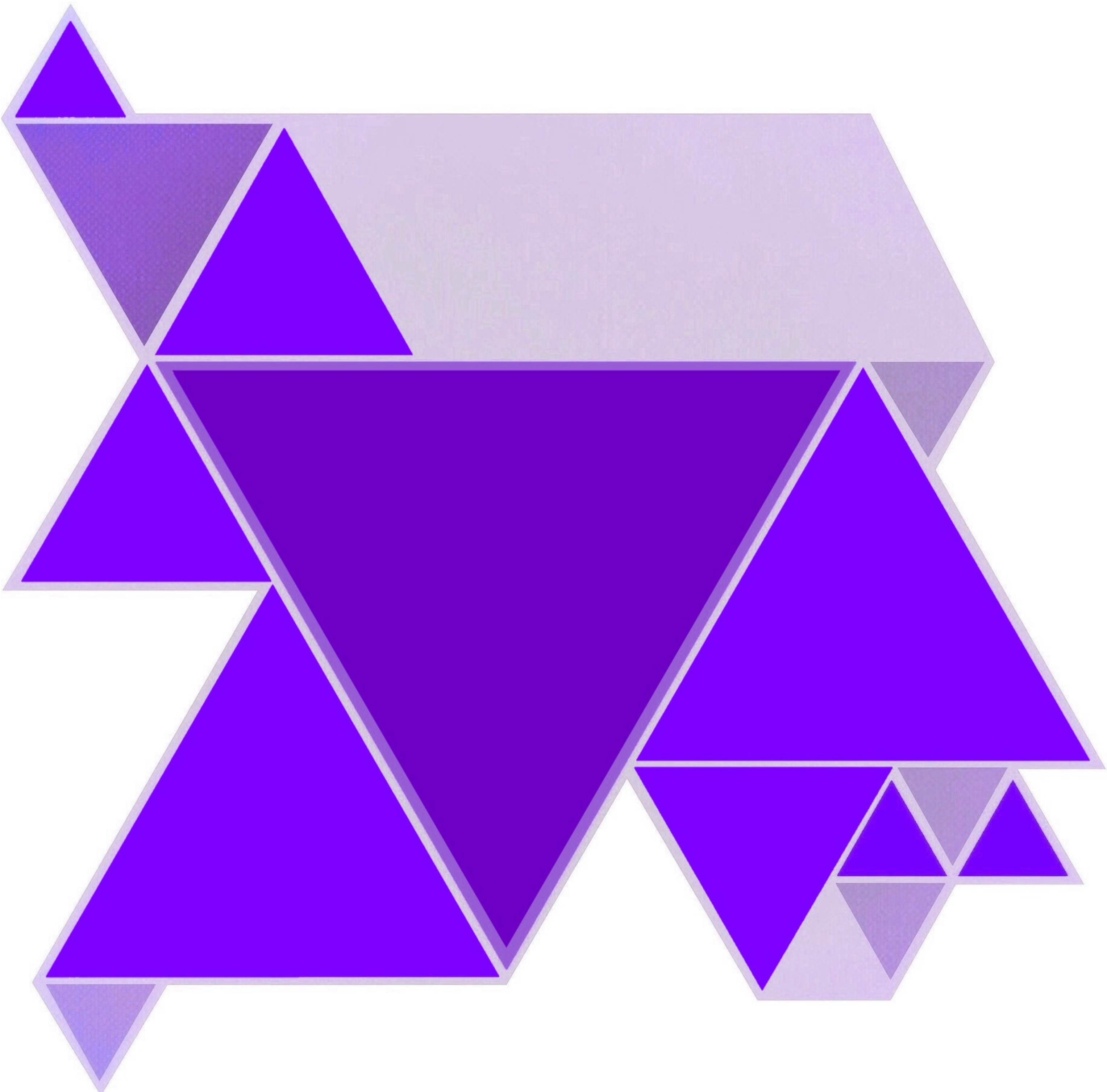
UDC 658.8

e-ISSN 2584-7236

CroDiM

International Journal of Marketing Science

Međunarodni znanstveno-stručni časopis



Vol. 7, No. 1, MARCH 2024

CroDiM

International Journal of Marketing Science
Međunarodni znanstveno-stručni časopis

UDC 658.8
e-ISSN 2584-7236

Nakladnik / Publisher:
CRODMA – Croatian Direct Marketing Association, 42000 Varaždin, Croatia

Naklada / Circulation:
Online – open access: http://crodma.hr/crodim/

Godina izdavanja / Year of publication:
2024

Časopis izlazi jednom godišnje / The journal is published once a year.

Kontakt / Contact:
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Glavni urednik:

Prof. dr. sc. Damir Dobrinić

FOREWORD

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Full Professor Damir Dobrinić, Ph.D.

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SADRŽAJ / CONTENTS

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Original scientific paper / Izvorni znanstveni rad

GENDER DIFFERENCES IN GENERATION Z IN CONTEXT OF TRADITIONAL SOCIAL MEDIA USAGE

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ABSTRACT

Social media play a dynamic role in user's life style by removing communication barriers and become a noticeable place for social interactions. Therefore, social media with its interactive features provide users opportunities to engage with other users and companies. This study investigates the gender difference of Generation Z in relation to features of social media usage. Also, this study explores the relation between purchase intentions and company created social media content, purchase recommendations, sharing the purchase experience in Generation Z. The research instrument was a questionnaire, and data were collected through social media platforms using Google forms. Descriptive statistics, Spearman correlation coefficients and nonparametric statistics (Mann-Whitney U Test) were used to achieve the objective of this study. The research sample consisted of 162 social media users of Generation Z. The results reveal that there is a significant difference between the features of social media usage and gender of Generation Z. Also, research results found statistical significant relation between purchase intentions and company created social media content, sharing information about past purchase experience and encouraging other users to make purchase in social media. At the end of the paper, the author discusses the results, along with implications, limitations and recommended future research directions. This paper contributes on the field of theory to better understanding of the gender differences in social media and also it has practical implications to online retailers and marketing experts in order to highlighted barriers that are specific for purchase behaviour in social media based on gender awareness.

KEYWORDS: social media, generation z, purchase intention

1. INTRODUCTION

Social media usage has grown exponentially in recent year and it has become an integral part of consumer lifestyle [Muhammad et al. 2017]. Today, consumers are increasingly using social media sites to search for information and turning away from traditional media, such as television, radio, and magazines [Mangold and Faulds, 2009]. Social media has become an essential tool of the younger population, especially generation Z. Social media allows people to connect, communicate, discuss, and interact through social media and offer them unique opportunity to fulfil their needs for additional information or products. Therefore, social media is platforms and tools that people use to share opinions and experiences including photos, videos, music, insights and perceptions with each other [Turban, 2009]. On the other hand, social media also provide required, different values to companies, such as improved brand awareness [De Vries et al., 2012], enabling faster word-of-mouth communication [Chen et al. 2011], increasing sales [Agnihotri et al., 2012], sharing information in a business context [Lu and Hsiao 2010] and creating strong social support for consumers [Ali, 2011]. These valuable data gathered on social media provides company useful information about consumer awareness towards their products and reputation. Therefore, this information offer in social media could help the companies identify how consumers perceived them and their products [Asamoah, 2019] in order to establish strong relation and gain strong competitive advantage.

The special characteristics of social media platforms and the unique opportunities they provide for the consumers and companies, has made the study of consumer purchase behavior more complex [Arenas-Gaitán et al., 2019]. Understanding and determine users purchase behavior on social media is significant important for companies and marketers in order to allows them to communicate more effectively with potential and present consumer. Especially, the social media usage is being increasingly embraced by Generation Z. This generation have extensive internet access and online presence and, therefore, understanding their social media usage could be significant to marketers and companies. In addition, companies are trying to take advantage of increasing trend of customers depending on social media particularly for their purchases. Therefore, the aim of this study is to investigate the gender difference of generation Z in relation to features of social media usage. Also, this study explores the relation between purchase intentions and company created social media content, purchase recommendations, sharing the purchase experience in Generation Z.

The paper is organized as follows. Section 2 is literature review, section 3 explains the methodologies used in the study followed by presentation of research results and analysis in section 4. Finally, the paper is concluded with a discussion, limitation of the study and description of future recommendation in Section 5.

2. LITERATURE REVIEW

Nowadays, social media is an effective and convenient platform. Social media are increasingly used for commercial purposes [Vanani and Majidian, 2019] and extensive growth of social media usage often define consumer purchase behavior [Wang et al. 2019; Khajeheian and Ebrahimi, 2020]. Today, users in social media spending more time searching and providing helpful information, which mostly determine their purchase intentions. Research shows that social media can influence on consumers' perceptions, attitudes, and intentions [Narangajavana et al., 2017; Dwivedi et al., 2021].

Social media has influenced consumer behavior from information acquisition to post-purchase behavior [Mangold and Faulds, 2009]. Users view social media platforms as an additional service or sales channel, where they can engage with the company. Also they are allowed to create user generated content [Moghadamzadeh et al., 2020] and share them in social media platforms in order to provide helpful and useful information to the other users. They often use different perspectives such as data sharing and social media usage [Muhammad et al., 2022] because they are concerns about their privacy or risky purchase decision. In order to reduce purchase risk, consumers rely on product ratings, feedback, and comments about the product [Aladwani, 2018; Xu et al., 2020]. Sharma and Rehman [2012] suggested that positive or negative review or comments about a product posted on the social media has significant influence on consumers purchase behaviour. On the other hand, social media usage encourage company to create some type of engagement and relationship with their potential customers

[Park et al., 2021]. Social media increases customer's purchase intentions, and also increase companies' sales and long-term relationships with users [Trawnih et al., 2021]. Many research confirmed that word of mouth has positive impact on purchase intention in social media [Yusuf et al., 2018; Wang and Herrando, 2019; Park et al., 2021]. Therefore, companies could take advantage of social media in distributing comprehensive information, influencing on user's attitudes and opinions, increasing their reputation and generating positive word-of-mouth [Song et al., 2021]. These interactions provide different benefits and values for both, companies and users in social media environment.

Many young people especially Generation Z use social media platforms on a daily basis [Digital 2022 Global Overview report]. The Z generation are an attractive segment especially for social media marketing activities since they are always connected to their social media [Flynn et al., 2016]. Social media usage is being increasingly embraced by Generation Z [Kaplan and Haenlein, 2010]. They mostly use for conversation and communication with their friends and groups but also use for purchasing decision process. The Generation Z have better awareness of products and services, are efficient in searching and providing information on the social media platform, enjoy purchasing, pay attention to advertising, and they are often seeking and use different promotions on social media.

Gender differences have been shown to occur in the social media and have strong effects on purchase behaviour [Raacke and Bonds-Raacke, 2008; McAndrew and Jeong, 2012;], but results are different. Some studies find that women are more active social media users than men and show different type of behaviours [Sheldon and Bryant, 2016; Khan, 2017]. Research reveals that young women are more likely to use social media to maintain existing relations, or for informational and education gratifications, while young men prefer to use social media to meet new people and socialize [Kircaburun et al., 2020]. Kian, et al., 2017 find that men have stronger purchase intention in social media websites than women. However, women users as compared to men are more influenced with eWOM are when buying in social media (Kim et al., 2011). Also, women are tending to less risk taking and rely on online reviews before buying the products in social media [Sohaib et al., 2018]. They have higher levels of concerns about tangible rewards and are more likely to take advantage of promotions and sales when shopping in social media platform than male users [Venkatesh et al., 2012]. According to Zhang et al. [2013], women are more likely than men to express their opinions and emotions and probably be more inclined to posted review or comments about their purchase experience. Furthermore, men and women share different types of topics on social media such as Facebook. For example, men like to share information about their favourite team and sports events, while women like to share a variety of topics such as their lifestyle, talking about their children and their personal hobbies [Lin and Wang, 2020].

3. METHODOLOGY

This study investigates the gender difference of generation Z in relation to features of social media usage. Also, this study explores the relation between purchase intentions and firm-created social media content, purchase recommendations, sharing the purchase experience in Generation Z. To achieve the objectives of the study, a questionnaire was developed based on the results of the literature review. A questionnaire was designed to collect the necessary data from a convenience sample of consumers who have already used social media platforms. The research sample consisted of 162 social media users of Generation Z. Generation Z is identified as individuals who were born in the mid-1990s; some studies mark the beginning of this generation as the year 1995, while others consider it 1997–1998, arguably ending between 2012 and 2018. This study includes social media users born between 1995 and 2010 [Suderman, 2016, Rosenblant, Ramirez, Oulopis, 2016]. Data collection was done by distributing questionnaires to respondents via Google forms. shared on social media such as Facebook and Instagram. The participants who are younger than 18 provided informed consent of adults, prior to accessing the surveys.

The required data was collected between July 2021 and October 2021. A convenience sampling approach was used for data collection. The survey questionnaire consisted of two sections. The first section included questions, “How often do you use social media” and Using social media company achieve” measured with an ordinal scale with closed questions. The second part included statements about purchase intentions, firm-created social media content, purchase recommendations and sharing the purchase experience. The statements were measured using a 5-point Likert scale ranging from 1 to 5, with respondents expressing their level of agreement or disagreement with the statement (1=completely disagree, 5=strongly agree). In addition, the questionnaire included demographic characteristics such as gender, age, education level, and monthly income of the respondents

4. RESEARCH RESULTS

The Mann-Whitney U Test is a non-parametric statistical technique used in statistics to examine differences between two independent groups on a continuous or ordinal scale. The reasons why the Mann-Whitney U test was use because the independent variable, gender consists of more than 2 groups gender: "male" and "female"). The Mann– Whitney U test was used for statistical analysis of the data ($\alpha = 0.05$). To get the *U* statistic, instead of using means, we use ranks by ordering the scores from both groups from smallest to largest, keeping track of which group each score came from, then adding up the ranks for the scores from each group [Emerson, 2023.]. The test results of mean ranks for every statements according to gender are presented in the following Table 1.

Table 1. Mean ranks

	GENDER	N	MEAN RANK	SUM OF RANKS
I intend to make purchases on social media in the future.	Male	61	72,06	4395,50
	Female	101	87,20	8807,50
	Total	162		
Purchasing via social media is in trend.	Male	61	68,16	4157,50
	Female	101	89,56	9045,50
	Total	162		
Reviews on social media helps in making purchase decisions.	Male	61	67,48	4116,50
	Female	101	89,97	9086,50
	Total	162		
Social media are a good additional	Male	61	71,46	4359,00

channel of sales and advertising for the company.	Female	101	87,56	8844,00
	Total	162		
I am searching for information about products advertised on social media.	Male	61	71,42	4356,50
	Female	101	87,59	8846,50
	Total	162		

Source: Research findings (N=162)

The Mann-Whitney U test to assess the significance of differences between respondents in terms of demographic characteristic such as gender. Additional confirmation of the results has been obtained by Mann Whitney test with significance below α=0,05 in Table 2,3,4,5 and 6. The following table shows the Mann Whitney test result for purchase intentions considering the gender of Generation Z.

Table 2. Mann Whitney U test - gender of Generation Z and purchase intentions

	Purchase intentions
Mann-Whitney U	2504,500
Wilcoxon W	4395,500
Z	-2,082
Asymp. Sig. (2-tailed)	,037

Grouping Variable: GENDER
Source: Research findings (N=162)

Table 1 provide data on the calculated z-values and the approximately calculated statistical significance of differences between the crossed variables Since the significance for purchase intentions is less than 0.05, exactly 0.037, it can be confirmed that there is a statistically significant difference in the purchase intentions with regard to the gender of Generation Z. Introduction of gender variable into further analysis indicates that female respondents are more inclined to make purchase in social media than men. This is confirmed by the results from table 1 where the rank for women is 8807,50 and for men is 4395,50. The next table shows the Mann Whitney test result for purchasing via social media is in trend considering the gender of the respondent.

Table 3. Mann Whitney U test - gender of Generation Z and purchasing via social media is in trend.

	Purchasing via social media is in trend.
Mann-Whitney U	2266,500
Wilcoxon W	4157,500
Z	-3,045
Asymp. Sig. (2-tailed)	,002

Grouping Variable: GENDER
Source: Research findings (N=162)

The existence of significant statistical difference in the purchasing via social media is in trend per gender of Generation Z was confirmed by Mann Whitney test, shown in the Table 3, the significance being below α=0,05. When analysing the gender difference, it is noticeable that female respondents are more likely to agree with the statement in relation to the male respondents, since the rank for female is 9045,50 and for men 4157,50 (Table 1). Research results suggest that female respondents of Generation Z consider social media as convenient and trendy place for purchasing. Most likely, female respondents believe that shopping through social media will provide more suitable and comprehensive information that can help in purchasing decision making. The results of Mann Whitney test for variable gender of Generation Z and reviews on social media helps in making purchase decisions are present in the Table 4.

Table 4. Mann Whitney U test - gender of Generation Z and reviews on social media helps in making purchase decisions

	Reviews on social media helps in making purchase decisions.
Mann-Whitney U	2225,500
Wilcoxon W	4116,500
Z	-3,205
Asymp. Sig. (2-tailed)	,001

Grouping Variable: GENDER
Source: Research findings (N=162)

Table 4 shows the Mann Whitney test result for reviews on social media helps in making purchase decisions considering the gender of Generation Z. Since the significance for reviews on social media helps in making purchase decisions is less than 0.05 and is 0.001, it can be confirmed that there is a statistically significant difference between reviews on social media that helps in making purchase decisions with regard to the gender of Generation Z. Table 1 shows the ranks of reviews on social media helps in making purchase decisions with regard to gender of the respondent indicating that women are more likely to search for review before making a purchase decision since the rank is 9086,5, and for men it is 4116,50. Next table show result of Mann Whitney test between gender of Generation Z and social media are a good additional channel of sales and advertising for the company.

