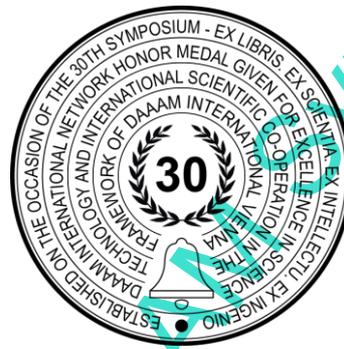


# USING INTERNET AS A SOLUTION FOR SALES IN PANDEMIC CRISIS: E-COMMERCE

Dinu Gabriel, Dinu Loredana



**This Publication has to be referred as:** Dinu, G[abriel]; Dinu, L[oredana] (2020). Using Internet as a Solution for Sales in Pandemic Crisis: E-commerce, Proceedings of the 31st DAAAM International Symposium, pp.xxxx-xxxx, B. Katalinic (Ed.), Published by DAAAM International, ISBN 978-3-902734-xx-x, ISSN 1726-9679, Vienna, Austria  
DOI: 10.2507/31st.daaam.proceedings.xxx

## Abstract

From the beginning, the Internet was conceived as a solution to a potential crisis, survival in the event of a nuclear war. 60 years after its emergence, this network of computer networks, through the e-commerce service, represented in the pandemic the saving formula for sales. Virtual stores were the ones that satisfied consumer behaviour at a time when, traditionally, trade was impossible, due to lockdown. The study aims to highlight the buying habits of Resita consumers, in the context of restricting freedom of movement, caused by lockdown. We will see how and if the people of Resita gave the traditional trade to the electronic one.

**Keywords:** Internet; Solution; E-commerce; Pandemic; Consumer.

## 1. Introduction

The beginning of this year allows almost all activities to be carried out efficiently through the computer. The marketing activity also uses computer skills to perform computer-assisted activities, from marketing research to presenting the company on the Internet.

Millions of people connect to the Internet to search for information about companies and their products. Some only search for information on virtual store sites, others enter the Internet using the advertisements seen.

Slowly, we are changing our shopping and shopping habits by moving online. In addition, the arrival of this pandemic has determined more and more of us to buy online, more diversified, to pay online, to give up the much needed human interaction so far.

Electronic technology determines the more efficient use of sales and promotion methods, which address fragmented and highly specialized market segments. Thus, telemarketing sales can be used as alternatives to mass advertising, and telemarketing as an alternative to sales through the personal contacts of sales agents.

Over the last years, the Internet has evolved into a formidable tool with a major impact on all aspects of life. Every half year there are such important changes that it is impossible to predict where they will end up in the next 10 years. Today, we are all participating in a revolution that is taking place in trade and telecommunications. The great companies of the century will have their origins in this decade.

## 2. Theoretical considerations

The expansion of the Internet, and also its increase among users, whether individuals or companies, led to the appearance of applications that were written specifically for handling information provided by this large computer network.

People think that in our lives have already been many changes. Traditionally, the Internet had four services, namely:

- World wide web - the most used Internet service, through which users have access to an extensive array of information in all fields, with a navigation program called browser. The information is stored in connected documents;
- electronic mail (e-mail) – is the possibility that allows to send and receive messages from any user of the Internet;
- e-commerce (GMP News) - is a service through which you can buy or sell online;
- FTP (chat) - allows real-time communication via online communication channels, it offers the possibility to transfer files to/from a computer in the network. [1]

This paper tests the research hypothesis and solves the defined problems related to the initiation of new collaborative projects and project-proposal preparation that take considerable time leading to a potential loss of business opportunities. [2]

### 2.1. E-commerce categories

We can say that due to the advances in the last two decades of information technologies, there has been an urgent need to transmit different information as quickly as possible without this requiring very high costs. gave a new meaning to the classic principles of marketing, so that e-commerce has become synonymous with making a profit.

E-commerce is not only a simple activity but also a main component of economic development policies of all countries that are willing to accept such trade. It consists in running businesses that have as main support the well-known Internet network and also the use of software packages without which this trade activity could not take place.

Electronic technology determines the more efficient use of sales and promotion methods, which address fragmented and highly specialized market segments. Thus, mass promotion on the Internet can be used more intensively, as alternatives to mass advertising, and telemarketing, as an alternative to sales through the personal contacts of sales agents.

