aggravating the great demand caused by the pandemic (Eugênio, 2020).

Delivery delays are a worrying factor for customers and shopkeepers because it is a decisive factors in the purchase. Some people even prefer to pay more to receive their order sooner (E-Commerce Brasil, 2020). Considered one of the main problems, in the first semester of 2020, the São Paulo Consumer Protection and Defense Attorney (Procon-SP) states that this was the leader in complaints in online purchases. The following chart shows the customers’ main fears when online shopping (Graph 1).

![Graph 1](image)

**Graph 1.** Fear when making an online purchase. Source: Elaborated by the authors.

### 3. E-Commerce versus Traditional Commerce

The rapid development of e-commerce does not mean that traditional commerce will come to an end; even with the impact of the quarantine, some have resisted; it only means that physical commerce will have to adapt in some ways.
“The challenge is to make the retailer cheaper and have lower costs, as well as providing an environment centered on discovery and novelty and creating attractive alternatives to big brands that customers trust.” (Exame, 2020: p. 2).

Some consumers still prefer traditional commerce because they can try out the products. And because of this, the omnichannel concept is growing more and more. The idea is that people buy the product online and pick it up in person or vice versa; this way it allows the user to get to know the product before finalizing the purchase. Shopkeepers must thoroughly study their area of activity so that they can have their target audience well-structured and thus make the decisions that best serve them because the retail sector will never be the same again (Araújo, 2021).

The future of commerce is hybrid-like, merging the online and offline world, there are several challenges, but the path must start as soon as possible to keep up with technological advances and customer needs (Magnani, 2021). Such a reality is already possible to observe; with the advance of the vaccination and the opening of physical retails, digital purchases have decreased, and physical purchases have resumed. However, customers serve both niches, and the pandemic behaviors will not be lost quickly, hence the need for merged businesses (Estado Conteúdo, 2021).

4. The Advance in Research on E-Commerce and the Pandemic—Bibliometric Analysis

Bibliometric is a quantitative and statistical technique that is capable of measuring production indices and scientific knowledge. Research on the basis of Scopus “e-commerce”, ”COVID-19” and ”pandemic”, has seen the evolution of this theme during the last three years.

The bibliometric study is a statistical methodology, whose objective is to measure and quantify scientific production on a given theme. This tool allows the dissemination of information, becoming increasingly necessary and efficient in the field of science and technology.

Bibliometric analysis is a popular and rigorous method for exploring and analyzing large volumes of scientific data. It enables us to unpack the evolutionary nuances of a specific field while shedding light on the emerging areas in that field, (Donthu et al., 2021: p. 1).

For this article, a search was made on the Scopus platform. Scopus is the largest database of abstracts and citations of peer-reviewed literature, with bibliometric tools to monitor, analyze and visualize the research. Scopus contains more than 22,000 titles from more than 5000 publishers worldwide, covering the fields of science, technology, medicine, social sciences, and arts and humanities. In addition, it contains more than 55 million records dating back to 1823, two of which 84% have references dating back to 1996.

According to Santos et al. (2021), bibliographic indicators have currently been used, which are based on a statistical analysis of quantitative data found in tech-
technical and scientific production, to measure scientific production activity.

In this session, the bibliometric analyses resulting from the search for the words—“e-commerce”, “COVID-19” and “pandemic” in the Scopus database will be presented.

According to research on the Scopus platform, the terms “e-commerce”, “COVID-19” and “pandemic” was described in an academic paper for the first time in 2020 and by September 2022, 543 academic papers addressed the topic. Of these, 298 are articles, 27 are book chapters, 176 are conference papers and 36 are reviews or reviews of conferences.

**Figure 1** shows the evolution of the volume of publications over the analyzed period, according to the Scopus database. In 2020 53 articles were published, and in 2021 235 papers were published. As the survey was conducted in September 2022 the productions of the years 2022 and 2023 are still partial and are represented in the graph with an asterisk.

**Table 1** presents the authors who participated most in the research that addressed the theme. Author Pollak, Frantisek Faculty of Corporate Strategy, Institute of Technology and Business in Ceske Budejovice, Ceske Budejovice, Czech Republic—was the author. They published the most in the period with 6 publications on Scopus Base.

**Figure 2** shows the volume of publications per country according to the Scopus database. As can be seen, the 3 countries that published the most were the United States (63), Indonesia (61), and China (53).

**Table 2** presents the most cited articles to date. The Impact of COVID-19 on Consumers: Preparing for Digital Sales has been cited 137 times over the past few years. Digital Transition by COVID-19 Pandemic? The German Food Online Retail has been cited 98.