Table 5. Mann Whitney U test - gender of Generation Z and social media are a good additional channel of sales and advertising for the company.

	Social media are a good additional channel of sales and advertising for the company.
Mann-Whitney U	2468,000
Wilcoxon W	4359,000
Z	-2,297
Asymp. Sig. (2-tailed)	,022

Grouping Variable: GENDER
Source: Research findings (N=162)

Table 5 indicates that there are statistically significant differences in attitudes of respondents to the said statements with respect to gender. The significance is 0.022, being less than α=0,05. Results shows that female respondents since the rank is 8844,00, are more prone to agree with the statement that a social media is a good additional channel of sales and advertising when compared with male respondents with rank of 4359,00. Female respondents consider social mead as efficient place where can get more timely information through advertisements. Also, they perceived social media as a potential place for making purchases more efficiently since they have direct communication with the preferred company. Mann Whitney U test between gender of Generation Z and searching for information about a product on social media are shown in Table 6.

Table 6. Mann Whitney U test - gender of Generation Z and searching for information about a product on social media

	Searching for information about a product on social media
Mann-Whitney U	2465,500
Wilcoxon W	4356,500
Z	-2,282
Asymp. Sig. (2-tailed)	,023

Grouping Variable: GENDER
Source: Research findings (N=162)

The results show that, there is a statistically significant difference in the mean score gender and searching for information about a product on social media (Mann–Whitney U = 2465,500, p = 0.023). The female respondents of Generation Z tend to rely more on the search of general information before purchasing the products via social media.

Regarding social media usage, as the Mann–Whitney results indicate, there is enough evidence to conclude that there are significant differences between the gender of Generation Z and 5 statements. Since all p-values are smaller than the significance level of 5%, there is a significant gender difference regarding every statement included in this paper. For every statements (Table 1), female respondents of Generation Z ranked higher than males. This demonstrates with respect to social media usage that female respondents are more inclined toward purchasing via social media and provide useful information about their purchase experience. Furthermore, female respondents will likely to talk about, recommend or purchase products on social media since they consider social media a useful advertising tool as well as an additional and potential point of sale. Table 7 shows the results of correlation matrix between purchase intentions and pre-purchase behaviour, number of reviews and intention to review.

Table 7. Correlation matrix between purchase intentions and company created social media content, sharing information about past purchase experience and encouraging other users to make purchase in social media

Spearman's rho	**Purchase intentions**
I would encourage my friends to purchase via social media.	665**
	,000
I would share the purchase experience via social media.	553**
	,000
The level of communication with companies via social media meets my expectations	464**
	,000

** Correlation is significant at 0,01
Source: Research findings (N=162)

Statistical analysis of data displayed in Table 7 found statistically significant, moderately strong but positive relation between purchase intentions and company created social media content, sharing information about past purchase experience as well as encouraging other users to make purchase in social media. Values of Spearman's correlation coefficient show statistically significant, moderately strong positive relation between purchase intentions and company created social media content. The result confirm that the users are satisfied with the company created social media content because it allows them to simply follow the latest news and trends that appear daily in social media. Also, the result indicate that users are satisfied with the communication because they can exchange information with the company in a very simple way in order to fulfil their needs. Such an approach allows users to develop strong individual relation with the company and become potential loyal consumer in future. Further, statistical analysis presented in the table 7, show moderately strong but statistically significant, positive relationship between purchase intention and sharing information about past purchase experience. From the data shown in table 7 it can be seen that users will be willing to share the necessary information about their past purchase experiences and satisfaction with the products purchase via social media. Further analysis, show that there is a strong statistically significant, positive relationship between purchase intention and encouraging other users to make purchase in social media. The results suggested that users, based on their own positive purchase experiences, will encourage other users to buy a product they are satisfied with. Such a result indicates that e-WOM can have a significant impact on the purchase intentions of other users in future.

5. CONCLUSION

This study investigates the gender difference of generation Z in relation to features of social media usage. Also, explores the relation between purchase intentions and firm-created social media content, purchase recommendations, sharing the purchase experience in Generation Z. In context of results, female respondents of Generation Z ranked higher than males. Female respondents will likely to exchange information, recommend or purchase products on social media since they consider social media a useful advertising tool as well as an additional and potential point of sale. Further statistical analysis shows statistically significant, moderately strong but positive relation between purchase intentions and company created social media content, sharing information about past purchase experience as well as encouraging other users to make purchase in social media. The result confirm that the users are satisfied with the company created social media content because it enables them to simply follow the latest news and trends that appear daily in social media. Also, the result indicate that users are satisfied with the communication because they can exchange information with the company in a very simple way in order to fulfil their needs. Such approach allows users to develop strong individual relation with the company and become potential loyal consumer in future. Also, users will be willing to share the necessary information about their past purchase experiences and satisfaction with the products purchase via social media. They probably believe that sharing the crucial information can be useful for other users to helps them by reducing the perceived risk in purchase in order to make a right purchase decision. In addition, results recommended that users, based on their own positive purchase experiences, will encourage other users to buy a product they are satisfied with. Such a result indicates that e-WOM can have a significant impact on the purchase intentions of other users in future.

A deeper understanding of gender difference in social media can be helpful for both researchers and practitioners to gain better insights into consumer purchase behavior. Investigating gender differences in social media could benefit to companies in order to highlighted barriers that are specific for purchase behaviour in social media based on gender awareness.

The main limitation is that the study is based on non-probability convenience sampling, meaning that the sample is unlikely to be representative of the population being studied, have unbalanced sampling structure and small number of sample units. Limitation of this study is that it refers to only Z Generation users, which also limits the generalization of the research results. Considering the stated limitations, future research should consider to include other generation in sample and to include additional variables to this survey to gain a comprehensive insight into users' social media usage.

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Original scientific paper / Izvorni znanstveni rad

CUSTOMER ATTITUDES TOWARDS E-COMMERCE: CASE OF BOSNIA AND HERZEGOVINA

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ABSTRACT

With the rise of globalisation and development of information technology, e-commerce, as an alternative buying and selling space to offline stores, gained on its importance. The e-commerce prevalence affected the way business is done by organisations, but also the consumer behaviours and their perceived value of retail space. E-commerce has been on the rise in most industries, especially followed by the recent Covid-19 pandemic. The rising trend of digital shopping behaviour in terms of the increase in online payment methods, number of mobile transactions etc. has been also evident. The on-going growth of e-commerce on a global level may be argued as evidence of people's acceptance of e-commerce. Nevertheless, some studies have found significant differences in the level of acceptance between the developed and developing countries, since the latter fall behind in terms of the digital transformation. Various theories of e-commerce acceptance have been formulated in literature to appoint to factors that drive the e-commerce acceptance. Furthermore, the user's trust in terms of the online security, variety of products available online, the competitiveness of prices or the time saved compared to offline stores have shown to be some of the general factors influencing the e-commerce acceptance both from buyers' and sellers' point of view.

This paper presents the findings of research conducted in cooperation with the E-Commerce Association Bosnia and Herzegovina in 2023 on a sample of 1,317 respondents who made purchases online. The findings of the research confirm some of the findings carried out in countries around the world, but there are also certain specificities that are reflected in the preference for the way of making purchases, the method of payment, the method of delivery, the selection of sellers, etc.

KEYWORDS: e-commerce, e-commerce acceptance, Bosnia and Herzegovina

1. INTRODUCTION

1.1. E-COMMERCE DEVELOPMENT

In the past 20 years, e-commerce developed rapidly into alternative marketplace to offline stores, mainly as a result of the continuous growth of the Internet and information technology [Haryanti and Subriadi, 2020; Bai and Li, 2022]. As the technology and connectivity became more accessible to individuals and businesses during the early 1990s, and the World Wide Web was created, the e-commerce activities expended among businesses, individuals, and industries [Chu et al., 2007]. Nevertheless, not until the early 2000's did the e-commerce develop to its full potential, with significant improvements in its instruments and technology which solved the prior issues preventing it from achieving the worldwide popularity it has today [Yoo and Yang, 2018]. The e-commerce prevalence transformed the way business is done by organisations, but also the consumer behaviours and their perceived value of retail space [Jain at al., 2021; Liu at al., 2022]. In the broader context, the recent rate of the technological change is so significant that the e-commerce has also created shifts in the world economy, influencing different areas of industry [Jain and Arya, 2021]. Gregory at al. [2017] argue that the e-commerce, as one of the biggest technological developments in the last two decades has revolutionised the businesses on a global scale bringing in numerous benefits, such as: easier access to new markets, more efficient supply chains, expanded customer base, better customer services, lower costs, and increased profits. E-commerce has been on the rise in most industries, especially followed by the recent Covid-19 pandemic, which produced a notable number of first-time online shoppers across the world which are expected to continue developing their new shopping habits [Beckers at al, 2021; Statista, 2023]. The rising trend of digital shopping behaviour in terms of the increase in online payment methods, number of mobile transactions etc. has been also evident. In 2021, the worldwide retail e-commerce sales were worth approximately 5.2 trillion U.S. dollars, while in 2022 they grew up to 5.7 trillion U.S. dollars [Statista, 2023]. According to the Eurostat data, the online shopping trend continues to grow in the European Union as well, with a twenty percent increase in the number of e-buyers from 2012 until 2022 [Eurostat, 2023]. Furthermore, Europe seems to be the area with the most rapid growth when it comes to cross-border e-commerce markets [Cheba at al., 2021; Reis and Machado, 2020].

Several drivers that may have facilitated the e-commerce development are discussed in literature. Cheba at al. (2021) argue that the information technology infrastructure, both in terms of the mobile and internet access impacted the development of e-commerce greatly, especially its use in the cities. Additionally, other external influences shaped the e-commerce development, among which the following: improved e-commerce infrastructure for the export markets, improved payment gateway systems, increased demand for e-commerce, improved transportation systems, improved government policies, improved analytics tools, expansion of social media, and the enhanced users' trust in the e-commerce market [Cheba at al., 2021; Gajda, 2020; Gregory at al., 2017; Jain at al. 2021; Sfenrianto at al., 2019]. Some authors argue that the gross domestic product also has a notable impact on the e-commerce market development [Cheba at al., 2021; Li at al., 2018]. In this context, it is important to mention social commerce, which developed together with the rapid expansion of social media, enhancing the users' trust and satisfaction with e-commerce. Prior to making buying decisions, users tend to actively rely on social commerce, due to numerous benefits social commerce offers for them, including: enhanced information search, possibility to read and write reviews, engage, save time while e-shopping, improved understanding of their needs from the seller's point of view etc. [Attar et al., 2020; Lin et al., 2019]. The advancements in mobile technology have also significantly affected the online shopping behaviour and users' habits [Li at al., 2020; Cristofaro, 2019]. Wagner, Schramm – Klein and Steinmann (2020) argue that the trend of multichannel online shopping, including computers, smartphones, tablets, and smart TV's is affecting the online retailing in a way that it's becoming more versatile, complex and demanding in terms of the understanding of users' needs.

The on-going growth of e-commerce on a global level may be argued as evidence of people's acceptance of e-commerce [Haryanti & Subriadi, 2020]. Nevertheless, there are still several factors that can be argued as barriers to the expansion of e-commerce market, especially in the developing countries. However, these vary among individual markets. These factors include the following: lack of legislation and regulation related to e-commerce, insufficient support of financial institutions for the e-commerce infrastructure, lack of private and public sector collaboration, as well as the consumers' reluctancy to switch from traditional to online markets [Cheba et al., 2021; Hamed at al, 2008; Jain at al., 2021]. Yang at al. [2008] argue that one of the key barriers to e-commerce acceptance in past has been the lack of users' trust. Various theories of e-commerce adoption and acceptance have been formulated in literature to appoint to factors that drive the e-commerce acceptance. Hernandez at al. [2008] argue that the underlying motivations for the first-time shoppers and experienced shoppers vary based on the level of their experience. Some earlier studies suggest that buyers turn to e-commerce in order to save time and money [Punj, 2012; Haryanti & Subriadi, 2020]. However, as the prevalence of e-commerce expended, other numerous factors influencing users' acceptance of e-commerce have been discussed by researchers, such as: enhanced flexibility in shopping, access to information about products and sellers, ease of access to complementary goods and suppliers, transparency related to users' experiences and reviews, enhanced online security, competitive prices etc. [Jain at al., 2021; Haryanti and Subriadi, 2020; Hernandez at al., 2008]. Furthermore, demographic variables such as: age, language, occupation, household size, origin of birth, marital status etc. have also shown to be influencing the variances in users' e-commerce behaviour [Nasseri & Elliot, 2011].

The aim and intention of this research was to determine the needs, habits, and attitudes of e-commerce users in Bosnia and Herzegovina. The need to conduct this research is reflected in the lack of official data on the development of e-commerce in Bosnia and Herzegovina, as well as limited number of studies that can provide a deeper insight into the needs and expectations of customers in Bosnia and Herzegovina.

1.2. E-COMMERCE DEVELOPMENT IN BOSNIA AND HERZEGOVINA

Even though the ongoing growth of e-commerce in recent years is evident, the literature shows that there are differences between developed and developing countries [Cheba at al., 2021; Činjarević et al., 2021]. Compared to the research on e-commerce size and trends in the European Union and other developed countries, the research, and relevant statistical data for BiH is scarce [Jaganjac, Obhodaš and Jerković, 2020]. Nevertheless, according to UNCTAD B2C E-commerce Index 2020, Bosnia and Herzegovina has been placed amongst the top ten countries in transition when it comes to e-commerce acceptance [UNCTAD, 2020]. Based on the data provided by Statista [2022], Bosnia and Herzegovina takes only a small portion of the global e-commerce trade, with a predicted e-commerce revenue of $424.6 million by the end of 2023 and annual growth rate of 10.75 percent [Statista, 2022]. Furthermore, as indicated in the European E-commerce Report 2022, although the Western Europe has a significant precedence compared to the rest of the continent when it comes to e-commerce turnover, in

2021, Eastern Europe, with Bosnia and Herzegovina included showed higher growth in B2C e-commerce markets [Amsterdam University of Applied Sciences, 2022].

Bosnia and Herzegovina (hereinafter: BiH) is a country situated in Southeast Europe, e.g. the west part of the Balkan Peninsula, and based on the consensus from 2013 counts 3.531.159 citizens, and 1.155.736 households [Agency for Statistics of Bosnia and Herzegovina, 2023]. According to the UNDP [2023], the process of digital transformation of BiH is in progress, but its full potential still has not been reached. Today, many successful domestic e-commerce websites operate in BiH, including Olx.ba, Ekupi.ba and others [Jaganjac, Obhodaš & Jerković, 2020]. International e-commerce websites such as Ebay.com, Aliexpress.com are also available for BiH customers, while the e-commerce pioneer, Amazon.com still has not opened its doors to BiH [Ebay, 2023; Aliexpress, 2023; Amazon, 2023). Even though many international e-commerce websites are available for BiH, the research shows that the majority of BiH citizens prefer to buy from online domestic sellers [Amsterdam University of Applied Sciences, 2022; Mastercard, 2022]. The data provided in the European E-commerce Report 2022 indicates that up to 70 percent of BiH online shoppers buy from national sellers [Amsterdam University of Applied Sciences, 2022]. The research conducted by the company Mastercard confirms this pattern, while it also indicates that social commerce should not be neglected when it comes to BiH e-commerce users, since 15 percent of Mastercard users in BiH use social networks such as Facebook or Instagram for online shopping [Mastercard, 2022].

According to the research conducted by Peštek, Resić and Nožica [2011], 45 percent of research respondents in 2011 engaged in online transactions, mostly related to online sales and purchases, or e-banking. The factors such as simplicity or timesaving were mainly stated in favour of online shopping. On the contrary, 55 percent of the study respondents did not engage in online transactions due to concerns related to payment security, data privacy, website interface, lack of personal contact with seller, uncertainty related to the inability to check the product's characteristics prior to delivery, or poor access to information. Similar results were found by Selimović and Peštek [2014] in their study on consumer behaviour in online group buying in BiH. The authors argue that only a small portion of Internet users engaged in online group buying and online buying in general, mainly due to concerns related to trust in terms of money and product safety. Other reasons included a small number of Internet users in general, and complications in the payment process, since many credit/debit cards weren't authorised for online purchases. As Peštek, Resić and Nožica [2011] argue, it seems that trust was a mayor issue for online shoppers in BiH a decade ago, and in fact was an eliminating factor when it came to online transactions.

Nevertheless, based on the data from the European E-commerce Report 2022, by 2021, the Internet usage rate grew to 79 percent, while the number of e-shoppers increased to 40 percent of the BiH population [Amsterdam University of Applied Sciences, 2022]. According to the latest data, provided by the Agency for Statistics of Bosnia and Herzegovina, the Internet connections in BiH through the fixed network counted to 876.845 in the first quarter of 2023, which is an increase of more than 8 percent compared to the first quarter of 2022 [Agency for Statistics of Bosnia and Herzegovina, 2023]. In the report published by company Mastercard in 2022, the data shows that up to 40 percent of Mastercard users perform transactions at least once a week, while 23 percent of users carry out transactions for the purpose of online shopping [Mastercard, 2023]. In addition, according to the data provided in the European E-commerce Report 2022, in 2021, 52 percent of online shoppers in BiH made at least one to two purchases, 34 percent three to five purchases, while 14 percent six and more [Amsterdam University of Applied Sciences, 2022]. Based on the evident changes in the behaviour of BiH online users in a range of 9 years, we may argue that the online shoppers in BiH have not just gained more confidence in online payment services, but also tend to engage in online shopping more frequently than before.

