

"TESTING CONSUMERS TRUST IN "E-COMMERCE" PLATFORMS -THE CASE OF ROMANIAN PLATFORMS"

Doctoral Thesis - Abstract for obtaining the scientific title of doctor at Polytechnic University of Timisoara in the Doctoral Field of ENGINEERING AND MANAGEMENT author Patricia Simona Lup scientific leader Prof. univ. dr. eng. Gabriela Ioana PROSTEAN October 2022

In the first chapter entitled: **"INTRODUCTION"** are presented the actuality of the research theme, the purpose of the scientific work and the content of the work. "Trust" is a topical concept dealt with in various fields. Testing consumer trust in "E-COMMERCE" (EC) platforms is a topical research direction that correlates trust factors with trust dimensions by exploiting novel ways of gaining consumer trust.

The Covid-19 pandemic changed the course of sales in (EC), constituting a defining element for the year 2020. In the context in which the Internet is part of the daily lives of billions of people, through the present research, we proceeded to study and test the trust to consumers in EC, in general, with particularities in the case of Romanian platforms. The Internet has played the most important role in the advancement of EC, which has changed business worldwide. Since the early 1990s, electronic commerce has helped to interconnect the entire globe, facilitating and simplifying the exchange of goods. The development of security in the online environment has contributed to increasing the degree of consumer confidence in EC, which is part of the daily routine of many of them. EC has brought its contribution to the globalization of industry and society in general, being consistent with the rapidly modernized population we live in today (Nogoev A., 2011). [1] The growth of the EC market in Romania presents real opportunities for businesses in the online sector in Romania, so its future is on an upward trend in line with the development of digitalization.

In 2020, Romania recorded the most significant increase of over 30% in EC at the level of the entire European Union. The Covid-19 pandemic has contributed to the development of digitization, thus the number of digital signatures has increased significantly. Romanians opinion is that the future also lies in the progress of technology and constant digitization, marking their daily existence for the next ten years.

Achieving the goal of the doctoral research was achieved starting from the general objective of the doctoral thesis embodied in the identification of a model for framing and testing consumer trust in EC platforms and assumed the completion of the following specific objectives:

1. Analysis and synthesis of means of communication, consumer behavior in the context of the pandemic and the evolution of the concept of "E-COMMERCE" (EC);

2. Analysis and synthesis of consumer protection models;

3. Analysis and synthesis of representative models for testing consumer trust in EC platforms from the specialized literature;

4. Identifying the factors and dimensions of consumer trust in EC platforms;

5. Critical analysis of representative test models of consumer trust in EC platforms;

- 6. Setting up a model for framing and testing consumer trust in EC platforms;
- 7. Validation of the framing model and testing of consumer trust in EC platforms;

The doctoral thesis is structured in a number of seven chapters, each evolving in a particular way to achieve the seven objectives specific to the stated purpose, within the research. The thesis has 198 pages including appendices, and is based on a bibliographical list of 190 topical titles.

In the framework of the second chapter entitled: "EVOLUTION OF THE MEANS OF COMMUNICATION AND THE CONCEPT OF "E-COMMERCE" (EC)" contributes to the achievement of the first specific objective of the doctoral thesis: Analysis and synthesis of the means of communication, of consumer behavior in the pandemic context and the evolution of the EC concept.

The scientific approach of this chapter was realized through a bibliographic study, focused on three essential branches, as follows:

The first direction presents the evolution of means of communication from prehistory until 2019, when it is considered that the Internet is becoming the most powerful and most used communication channel, highlighting the progress of society. Starting from the new hybrid message, resulting from the combination of the terms advertising and advertisement, a synthesis was made of the evolution of the means of communication and their impact on advertisements and advertising. Siva K. Balasubramanian detected the configuration of hybrid type messages, by combining the two forms of communication "advertising" and "publicity", selecting only the advantages; therefore the audience does not realize that it has been manipulated by processing the communication at variance with the commercial messages (Balasubramanian, 1994). [2]