**Figure 3** shows the collaboration network. As can be seen, there are 6 collaboration clusters. Wang, Y, Wang, Z, Sun Y, Liu, Y, Chen, J and Li, S. are the authors who connect the clusters. These authors can be considered as a link between the groups.
Figure 2. Keywords: “e-commerce”, “COVID-19” and “pandemic” (Base Scopus) Country/territory. Source: Own elaboration from the research on the Basis Scopus.

Table 1. Main authors by theme: “e-commerce”, “covid-19” and “pandemic”.

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<thead>
<tr>
<th>Author</th>
<th>Volume</th>
<th>Affiliation</th>
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<tr>
<td>Pollak, Frantisek</td>
<td>6</td>
<td>Faculty of Corporate Strategy, Institute of Technology and Business in Ceske Budejovice, Ceske Budejovice, Czech Republic</td>
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<tr>
<td></td>
<td></td>
<td>Department of Business Finance, Faculty of Business</td>
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<td>Markovic, Peter</td>
<td>5</td>
<td>Management, the University of Economics in Bratislava, Bratislava, Slovakia</td>
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<tr>
<td>Konečný, Michael</td>
<td>4</td>
<td>Faculty of Corporate Strategy, Institute of Technology and Business in České Budějovice, Czech Republic</td>
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<td>Department of Civil and Environmental Engineering, Transportation Technology and People Lab, Portland State University, United States</td>
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<td>Figliozzi,</td>
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<td>Bina Nusantara University, Information Systems Department, School of Information Systems, Indonesia</td>
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<td>Surjandy</td>
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<td>Department of Civil and Environmental Engineering, Transportation Technology and People Lab, Portland State University, United States</td>
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<td>Unnikrishnan, Avinash</td>
<td>3</td>
<td>Department of Public Economics, Faculty of Economics, VSB—Technical University of Ostrava, Czech Republic</td>
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Source: Own elaboration from the research on the Basis Scopus.

Figure 4 shows the words most cited in the articles (collaboration network). There are 7 clusters in total. The words that appear most in the articles are e-commerce, online shopping, and Sales. One of the clusters of articles is more connected to technology. The words that appear most are Blockchain, COVID-19, decision making, Digital Economy, Digital Platforms, and Industry 4.0. Exist one of the clusters of articles is more focused on consumer behavior and the offender.
Table 2. Keywords: “e-commerce”, “COVID-19” and “pandemic” (Base Scopus) most cited articles.

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<th>Document title</th>
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<td>The Impact of COVID-19 on Consumers: Preparing for Digital Sales</td>
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<td>Digital Transition by COVID-19 Pandemic? The German Food Online Retail</td>
<td>Dannenberg, P., Fuchs, M.,</td>
<td>98</td>
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<td></td>
<td>Riedler, T., Wiedemann, C.</td>
<td></td>
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<tr>
<td>Managing the effectiveness of e-commerce platforms in a pandemic</td>
<td>Tran, L.T.T.</td>
<td>97</td>
</tr>
<tr>
<td>Online shopping motives during the COVID-19 pandemic—lessons from the crisis</td>
<td>Koch, J., Frommeyer, B.,</td>
<td>86</td>
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<td></td>
<td>Schewe, G.</td>
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Source: Own elaboration from the research on the Basis Scopus.

Figure 3. Keywords: “e-commerce”, “COVID-19” and “pandemic” (Base Scopus) collaboration network. Source: Own elaboration from the research on the Basis Scopus.

Figure 4. Keywords: “e-commerce”, “COVID-19” and “pandemic” (Base Scopus) Words most cited in the articles (collaboration network). Source: Own elaboration from the research on the Basis Scopus.
The words that appear most are: Competition, Consumer Behavior, Buying Behavior, Sales, Perceive Risk, Social Presence, and Service Quality.

In this article, we use bibliometric research to measure the efforts of researchers to understand, discuss and question the impact of the pandemic on the evolution of e-commerce in recent years.

5. E-Commerce in Brazil

5.1. The Growth of E-Commerce in Brazil

According to Martinez (2021), compared to 2020, there was a growth of 1.5 million active websites in Brazil, which means that the country exceeded 1.5 million available options to the consumer, with 9.4% represented by small national networks.

The BigDataCorp data show that e-commerce is growing faster than the country’s economy, as shown in the chart below (Martinez, 2021) (Graph 2).

The year 2020 has had the highest growth so far; there are no official statistics on the total weight of e-commerce. Based on the annual survey of commerce by the Brazilian Institute of Geography and Statistics (IBGE) and data from the Federal Revenue, CNC estimates that online commerce represented at least 6% of total commerce in 2020. However, it is possible to measure the evolution with the same period of the previous year, month by month, to understand the impact of the pandemic on this sector (Alvarenga, 2021) (Graph 3).