Electronic commerce means, in the traditional sense, the use in value-added networks of applications such as electronic document transfer (EDI), fax communications, barcodes, file transfer and e-mail. The extraordinary development of computer interconnectivity in the Internet, in all segments of society, has led to an increasingly obvious tendency of companies to use these networks in the area of a new type of commerce, e-commerce on the Internet, which appeals to the old services mentioned. - and new ones. It is, for example, the possibility to make purchases online by consulting electronic "ON" catalogs on the web and paying by card payments or electronic wallets.

For others, e-commerce represents the business relationships that take place through the Internet between suppliers and customers, as an alternative to the "traditional" communication variants by fax, dedicated communication lines or EDI on value-added networks.

In the 1990s, IBM made the term popular through an advertising campaign "electronic business" equivalent. The term "e-business" was used to define usage Internet technologies for improving and transforming key processes in a business. Into the IBM 's definition of e-business is a secure, flexible and integrated way to access for conducting various businesses by combining processes and systems that perform operations of business with those that make it possible to find information on the Internet ".

We proceed to explore the role of business services providers and conclude by suggesting a road map for turning the promises of the Internet into reality for small and medium size enterprises. [3]

There are five general categories of e-commerce:

- business to consumer: companies sell products and services to individual consumers, including access to geographically dispersed markets across international borders and enabling direct supply chain relationships with consumers; [4]
- business to business: companies sell products and services to other companies;
- process to business: companies maintain and use information to identify and evaluate customers, suppliers and employees; at the same time, share this information, carefully controlled, with customers, suppliers, employees and business partners;
- consumer to consumer: participants in an online market can sell / buy each other goods;
- business to government: companies can sell goods and services to agencies government.

Most of the businesses developed on the Internet with e-commerce have grown in Business-to-Business area and less Business-to-Consumer. Business-to-Business (B2B) consists in making transactions between companies, transforming the way they work between them. Initially, the transfer between companies was done through a system electronic data transfer called EDI (Electronic Data Interchange). Electronic transfer that has basically the EDI system transmitted the data according to a standard format. Considering that that the documents were in approximately the same format, standards could be achieved after these and it was possible to switch them to electronic format. Due to the fact that EDI networks they had a high cost, many companies used leased lines or the services of companies that offered connections and transmission services to those employed in EDI (VAN - Value Added Network).

---

---

The use of such a method for data transfer presented the chance to reduce costs for filling out forms, listing, sending or storing again in a computer system once it reached the recipient, as well as the errors that would have resulted through repeated data entry.

## 2.2. E-commerce models

Analyzing the current applications developed on the Internet, we identify the following models business in e-commerce:

- e-Shop: an electronic store is implemented through a website; it is managed by a company for marketing and sales of their own products and services. At a minimum, it contains the product catalog or services with technical and commercial descriptions for each item in the catalog. These descriptions are generally managed by a Database Management System (DBMS). The Database Management System will handle the storage and data manipulation and providing access to data. Medium variant contains facilities for taking orders (by e - mail or interactive forms on which will be completed by customers), and the extended version also includes the possibility of performing online payment (by card payments or other electronic means).
- e-Procurement: for the purchase of goods and services, large companies and public authorities organize tenders. By publishing on the Web of the offer specifications, decreases both the time and the cost of transmission, increasing the number of companies taking part in the auction. Thus, competition increases and the price goes down.
- e-Mall: as in the real world, the e-shop universal is a collection of electronic stores, gathered under a common umbrella and which generally accepts common payment methods.
- Virtual communities: the most important value of a Virtual community is given by its members (customers or partners), which adds own information over a basic environment provided by the company. Every member may offer for sale products or services or may address requests to purchase 6 Computer Platforms for Production and Services | Electronic commerce some products or services. Membership of a virtual community presupposes payment of a fee.

## 2.3. The architecture of an Electronic Payment System

An electronic payment system refers to all the objects that work together to ensure the payment of the transactions that are performed. Three entities are generally involved interacting: a bank B, a buyer C and a seller V. The electronic system of payments also contains a lot of protocols that allow buyer C to make payments to seller V. Electronic payment systems can be viewed in a hierarchical tiered structure, derived from the architecture of ISO-OSI systems.

An Electronic Payment System consists of two levels:

- the user level, which constitutes the hierarchically higher level;
- the system level, which is the lower hierarchical level.

The user level consists of the multitude of users and the transactions that take place between these. Users are grouped by various roles, by how they interact in business relations between them: the buyer, the seller, the issuer of electronic money (bank), and so on.

System level: consists of the set of physical entities and relationships that are established between them. Entities can play one of the following roles: electronic money bearer or cash register.