The second direction of the bibliographic study configures the synthesis of representative models of persuasion, which highlight the influence of subliminal messages on consumer behavior, including in the pandemic context. Persuasion is perceived as a defeat, a confusion, as a bow to the other, it means recognizing the power of the other who is in control because he influences (Kapferer, 2002). [3] A modern definition of persuasion would be that: ,,it captures the large number of subtle hints, the communication being at an extremely low level of awareness or even unconscious, without the person being persuaded feeling influenced" (Gass R. H., 2009). [4]

The nature of subliminal messages or a definition of them in the literature has not been expressly made, but researchers have discovered and applied the technique of visual "flashes" to other fields as well. The notoriety of subliminal advertising becomes known in 1957, when the researcher James Vicary shows that through simple "flashes": "Drink Coca Cola" and "Eat Popcorn", sales increased for these products (Karremans J. C, 2006). [5] Awareness of ad exposure progresses with age. The persuasive force of these advertisements is exaggeratedly strong on children by shaping their behavior as a result of exposure to the subliminal content of the advertisements.

The third direction of the bibliographic study highlights the risk generated by advertisements and publicity, by exemplifying certain risk situations and directs the research towards the approach of the concept of trust, which is the basis of the use of EC platforms. Considering the fact that EC has developed thanks to the Internet, the most representative notions are defined such as: internet, consumer, e-commerce - EC, platform, respectively different definitions of trust from the perspective of several researchers are presented. Advertising has historically been deceptive, manipulative, or immoral. At the same time, advertising raises the prices of products and continued to produce its effects, explained and analyzed in the specialized literature. Contemporary advertising has gone beyond the limits of television and penetrated among people, slowly starting to disturb. Advertisements ended up

being displayed in bus stations, on trams, on the surfaces of blocks, on billboards located in different points of the city, etc. Some of this advertising can be beneficial, it can inform consumers, but often the advertising disturbs with garish colors or exaggerated sizes, sometimes ending up preventing the visibility of the advertised products. Prohibition by law In many countries, including Romania, subliminal advertising is prohibited by law.

Subliminal advertising has a grain of truth, and people who do not pay attention to their own decisions can be influenced without realizing it, and thus consumption behavior can be changed. Advertisements have become a ubiquitous force in our daily lives, affecting each of us and having a considerable impact on the human mind. The approach to this topic represents the understanding of risk management through the prism of television and Internet advertisements, but also the risk that surrounds us from an early age to ensure the future success of those in the advertising world and influential companies.

At the end of the chapter, the evolution of EC platforms and consumer behavior in the pandemic is presented, taking into account the fact that global consumption habits have changed and EC sales have increased. After analyzing consumer buying behavior from the moment humanity first faced with COVID-19, to the moment it went into emergency and lockdown, it could be said that people have become more aware, in regarding health and hygiene and there would be fewer visits to brick-and-mortar stores and more online shopping by customers.

The third chapter entitled: "CONSUMER PROTECTION MODEL IN "E-COMMERCE" (EC) contributes to the achievement of the second specific objective of the doctoral thesis: Analysis and synthesis of consumer protection models. The achievement of this specific objective was realized in chapter 3, both through a bibliographic study, as well as through the original adaptation of some models specific to consumer protection.

Through the bibliographic study, the concept of consumer trust was analyzed, which is supported by protection models from specialized literature, being structured on three specific levels (basic level of trust, attestation of trust and preservation of trust), corresponding to each phase of online trading (information phase, understanding phase, acquisition phase). Over the past 20 years, the current consumer protection system has evolved and improved, bringing about a change in consumer perception. Consumers no longer accept abuses from economic operators, taking protective measures by contacting the authorities in the field directly or by submitting online complaints to them. The evolution of consumer protection in Romania at the present time is conferred by the cooperators, but also by the sources of information that have been modernized since the 2000s until now.