Another interesting data provided by the Agency for Statistics of Bosnia and Herzegovina is that the number of mobile phone users in the first quarter of 2023 was 3.589.802, which is in comparison to the number of citizens registered in the consensus from 2013 higher by 1.6% [Agency for Statistics of Bosnia and Herzegovina, 2023]. Moreover, combined with the report from 2021 conducted by the company Visa, stating that up to 26 percent of BiH citizens carry out payments using their mobile phones, we can see the growing pattern not just in the number of Internet users, but also in the number of active mobile users, additionally indicating the increase in the e-commerce trend in BiH as well [Visa, 2021].

Jaganjac, Obhodaš & Jerković (2020) argue that there is no precise data on the e-commerce trade in BiH, and that it is only possible to find the aggregate data on trade in BiH. Nonetheless, based on of the data for five most popular e-commerce platforms in BiH for the period 2015-2018, the authors argue that these companies achieved a 45 percent growth in sales revenue in 2018 compared to 2015, and that at the level of e-commerce industry, BiH achieved strong growth in the aforementioned period. Although the rate of e-commerce growth in BiH is much smaller compared to global level, it is stable, and it will continue growing in the future. During the Covid-19 pandemic, Olx.ba, one of the most visited BiH domestic e-commerce platforms, published an internal analysis report which, compared to 2020, indicates a 36 percent increase in the number of listed items for sale in 2021, as well as the 89 percent increase in the number of deliveries, which shows a growing e-commerce trend during this period [Olx, 2021].

2. METHODOLOGY

The research was conducted in December 2023 in cooperation with the E-commerce Association in Bosnia and Herzegovina.

The survey was developed by the author based on relevant studies, and previously conducted research. The survey was distributed online, and 1.317 valid answers have been collected, through respondents who had experience with online shopping.

The sample is dominated by female respondents (81.8%), which also represents one of the limitations of the research. About 58.3% of respondents are aged 26-35 (30.2%) and 36-45 (28.1%), and 18.5% of respondents are aged 18-25. Approximately 6.9% of respondents are over 55 years old. Furthermore, 65.7% of respondents live in a marriage or partnership, 52.8% of respondents have university education, and 61.5% of respondents are employed.

3. RESEARCH FINDINGS

Some of the important research findings are presented below.

The research showed that 60.7% of respondents have antivirus software installed, while 48.3% of respondents have at least one subscription to video and audio streaming services. Furthermore, 78.3% of them use the Internet or mobile banking, and 69.6% of respondents have at least one credit or debit card that they use to pay online. Also, 21.4% of respondents have a separate bank account or card that they use exclusively for online payments.

It is interesting that approximately 28.8% of respondents had inconveniences during online shopping, 13.6% during online payment and 31.2% during delivery of ordered goods. About 7.1% had a problem with stolen or misused personal data.

Online shopping is mostly done via mobile phone (78.1%), laptop or desktop computer (20.7%) or tablet (1.2%).

When talking about the place of shopping, these are the findings:

- Websites in BiH (63.6%),
- Websites abroad (19.7%),
- Social media in BiH (15.1%) and,
- Social media abroad (1.6%).

It is also important to note that social commerce has fairly high representation in total online purchases.

As many as 35.2% of the respondents have not made purchases abroad so far. About 22.7% of respondents who bought online from abroad bought in countries of the region (Croatia, Serbia, Montenegro, Albania, and North Macedonia), 21.3% in EU countries, 10.7% in Asian countries, 4.3% in North American countries, 3.7% in other European countries, 1.4% in Central and South American countries, 0.5% in Australia, and 0.1% in Africa.

About 49.6% of respondents do not use online payment systems at all, while about 32.2% use PayPal, 8.8% Google Pay, 2.7% Apple Pay, 2.5% Payoneer and 1.4% Ali Pay and Amazon Pay. Other services include Stipe, Venmo and Square.

Table 1 shows the products that are most often bought online. There is a difference between men and women, where men mostly buy clothes (11.2%), consumer electronics (9.6%), computer equipment (8.1%), shoes (8.0%) and household items (7 .8%), and women clothing (19.1%), footwear (10.7%), household items (10.4%), and cosmetics and body care products (7.4%).

Table 1. Products and services purchased online, N=1.317

Products and services purchased online	**%**
Clothes	17.5
Footwear	10.1
Household items	9.9
Cosmetics and body care	6.4
Baby equipment	4.9
Books	4.6
Jewellery	4.5
Consumer electronics	4.3
Sports and fitness equipment	3.7
Tickets	3.7
Toys	3.5
Computer equipment	3.5
Travels	3.4

Food and drink	2.8
Watches	2.7
Products and services related to health and wellness	2.7
Furniture and decor	2.6
Digital and media services and subscriptions	2.3
Machines and tools	2.3
Medicines	2.1
Software	1.1
Music	0.6
Movies	0.6
Other	0.1
Hobby equipment	0.0
Total	100.0

Source: Authors

The preferred delivery method for online purchases in Bosnia and Herzegovina is delivery to the address via express mail (79.9%), regular mail (12.1%), home delivery by the manufacturer/seller (6.3%), and collection in the store or warehouse of the manufacturer/seller (1.7%). Delivery from abroad is done through express mail (68.4%) and regular mail (31.4%).

The preferred payment method is cash upon the delivery (69.7%), card payment (23.6%), services such as PayPal (4.8%), bank payment (1.2%) and money transfer such as Western Union (0.7%).

In Table 2 the factors for making a purchase decision are presented. It is evident that the dominant reasons are a positive experience with the manufacturer/seller in a traditional/offline store (21.2%), recommendations from friends and family (19.8%) and recommendations, positive ratings, or reviews from other customers (18.6%).

Table 2. Factors for making a purchase decision, N=1.317

Factors for making a purchase decision	**%**
Positive experience with manufacturer/retailer in traditional/offline store	21.2
Recommendations from friends and family	19.8
Recommendations, positive ratings, or reviews from other customers	18.6
Information from the website of the manufacturer/trader	9.9
Information from manufacturer/retailer profiles on social media	7.0
E-mail or newsletters to which I am subscribed	2.5
Searches on web browsers (Google, Bing, Yahoo, etc.)	5.8
Advertisements on social media	4.1
Use of search engines/price aggregators	2.3
Internet and social media forums and groups	7.1
Google ads on websites, media portals, etc	1.6
Total	100.0

Source: Authors

Table 3 shows the attitudes of the customers, which were rated from 1 (absolutely disagree) to 5 (absolutely agree). It is evident that the findings are consistent with the findings from the previous table.

Table 3. Customer Attitudes About Online Shopping, N=1.317

Statement	N	Mean	Median	Mod	Std.dev.
I prefer manufacturers/retailers who have positive ratings and comments from other customers	1285	4.10	5.00	5	1.174
I prefer platforms/manufacturers/retailers that provide the option to return/exchange products	1290	4.08	5.00	5	1.188
I prefer platforms/manufacturers/retailers that provide product warranties	1285	4.07	5.00	5	1.199
I prefer platforms/manufacturers/retailers that I have bought from before	1279	4.07	5.00	5	1.191
I prefer manufacturers/merchants who have safety certificates	1285	3.90	4.00	5	1.229
I prefer offers in which the price of delivery is included in the price of the goods	1280	3.79	4.00	5	1.289
I prefer platforms/manufacturers/retailers that provide the possibility of tracking the delivery (tracking code)	1277	3.77	4.00	5	1.254
Before making a purchase from a certain manufacturer/retailer, I always do additional research on their reliability and history of operation/performance	1284	3.75	4.00	5	1.275
When shopping online, the delivery price is particularly important to me	1284	3.75	4.00	5	1.270
I am ready to wait longer for delivery if the price of the product is favourable	1281	3.75	4.00	5	1.311
I worry about my online privacy	1277	3.74	4.00	5	1.346
I prefer platforms/manufacturers/retailers that provide customer support (call centre, e-mail, chat, etc.)	1281	3.74	4.00	5	1.296
When shopping online, I always compare several alternative offers/products	1284	3.72	4.00	5	1.263
When shopping online, I always compare several alternative suppliers	1280	3.71	4.00	5	1.285
I believe that I have enough knowledge on how to safely use the Internet	1279	3.69	4.00	5	1.246
I don't like sharing my information online	1286	3.62	4.00	5	1.359
When shopping online, I prefer manufacturers/retailers from BiH because that way I avoid customs procedures	1280	3.62	4.00	5	1.335
I prefer to buy products online from reputable/known retailers	1275	3.61	4.00	5	1.340
I worry about the possible theft of personal data when I make an online payment	1285	3.60	4.00	5	1.363
I prefer manufacturers/merchants who have lower prices than other providers	1281	3.56	4.00	5	1.326
I worry about possible identity theft when I make an online payment	1283	3.55	4.00	5	1.379
Delivery time is especially important to me when shopping online	1279	3.54	4.00	5	1.259
I prefer manufacturers/retailers that offer the possibility of joining loyalty programs	1277	3.53	4.00	5	1.294
I prefer to buy products from reputable/well known manufacturers online	1283	3.48	4.00	5	1.339
I am afraid that the product I ordered will be different from what was promised	1280	3.45	3.00	5	1.303
I avoid fewer known manufacturers/sellers when shopping online	1282	3.37	3.00	5	1.394
I prefer to gather information about the product in the store and do the shopping online	1283	3.32	3.00	5	1.430
I don't like to type in data during online payments	1275	3.30	3.00	5	1.387
I prefer to gather information about the product online and do the shopping in a traditional store	1279	3.11	3.00	3	1.361
I prefer traditional shopping over online shopping	1278	3.00	3.00	3	1.367
If I see an interesting online offer, I will buy it immediately	1280	2.72	3.00	3	1.375

I am bothered by the additional checks with a token after entering the card (3D secure)	1277	2.70	3.00	1	1.408
I am not familiar with the methods of using the cards for online payments	1273	2.13	1.00	1	1.392

Source: Authors

Table 4 shows the success factors of the web platform for electronic commerce, which were rated from 1 (absolutely disagree) to 5 (absolutely agree). It is evident that the most important thing for a customer is to be delivered what was described and within the promised time.

Table 4. Web platform success factors, N=1.317

Statement	**Mean**	**Median**	**Mod**	**Std.dev**
I received exactly what was described	4.37	5.00	5	1.026
The product was delivered when promised	4.36	5.00	5	1.019
The site provides enough information about the product	4.32	5.00	5	1.027
The site has an easy and secure payment system	4.31	5.00	5	1.040
I can find what interests me on the site	4.31	5.00	5	1.006
The site has a good reputation	4.28	5.00	5	1.057
The site provides an easy search option	4.28	5.00	5	1.039
The site provides up-to-date product information	4.27	5.00	5	1.056
The site provides product information that is easy to understand	4.26	5.00	5	1.069
The site processes the order quickly	4.26	5.00	5	1.053
The site has good shipping rates	4.26	5.00	5	1.063
The site provides relevant product information	4.25	5.00	5	1.071
The site only asks me for the necessary information to complete the transaction	4.22	5.00	5	1.114
The page loads quickly	4.21	5.00	5	1.063
The site clearly states how my information will be used	4.20	5.00	5	1.112
The site provides consistent product information	4.19	5.00	5	1.073
The privacy policy is clearly stated	4.19	5.00	5	1.106
The site also provides customer support	4.19	5.00	5	1.077
The site has detailed security information	4.18	5.00	5	1.108
The site has more favourable prices than the traditional store	4.16	5.00	5	1.129
The site is easy to navigate	4.15	5.00	5	1.099
The site has security certificates	4.15	5.00	5	1.120
The products are well packed	4.15	5.00	5	1.087
The site has a wide scope/range of products	4.10	5.00	5	1.112
The site supports the provision of recommendations and reviews	4.05	4.00	5	1.127
The site is pleasantly designed	4.03	4.00	5	1.119
The site also has additional offers/promotions	3.99	4.00	5	1.160
The site is mobile-friendly	3.98	4.00	5	1.187
The site has the possibility to compare products/prices	3.91	4.00	5	1.184
The site provides identity confirmation through a one-time password via SMS	3.90	4.00	5	1.216
The site provides identity verification through a one-time password via push message or PIN	3.85	4.00	5	1.236
The site has a simple and short domain name	3.75	4.00	5	1.276
The site provides identity verification through a one-time password through the mToken/mbanking application	3.74	4.00	5	1.271

4. CONCLUSION

The results presented in this paper confirm some of the major findings in the literature. It is evident that the customers from BiH are becoming more and more accepting of the Internet technologies and e-commerce, which is supported by the finding that 78.3% of the research respondents use the Internet or mobile banking, and up to 69.6% of respondents have at least one credit or debit card dedicated for online shopping. In addition, the influence of mobile technologies on e-commerce is confirmed in the case of BiH e-customers as well, since the findings show that up to 78.1% of respondents used mobile phones for online shopping. The trend of social commerce has been also confirmed with a 16.7% share assigned to social media when it comes to the place of shopping of the research respondents. Nevertheless, the lack of trust still remains an issue for BiH e-customers in certain aspects, especially when it comes to online payments. In fact, 21.4% of respondents have a separate bank account or card that they use exclusively for online payments, indicating a slight distrust and concern for money safety. Additionally, up to 49.6% of respondents do not use online payment systems at all, while as many as 69.7% of respondents prefer cash upon the delivery as a payment method. Furthermore, the findings also confirmed that BiH e-customers show a modest aversion towards engaging in e-shopping with e-sellers from abroad, since as many as 35.2% of the respondents have not made purchases abroad so far. Finally, it is evident that customers value the trustworthiness of the seller and the positive experience in terms of the promised vs. delivered value amongst all. The research limitation is reflected in a fact that the sample was dominated by female respondents (81.8%), so it would be interesting to include more responses from male respondents in the future studies.

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Original scientific paper / Izvorni znanstveni rad

RESEARCH OF THE INFLUENCE OF QUALITY PERCEPTION, CUSTOMER SATISFACTION AND BRAND IMAGE ON SPORTS FOOTWEAR BRAND LOYALTY

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ABSTRACT

This paper aims to investigate the relationship between brand image, customer satisfaction, and perceived brand quality with brand loyalty and the relationship between perceived brand quality and brand image. Based on the literature analysis, a conceptual research model was created and hypotheses were proposed. To test the model and hypotheses, the structural equation modeling method (SEM) was used with the help of the SPSS AMOS 26 software package. For the purpose of data collection, a survey was conducted via the Facebook social network, and 201 correctly filled questionnaires were collected. The research results show: A) a positive association between brand image and brand loyalty, B) a positive association between perceived quality and brand image, and C) a positive association between brand image and customer satisfaction. A positive relationship between customer satisfaction and brand loyalty and between perceived quality and brand loyalty has not been established. The results of the research help in understanding the process of forming customer loyalty of sports footwear brands.

KEYWORDS: brands image, loyalty, customer satisfaction, perceived quality

1. INTRODUCTION

A simple definition defines a brand as a type of product manufactured by a specific company under a specific name. Selected elements of the brand (name, symbol, slogan, color...) determine the product and give it an identity that sets it apart from the multitude of the same or similar products. A more complete definition is given by Kotler and Armstrong [2018], stating that a brand is much more than just a name and a symbol, it represents the perception and feelings that customers have about the product and its performance, in this regard they emphasize that "products are created in a factory, and brand in the minds of consumers". Along these lines, the Economic Times [20/7/2023] states that brands are similar to living beings, they have their own identity and personality, their own culture, vision, emotion, and intelligence. What many definitions agree on is that a brand creates loyalty, trust, and attraction, three essential elements that set it apart and make it special. The goal of marketing is to instil or position this uniqueness in the consumer's mind. The goal of marketing is to instil or position this uniqueness in the consumer's mind. In the context of brand positioning, this paper investigates the interrelationship of four factors (variables): brand image, perceived brand quality, brand loyalty, and customer satisfaction. The paper consists of five parts, after the introductory part, the review of the literature and the formation of hypotheses, the methodology is explained and the results of the research are analysed. The final part of the paper refers to the discussion, implications, and limitations of the research and presentation of the literature used.

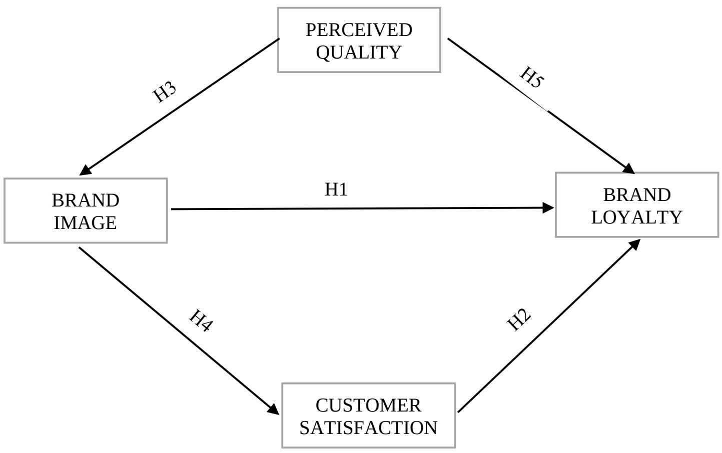
2. LITERATURE REVIEW

Along with the concept of a brand and its meaning for both the company and consumers, there is also the concept of loyalty, which Nedović & Čabarkapa [2010] describes as the consumer's determination to buy the same brand continuously . Since the goal of the company and the brand is to have as long a life as possible, achieving the loyalty of its customers becomes the "condition sine qua non" of successful business and survival on the market. The repeat purchase ensured by loyalty strengthens the competitiveness of the brand and its further development.

Kotler and Armstrong [2018] put brand loyalty in a direct relationship with customer satisfaction. A satisfied customer not only buys again, but also conveys his satisfaction to others. The goal of the brand is to provide those values that will achieve and strengthen customer satisfaction, and thus loyalty to the brand. A factor that greatly impacts satisfaction and loyalty, and the brand's overall reputation or image, is its quality. By its very existence, a brand communicates a certain quality and is a guarantor of that quality. The task of marketing is to make that quality visible and implant it in the consumer's consciousness, and the literature often talks about perceived quality, which Zeithaml [1988] defines as the consumer's judgment of the overall excellence or superiority of the product.