The electronic payment system is the ability to send cash/money electronically for products and goods purchased via the Internet. [5]

## 3. The research methodology

This paper aims to study which was the trend of e-commerce in pandemic crisis from the people who lives in Resita city.

This study is realized on the population level from Resita, whose main objectives are:

- identify how the pandemic influenced the buying behavior of Resita city population;
- Identify how buying habits have been affected;
- Identify which are the changes occurred at the level of the consumption structure at the level of Resita city population;

The representativeness of the sample is given by the sampling method used and the sample size determine the accuracy of the results obtained from research.

In this study we used the survey method with the population of Resita. In order to achieve an efficient study is needed firstly a research program, establishing the stages and the required resources in order to achieve the optimal research and obtaining the most important information necessary for the decision. The study was conducted in two parts, a qualitative study and the stage that provides representation in the results and formulating conclusions, the quantitative study. But, as the information obtained from an unrepresentative sample cannot be extrapolated to the entire population, the results hypotheses to be validated, we considered appropriate to present only the quantitative survey, the results of the quantitative study will be presented in this paper.

---

---

For this I developed a questionnaire with ten questions for studying online consumer behavior in relation to brand image, which is seven closed questions, with 2-5 choices and three questions of identification. The identification questions are related to age, sex and occupation of the subjects that constitute the analysis criteria of results.

Sampling method chosen is the trading method (weights). This method involves the establishment of a reduced model of the population studied, by its known characteristics, being necessary statistical information about the population studied represented in this case by the age and sex of subjects.

Because the consumer's behavior is manifested on the market, it becomes a major study of marketing. We studied how the COVID-19 crisis affected buying habits in terms of buying and consuming behavior. The shape of how the study was done was build by the survey conducted on a representative sample for the population of Resita. [6]

The survey that was required for development of this paper was conducted during the period April 2020 – June 2020. The survey is non-exhaustive, the minimum sample size was calculated using the formula:

$$R = \frac{n}{N} * 100 = \frac{t^2 * p * q}{e^2}$$

Where:

R - sampling rate

N - researched population size

n - sample size

t - the coefficient of confidence

p - frequency of the phenomena

e – tolerated margin error

Due to lack of data reporting the population of Resita , administering the questionnaire has not opted to create a pattern of questioning of persons by occupational criteria.

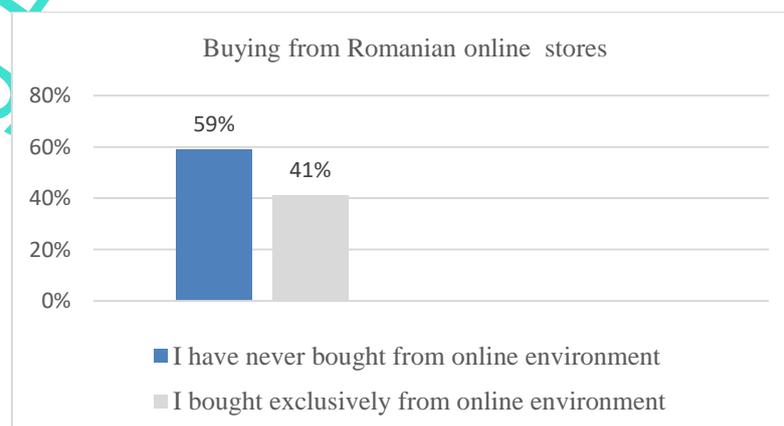
For processing and analysis of data from the survey were used tables and calculations percentage, monitoring the total number of responses for each variant answer and settling their frequency, their share in the total sample, by sex, by age groups and by occupations.

In the following, it will be presented, analyzed and interpreted the answers provided by 366 subjects of the survey questions 1-7 of the questionnaire, presented in Annex 1. Questions 8-10 refer to the criteria for analysis of results (age, gender, not being necessary individual analysis of the study conducted).