5.2. Brazilian Consumer’s Profile

E-commerce was the alternative for commerce to survive during the period of isolation. Some people were still afraid of online shopping, but with the investments made, the population has another perspective. The benefits, convenience, and greater confidence in online shopping have resulted in Brazilians being confident in investing in this type of purchase (Wink, 2021).

A survey carried out by the National Confederation of Shopkeepers (CNNDL), and the Credit Protection Service (SPC) points out the new profile of the Brazilian consumer.

![Graph 2. E-commerce grows faster than the economy. Source: Adapted Show me tech (2021).](image-url)
consumer in e-commerce. Almost 97% of Brazilians search for information about a product of interest on the internet before making the purchase, and 50% of this audience is female (Americanas Marketplace, 2021).

Moreover, a survey carried out by Sebrae shows that, according to the level of education, customers are divided into 1) 3% with elementary education; 2) 22% who had completed high school; 3) 23% with incomplete higher education; 4) 32% had completed higher education; and 5) 20% with a graduate degree. About age group: 1) consumers between 18 and 24 years old represent 11%; 2) 25 to 34 years old with 32%; 3) 35 to 49 years old with 36%; 4) 50 to 64 years old with 16%; and 5) over 64 years old with 11% (Americanas Marketplace, 2021).

In Graph 5, it is possible to notice the growth in the volume of sales in e-commerce in Brazil from the first semester of 2010 to 2021 and the evolution about the same period of the previous year.

The fastest growing sectors during the prevailing period in e-commerce were PET with 171%, 156% food and drinks, and home and furniture with 149%. The home and furniture industry was the leader for three consecutive months and was then surpassed by PET and food and drink (IVO, 2020). Brazilians buy more online telephony products and 65% of cell phones, 59% of electronics, 58% of appliances, and 55% of computers, as can be seen in Graph 4.

5.3. Expectations of E-Commerce in Brazil after the Pandemic

In October 2020, the general director of Aliexpress in Brazil assured us that China is like a mirror for Brazil regarding e-commerce. This statement has two points of view; on the positive side, Brazil is on the right path and with excellent growth potential. On the negative side, the country is behind, which shows the retail sector’s concern with evolving and increasing profits (Freitas, 2021).

One of the biggest concerns is the future of e-commerce in the post-pandemic period and the consumer profile for the coming years. Based on the analysis of e-commerce customers, it is possible to prepare for the main characteristics of the new consumer in 2022, who are more connected and therefore become more demanding and rely on significant marketplaces for their e-commerce experience (Palis, 2021).
The foundation Getúlio Vargas (FGV) declared that 49.7% of companies did not make any online sales before the pandemic; in July 2020, this number dropped to 28.4%, and in June 2021, it dropped to 20.2%. With the advancement of vaccination and the reopening of the economy, there will be a stabilization in online sales, but it is still possible that the year 2021 could close with a market share of 10% (Estadão Conteúdo, 2021). This can still influence cash circulation, as physical transactions with cash are expected to decrease due to the technologies developed for payment (TERRA, 2021).

The Worth Global Style Network (WGSN), a company that maps trends, considers that 2020 is the beginning of the connected decade due to the various technological advances during the pandemic to make life at home more pleasant. For 2022, it is necessary to understand consumer sentiments to identify their rankings. Fear, anxiety, economic uncertainty, social desynchronization, and equitable resilience can be cited (WGSN, 2021).

Also, according to the WGSN survey, the consumer of the future is divided in-
to three groups: 1) stabilizers, 2) community ones, and 3) new optimists. Stabilizers, formed mostly by Millennials and Generation X, prioritize stability, have a feeling of uncertainty about the future and are frustrated with optimization. Therefore, commerce should focus on simplicity and calm with unified communications to reach the stabilizers (WGSN, 2021).

The second group, called community members, is also made up mainly of Millennials and Generation X. This group wants to put down roots, not in the professional environment, but in their communities. That is, people who establish boundaries between their personal and professional. To reach this type of person, it is necessary to revisit files, such as other types of sales with guidelines for sustainability and the good of the community, priority in local commerce, and focus on small cities (WGSN, 2021).

And the last group, the new optimists, is composed of all generations, but with common characteristics such as the drive for happiness, highly adventurous and sociable profiles, and wants for practicality. To achieve them, it is necessary to focus on livestream commerce (live broadcasts), the evolution of on-demand services and products, and the power to buy collectively, with more discounts and promotions (WGSN, 2021).