Brand image, perception of brand quality, customer satisfaction, and brand loyalty are factors whose mutual relationship has been established through various research [Ghulam & Imran, 2020], [Mabkhot et al., 2017], [Neupane, 2015]. In this research, the model developed in their research by Ghulam & Imran, [2020] was tested. Based on the literature review, the conceptual research model [Figure 1] and proposed hypotheses were defined.

Figure 1. Conceptual research model



2.1. BRAND IMAGE AND BRAND LOYALTY

According to Drucker et al. [2008], there is only one valid definition of business purpose – creating customers. In this, the task of marketing is to create a brand that will be desirable and thereby make sales redundant. Lee et al. [2014], in the context of different definitions and measurements, define the brand image as the sum of customer perceptions of the brand generated by the interaction of cognitive, affective, and evolutionary processes in the customer's mind.

Along these lines, Zhang [2015] also considers the brand image as a key driver of brand value, which refers to the consumer's general perception and feeling about the brand and has an impact on their behaviour. Various studies investigate the connection between brand image and brand loyalty [Abdullah, 2015], [Ghulam, & Imran, 2020], [Puška et al.]. Based on previous research, hypothesis H1 was proposed.

H1: Brand image is positively related to brand loyalty.

2.2. CUSTOMER SATISFACTION AND BRAND LOYALTY

Algesheimer et al. [2005] point out that customer loyalty is their willingness to buy products from a particular supplier and to commit to that supplier in the long term despite the potential benefits of switching suppliers. Kotler and Keller [2016] talk about "the deep commitment of a customer to buy a product or service from a particular company again in the future even if there are factors that can cause a behaviour change". On the other hand, customer satisfaction with a brand is the result of a subjective assessment that the selected brand meets or exceeds customer expectations [Syarifah and Muhti, 2020]. Various researches determined the connection between customer satisfaction and brand loyalty [Syarifah & Mukti, 2020], [Ghulam & Imran, 2020], [Mahmood et al., 2018], [Gautam, 2019]. Based on previous research, hypothesis H2 was formed.

H2: Customer satisfaction is positively related to brand loyalty.

2.3. PERCEIVED QUALITY AND BRAND IMAGE

Product quality is the basis of building a brand and is its guarantor. Quality and the guarantee of that quality to the brand, as stated by Aaker [1991], gives the possibility of differentiation from the competition, charging a higher price and the basis for further expansion, while customers get a good reason to buy and fulfil their expectations. Vidović [2018], in this context, emphasizes the role of quality in reducing the risk of a purchase. Therefore, it is important to view quality not only as technical performance (few failures, remarks, etc.) but as "the customer's perception of the superiority of the product or service concerning their purpose, compared to alternatives" [Zeithaml, 1988]. The positive association of perceived quality with a brand image is confirmed by various studies [Ghulam & Imran, 2020], [Alhaddad, 2015] [Vinh & Phuong, 2017]. In accordance with previous research, hypothesis H3 was proposed.

H3: Perceived brand quality is positively related to brand image.

2.4. BRAND IMAGE AND CUSTOMER SATISFACTION

More research establishes a positive relationship between brand image and customer satisfaction [Nugroho et al. 2021], [Ghulam & Imran, 2020], [Coung, 2020], [Mohammed & Rashid, 2018], however, some research finds this positive they do not find a connection

[Syaifuddin et al., 2022]. In connection with building a strong image, brand personality and its influence on customer satisfaction are also connected, given that individuals use this personality to build and emphasize their personality [Su & Tong, 2016]. In accordance with previous research, hypothesis H4 was proposed.

H4: Brand image is positively related to customer satisfaction.

2.5. PERCEIVED QUALITY AND BRAND LOYALTY

Civelek & Ertemel, [2019] state that quality perception can be defined as "the consumer's overall assessment of the risks and rewards associated with a particular brand and its products". The influence of perceived brand quality on customer loyalty is confirmed by various studies [Akoglu, Ozbek, 2022], [Ghulam, 2020], [Falahat et al., 2018], [Saleem et al., 2015], [Pappu et al., 2005]. In accordance with previous research, hypothesis H5 was proposed.

H5: Perceived brand quality is positively related to brand loyalty.

3. RESEARCH METHODOLOGY

3.1. SCALE DEVELOPMENT

Following the proposed conceptual model, the paper determined the connection between brand image, customer satisfaction, and perceived brand quality with brand loyalty, and the connection between perceived brand quality and brand image. The measurement scale developed by Ghulam and Imarn (2020) was used in the research. The questionnaire consisted of a total of 25 questions, of which 4 questions were general, while the rest represented statements where respondents determined their degree of (dis)agreement or disagreement through a five-point Likert scale. (1=do not agree at all, 5=completely agree). [Table 1] Respondents tied their answers to the brand of sports shoes that they indicated they preferred.

Table 1. Original measurement items

Construct	**Measurement items**	
Brand image	BI1	I think that this brand is friendly
	BI2	I think that this brand is modern.
	BI3	I think that this brand is popular.
	BI4	I think that this brand is useful.
	BI5	I think that this brand is gentle. *****
	BI6	1 think that this brand is artificial**. ***
Brand loyalty	BL1	Brand loyalty creates commitment in the mind of consumers.
	BL2	Pricing strategies of the brand make the consumer more loyal to it.
	BL3	Proper communication between the brand and consumers promotes loyalty.
	BL4	Positive WOM generated by the consumers enhances brand loyalty.
	BL5	Firms with strong loyal customers have to spend fewer resources on marketing. *
Perceive quality	PQ1	X is of high quality.
	PQ2	The likely quality of X is exceptionally high.
	PQ3	The likelihood that X would be functional is very

	PQ4 PQ5	high. The likelihood that X is reliable is very high. X must be of outstanding quality.
Customer satisfaction	CS1 CS2 CS3 CS4 CS5	X brand makes me feel delighted. X brand gives me pleasure. X brand Increases my frequency of use. X brand makes me feel good. X brand prevents me from looking cheap and another brand. *

* Due to the low factor loading, questions BI5, BI6, BL5 and CS5 were omitted from further analysis.

3.2. DATA COLLECTION AND PARTICIPANTS

Empirical research was conducted with the help of a questionnaire created through Google Forms and distributed through the social network Facebook. The research took place in the period from May 15, 2023, to July 4, 2023, and 201 correctly completed questionnaires were collected. According to the demographic indicators, 45 (22.4%) men and 156 (77.6%) women participated in the research. Most respondents are in the age group between 18-25 years, 112 of them (55.7%), while in the group of 26-40 years, there are 75 of them (37.3%), in the group of 41-54 there are 9 of them (4.5%), in the group of 55 and over 4 (2%). There is only 1 respondent (0.5%) in the group under 18 years of age. According to work status, the majority of respondents have the status of employees, 95 (47.3%), while 93 (46.3%) are students. There are 10 (5%) unemployed respondents, 2 (1%) students, and 1 (0.5%) pensioner.

4. DATA ANALYSIS

4.1. EXPLORATORY FACTOR ANALYSIS (EFA) AND RELIABILITY

The validity of the measuring instrument was determined by checking its construct, content, convergent, and discriminant validity. Construct and content validity was established by applying a theory-tested measuring instrument and by conducting exploratory factor analysis (EFA), which confirmed the preset factor structure. The consistency of data for conducting EFA was determined by Bartlett's test of sphericity and the Kaiser-Mayer-Olkin test of sampling adequacy (KMO). Factor analysis was performed with the help of the IBM SPS 23 statistical software package [Table 2].

Table 2. KMO and Bartletts test

Kaiser-Meyer-Olkin test of sampling adequacy	,850
Bartlett's Test of sphericity, χ^2	2151,376
Degrees of freedom (df)	171
Significance (Sig)	,000

The Kaiser-Mayer-Olkin sampling adequacy test is greater than the reference limit of 0.6, while Bartlett's sphericity test is high ($\chi2$ = 2151.376) and significant with a risk of less than 1% (Šram, 2014). The obtained results indicate the appropriateness of the implementation of the EFA analysis, which was carried out on 21 items of the measuring instrument. During the analysis, 4 items (BI5, BI6, BL5, and CS5) were excluded from further analysis due to low factor loading. Principal components analysis with varimax rotation (respecting the Kaiser-

Guttman criterion - each factor has eigenvalues greater than 1) identified 4 factors with factor loading greater than 0.5, explaining 65.410% of the total variance.
The internal consistency or reliability of the measuring instrument was measured by determining the Cronbach alpha coefficient, the value of which can range between 0 and 1, the closer the value is to 1, the more reliable the measuring instrument is. The determined values range between 0.758 and 0.922, coefficient values between 0.6 and 0.7 are considered acceptable, while values above 0.7 are desirable [Schmitt, 1996].

Convergent validity, with the purpose of checking the connection within the construct, was measured using the average extracted variance (AVE) whose value for an individual construct must be 0.5 or more [Ahmed et al., 2016], and using the composite reliability coefficient (CR) whose the value should be greater than 0.6 [Fornely & Larcker, 1981].

The results shown in Table 3 indicate that the reference criteria for determining the validity and reliability of the measuring instrument are met.

Table 3. Internal reliability and convergent validity

		Internal reliability			Convergent validity			
Construct	Item	Cronbach`s alpha)	Item- total correlation	Factor loading	Composite reliability	AVE	Mean	SD
Brand image	BI1		,469	,529			4,378	0,5969
	BI2	,758	,722	,896	,782	**,49***	4,535	0,5830
	BI3		,554	,506			4,637	0,5408
	BI4		,492	,783			1,259	0,5854
Brand loyalty	BL1		,600	,632			3,985	1,0123
	BL2	,796	,544	,533	,794	,50	3,930	0,9084
	BL3		,712	,903			4,229	0,8760
	BL4		,587	,709			4,308	0,8452
Perceived quality	PQ1		,795	,812			4,025	0,8743
	PQ2	,922	,834	,825	,918	,69	3,940	0,9146
	PQ3		,720	,745			4,164	0,7602
	PQ4		,803	,859			4,080	0,8328
	PQ5		,838	,910			3,766	0,9056
Customer satisfaction	CS1		,799	,886			3,896	1,0218
	CS2	,890	,783	,862	,892	,68	4,147	0,8450
	CS3		,711	,747			4,055	0,9284
	CS4		,755	,786			4,070	0,9824

* A slight deviation from the reference limit of 0.50 with respect to other indicators can be tolerated [Fornell, Larcker, 1981].

In order to confirm that the variables within a certain factor do not correlate strongly with the variables in another factor, the discriminant validity of the measuring instrument was tested with the help of the statistical program package IBM SPSS AMOS 26. It was determined that the square of the AVE value of each construct is greater than the correlation of that construct and either of any other construct [Kitchenham, Charters, 2007]. The result in Table 4 confirms good discriminant validity.

Table 4. Discriminant Validity

	BI	BL	PQ	CS
BI	**0,700**			
BL	0,348	**0,707**		
PQ	0,469	0,247	**0,832**	
CS	0,486	0,291	0,486	**0,822**

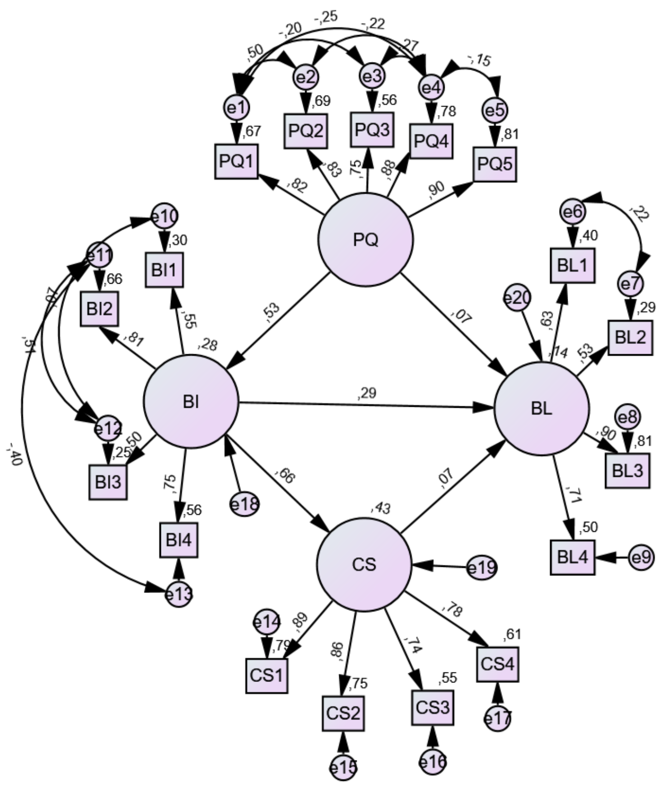
4.2. MODEL VERIFICATION USING STRUCTURAL EQUATION MODELING (SEM)

To check the adequacy of the proposed model and test the hypotheses, the structural equation method (SEM) was used with the help of the SPSS AMOS 26 statistical software package. As a rule, the following fit indices are most often used: relative chi-square test and its correction with respect to the number of degrees of freedom (x2/df), GFI - goodness of fit index, NFI - normalized fit index, TLI - Tucker-Lewis index, CFI - comparative fit index, RMSEA - root mean square error of approximation, and SRMR - standardized root mean square residual. The results obtained after the implementation of the SEM analysis show a good agreement between the proposed model and the obtained real data. [Table 5] A graphic representation of the structural model and connections between factors is shown in Figure 2.

Table 5. Fit indices

Fit indices	Test model	Recommended value	Source
Chi-square	197,746; df=104, p<0,001		
χ^2/df	1,904	< 5	Park & Kim, (2014)
GFI NFI	0,893 0,906	>0,8 >0,9	Halmi, (2016) Halmi (2016)
IFI	0,953	>0,9	Park & Kim, (2014)
TLI	0,938	>0,9	Kim & Han, (2014)
CFI	0,952	>0,9	Hu & Bentler, (1999)
RMSEA	0,067	0,03 to 0,08	Hair et al., (2014)
SRMR	0,063	<0,08	Hair et al., (2014)

Figure 2. Structural model – path analyse



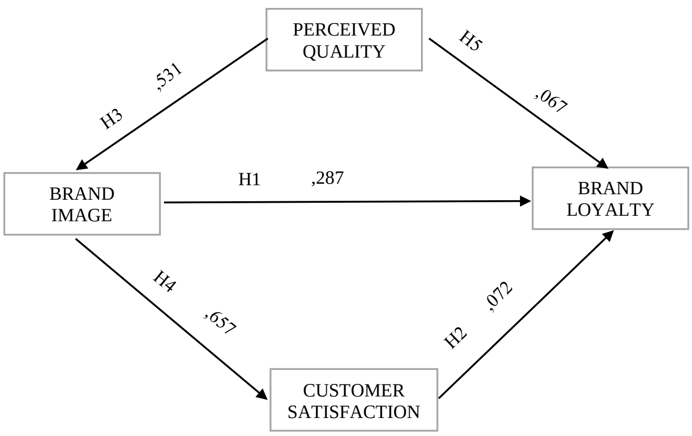
4.3. HYPOTHESIS TESTS

The proposed hypotheses were tested using the method of structural equation modeling (SEM). The test results are shown in Table 6 and Figure 3. According to the results, hypothesis H1 is confirmed, there is a positive relationship between brand image and brand loyalty (ß = 0.287, CR = 2.110, p <0.05). Hypothesis H2 was not confirmed, and a positive relationship between customer satisfaction and brand loyalty was not established (ß = 0.072, CR = 0.643, p >0.05). Hypothesis H3 is confirmed, there is a positive relationship between perceived quality and brand image (ß = 0.531, CR = 5.250, p <0.001). Hypothesis H4 was confirmed, there is a positive relationship between brand image and customer satisfaction (ß = 0.657, CR = 6.233, p <0.001). Hypothesis H5 was not confirmed, and a positive relationship between perceived brand quality and brand loyalty was not established (ß = 0.067, CR = 0.718, p >0.05).

Table 6. Results of hypothesis testing

Hypothesis	Independent variable	Dependent variable	Standard estimate	CR	P-value	Supported
H1 (+)	BI	BL	0,287	2,110	0,035	Supported
H2 (+)	CS	BL	0,072	0,643	0,520	N/S
H3 (+)	PQ	BI	0,531	5,250	***	Suported
H4 (+)	BI	CS	0,657	6,233	***	Suported
H5 (+)	PQ	BL	0,067	0,718	0,472	N/S

Figure 3. Results of hypothesis testing



By implementing the structural equation modeling method, the coefficient of determination (R2) was measured, the value of which can range between 0 and 1. The model is more representative if the value is closer to 1. The result shows that 0.143% of the variance of the dependent variable brand loyalty is explained by three independent variables (perception of quality, brand image, and customer satisfaction), 0.282% of the variance of the dependent variable brand image is explained by one independent variable (perception of quality), and 0.432% of the variance of the dependent variable customer satisfaction is explained by the independent variable brand image. [Table 7]

Table 7. Squared multiple correlation of the proposed research model

Construct	Values %
Brand loyalty (BL)	14,30 (0,143)
Brand image (BI)	28,20 (0,282
Customer satisfaction (CS)	43,20 (0,432)

5. RESULT AND DISCUSSION

Within the defined goal of this research, the connection between brand image, customer satisfaction, and perceived brand quality with brand loyalty and the connection between perceived brand quality and brand image was determined.