The main contribution of the chapter consists in the design and adaptation of a consumer protection model according to Dr. Morar R. (2000) according to current legislative regulations, in order to further test consumer trust in EC platforms. According to him, the top of the pyramid of the consumer protection system must be represented by the legislative framework, which manages a triangle of trust, which includes consumers, economic operators and bodies with protection and control attributions. [6]

The model was analyzed and tested by the authors, carrying out a comparative analysis of the evolution of the model between 1999-2000, respectively 2020. In 1999, only 3% of the interviewed people turned to the authorities in order to solve their problems as by injured consumer. 20 years ago, the results regarding the evaluation of consumer protection were unsatisfactory, but today, following the testing of this readapted model, it is observed that more credit is given to public authorities and a percentage of 50% of those interviewed would confidently call on these.

If in the 2000s, consumers perception was unfavorable regarding the level of protection provided, it is currently observed that approximately 80% of those interviewed

believe that they have an increased degree of trust in the current consumer protection system and they also believe that they are sanctioned effectively those who mislead them. The model works correctly when the procedures of the legislative framework are continuously updated and correctly implemented in the consumer protection information circuit. In addition, consumers feel protected where there is ongoing concern from public information authorities regarding their legal rights and protection from authorities they can rely on. A.N.P.C. is the most recognized institution in the field of consumer protection and the best rated in the effective application of sanctions to economic operators who do not respect consumer rights. It was concluded that the model works correctly, when the legislative provisions are constantly updated and are aligned with the practice of the European Union.

The fourth chapter entitled: "Consumer trust testing models in E-COMMERCE", combines the bibliographic reference with the practical approach of the doctoral research, achieving the following specific objectives, declared of the doctoral thesis: The third specific objective of the research: "Analysis and synthesis of representative models for testing consumer trust in EC platforms from the specialized literature"; The fourth specific objective of the research: "Identification of factors and dimensions of consumer trust in EC platforms"; The fifth specific research objective: "Critical analysis of representative models for testing models for testing consumer trust in EC platforms".

An analysis and synthesis of three models for testing consumer trust in EC platforms from the specialized literature is carried out, as follows:

Model 1 - B2C Perceived Trust (Corbitt et al., 2003), proposed a research model of consumers' perceived trust in EC, identifying a number of factors closely related to web experience. The study explores the interrelationships of trust in E-COMMERCE in the B2C (business to consumer) context. Trust is central to the assessment of EC success. Following the analysis of the model, the following conclusions emerged: trust is the most important factor for consumer participation in EC. The model presented by Corbitt and his collaborators represents a reasonable starting point for the EC's B2C trust research study; confidence in its quality as a critical factor in EC is predominantly influenced by 3 sources: EC reputation in general, consumers and website specificity. [7]

Model 2 of testing the significant factors affecting trust in EC (Mannan M., 2008) - has as its benchmark the testing of perceived trust. In order to explain this model, it started from the description of perceived trust and perceived risks, with certain factors of trust being highlighted. The model was tested for convergent, discriminant, and nomological validity. Finally, the measurement items were entered into the structural model using SEM (structural equation model - operation that contributes to the promotion of a site) and hypothesis testing was performed. [8]

Model 3 for testing dimensions of consumer trust in EC (Oliveira et al., 2017) [9] - measures the three dimensions of trust: competence, integrity and benevolence and tests the significance of overall consumer trust in EC. In recent years, EC has developed a lot, but still, for some people it is a relatively new concept. Recently, tests of trust in EC have been conducted with the aim of conceptualizing the sources of consumer trust in EC (consumer characteristics, firm characteristics, website infrastructure and interactions), thus also verifying how the sources influence the dimensions of trust consumers in the EC.

From the critical analysis of the three models, certain limitations can emerge, which the present research aims to overcome by creating an updated model and relying on an appropriate combination of management methods. The limitations with the strongest impact, according to hypothesis testing, are:

1. According to the first model (2003), consumers hesitated to make online payments, trust in such a procedure being very low.