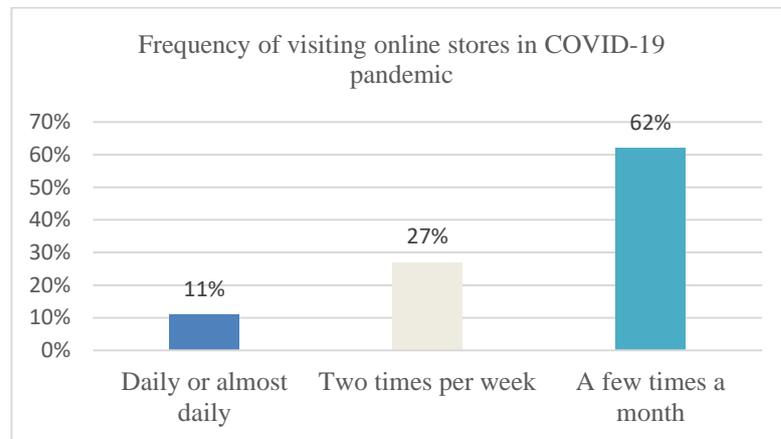
#### 4. The research results

Further, I realized interpretation of research results:

1. In the total sample, it was found that 59% of respondents had not bought online, while 41% of respondents bought from online stores. It should be noted that, according to the criterion of sex, 56% of those who buy online are women. According to the age criterion, 39% of the respondents aged between 25 and 41 buy online. according to the occupation criterion, intellectuals, with a percentage of 31%, are the ones who buy online.



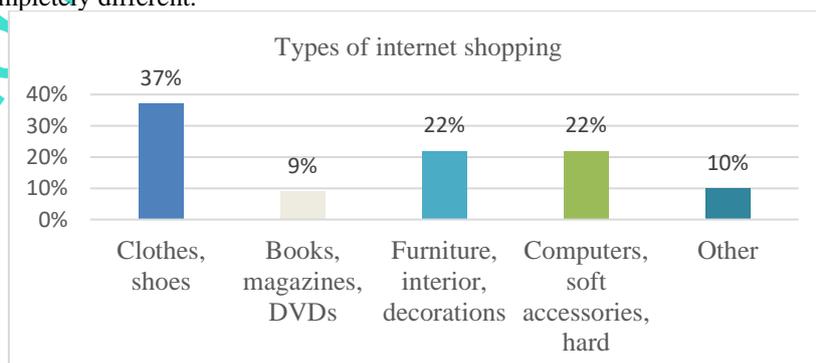
2. Romanian online stores are becoming more and more successful, in the context of the COVID-19 pandemic. a percentage of 62% of resiteni visit online stores even if they do not buy. Followed by those who enter the Internet weekly to visit virtual stores, with a percentage of 27%. Respondents who visit online stores daily are in a lower percentage, 11%. Among those who enter the Internet daily to visit online stores are young people aged between 18 and 25, with a percentage of 57%.



3. In question 3, on the total sample, 14% of those who choose to buy online do so for convenience, while 17% buy to save time, and 29% of respondents say it is cheaper online. One aspect that should not go unnoticed is the fact that 33% of those surveyed buy in the reference period studied only as a precautionary measure dictated by the COVID-19 pandemic.



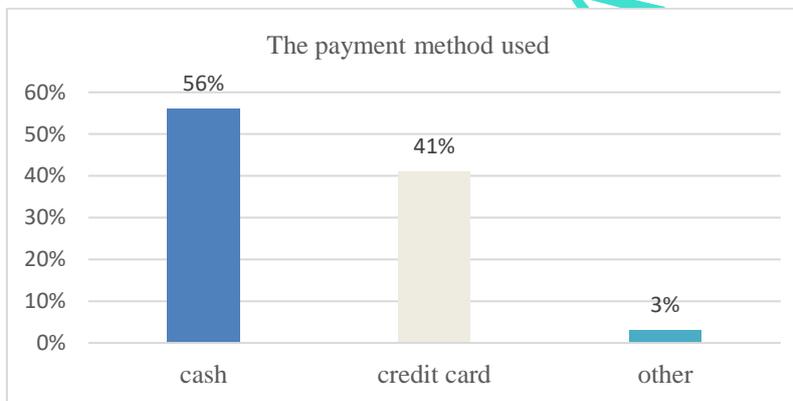
4. Regarding the products that can be bought by the people who lives in Resita, shoppers who visit online stores, clothing and footwear is preferred by buyers in a percentage of 37%. In the interpretation of the results, furniture and interior decorations follow with a percentage of 22%, as well as electronic and gaming products, also preferred by 22% of the people from Resita. Only 9% of respondents living in Resita said they bought books, magazines or DVDs. Another 10% bought something completely different.