The positive association of the brand image with brand loyalty was established and hypothesis H1 was confirmed. The result is in line with previous research [Abdullah, 2015], [Puška et al.], where the claim of Išoraitė [2018] is confirmed that a strong brand creates trust among customers, while trust encourages loyalty.

Unexpectedly, hypothesis H2 "Customer satisfaction is positively related to brand loyalty" was not confirmed. The association was not established, which is contrary to various previous research in different industrial fields [Ghulam, and Imran, 2020], [Syarifah & Mukti, 2020], [Mahmood et al., 2018], [AL-Msallam, 2015] where this connection is significant. This research focused on the sports footwear industry, and the result can be indicative in terms of customer retention and loyalty. Loyalty requires a constant examination of the value obtained by purchasing a particular brand. The obtained result certainly requires verification through further research on different samples of respondents.

A significant relationship (ß = 0.531) between perceived quality and brand image was confirmed (H3), which is consistent with earlier research [Ghulam & Imran, 2020], [Alhaddad, 2015], [Vinh & Phuong, 2017], [Ranjbarian et al., 2012]. According to the obtained results, it can be concluded that customers with a high perceived quality of a certain brand will choose a product with a good image [Setyawan et al., 2020].

Hypothesis H4, which assumed a connection between brand image and customer satisfaction, was confirmed, the connection exists and is very significant (ß = 0.657). The result is in accordance with previous research, [Nugroho et al. 2021], [Ghulam and Imran, 2020], [Coung, 2020], [Mohammed & Rashid, 2018]. The result indicates that the brand image of sports footwear affects customer satisfaction. The image represents the perception of a brand based on associations stored in customers' memories. If these associations are in line with customer expectations, they will positively influence their purchase decisions [Coung, 2020].

Unexpectedly, hypothesis H5 was not confirmed, there is no connection between the perception of brand quality of sports shoes and brand loyalty. The result is contrary to the results of previous research that emphasize the importance of perceived quality in building loyalty and the necessity that it is in line with real quality [Akoglu & Ozbek, 2022], [Ghulam & Imran, 2020], [Saleem et al., 2015]. The result can be indicative given that the respondents are mostly members of Generation Z (55.7%) and millennials (37.3%), who have their own specifics and certain value attitudes [Hassan & Rasel, 2018]. The result certainly requires additional verification through future research.

6. IMPLICATIONS AND LIMITATIONS OF RESEARCH

The primary goal of this paper is to determine the connection between the brand image of sports shoes and customer loyalty. In addition, the relationship between perceived brand quality and customer satisfaction with image and loyalty was investigated. The results of the research confirmed the positive association o brand image with brand loyalty and the positive association of quality perception with image and image with customer satisfaction. A positive relationship between customer satisfaction and brand loyalty and a positive relationship between quality perception and brand loyalty has not been established.

The theoretical contribution of this research is reflected in the findings that support the authenticity of previous research models on the importance of the relationship between brand image and brand loyalty. The results of the research help in understanding the process of forming customer loyalty of sports footwear brands. The theoretical model requires constant verification, given that consumer behaviour constantly changes. This is indicated by the results of the research, especially the non-confirmation of hypotheses H2 and H2.

The research can also be helpful to practitioners who indicate the connection of key factors in customer behaviour that lead to repeat purchases and a longer customer retention time (their longer lifecycle), which ensures their competitiveness and longer survival on the market. These insights should be the backbone of their marketing plans, which will be directed towards improving the image of their brands, a positive image leads to greater satisfaction and desirable customer loyalty.

The research also has its limitations, primarily reflected in the size and structure of the sample of respondents and the use of one social network to distribute the survey questionnaire. Future research would be useful to target different generations of customers and investigate their perceptions of the quality and image of brands and the criteria for acquiring their loyalty.

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Preliminary communication / Prethodno priopćenje

HOW DO WE BEHAVE IN A DIGITAL ENVIRONMENT? – THE IMPACT OF DIGITAL MARKETING ON CONSUMER BEHAVIOR

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ABSTRACT

The purpose of this paper is to determine the impact of digital marketing on consumer behavior in a digital environment, their online purchase decision, satisfaction with online shopping and risk perception. The goal was to investigate the relationship between the impact of different factors of digital marketing on consumer decision to purchase products online, their satisfaction and risk perception. An analysis of the recent literature on the topic of digital marketing, consumer behavior, online purchase decision, satisfaction and risk perception was performed. Empirical research was conducted on a convenience sample of 200 respondents. Descriptive and multivariate statistics were used in the data analysis. Data analysis was performed using the software package IBM SPSS Statistic Version 23. The results of the research show that online reviews have an important impact on customer online purchase decision. The results also show that there is a positive and significant impact between online purchase decision and customer satisfaction and a weak relationship between risk perception and customer satisfaction. The research represents a starting point for further research on online consumer behavior, factors affecting their online purchase decision and risk perception reduction. Furthermore, the results can help online sellers develop strategies and tactics that can have a positive impact on online customer purchase decision and risk perception reduction.

KEYWORDS: digital marketing, consumer behavior, online purchase decision, consumer satisfaction, risk perception

1. INTRODUCTION

Digital marketing has created many new opportunities on the Internet, and its role has been rapidly growing in recent years [Anumolu et al., 2015]. It can be defined as the use of information and communication technology to support marketing activities for better customer satisfaction [Veleva and Tsvetlanova, 2020]. The Internet provides consumers with much quicker access to information and sellers than other sales channels. Consumers have access to supplier and manufacturer websites, comparison sites, discussion forums and ads. The Internet has also diminished the gap between different societies. More and more customers are buying global products and services at local prices, causing companies' cost structures to become globally competitive. Digital marketing has also led to behavioral changes in the digital environment compared to the traditional marketing environment. Not only has behavior changed, but consumers have also acquired entirely new characteristics.

The aim of this study is to determine the influence of digital marketing on consumer behavior, the factors affecting online purchase decision, how online purchase decision affect customer satisfaction and how risk perception affects customer satisfaction.

The following auxiliary hypotheses were formulated:
H1: There is a positive relationship between online reviews and online purchase decision.
H2: There is a positive relationship between online purchase decision and customer satisfaction.
H3: There is a weak relationship between risk perception and customer satisfaction.

The empirical research was conducted online using the Google Forms platform on a sample of 200 respondents on a convenient sample through e-mails and social networks. Descriptive and multivariate statistics were used in the data analysis. The data analysis was performed using IBM SPSS Statistic Version 23 software.

The paper consist of five chapters. The introductory part, is followed by description of the main constructs used in the paper, description of the methodology, and results of the empirical research. Discussion and conclusions of the research are given at the end of the paper.

2. THEORETICAL FRAMEWORK

2.1. DIGITAL MARKETING

Digital marketing represents achieving marketing goals using digital technologies. Characteristics of a consumer in the digital environment include: being well-informed due to technological progress, being self-directed and difficult to influence, fast paced lifestyle, being selective and comparing different options before making purchase decisions, being volatile, and displaying contradictory behaviors, as well as staying constantly connected using technology like smartphones and wearable devices to cover up differences between online and offline world [Legler, 2015]. Despite these characteristics, online consumers exhibit heterogeneous behaviors. Nonetheless, online consumer behavior follows the same decision-making phases, which include problem recognition, information search, and evaluation of alternatives, purchase decision and post-purchase behavior [Kotler and Armstrong, 2018]. Understandably, consumers allocate more attention to purchasing an automobile than to routine purchases like laundry detergent or juice. Consequently, buying a car assumes a high degree of involvement, while purchasing laundry detergent implies low involvement [Schwarzl and Grabowska, 2015].

In the information search, evaluation, and decision-making phases, consumers in the digital environment manifest the following characteristic behaviors: consumers seek and receive personalized products; they are influenced by online reviews and sources from social media as well as offline sources and they are impacted by recommendations from other consumers [Muller et al., 2011]. Customer review is defined as any positive or negative statement made by customers on online platforms [Park and Kim, 2008]. It gives a customer more reasons to make decisions and increases decision-makers confidence in the decisions taken [Dwidienawati et al., 2020]. Customer review can reduce the risk perceived by customers and improve the degree of satisfaction and their efficiency in making decisions [Yan et al., 2016]. Beneke et al., [2016] considers customer review as an Internet tool used by the global community to exchange information about products and services. Social media influencers represents a person who represents companies through branded content on social media account such as Facebook, Instagram, Snapchat, Twitter and YouTube [Pereira et al., 2023]. They are users with a high number of followers on their digital channels and they are able to monetize their audience by introducing sponsored content in their photos, videos and texts [Abidin, 2016]. In the post-purchase phase, the consumers in the digital environment manifest behaviors of social media providing direct communication between the customer and the brand, thus influencing consumer behavior and effectively turning consumers into virtual journalists or public relations experts [Ugonna et al., 2017].

2.2. ONLINE PURCHASE DECISION

An online purchase decision is an action performed by someone to select the best option from range of options [Hidayat et al., 2021]. Before making a purchase, consumers must make many decisions that are based on the willingness to satisfy their needs [Hartanto et al., 2022]. The online shopping decision process is similar to the in-store shopping decision process, but there are some differences. On the Internet, customers have access to more information and can compare more alternatives than in a store. Customers can also purchase products or services 24/7. E-retailers continuously invest in online purchase decision ads to help customers with on-line shopping [Tang, 2020]. Social networks usage influences the purchase decision process of the customer [Prasad et al., 2018]. The opinions of friends, colleagues and relatives posted on social networks can have a significant impact on consumer purchasing decisions [Schwarzl and Grabowska, 2015; Liang et al., 2020]. Furthermore, product recommendations of friends and colleagues on online social networks have a significant impact on the customers' online purchase decision [Li et al., 2021]. A high degree of trust stimulates and meets high expectations of customers; satisfies transactions, eliminates risk perception, uncertainty and interdependence [Pavlou, 2003]. Satisfied customers become brand advocates, while dissatisfaction can lead to negative attitudes, creating cognitive dissonance. Online communication significantly influences online purchase decisions [Prasad et al., 2018], especially the use of social media and electronic word-of-mouth [Chevalier and Mayzlin, 2006; Prasad et al., 2017].

2.3. RISK PERCEPTION

Risk is one of most significant problem of online shopping [Farivar et al., 2017]. Consumers perceive higher levels of risk when shopping online then in traditional distribution channels due to limited physical access to products and sales personnel [Dai et al., 2014]. They feel unsure and vulnerable [Chung et al., 2015] and apply tactics that mitigate their risks [Verma and Pant, 2021]. Online risk perception can be defined as the feeling of insecurity and vulnerability experienced while browsing a website [Alcántara-Pilar et al., 2015]. Risk perception or perceived risk is defined as any uncertainty perception by the customer about an unforeseen consequence due to purchase [Cox, 1967], consumers' feelings of likelihood and unpleasant consequence [Cunningham, 1967] or an attribute of an alternative decision reflecting the variance of its possible outcomes [Gefen et al., 2002, Verma and Pant, 2021:294]. Kim et al., [2008] defined risk perception as a customer's belief about the potential uncertain negative outcomes from the transaction. Farivar et al. [2018] defined risk perception as the customers' uncertainty feelings regarding a possible negative outcome of using a product or a service due to an inability to evaluate the product prior purchase or return of products [Aghkyan-Simonian et al., 2012; Verma and Pant, 2021]. Risk perception is a multidimensional construct consisting of financial risk, product risk and information risk [Bhatnager et al., 2000]. Shopping includes risk because a retailer's decision may have results which the customer cannot predict perfectly, and the outcome of some decisions could be unpleasant for the customer [Bauer 1960; Chiu et al., 2012].

2.4. CONSUMER SATISFACTION

Consumer satisfaction is defined as evaluation and judgment of a product or service that successfully provides a pleasurable level of consumption-related fulfillment [Oliver, 1993, 2010]. Consumer satisfaction in an online context can be defined as the user's contentment with their purchasing experience on the Internet [Andersen and Srinivasan, 2003]. Satisfactory online experience plays a crucial role in users' overall evaluation of website quality and their online purchase intention [Tang and Jang, 2008]. Online customer satisfaction comes from customer service quality experience and through online service process [Zhou et al., 2019]. Consumer heterogeneity with different risk perception in online service process [Song and Hu, 2019] can affect customer purchase behavior [Song et al., 2021] and their satisfaction. Online customers are satisfied if the perceived performance matches their expectations [Al-Adwen and Al-Horani, 2019]. The results of Javed et al. [2020] research have proven that post-sale services from online retailers are important determinants in the cumulative online customer satisfaction. Verma and Pant [2021] have developed a new input output framework by including price verification, product display, social influence and risk perception of online grocery shoppers and have proved that product display is negatively influenced by risk perception. Curras-Perez and Sanchez-Garcia [2012] researched online sales of air tickets and concluded that satisfaction has a stronger effect on purchase intent in the case of consumers' higher risk perception. The influence of satisfaction on commitment is weaker in consumers with a higher level of perceived risk [Curras-Perez and Sanchez-Garcia, 2012].

2.5. RESEARCH HYPOTHESES

The fundamental online tools of digital marketing include: websites, email marketing, content marketing, social media platforms (Facebook, Twitter, LinkedIn, Instagram, and others), blogs, SEO optimization, Big data marketing, Online advertising, visual marketing (YouTube), mobile marketing, wearable devices, Internet of Things and Games [Veleva and Tsvetlanova, 2020]. In the past decade, Internet strategies have been evaluating rapidly. In response to the challenges of the modern era, users have adapted their behavior to the Internet. These changes have led to the development of new user habits and behaviors in the digital environment, increasingly characterized by personalized strategies for attracting new customers. In the digital environment where companies need to understand their users and consumers, the new models or customer behavior on the Internet should encompass constructs such as customer experience, influencer marketing and user-generated content (UGC) [Saura et al., 2020]. In the digital environment, online reviews [Chou et al., 2013; Dwidienawati et al., 2020; Hartanto et al., 2022], the Influencers [Pereira et al., 2023] and sources from social media as well as offline sources influence the consumers' purchase decision. The digital environment enables consumers to leverage recommendations and information gathered from different types of consumers [Muller et al., 2011]. Based on the above, a study hypothesis can be proposed: *H1: There is a positive relationship between online reviews and online purchase decision.*

Customer satisfaction is a consequence of the customer experience during the purchase process and its role is very important in future customer behavior, such as online repurchase intention and loyalty [Pereira et al., 2016]. Hossain et al. [2018] have proven that QR codes have significant impact on purchase decision and customer satisfaction. Online purchase decision positively affects customer satisfaction [Hartanto et al., 2023]. A satisfied online customer would likely shop again and recommend online shopping to others, while a dissatisfied customer would leave his online retailers with or without any complaints [Pereira et al., 2017]. Taking into account the above mentioned, the following hypothesis can be proposed: *H2: There is a positive relationship between online purchase decision and customer satisfaction.*

In Chen et al. [2015] research risk perception has a significant negative impact on customer satisfaction. In the online shopping environment customers often, make a purchase before experiencing a product so risk perception is an important antecedent of customer satisfaction [Moon and Armstrong, 2020]. Risk perception in e-commerce has a significant negative impact on attitudes towards online shopping [Shih, 2004], intention to shop on the Internet [Pavlou, 2003], and Internet purchasing behavior [Bodmer, 2009, Moon and Armstrong, 2020]. Moon and Armstrong [2020] research investigated how online-to-offline service quality affects risk perception and trust, and how this customer perception influences customer satisfaction. High level of service quality should improve the perceived trust and reduce risk perception of the products and services, low risk perception, and high-perceived trust have a positive effect on customer satisfaction. The results of Alcántara-Pilar et al. [2017] research revealed that tourist online satisfaction, perceived website usability and online risk perception are significant antecedents that influence the affect towards a travel destination generated online. The higher online risk perception, the lower the effect on a travel destination. Therefore, the following hypothesis can be proposed: *H3: There is a weak relationship between risk perception and customer satisfaction.*

3. RESEARCH METHODOLOGY

3.1. MEASUREMENT SCALES

To achieve the purpose and goals of the paper, an empirical study was conducted on a convenience sample of respondents (N=200). Scales from previous studies were used. They were translated into Croatian and adapted to field of digital marketing and online purchase decision. The attitudes of the respondents were measured using a Likert scale for evaluating attitudes, ranging from 1 to 5 (1 – completely disagree, 5 – completely agree). The factors affecting online purchase decision consist of 5 variables. They were measured using the adopted customer review scale created by Hartanto et al., [2022] and other variables were adopted from Periera et al., [2023] scale. The online purchase decision was measured using the adopted Hanaysha [2018] scale. It consists of 3 variables. The customer satisfaction was measured using the satisfaction with the purchase experience scale by Walsh and Sharon [2007], which consists of 3 variables. Risk perception was measured using the Internet usage riskiness scale created by Schlosser et al., [2006] and adopted to research. It consists of 3 variables. The construct and the accompanying variables are shown in Table 1.

Table 1. Constructs and variables

Construct	Item number	Item	Sources
FACTORS AFFECTING ONLINE PURCHASE DECISION	F1	Messages from Influencers can have an influence on my purchase decision.	Periera et al., (2023)
	F2	Sponsored articles published on the Internet can have an influence on my purchase decision.	
	F3	Ads related to some product or service I searched online (remarketing) could have an influence on my purchase decision.	
	F4	Online reviews can have an influence on my purchase decision.	Hartanto et al. (2022)
	F5	Online reviews help me make better purchase decision.	
ONLINE PURCHASE DECISION	OPD1	I often buy products or services online.	Hanaysha (2018)
	OPD2	Overall, I am satisfied with purchasing product or services online.	
	OPD3	I will positively recommend online shopping to others.	
SATISFACT ION	S1	I am satisfied with the products and services bought online.	Walsh and Sharon (2007)
	S2	I am satisfied with the delivery service of the products purchased to your home address.	
	S3	I am overall satisfied with online shopping.	
RISK PERCEPTIO N	RP1	Sharing and sending personal data via Internet is risky for me.	Schlosser et al. (2006)
	RP2	Internet is a safe place for shearing and sending personal data.	
	RP3	I feel safe when sending my personal data via Internet.	