2. Although the second model (2008) is much more elaborate, highlighting the dependencies and interdependencies of the factors that affect trust in EC, this model does not identify the risk perceived by consumers.

3. The third model (2017), although it highlights the dimensions of trust much more clearly, integrity as an essential dimension of trust, is not found in the explanation of total trust.

The fifth chapter, entitled: **"Designing the model for testing consumer confidence** in EC – **"M.T.I.C.** – The case of EC platforms from Romania", contributes to the achievement of the sixth specific objective of the doctoral thesis: Setting up a model for framing and testing consumer trust in EC platforms.

Achieving this specific objective took place within chapter 5, by going through the following stages:

1. Design and test a pilot model.

2. Applying a creative method of identifying all the trust factors adapted to the current reality, starting from the results of the analysis of the pilot model testing.

3. Application of the HAZOP risk method to identify the most important factors of consumer confidence in EC.

4. Setting up the current original model of testing and framing consumer trust in EC platforms (M.T.I.C.).

The starting point of the research approach of the fifth chapter is the creation and testing of a Pilot Conceptual Model (MCP). The results of this study reflect that a consumer trust or fear of fraud, influences the final purchase decision. The study gives us the opportunity to check and understand the factors, which influence consumers to engage in making the final purchase decision. The most important argument for increasing consumer confidence is given by the integrity rate within which the lower price in EC (in certain situations) than in traditional stores can be exemplified, which leads non-buyers to make online purchases. It is observed that another important dimension is given by the accessibility of the site, through the way the products are presented, the degree of consumer confidence increases with the visible display of the final price of the products and all additional taxes. Following the study, it was proven that previous purchase experiences and product quality are the two defining assumptions that lead consumers to make the final purchase decision.

Starting from the MCP results, some of the factors of consumer trust in EC platforms were selected. Also, from the critical analysis of the three models (Corbitt, Mannan and Oliveira) the trust dimensions were selected as dependent variables of the trust factors. Next, an updated selection of the dimensions of trust will be made, taking into account the critical analysis correlated with the bibliographic reference in the field. This selection is necessary for the subsequent establishment of real correlations between trust factors and trust dimensions, with the help of which a model can be designed for testing and framing consumer trust in EC platforms, in order to achieve the stated general objective of this thesis. The specific dimensions that characterize EC trust have been disputed and analyzed over time by several authors. According to (Chen S. C. and Dhillon G. S., 2003) [10]: ability/competence; goodwill and integrity. In the study of (Mannan C., 2008), it was concluded that there are four dimensions of trust in E-COMMERCE: capacity; benevolence; integrity and predictability.

Starting from the results of the MCP testing analysis and the analysis and synthesis of the dimensions of trust, the Creative Method "Lotus Flower" was used, on the basis of which the conception of the original M.T.I.C. model was founded. The creative Lotus technique or "Lotus Flower" was proposed by Matsumura Yasuo, a member of the Management Research Center in Chiba, Japan, based on the poet Eliot's method, which started from a central theme, which he divided into 8 themes smaller ones, and these, in turn, unfolded like petals of a lotus flower into 8 other possible variations of subthemes (Matsumura Y., 1990).[11] The creative method "Lotus Flower" contributed to the structured identification of the intrinsic link

between the trust factors adapted to the current reality and the dimensions of trust, with the explanations related to each petal.

Due to the fact that the "Lotus Flower" method is a creative method, many possible branches of influence have been generated that trust factors can have on consumers in EC platforms. The selection of the trust factors was carried out in a scientific way, applying in the second part of the chapter the analysis of the risks identified in the trust testing of EC platforms by means of the HAZOP method. The HAZOP method was introduced to define and delineate the principles necessary for conducting interoperability studies and risk analysis as a result of the increasing complexity of processes, which can no longer be examined using conventional approaches (Lawley, 1974). [12] The positioning of each trust factor as a risk factor, in a certain degree of severity, according to the risk matrix, was framed and justified. The present paper used the simple process flow diagram in risk assessment to investigate deviations from operating norms or design intent, such as the purpose of an EC platform (Rossing N. L., 2009). [13] Based on the results obtained by the HAZOP method, the trust factors were selected, which have the strongest impact on consumer trust in EC platforms. At the end of the chapter, the original conception of the current model of testing and framing consumer trust in EC platforms (M.T.I.C.) was materialized, whose branches of influence are configured by the trust factors selected by the HAZOP method.