There are six trends for Brazilian e-commerce that were described by Mercado Pago based on the evolution of online commerce during the pandemic and that need attention for the coming years. The first is the digitization of consumption, which proved that there are no geographical barriers or excess information for online purchases and that 83% of consumers in a survey declared that they carried out research on the internet before closing the purchase in the physical store (Mercado Pago, 2021).

The second is commerce carried out by cell phone, or e-commerce, representing 70% of the digital sales. The third is the perfect shopping experience; according to the Customer Experience Trends of the 2020 report, 75% of consumers are willing to spend more for a company with a good reputation, and 50% would switch to the competition after a bad experience. Customer service, multi-channel presence, free shipping, and personalized products contribute to the customer experience (Mercado Pago, 2021).

The fourth is more conscious consumption; consumers are interested in the social and sustainable bias of companies. A survey by Toluna points out that 75% of Brazilian consumers have changed their consumption habits due to ethical and sustainable issues. An excellent example of this practice is recommerce, which is the resale of luxury products, which grew by 12% in the last year, compared to new products, which grew by only 3% (Mercado Pago, 2021).

The fifth is the new forms of online payment. More and more practicality is seen as an ally, such payments by Pix, QR Code, digital wallets, and facial recognition allows customers not to miss any purchase opportunity. The last one, basically an extension of the previous trend, is the “buy now, pay later” (BNPL). As the name explains, it is possible to make the purchase and pay later (Mercado Pago, 2021).
Even after vaccination, 95% of the Brazilian population intends to continue with the habit of online shopping, which contributes to a projection that e-commerce will grow by 26% in the closed year of 2021. This forecast is based on the increase in consumers, confidence in e-commerce and brands, investment in omnichannel, and increased logistics efficiency (Araújo, 2021).

A study by Nielsen in 2020 pointed out that the needs/consumption profile varied according to the stages of propagation of the virus. At the time of greater contamination, sales of health products and food items skyrocketed in e-commerce (Filho, 2021).

Emerging countries, such as Brazil, India, and China, are experiencing significant e-commerce growth, making them excellent investment potential. An estimated 3 billion new online shoppers in emerging countries will have internet access by 2022 (Jornal de Brasília, 2021).

E-commerce was already a trend for Brazilians even before the pandemic; a survey carried out by NZN Intelligence showed that 74% of people already had a preference for online shopping (Silveira, 2021). B2C commerce was already a trend in the digital environment due to increasing internet access, but B2B took off. The pandemic coerced online transactions, which facilitated the entry and adaptation of this type of transaction with digital processes that facilitate both sides and that will hardly return to the physical (Jornal de Brasília, 2021).

6. Conclusion

The general goal of this work was to demonstrate e-commerce in Brazil and the world and the impact it suffered during the COVID-19 pandemic. Moreover, research was carried out on the emergence of e-commerce in parallel with the development of commerce to explain that online commerce is an extension of physical commerce.

Social isolation has contributed in many ways to changing the habits of the world’s population and generating confidence in virtual shopping. Purchases out of necessity or out of consumerism forced the rapid development of e-commerce to serve this audience that was reclusive at home. In the first month of lockdown, the increase was noticed, which over the months continued to grow.

In this article, we use bibliometric research to measure the efforts of researchers to understand, discuss and question the impact of the pandemic on the evolution of e-commerce in recent years.

As mentioned above, some studies claim that e-commerce was already a trend, but on a smaller scale. The pandemic only accelerated what would take longer to develop and reach the level it did in 2020 and 2021. The terms “e-commerce”, “COVID-19” and “pandemic” was described in an academic paper for the first time in 2020 and by September 2022, 543 academic papers addressed the topic. Of these, 298 are articles, 27 book chapters, 176 are conference papers and 36 are reviews or reviews of conferences.

We checked that the 3 countries that published the most were the United States
(63), Indonesia (61), and China (53), and in 2020 53 articles were published, and in 2021 235 papers were published. As the survey was conducted in September 2022 the productions of the years 2022 and 2023 are still partial and are represented in the graph with an asterisk.

Several physical shops closed, some migrated to online shopping, and others did not survive the economic crisis driven by the pandemic and the lockdown. Physical commerce has its advantages and disadvantages as well as online, so the best way to obtain total trade is to use both tools, one complementing the other.

The post-covid period is a tremendous challenge because consumers have developed new consumption habits; some are likely to cease to exist with the advancement of vaccination and the reopening of trade. However, some will continue to exist. To better understand the consumer model during this period, some studies map trends and better understand the purchasing initiative to reach the desired audience.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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