Source: Authors’

3.2. DATA COLLECTION AND SAMPLE

The data were collected from 200 respondents. The questionnaire was sent online as a Google Form through social networks and e-mail. Table 2 shows the sample description based on gender, age and how often respondents purchase products or services online.

Table 2. Sample structure (N=200)

Characteristics	Total	
	N	%
Gender		
Female	134	67.0
Male	66	33.0
Age		
18 – 25	47	23.5
26 – 35	90	45.0
36 – 45	43	21.5
46 – 55	11	5.5

56 – 65	8	4.0
Over 66	1	0.5
How often do you purchase products or service online?		
often	74	37.0
sometimes	87	43.5
rarely	36	18.0
never	3	1.5

Source: Authors'

Sample structure analysis shows that more women (67%) than man (48.8%) participated in the survey. The respondents were mainly younger people, between 26 and 35 years old (45%). The reason was that younger people spend more time on Internet purchasing product and services online then the elderly who are more traditional and still purchase product and services in stores. Regarding the question, *How often do they purchase products or services online?,* 43.5% of the respondents purchase products and services sometimes, while 37% of them buy them more often.

4. FINDINGS

The data analysis included a descriptive statistical analysis of the construct factors affecting online purchase decision, online purchase decision, customer satisfaction and risk perception and reliability analysis and dimensionality of the measurement scales. The descriptive analysis (Table 3) was conducted first, followed by the exploratory factor analysis to determine the dimensionality of the measurement scales. The reliability analysis was measured using the Cronbach alpha (Table 3). The multiple regression analysis of constructs, the factors affecting online purchase decision and the online purchase decision was applied to determine the influence of the factors affecting the online purchase decision on online purchase decision of online customers. The correlation analysis was used to compare the relationship between the constructs: online purchase decision, risk perception and customer satisfaction.

4.1. DESCRIPTIVE ANALYSIS

The descriptive analysis was conducted of the variables of constructs factors affecting online purchase decision, online purchase decision, consumer satisfaction and risk perception (Table 3).

Table 3. Descriptive statistics of variables and Cronbach alpha

Construct	Item number	Item	Arithmetic mean	Mode	Std. Dev.	Cronbach alpha
FACTORS AFFECTING ONLINE PURCHASE DECISION	F1	Messages from Influencers can have an influence on my purchase decision.	2.70	3	1.257	.784
	F2	Sponsored articles published on the Internet can have an influence on my purchase decision.	3.01	3	1.089	
	F3	Ads related to some product or service I searched online (remarketing) could have an influence on my purchase decision.	3.27	4	1.064	
	F4	Online reviews can have an influence on my purchase decision.	3.86	5	1.175	
	F5	Online reviews help me make better purchase decision.	4.05	5	1.058	

ONLINE PURCHASE DECISION	OPD1	I often buy products or services online.	3.97	4	1.109	0.683
	OPD2	Overall, I am satisfied with purchasing product or services online.	4.16	5	0.886	
	OPD3	I will positively recommend online shopping to others.	4.00	5	0.977	
SATISFACTION	S1	I am satisfied with the products and services bought online.	4.00	4	0.830	.721
	S2	I am satisfied with the delivery service of the products purchased to your home address.	4.07	5	0.967	
	S3	I am overall satisfied with online shopping.	4.19	4	0.739	
RISK PERCEPTION	RP1	Sharing and sending personal data via Internet is risky for me.	3.61	3	1.131	.607
	RP2	Internet is a safe place for shearing and sending personal data.	2.69	3	1.114	
	RP3	I feel safe when sending my personal data via Internet.	2.89	3	1.069	

Source: Authors’

The arithmetic means of the variables of the factors affecting purchase decision constructs (F) range from 2.70 to 4.05. Variable F1 has the lowest score, while the variable F5 has the highest score. Mode ranges from 3 to 5. The values of the standard deviation exceed 1, pointing to data dispersion. The variables of the arithmetic mean of online purchase decision construct (OPD) range from 3.97 to 4.00. The variable OPD1 has the lowest value while the variable OPD2 has the highest score. The mode range from 4 to 5. The values of the standard deviation are all below 1, except the variable OPD1. The values of the arithmetic mean with the regard to the customer satisfaction construct (S) range from 4 to 4.19. The variable S1 has the lowest value, and the variable S3 has the highest value. The mode range from 4 to 5. The values of the standard deviation are all below 1, so there is not any dispersion. The arithmetic mean of the variables of the risk perception construct (RP) range from 2.69 to 3.61. The variable RP2 has the lowest value and the variable RP1 has the highest value. All modes equal 3. The values of the standard deviation exceed 1, pointing to data dispersion.

4.2. VALIDATION OF THE MEASUREMENT SCALES

To determine the validity of the research instrument, an analysis of the dimensionality and reliability of the measurement scales was performed. The reliability of the measurement scales was confirmed by applying Cronbach’s alpha coefficient of internal consistency. For the measurement scale of the factors affecting online purchase decision, dimensionality analysis was conducted using exploratory factor analysis. The results show that the adequacy measures of factors affecting online purchase decision construct are appropriate (KMO is 0.685, and Bartlett’s test sphericity χ^2= 353.253; $p<0.001$). Principal component analysis with varimax rotation of the factor axis was carried out. Table 4 shows that two factors were extracted using exploratory factor analysis for the factors affecting online purchase decision construct. Total percentage of the explained variance shows that the extracted factors contain 75.682% of information of all variables. This is a high percentage and points to a good relationship among the variables [Hair 2014: 115]. The eigenvalue of each extracted factor is over 1. The factor loadings for all factors are positive and exceed 0.50, which is considered high loading [Hair, 2014:115]. The number of variables in each factor is 3 and 2. Factor 1 is called “Digital marketing tools”; it contains 3 variables, which explains 53.926% of variance. Cronbach alpha is 0.805 which is considered high reliability [Petersen, 1994]. Factor 2 is called “Online reviews”. It contains 2 variables, which explains 21.756% of variance. Cronbach alpha is 0.759 which is considered good reliability [Petersen, 1994].

Table 4. Exploratory factor analysis of the factors affecting online purchase decision

Item number	Variable	Factor loadings	Total variance explained (%)	Cronbach alpha
FACTOR 1 – DIGITAL MARKETING TOOLS			**53.926**	**0.805**
F1	Messages from Influencers can have an influence on my purchase decision.	.786		
F2	Sponsored articles published on the Internet can have an influence on my purchase decision.	.900		
F3	Ads related to some product or service I searched online (remarketing) could have an influence on my purchase decision.	.802		
FACTOR 2 – ONLINE REVIEWS			**21.756**	**0.759**
F4	Online reviews can have an influence on my purchase decision.	.904		
F5	Online reviews help me make better purchase decision.	.849		

Source: Authors'

Regarding, exploratory factor analysis of the online purchase decision construct, one factor was extracted. Total percentage of the explained variance shows that the extracted factors contain 62.360% of information of all variables. The factor loadings of all variables are positive and it exceeds 0.50. The number of variables is 3. Also, one factor was extracted using exploratory factor analysis of the consumer satisfaction construct. Total percentage of the explained variance shows that the extracted factors contain 66.213% of information of all variables. The factor loadings of all variables are positive and it exceeds 0.50. The number of variables are 3. The construct risk perception (information risk) had one factor which was extracted using exploratory factor analysis. Variable RP1 *Sharing and sending personal data via Internet is risky for me.* had a factor loading of 0.297 and was excluded from the further analysis. Total percentage of the explained variance shows that the extracted factors contain 82.060% of information of all variables. The factor loadings of all factors are positive and exceeds 0.50. The number of variables are 2.

Reliability analysis was conducted on the construct of online purchase decision, customer satisfaction and risk perception. The Cronbach alpha range from 0.629 to 0.781. Values of 0.7 are considered good reliability [Peterson, 1994].

Table 5. Multiple regression analysis for constructs factors affecting the online purchase decision and the online purchase decision

Independent variables	B	Std. Error	Beta	t	Sig.
(Constant)	7.680	.653		11.755	.000
DIGITAL MARKETING TOOLS	.115	.056	.143	2.047	.042
ONLINE REVIEWS	.431	.081	.370	5.316	.000
R2	0.447				
Adjusted R2	0.192				
Standard error	2.09937				
F ratio	24.603				
Significance	0.000				

Source: Authors'

The results of the regression analysis are statistically significant (F=24.603, p=0.000). The determination coefficient (R^2) totals 0.431, and the variables in the model share 43.1% of the common factors. The analysis confirms that the online reviews (β=0.370, p=0.000) have a considerable and significant impact on the online purchase decision, while digital marketing tools (β=0.143 p=0.042) are not considerable and are significant at level 0.05.

To confirm the relationship between the online purchase decision and the customer satisfaction, a correlation analysis was conducted using the Pearson correlation coefficient. A statistically positive medium relationship between the online purchase decision construct and the customer satisfaction construct (r=0.644, p=0.000) was established. Regarding a correlation analysis between constructs the risk perception and the customer satisfaction (r=0.258, p=0.000), a statistically significant but very weak correlation was established.

5. DISCUSSION AND CONCLUSION

This paper aims to empirically analyze which digital marketing factor have positive relationship on the online purchase decision and weather the online purchase decision and risk perception have positive effects on customer satisfaction. To achieve this goal, three hypotheses were set. A measuring instrument was designed and empirical research was carried out, which has resulted in important findings. The scale for measuring the factors affecting the online purchase decision was adopted and its reliability and dimensionality were verified. The results confirmed the validity of the scale for its application in the context of the factors affecting the online purchase decision.

The result of multiple regression analysis prove the first hypothesis (H1). There is a positive relationship between online reviews (β=0.370, p=0.000) and the online purchase decision. The customers often read other online reviews to find out what other customers experiences are about a products or services they purchase. It can be concluded that H1 hypothesis is supported.

The result of testing the hypothesis H2 align with the results of previous research conducted by Hossain et al., [2018] and Hartanto et al., [2023]. In this paper the online purchase decision positively affects customer satisfaction (r=0.644, p=0.000). Therefore, satisfied customers intend to purchase products or services online more often, and recommend it to others. Overall, customers are satisfied with purchasing products online. The H2 hypothesis was supported. Based on the result of H3 hypothesis testing, it is proven that there is a weak correlation (r= 0.258, p=0.000) between risk perception and customer satisfaction. The results of testing this hypothesis are in line with the results of previous research conducted by Chen et al., [2015], Alcántara-Pilar et al. [2017] and Moon and Armstrong [2020]. The online customers are unable to physically assess the product before the purchase so sellers offer cues designed convey the quality of product or services offered, reduce risk perception and increase purchasing behavior [Mavlanova et al., 2016; Rosillo-Diaz et al., 2019].

It can be concluded that online reviews positively affect online purchase decision and online purchase decision positively affects customer satisfaction. There is significant but weak relationship between risk perception and customer satisfaction, which implies that further research must be conducted.

The implication of this research can provide significant contributions and benefits to the literature research. The theoretical implications provide scientific contribution and empirical research by analyzing relationship between the constructs: factors affecting online purchase decision, online purchase decision, risk perception and customer satisfaction. The practical implication is to contribute to the development of digital marketing and online shopping by identifying factors affecting online purchase decision and building customer satisfaction. Also, online sellers must find a way to build trust with online customers by reducing risk perception especially regarding information risk so customers can feel safe when giving their personal data on Internet.

There are several limitations to this study. The research was conducted online and the respondents were mainly younger people. Further studies should be carried out on larger samples with different age groups. Further studies could investigate the influence of other constructs, such as loyalty, purchase intentions, other factors affecting online purchase decision, service quality and perceived value. In addition, a segmentation of different types of online customers can be made. There are also many cultural differences regarding online purchase decision making and risk perception so further research can be conducted with the sample of online customers between different countries and cultures.

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Preliminary communication / Prethodno priopćenje

PRIMJENA STABLA ODLUKE NA PROBLEMU IZLASKA PODUZEĆA NA NOVA TRŽIŠTA

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SAŽETAK

Plasiranje proizvoda ili usluga poduzeća na nova tržišta možemo analizirati kao problem odlučivanja u uvjetima nesigurnosti i rizika. Kod izlaska na novo tržište poduzeće treba odlučiti koje je to tržište na koje izlazi. Kad se odluči za tržište, tek dok poduzeće proizvede proizvode ili kreira usluge te razvije kanale prodaje svojih proizvoda ili usluga na tom tržištu, što može predstavljati značajan trošak, poduzeće će vidjeti koliko je izabrano tržište bila dobra odluka - po odgovoru tržišta na ponudu poduzeća. Poduzeće može angažirati odgovarajuću agenciju koja može pomoći u tome da odgovor tržišta bude što bolji. U ovom radu obrađuje se model odlučivanja o izlasku na tržište temeljen na metodi stabla odlučivanja. U studiji slučaja, informatičko poduzeće može samostalno ili uz pomoć specijalizirane agencije izaći na tržište. Korištenje stabla odluke u ovom problemu omogućilo je bolju vizualizaciju bitnih aspekata odluke, racionalni pristup odlučivanju te u konačnici isplativiju odluku. Dodatno, ovakav model odlučivanja može biti dobar promotivni materijal za agenciju koja nudi usluge posredovanja prilikom izlaska na nova tržišta budući da stablo odluke na vizualan i analitički, a opet jednostavan način pokazuje pogodnosti koje nudi agencija u odnosu na samostalni izlazak na tržište.

KLJUČNE RIJEČI: nesigurnost, rizik, posredovanje, izlazak na tržište, stablo odluke

APPLICATION OF DECISION TREE TO THE PROBLEM OF COMPANY EXPANSION INTO NEW MARKETS

ABSTRACT

The placement of a company's products or services in new markets can be analyzed as a decision-making problem in conditions of uncertainty and risk. When entering a new market, the company must decide which market it is entering. After choosing the market and producing products or creating services, as well as developing sales channels for its products or services in that market, which can represent a significant cost, the market will respond to the company's offer (accepting or rejecting the offer). Then the company will see if the decision to choose that market was good or not. The company can hire an appropriate agency that can help ensure a better market response. This paper discusses a decision-making model for market entry based on the decision tree method. In a case study, an IT company can enter the market independently or with the assistance of a specialized agency. The use of a decision tree in this problem enables better visualization of essential decision aspects, a rational approach to decision-making, and ultimately a more profitable decision. Additionally, such a decision-making model can serve as promotional material for an agency offering mediation services for entry into new markets, as the decision tree visually and analytically demonstrates the advantages the agency offers compared to independent market entry.

KEYWORDS: uncertainty, risk, mediation, market-entry, decision tree

1. UVOD

Prvi izlazak poduzeća na neko tržište, kao i novi izlazak poduzeća na tržište novom uslugom ili proizvodom predstavlja problem odlučivanja u uvjetima nesigurnosti i rizika. Izlasku na novo tržište često prethodi detaljna financijska analiza koja uključuje poslovni i marketinški plan izlaska. Velik broj varijabli u tim planovima može se smatrati nesigurnima i pretpostavljenima. Neke od tih varijabli su:

- kvantitativne i kvantificirane kvalitativne varijable pretpostavljene u financijskom planu (npr. cijene režijskih troškova – hoće li doista biti onakve kako smo ih obračunali u financijskom planu, ili je moguće da će neki neželjeni događaj (ili željeni događaj) utjecati na značajno povećanje (ili smanjenje) režijskih troškova),
- reakcija tržišta (hoće li potražnja za proizvodima i/ili uslugama s kojima se izlazi na nova tržišta biti u skladu s pretpostavkama u financijskom planu),
- odgovor tržišta na kontramjere definirane u analizi rizika (ukoliko je potražnja za proizvodima ili uslugama s kojima se izlazi na novo tržište niska te potom poduzmemo odgovarajuće dodatne mjere za povećanje potražnje sukladno matrici rizika u marketinškom planu, hoće li te mjere doista uspjeti i povećati potražnju),
- možebitna promjena zakonske regulative, i sl.

Većina ovih varijabli su i međusobno povezane i njihovoj analizi je moguće pristupiti mrežnim putem, nakon čega je moguće primijeniti metode poput različitih metoda za višekriterijsko odlučivanje koje podržavaju modeliranje mreže (Kadoić, 2018; Michnik, 2013; Saaty, 2008), ili metode kao što je analiza društvenih mreža (Knoke & Yang, 2008). Njihovom primjenom, među svim nesigurnim varijablama, možemo identificirati najnesigurnije varijable. Dodatno, prilikom izlaska na nova tržišta, osim ovih metoda, uključujući i metode odlučivanja u uvjetima nesigurnosti i rizika, svakako je oportuno primijeniti metode analize osjetljivosti.

U ovom radu bavimo se primjenom metode stabla odluke (jedne od složenijih metoda u području odlučivanja u uvjetima nesigurnosti i rizika, (Sikavica i ostali, 2014)) u problemu izlaska na nova tržišta na studiji slučaja jedne hrvatske agencije. Navedena agencija se bavi razvojem poslovanja za različite klijente, s fokusom na plasiranje na nova tržišta koristeći različite platforme i društvene mreže. Ova primjena napravljena je s pozicije klijenata – poduzeća koje želi izaći na novo tržište, a koja taj izlazak može napraviti samostalno, vlastitim resursima, ili uz pomoć spomenute hrvatske agencije koja se bavi razvojem poslovanja. U tom smislu, identificirane su nesigurne varijable i one su modelirane u stablu odluke. Osim toga, stablo odluke je upotpunjeno dodatnim jednovarijabilnim i dvovarijabilnim analizama osjetljivosti koje su primijenjene s ciljem potvrde inicijalnog prijedloga odluke od strane stabla odluke. Konačno, ovakav model, koji koristi stablo odluke, može biti i promotivni materijal za hrvatsku agenciju koja nudi usluge posredovanja prilikom izlaska na nova tržišta, budući da model sadrži varijable i stvarne podatke koje opisuju uspješnost posredovanja agencije, kao i podatke koji opisuju uspješnost izlaska na nova tržišta ukoliko se ono radi samostalno od potencijalnog klijenta. Vrijedi i spomenuti da postoji i druga istoimena metoda – stablo odluke (ili stablo odlučivanja) – iz područja rudarenja podataka. Te dvije metode su različite, no, postoje i sličnosti među njima, kao i pokušaji njihovih primjena u jednom hibridnom modelu (Kadoić i ostali, 2021).