Chapter 6 entitled: "Validation of M.T.I.C.", contributes to the achievement of the seventh specific objective of the doctoral thesis: Validation of the framing model and testing of consumer trust in EC platforms.

The validation of the research is obtained in two stages, the design and distribution of the questionnaire in the online environment by means of "Typeform" and the introduction of the answers obtained in the SPSS program in order to validate the model and verify the postulated hypotheses. The research aims to test the dimensions of Romanian consumers trust in EC platforms, through the conceptualization of a linear model and its validation. Likert's scale was used, which involves building a set of sentences related to the researched aspects, the respondents being asked to express their agreement or disagreement with them.

In order to validate the M.T.I.C. model it began with examining the correctness of the data entered into SPSS and continued with establishing the consistency of the statistical relationship between the independent variables (confidence factors) and the dependent variables (confidence dimensions). The independent variables are those that provide the prediction of the dependent variables (dimensions of confidence) based on the responses received from the respondents. The independent variables are grouped into the categories corresponding to the confidence factor, categories, which in the SPSS program are called "blocks".

Within the SPSS program, the "Model Summary", table presents the following statistical coefficients: R - Correlation coefficient, which expresses whether the relationship is/is not significant or is of very low intensity; R^2 - Coefficient of determination, which indicates the proportion of variation in the dependent variable explained by the regression model.

To validate the M.T.I.C. model, the ANOVA (analysis of variance) test was applied within the SPSS program, which generates the F (Fisher) test, based on which the value of Sig is calculated. (significance level). Validation of the M.T.I.C. model. is done with the ANOVA test, because the M.T.I.C. model. it involves dependent variables (dimensions of trust) and independent variables (Datculescu P., 2012) [14]. Statistical coefficients generated by the F (Fisher) test within the ANOVA test. Sig of F, which shows if the regression model is significant, i.e. the independent variable (Confidence Factor) has a statistically significant influence on the dependent variable (Dimension of Confidence).

In conclusion, if Sig ≤ 0.05 , the slope of the regression line corresponds to a significant

relationship between the two variables, thus, the tested model can be considered a model with acceptable dependent values.

Further, after the presentation of the statistical coefficients obtained by using the ANOVA test, following the M.T.I.C. analysis and the primary interpretation of the results obtained, the values of the variation of the dependent variables according to the independent variables, respectively the intensity of the relationships, were explained. At the end of the chapter, the limitations of the M.T.I.C. model, proposals for future research and the primary interpretation of the results are presented. A first limitation of the model concerns the relatively small sample of those surveyed. The second limitation of the model consists in the fact that the answers were provided through the Typeform platform, face-to-face questioning not being possible due to the COVID-19 pandemic.

The third limitation of the model refers to the validation of the model by using simple linear regression, precisely for this reason in the future it is proposed to test the M.T.I.C. by means of multiple regressions, with the possibility of improving a multinominal logistic model. The research can also be extended to the creation of a complex EC platform, emphasizing the correlations between the factors and dimensions of confidence tested.

The last chapter entitled: **"FINAL CONCLUSIONS AND PERSONAL CONTRIBUTIONS"**, presents the final conclusions and personal contributions of the doctoral thesis.