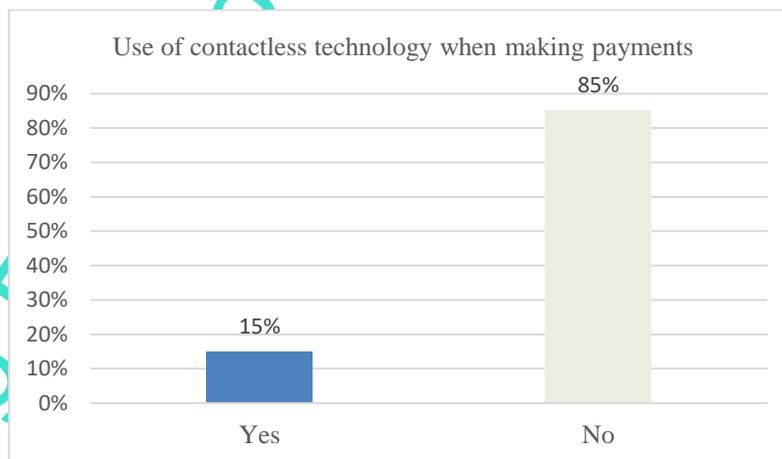
5. Discounts have been a real engine of pandemic sales in online stores. The main motivating factor for online shopping, even during the period of social distancing in the pandemic, was the discounts. Of the total respondents, 75% say that the discounts are a reason to buy online. the remaining 25% say that discounts are not an incentive to buy in online stores.



6. Regarding the payment method, 56% of the respondents chose to pay offline purchases with cash, while 41% pay by card payment.



7. Contactless technology is increasingly entering the routine of consumers, with 15% of respondents saying they pay contactless. The remaining 85% pay traditionally by card payment.



## 5. Conclusion

Offline commerce is Romania's main industry, with 220,000 companies active in this sector and with cumulative business of 600 billion lei in 2018.

In the context of the Covid-19 pandemic, the food, pharma and gas stations remained standing, and fashion, cosmetics and some DIY or furniture retailers closed offline stores and moved online. This period also brought significant changes

in consumer behavior, Romanians purchasing especially goods of strict necessity and fewer products considered pampering.

Moreover, the winning shopping channel now, even for food, was the online, which could gain ground in the long run as well. Thus, the current pandemic could also have positive effects.

The method of payment was a problem in the pandemic. The cash method began to be replaced by card payment or another type of payment.

Some traders have invested heavily in technology even before the current crisis, some betting on customer loyalty cards, others buying self-service houses (without a cashier), and there are those who have found solutions for monitoring stocks. Some of these investments are noticed or used by store customers.

Romanians' buying habits changed during the COVID-19 pandemic. They buy more from online stores and less from offline stores. Against the background of economic uncertainty and recent salary declines, Romanians say they will give up buying certain categories of products, such as: furniture, electronics and gadgets, games, sporting goods, books.

Technology is becoming an integral part of the environment of any large retailer, and this will have to be understood by even smaller retailers who have not had a concern in this regard. Trade must be digitized and adapt to new market conditions because Romanians will change their consumer behavior.

For many retailers, online has remained the only sales channel, which means that those who have been prepared in terms of infrastructure to serve online orders and cope with the growing number of applications during this period are the main winners.

As a consequence of demographic change and technological innovation, fundamental changes are taking place in buyer's behaviors and in consumer's lifestyles, changes whose impact creates new buying behavior.

## 6. References

- [1] Dinu G. & Dinu L. (2014). Using Internet as a Commercial Tools: a Case Study of E-commerce in Resita", *Procedia Engineering*, Vol. 69, pp. 469-476
- [2] Shevtshenko E.; Poljantchikov I.; Mahmooda K.; Kangilasski T.; Norta A. (2015). Collaborative Project Management Framework for Partner Network Initiation, *Procedia Engineering*, vol. 100, pp. 159-168
- [3] Schlenker L. & Crocker N. (2003). Building an e-business scenario for small business: the IBM SME Gateway project, *Qualitative Market Research*, Vol. 6 No. 1, pp. 7-17, doi.org/10.1108/13522750310457339
- [4] Boid S.; Hobbs J.; Kerr W. (2003). The Impact of Customs Procedures on Business to Consumer E-commerce in Food Products, *Supply Chain Management*, Vol. 8 No. 3, pp. 195-200, doi.org/10.1108/13598540310484591
- [5] Ahmed, A., Aziz, A., Muneeb, M. (2019). Electronic payment system: A complete guide. *Journal of Multidisciplinary Sciences*.1 (2), 1-17, doi.org/10.33888/jms.2019.121
- [6] Dinu G. & Dinu L. (2014). Using Internet as a Commercial Tools: a Case Study of E-commerce in Resita", *Procedia Engineering*, Vol. 69, pp. 469-476