Ovaj rad je organiziran na sljedeći način: Sekcija 2 sadrži opis primijenjene metodologije u ovoj analizi poslovnog slučaja. Sekcija 3 prikazuje detaljni opis problema izlaska poduzeća na novo tržište. Sekcija 4 prikazuje rezultate primjene metoda stabla odlučivanja i analize osjetljivosti u poslovnom slučaju. U sekciji 5 prezentirani su konačni zaključci analize i pregled mogućih nastavaka ovog istraživanja.

2. METODOLOGIJA ISTRAŽIVANJA

Ovo istraživanje je po svojoj vrsti analiza poslovnog slučaja, a kao epistemiološki pristup korišten je pragmatizam. Za analizu poslovnog slučaja i postizanje ciljeva istraživanja korištene su dvije metode: stablo odluke i analiza osjetljivosti. Prije njihove prezentacije navodimo osnovne ciljeve istraživanja.

Ciljevi istraživanja su:

1. Istražiti mogućnosti primjene stabla odluke i analize osjetljivosti u problemu izlaska na nova tržišta.
2. Istražiti mogućnosti korištenja modela stabla odluke i analize osjetljivosti u problemu izlaska na nova tržišta za promotivne potrebe agencija koje se bave posredovanjem prilikom izlaska na nova tržišta.

2.1. STABLO ODLUKE

Stablo odluke je jedna od najsloženijih metoda iz skupine metoda odlučivanja u uvjetima nesigurnosti i rizika (Schultz i ostali, 2010). Ova skupina metoda uključuje (1) jednostavne kriterije za odlučivanje u uvjetima nesigurnosti, u što ubrajamo Waldov kriterij (maxmin kriterij, ziheraški pristup, pesimistični pristup), maxmax kriterij (optimistični pristup, riskirajući pristup), Hurvitzov kriterij realizma te Savageov kriterij minimalnog žaljenja, te (2) metode za odlučivanje u uvjetima rizika, što uključuje Laplaceov kriterij, kriterij očekivane vrijednosti, pravilo (EV, δ), Bernoullijevo pravilo, stablo odluke te matricu rizika (Taha, 2017; Yan i ostali, 2021; Yoe, 2019). Ono što stablo odluke kao metodu čini složenijom od drugih nabrojanih jest što se u jednom modelu odlučivanja može modelirati veći broj odluka i događaja, a ne samo po jedan, kao što je to u slučaju drugih metoda (ne računajući matricu rizika) (Dionisio, 2018).

Stablo odluke je grafička metoda (Maseer & Flayyih, 2021). Pri tome se koriste grafičke oznake i simboli nabrojani u nastavku. Stablo odluke crta se s lijeva na desno, a smjer crtanja elemenata stabla prati vremenski tijek događanja u konkretnom problemu odlučivanja. Stablo odluke se sastoji od glavnog čvora koji predstavlja donošenje odluke, skupa srednjih čvorova (događaja) koji predstavljaju određenu vrstu neizvjesnosti te čvorova posljedica koji predstavljaju moguće konačne ishode. Uobičajeno je dodjeljivanje vjerojatnosnih distribucija u obliku težina u čvorovima događaja kako bi se mjerila povezana neizvjesnost. Osnovni elementi stabla odlučivanja su (Ekenberg i ostali, 2006):

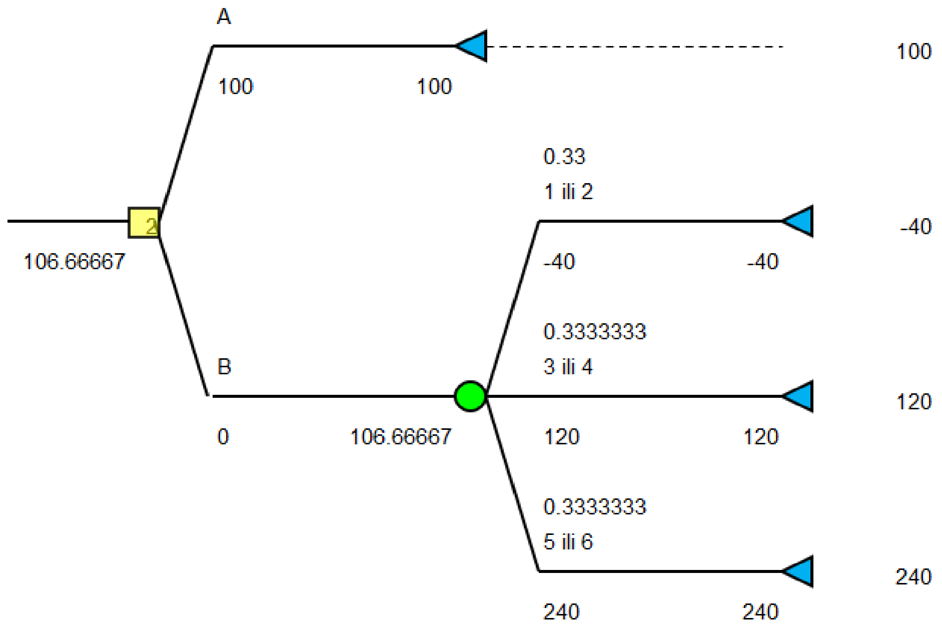
- Čvorovi odluke (grafički se prikazuje kvadratićem),
- Grane alternativnih aktivnosti (grafički se prikazuju linijom, pri čemu se naziv grane piše iznad linije, poravnato lijevo),
- Čvorovi mogućih posljedica (grafički se prikazuje kružićem),
- Grane mogućih posljedičnih stanja (grafički se prikazuju linijom, pri čemu se naziv grane piše iznad linije, poravnato lijevo),
- Trošak ili prihod akcije alternative ili posljedičnih stanja (iznos troška ili prihoda veže se uz svaku pojedinu granu alternativnih aktivnosti, kao i granu mogućih posljedičnih stanja i najčešće se piše ispod grane, poravnato lijevo),
- Vjerojatnosti pojave mogućih stanja (vjerojatnost izražena kao decimalni broj ili razlomak, najčešće se prikazuje iznad grane mogućih posljedičnih stanja iznad grane, poravnato desno),
- Završni čvorovi (grafički se najčešće prikazuju trokutićem, završni čvorovi predstavljaju završetak grananja stabla odluke),
- Vrijednosti konačne isplate financijske koristi (vežemo ih uz završne čvorove i iznosi se upisuju desno od završnih čvorova; vrijednosti se računaju tako da se zbroje/oduzmu svi prihodi i troškovi od korijena stabla na putu do završnog čvora).

Koraci u metodi stabla odluke su sljedeći (Damghani i ostali, 2009):

1. Crtanje grafičkog i logičkog modela stabla odluke pretvarajući tekstualne podatke u pripadajuće čvorove odluka, čvorove događaja te završne čvorove. Nakon toga je potrebno provjeriti stablo odluke kako bismo bili sigurni da su uključeni svi mogući ishodi. Također, unutar ovog koraka, računaju se i vrijednosti završnih čvorova.
2. Izračunavanje očekivanih vrijednosti svake grane polazeći s desne prema lijevoj strani, (primjena *rollback* algoritma). Očekivane vrijednosti grana najčešće se prikazuju ispod grane, poravnato desno. Pri tome:
    a. očekivane vrijednosti završnih grana jednake su vrijednostima završnih čvorava,
    b. očekivane vrijednosti grana iza kojih je čvor događaja računaju se po formuli za matematičko očekivanje, $EV_{i-1} = \sum_{j=1}^{n} p_{ij} EV_j$ (suma produkata vjerojatnosti grana koje izlaze iz čvora događaja i njihovih očekivanih vrijednosti),
    c. očekivane vrijednosti grana iza kojih je čvor odluke određuje se kao najveća od svih očekivanih vrijednosti grana koje izlaze iz čvora odluke.
3. Posljednji korak je pronalaženje optimalnog puta, točnije grana koje nam donose najveću korist.

Metoda stablo odluke može se primijeniti ručno, ili uz podršku računala. Najpoznatiji alati za podršku metodi stabla odluke su TreePlan, PrecisionTree i Silverdecisions.

Prikaz 1. Primjer jednostavnog stabla odluke



Izvor: Autori

Prikaz 1 predstavlja primjer jednostavnog stabla odluke kreiranog u alatu TreePlan. Igraču su ponuđene dvije igre. Igra A da igrač dobiva 100 eura (bez ikakve poduzete akcije). U slučaju da se odluči za igru B, u kojoj je potrebno da igrač baci kocku, pravila igre su sljedeća: (1) igrač osvaja 240 eura u slučaju da dobije brojeve pet ili šest; (2) igrač osvaja 120 eura u slučaju da dobije brojeve tri ili četiri; (3) igrač gubi 40 dolara u slučaju da dobije brojeve jedan ili dva. Na prikazu su označeni i izračunati svi elementi i očekivane vrijednosti u skladu s prethodnim teorijskim opisom stabla odluke. Optimalni put u ovom problemu jest izabrati igru B.

Važno je istaknuti da je sam proces razmišljanja koji prati izradu stabla jednako vrijedan kao i samo stablo. Taj proces potiče donositelja odluke da razmisli o budućem planu, koji se sažima kroz točke grananja gdje donositelj odluke može utjecati na smjer kojim se ide ili gdje se mogu pojaviti slučajni događaji. Stablo odlučivanja može se koristiti u različitim područjima, uključujući poslovanje, financije, zdravstvo i analizu podataka. Posebno su korisna kada odluke uključuju višestruko povezane izbore i neizvjesnosti. Analiza stabla odlučivanja omogućuje pojedincima ili grupama sistematsku analizu složenih scenarija odlučivanja, usporedbu različitih alternativa i procjenu potencijalnih rizika i nagrada svake opcije. Korištenjem metode stabla odlučivanja u donošenju odluka, pojedinci ili grupe mogu sistematski analizirati i vrednovati složene odluke, razmotriti više faktora i potencijalne ishode te donositi informirane odluke na temelju relevantnih informacija (Sarkar, 2012).

2.2. ANALIZA OSJETLJIVOSTI

Analiza osjetljivosti jest metoda kojom ispitujemo kako se mijenja neka zavisna (izlazna) varijabla (ili više njih) temeljem promjene jedne ili više nezavisnih (ulaznih varijabli). Radi se o generičkoj metodi koja se može primijeniti svugdje gdje postoji pretvorba nekog ulaza u izlaz (Saltelli i ostali, 2004). Tako ju možemo nadovezati i na stablo odluke i primjerice promatrati kako će se mijenjati konačna odluka u Prikazu 1, odluka između A i B, ako se mijenja prihod koji će se ostvariti ukoliko igrač pri bacanju kocke ostvari 5 ili 6 – trenutno je 240 eura, no možemo se pitati što će biti ako će taj prihod biti manji, ali i: do koliko smije biti taj prihod manji da je i dalje isplativo igrati B).

Tri su osnovne vrste analize osjetljivosti:

1. Jednovarijabilna analiza osjetljivosti – analiza promjene jedne izlazne varijable ako se mijenja jedna ulazna varijabla. Grafički se ovakva analiza može prikazati kroz linijski graf, a u MS Excelu se ovakva analiza može primijeniti korištenjem opcije *Data table*,
2. Dvovarijabilna analiza osjetljivosti – analiza promjene jedne izlazne varijable ako se mijenjaju dvije ulazne varijable. Grafički se ovakva analiza može prikazati kroz histogram, a u MS Excelu se ovakva analiza može primijeniti korištenjem opcije *Data table,*
3. Viševarijabla analiza osjetljivosti – analiza promjene jedne izlazne varijable ako se mijenjaju tri ili više ulazne varijable. Grafički se ovakva analiza može prikazati kroz *tornado* i *spider* grafove, a u MS Excelu se ovakva analiza može primijeniti korištenjem dodatka *Sensit*.

Analitički dio ovog istraživanja izrađen je u alatu TreePlan i u MS Excelu.

3. STUDIJA SLUČAJA: IZLAZAK PODUZEĆA NA NOVA TRŽIŠTA

Jedna hrvatska agencija bavi se razvojem poslovanja za različite klijente, s fokusom na plasiranje na nova tržišta koristeći različite platforme. Kao što je ranije spomenuto, analiza će biti odrađena iz perspektive klijenta (poduzeća koje namjerava izaći na novo tržište), koji bi u ovom slučaju birao između ponude agencije i samostalnog izlaska na tržište. Poduzeću kojem su ponuđene usluge posredovanja bavi se web developmentom i specijaliziran je u izradi kompleksnih sustava, bez međunarodnog iskustva. Poduzeće sadrži stručni tim iskusnih programera, dizajnera i inženjera te klijentima pruža usluge dizajna i razvoja visoko prilagođenih web aplikacija. Poduzeće želi izaći na jedno od tri nova tržišta: skandinavsko, anglosaksonsko ili balkansko tržište, a taj proces može izvesti samostalno ili uz posredovanje agencije. Dodatno, dok se izlazi na neko tržište, kampanja izlaska se može izvesti na jedan od dva načina. Kod kraće kampanje (kampanja 1) je početni odaziv bolji jer se klijente opterećuje s manje informacija i veći je fokus na dovođenje tih klijenata "za stol", kako bi se odradio sastanak s njima. Opširnija kampanja (kampanja 2) uključuje detaljnije informacije i temeljitiji sadržaj koji će se prezentirati klijentima u porukama, što u početku dovodi do manjeg broja pozitivnih odgovora jer sami klijenti nemaju naviku prolaziti kroz sadržaj toliko detaljno i ignoriraju poruke ili odbijaju sam poziv za sastanak. Kod opširnije kampanje klijenti koji prođu detaljno kroz sadržaj i odluče se pristupiti sastanku, upućeniji su u usluge navedenog poduzeća i dolaze na sastanke s konkretnim potrebama i idejom. S druge strane, kod skraćene kampanje konačni broj održanih sastanaka je veći, ali sami klijenti dolaze s više nesigurnosti i neodlučnosti zbog nedovoljne upućenosti u usluge poduzeća i konačan broj ostvarenih ugovora je nešto manji nego u usporedbi s opširnijom kampanjom.

U suštini, poduzeće treba izabrati jednu od dvije opcije:

1. Ponuda agencije za usluge plasiranja na tržišta je sljedeća (2600 eura):
   a. Faza pripreme u trajanju od dva tjedna koja uključuje istraživanje tržišta, filtriranje i odabir idealnih poduzeća kojima će se nuditi usluga, radionice na temu odabira ciljne grupe, pristup klijentima i odabir kampanje. Cijena ovog dijela iznosi 350 eura. Ovaj dio troška je kod agencije dosta nizak, što u samostalnom izlasku na

tržište neće biti slučaj. Razlog tome je što agencija ima postojeće baze podataka koje samo treba filtrirati na temelju usluga koje poduzeće nudi, uz moguća dodatna, kratka istraživanja. Također, po pitanju kampanja agencija ima ideju i plan na koji način će se slagati kampanje, iz iskustva s prethodnim klijentima. Točnije, zna na što treba obratiti pozornost za pojedinu platformu.

b. Nakon odrađene pripreme slijedi kreiranje potrebnih računa za platforme koje će se koristiti i kontaktiranje potencijalnih klijenata, koje će trajati tri mjeseca. Cijena iznosi 750 eura mjesečno (ukupno 2250 eura). U cijenu su uključene moguće izmjene ciljane grupe, modificiranje sadržaja i izmjene strategije te dnevno vođenje, vođenje kampanja, praćenje odgovora od strane klijenata, kreiranje potrebnih izvještaja, povremenih sastanaka između agencije i poduzeća, troškovi licenci i praćenje kampanja s povremenim kreiranjem izvještaja o progresu. Kroz tri mjeseca poduzeće će imati na raspolaganju agenta, s kojim će biti u stalnom kontaktu zbog provjere klijenata, dogovora oko termina sastanaka i ostalih izvještaja.