Following the design and validation of the M.T.I.C. model the following conclusions can be drawn:

- The tool used to collect the validation data was the questionnaire distributed in the online environment through the "Typeform" platform providing 478 answers, of which only 450 answers were valid and taken into account, taking into account that in the last 3 months, the respondents have made at least one online purchase;

- The validation of the hypotheses was carried out through the SPSS program, using simple linear regressions; version 20 of the program was used for the statistical analysis of the data;

- The basic indicators, with the help of which the hypotheses were confirmed, are: R, R2 and Sig. from the F test (Fisher);

- The confirmed hypotheses are: H2, H3, H4, H5, H6, H7, H9, H10;

- The unconfirmed hypotheses are: H1, H8, H11;

- The validated hypotheses confirm a close correlation between the independent variables (confidence factors) and the prediction of the dependent variables (confidence dimensions);

- The strongest confirmed relationship is given by hypothesis H5. Thus, in the situation where the security of online payments is respected, the respondents consider that, to the same extent, the confidentiality of their personal data is respected. In this case, a strong chain of trust is confirmed in EC platforms, increasingly complex and specialized in preventing cyber attacks;

- The second firm hypothesis is H3 - the brand reputation of the platform has attracted, by default, an easy interface, respectively an integration of the accessibility of the EC platform from any device (smartphone, tablet, laptop, smart watches, etc.), being confirmed by the respondents;

- The third confirmed hypothesis is H9, which refers to the display of information on the evolution of the reference price practiced on the EC platform in the last 30 days, which is explained by the variation of the independent variable, namely the loyalty points. The trust that the price is real and correct leads consumers to become loyal in the situation where they can also benefit from certain bonuses.

Contributions are distributed throughout the research as follows: Theoretical contributions:

- identifying representative definitions of the communication process, persuasion and certain manipulation techniques present in advertisements;

- analysis and synthesis of the evolution of the communication process from its origins to the present;

- identifying situations in which advertising influences consumer behavior;

- selection of the most representative definitions for the concepts of: consumer, EC, platform;

- highlighting consumerism in consumer protection;

- the selection of four representative models of consumer protection at the European level;

- identifying the most significant definitions of trust;

- analysis of consumer behavior in the context of the pandemic and purchase intentions through EC;

- analysis of the concept of consumer trust in EC;

- analysis and synthesis of the legislative provisions in Romania and the European Union, regarding EC consumer protection;

- setting up test hypotheses of the adapted consumer protection model;

- testing the adapted consumer protection model and formulating solutions to improve EC consumer protection systems;

- identification of representative models for testing consumer trust in EC from the specialized bibliography;

- analysis of the existing correlations between the trust factors and the hypotheses of the studied models;

- the synthesis of the evolution of trust factors, throughout the period 2003-2017, through which consumer participation in EC is tested;

- the synthesis of the dimensions of trust, on the basis of which the participation of consumers in EC is activated;

- identifying the limitations of Model 1 and Model 2, which require the integration of a study of the risks of consumer participation in EC and identifying the limitations of Model 3;

- analysis and synthesis of consumer trust factors in EC, resulting from the MCP model;

- the analysis and synthesis of the dimensions of consumer trust in EC, resulting from the critical analysis of the three models studied and from the bibliographic references studied;

- the selection of the most representative online studies from recent years and their synthesis;

Methodological application contributions:

1. Conception of the adapted model, for consumer protection, starting from the proposal of Morar R. (2000);

2. Critical analysis of EC confidence testing models;

3. Conception and testing of the MCP model;

4. Creating connections between the factors of consumer trust in EC with the dimensions of consumer trust in EC, using the "Lotus Flower" method;

5. Using the HAZOP method to identify the risks associated with online transactions;

6. Configuration of the 53 risk factors and the 6 risk probability scales related to each risk factor;

7. Establishing the risk category and its impact on online transactions (severe, major, moderate, insignificant);

8. Setting up a risk matrix according to the resulting severity;

9. Conception and configuration of the original M.T.I.C. (Model for testing consumer trust in EC);

10. Validation of the original M.T.I.C. model. (Model for testing consumer trust in EC);

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