2. Samostalni izlazak na tržište (2070 eura). Temeljem stvarnih iskustava, u ovom scenariju bi vremenski okviri bili nešto drugačiji. S obzirom na to da je poduzeće do sad bilo fokusirano na domaće tržište i nemaju iskustva izlaska na vanjska tržišta, određeni elementi pripreme iziskivat će nešto više vremena nego kod agencije. Također, kvaliteta sadržaja koja će se prezentirati stranim klijentima je upitna jer opet, nemaju prijašnjeg iskustva sa sličnim. Trošak satnice rada na ovim aktivnostima iznosi 12 eura:
    a. Krenuti ćemo od istraživanja tržišta. Procjena je da bi bilo potrebno pedesetak sati utrošenog vremena za adekvatno istraživanje tržišta i pronalaska optimalne grupe klijenata. Naravno, procjena ovisi o sposobnostima i iskustvu zaduženih za istraživanje, pa samim time može varirati. Možemo reći da ova procjena naginje prema donjoj granici potrebnih sati za istraživanje. Treba uzeti u obzir da je potrebno provesti određeno vrijeme na upoznavanje s alatima pomoću kojih bi se vršilo istraživanje tržišta, tek onda krenuti u istraživanje. Ukupni trošak aktivnosti 50 sati po 12 eura iznosi 600 eura.
    b. Slaganje kampanja je sljedeći trošak koji traje 20 sati. Kvaliteta sadržaja koja se prezentira potencijalnim kupcima je svakako stavka koja se ne smije zanemariti, s obzirom na to da je to prvi niz informacija o uslugama poduzeća koje se prezentiraju klijentima. U slučaju loše prezentacije sadržaja kampanje, velik broj potencijalnih klijenata otpada u startu. Trošak aktivnosti je 240 eura.
    c. Dolazimo do dijela koji uzima najviše vremena (80 sati). Ona uključuje vođenje računa na platformama, praćenje rezultata u smislu odgovora klijenata, njihovo filtriranje, izradu potrebnih izvještaja, konzultacije s nadležnima vezane za napredak i slično. Ova stavka se na prvu čini lako izvedivom, ali potreban je kvalitetan angažman za sve navedene korake. U slučaju da je zaposlenik zadužen za veći broj poslova i ne može adekvatno voditi račune i pratiti razgovore s klijentima, lako je preskočiti ili zaboraviti odgovoriti potencijalnom klijentu te ostaviti neprofesionalan dojam prije nego što je uopće došlo do sastanaka. Tu uvijek postoji i opcija da klijent ostane nezadovoljan procesom komunikacije i odustane od sastanka. Ukupni trošak aktivnosti 960 eura.
    d. Posljednja stavka je trošak licenci i iznosi 270 eura kroz period od tri mjeseca.

Ukupni trošak druge opcije dvadesetak je posto manji od troška prve opcije, no ova analiza ne uključuje varijable koje opisuju uspješnost svake od dviju alternative, temeljem dosadašnje statistike (Tablica 1). Dodatno, ulazne varijable (npr. satnica od 12 eura) je potencijal za primjenu analize osjetljivosti.

Tablica 1. Uspješnost izlaska na tržište – posredovanjem agencije i samostalno

Tržište	Kampanja	**Vjerojatnost da je ostvaren pozitivan odgovor**		**Vjerojatnost da je ostvaren ugovor**	
		Agencija	**Samostalno**	**Agencija**	**Samostalno**
Skandinavsko tržište	1	0.4	0.3	0.35	0.35
	2	0.35	0.25	0.4	0.4
Anglosaksonsko tržište	1	0.4	0.3	0.3	0.3
	2	0.35	0.25	0.35	0.35
Balkansko tržište	1	0.45	0.35	0.2	0.2
	2	0.4	0.3	0.25	0.25

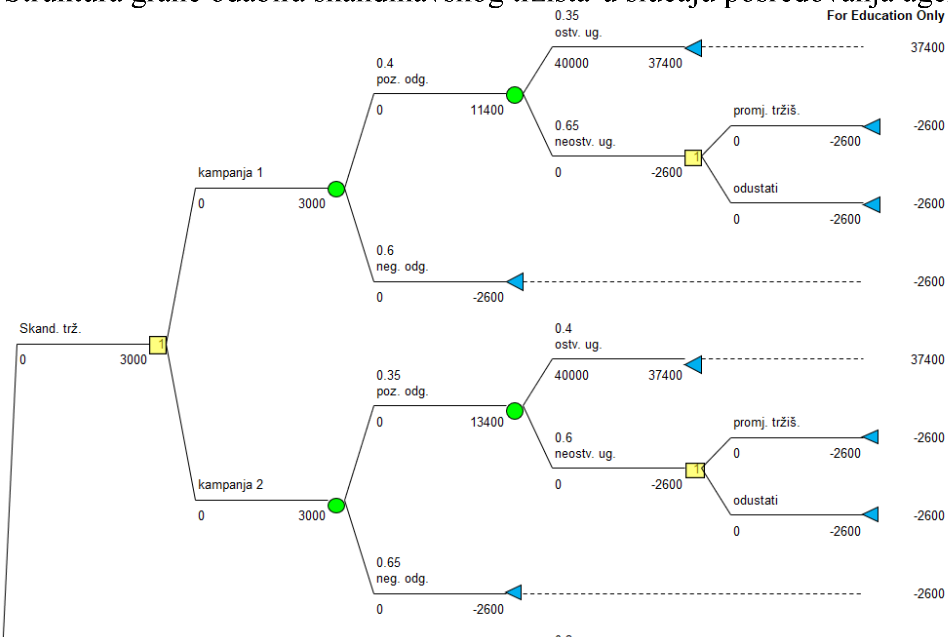
Izvor: Autori

4. REZULTATI

Zbog veličine, cijelo stablo odluka nije prikazano. Prikaz 2 predstavlja strukturu jedne grane u stablu odluke za slučaj dok se poduzeće odluči za posredovanje agencije i izlazi na skandinavsko tržište. Na slici vidimo (s lijeva na desno) da nakon što se odabere skandinavsko tržište, slijedi biranje između vrste kampanje (kraća ili opširnija). Potom slijedi događaj koji pokazuje da li je ostvaren pozitivan ili negativan odgovor. Ovdje se vidi prva razlika između dviju kampanja, gdje je kod skraćene kampanje vjerojatnost pozitivnih odgovora nešto veća. Nakon pozitivnih odgovora slijede nove dvije grane koje sadrže jedan završni čvor i jedan čvor odluke. Ovi čvorovi uzimaju u obzir broj pozitivnih odgovora koji su doveli do sastanka s čelnicima poduzeća i potencijalnim klijentima, te gledaju omjer ostvarenih ugovora iz tih sastanaka. Prilikom ostvarenja ugovora dolazimo do dobiti od četrdeset tisuća eura. Ovdje primjećujemo razliku u drugoj, proširenoj verziji kampanje da je broj ostvarenih ugovora veći, iz razloga spomenutih ranije. Iz grane neostvarenih ugovora slijedi čvor odluke, koji nam daje dvije alternative, a to je promjena tržišta ili odustajanje, točnije ostanak pri trenutnom odabiru. Struktura drugih stabla odluke identična je ovoj strukturi, samo se mijenjaju nazivi tržišta te vjerojatnosti sukladno podacima iz Tablice 1. Tako imamo još 2 ovakve grane u slučaju posredovanja agencije (za slučaj anglosaksonskog i balkanskog tržišta) te 3 grane za sva tri tržišta u slučaju samostalnog izlaska na tržište.

Rezultati pokazuju da je u slučaju posredovanja agencije ostvarena očekivana vrijednost 3000 eura i da je najbolje orijentirati se na skandinavsko tržište. I u samostalnom izlasku na tržište najbolje je orijentirati se na skandinavsko tržište, no ovaj put je ostvarena očekivana vrijednost 2802 eura, iz čega možemo zaključiti da je posredovanje agencije uspješnije u odnosu na samostalni izlazak.

Prikaz 2. Struktura grane odabira skandinavskog tržišta u slučaju posredovanja agencije



Izvor: Autori

Preostaje nam odraditi i analizu osjetljivosti kako bismo utvrdili koliko je odluka o posredovanju agencije bolja od samostalnog izlaska na tržište. Prvo ćemo odraditi ranije najavljenu jednovarijabilnu analizu osjetljivosti utjecaja cijene sata kod samostalnog izlaska na tržište na konačnu odluku o odabiru načina izlaska na tržište. Tablica 2 prikazuje konačnu odluku s obzirom na satnicu koja se kreće u intervalu od 9 do 15 eura.

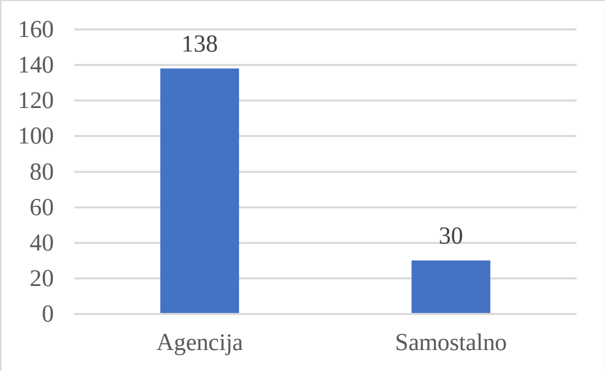
Tablica 2. Jednovarijabilna analiza osjetljivosti troška satnice na način izlaska na tržište

Satnica	Odluka
9	Samostalno
10	Agencija
11	Agencija
12	Agencija
13	Agencija
14	Agencija
15	Agencija

Izvor: Autori

Iz Tablice 2 vidimo kako bi u scenariju da satnica padne ispod deset eura, odluka pala na samostalan izlazak na tržište. To je naravno malo izgledno s obzirom da poduzeće nema dovoljno velik marketinški tim, i teško bi uklopilo cijeli proces bez dodatnog angažmana. Kada bi se dogodio scenarij u kojem bi vlasnik poduzeća odlučio dodatno opteretiti zaposlenike bez adekvatne isplate, subjektivno je mišljenje da bi se takav prihod preslikao na kvalitetu ostalih elemenata izlaska na tržište, te bi druge brojke u stablu odlučivanja patile. Iz tog razloga ćemo pretpostaviti da vlasnik poduzeća primjereno plaća svoje radnike, te ćemo se zadržati na navedenim brojkama, koje lako mogu biti i veće. Dodatno, satnica od 9 eura u praktičnom smislu znači da je mjesečna neto plaća zaposlenika oko 1000 eura, što je teško slučaj u informatičkim tvrtkama. Dodatno, prema Tablici 1 vidimo razlike u vjerojatnostima za pozitivan odgovor u slučaju posredovanja agencije i kod samostalnog izlaska na tržište. Upravo to je temelj za provođenje dodatnih 6 dvovarijabilnih analiza osjetljivosti (svaka od 6 vjerojatnosti iz Tablice 1 (4. stupac) – u intervalu od 0.3 do 0.45 - bit će kombinirana sa satnicom koja se kreće u intervalu 9-15). Prikaz 3 prikazuje histogram frekvencija konačnih odluka po 168 različitih scenarija obuhvaćenih u 6 dvovarijabilnih analiza osjetljivosti. Zaključujemo da u velikoj većini slučajeva, odluka pada na angažiranje agencije da posreduje u izlasku na tržište. Odluka o samostalnom izlasku uglavnom se odnosi na ranije analiziranu situaciju sa pomalo nerealno niskom satnicom od 9 eura.

Prikaz 3. Histogram konačnih odluka u analizama osjetljivosti



Izvor: Autori

Kada bi podaci iz Tablice 2 i Prikaza 3 bili takvi da jedna alternativa tako snažno ne dominira nad preostalima, bilo bi potrebno poduzeti dodatne analize.

5. ZAKLJUČAK

U ovom radu analizirali smo mogućnosti primjene metode stabla odluke u kombinaciji s analizom osjetljivosti u kontekstu odlučivanja o izlasku na nova tržišta. Ovim radom smo pokazali da se metoda stabla odluke u kombinaciji s analizom osjetljivosti vrlo uspješno može primijeniti u analizi problema odlučivanja o izlasku na nova tržišta čime je postignuti prvi cilj istraživanja. U radu smo pokazali primjenu metode stabla odluke za grafički prikaz scenarija odlučivanja i za donošenje odluke u inicijalnom modelu odlučivanja. S obzirom na nesigurne varijable u modelu, provođenjem analize osjetljivosti dodatno se provjerava stabilnost inicijalne odluke. U našem slučaju je odluka prilično stabilna. Nestabilne situacije su one kada ne postoji tako snažna dominacija jedne alternative nad drugima i tada donošenje odluke zahtijeva dodatne analize. Vezano uz drugi cilj istraživanja, u slučaju da neka agencija želi koristiti konkretne rezultate primjene metoda kao što su to prikazi 2 i 3 te Tablica 2, svakako to i može budući da krajnji rezultati zorno, na jednostavan i razumljiv način, prikazuju prednosti posredovanja agencije u ovom problemu odlučivanja.

Nastavak ovog istraživanja vidimo u primjeni Bayesovog teorema prilikom analiza vjerojatnosti u Tablici 1 (zadnja dva stupca).

ZAHVALA

Ovaj rad je podržala Hrvatska zaklada za znanost preko projekta UIP-2020-02-6312. Ovaj rad rezultat je rada i istraživanja prilikom izrade završnog rada studenta Tonija Crljena na stručnom studiju Sveučilišta u Zagrebu Fakulteta organizacije i informatike, pod nazivom *Primjena metode stablo odlučivanja u poslovnom okruženju* (mentor: doc.dr.sc. Nikola Kadoić; suocjenjivačica: izv. prof.dr.sc. Dijana Oreški).

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Preliminary communication / Prethodno priopćenje

PRIMJENA LEAN MENADŽMENTA U POSLOVANJU: METODA SLUČAJA

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SAŽETAK

Poduzeća u današnje vrijeme djeluju u uvjetima promjenjivosti, nesigurnosti, složenosti i dvosmislenosti. Kako bi odgovorila na navedene uvjete, poduzeća se usmjeravaju na kontinuirana poboljšanja svih aspekata poslovanja, a upravo primjena lean odnosno vitke metodologije omogućuje ostvarivanje konkurentske prednosti putem kontinuiranog poboljšanja. Cilj rada je identificiranje temeljnih problema i prilika prilikom provođenja lean menadžmenta u poduzeću, te identificiranje prednosti uvođenja navedene metodologije kroz utjecaj na performanse kao i trendova u području lean metodologije. Pregled literature analiziran je putem bibliometrijske analize pojmova povezanih s lean menadžmentom, primjenom analize ključnih riječi, dok se empirijski dio rada temelji na kvalitativnom istraživanju, metodi slučaja. Metoda studija slučaja provedena je putem intervju-a menadžera u poduzeću koji primjenjuje lean metodologiju u poslovanju. Nakon provedbe bibiliometrijske analize i studije slučaja uspoređeni su dobiveni rezultati u cilju definiranja odgovora na istraživačka pitanja. Rezultati analize potvrdili su teorijske pretpostavke kao i dosadašnje rezultate empirijskih studija.

KLJUČNE RIJEČI: lean metodologija, lean menadžment, performanse, bibliometrijska analiza, studija slučaja

LEAN MANAGEMENT IMPLEMENTATION: CASE STUDY

ABSTRACT

Companies operate in conditions characterized by variability, uncertainty, complexity and ambiguity. How to respond to this condition, companies are focused on continuous improvements of all business aspects, and lean methodology allows them to reach competitave advantages through continuous improvement. The paper aims to identify problems and possibilities in lean methodologyimplementation and identify advantages of lean implementation by positive impact on performance and recognition of trends in this field. The literature review was done by bibliometrics analysis and co-word analysis; the empirical part is qualitative research, a case study. An interview as the case study with managers in the company that implement lean methodology. Bibliometric analysis and case study results were compared to define responses to research questions. Analysis results confirmed the theoretical assumptions and present research results.

KEYWORDS: lean methodology, lean management, performance, bibliometric analysis, case study

1. UVOD

Uvjete unutar kojih suvremena poduzeća djeluju karakterizira visoka razina neizvjesnosti, intenzivne promjene te visoka očekivanja klijenata. U cilju prilagodbe poduzeća na uvjete kao i na sveprisutne promjene u potražnji, poduzeća moraju biti u mogućnosti promijeniti dosadašnji strateški pristup u poslovanju s ciljem stvaranja konkurentske prednosti i vrhunskih performansi. Nadalje, kontinuirane promjene na tržištu zahtijevaju od poduzeća fleksibilnost koja omogućava brzu reakciju bez generiranja dodatnih troškova za poduzeće [Klačmer Čalopa i sur., 2022]. Implementacija *lean* ili tzv. vitke metodologije u svakodnevno poslovanje omogućuje poduzećima kontinuirano poboljšanje svih aspekata poslovanja što dovodi do poboljšanja performansi poduzeća, a posljedično do ostvarivanja konkurentskih prednosti.

Poslovna praksa koja uključuje *lean* pristup potječe iz 20. stoljeća te poduzeća koja se smatraju „*lean organizacijama*“ nastoje funkcionirati na način da održavaju razinu i performanse odvijanja trenutnih procesa uz istovremeno unaprjeđenje tih procesa. Temeljni cilj *lean* menadžmenta te vezanih tehnika i metoda je eliminacija aktivnosti koje ne dodaju nikakvu vrijednost promatrajući iz perspektive klijenta, odnosno smanjenje stvaranja otpada u svim oblicima kao procesa, inventara ili škarta. Lean filozofija, koja izvorno dolazi iz Toyotinog proizvodnog sustava, predstavlja inicijativu koju veliki broj poduzeća pokušava implementirati u cilju pojednostavljenja proizvodnih procesa i optimizacije resursa [Womack i sur., 1991; Schonbergerm, 2007 prema Karim i Arif-Uz-Zaman, 2013]. Lean proizvodnja je tijekom godina evoluirala u filozofiju menadžmenta s naglaskom na povećanju vrijednosti za kupca i uklanjaju aktivnosti koje nemaju navedenu vrijednost [Hegedić, Gudlin i Štefanić, 2018].

Lean menadžment je poslovni model koji isporučuje superiorne performanse za klijente, zaposlene, dioničare i društvo u cjelini [Bhasin, 2012]. Charon i sur. [2014] definiraju lean menadžment kao „*Sistematičan i vrlo fokusiran pristup kod vođenja učenja zaposlenika, edukacije i prakticiranje lean principa i filozofija kroz čitavo poduzeće*.“ Womack i Jones [1997] definiraju pet vrijednosti koje se vežu uz lean filozofiju: vrijednost, bilježenje protoka vrijednosti, stvaranje kontinuiranog toka, definiranje sustava „povlačenja“ te stalno poboljšanje. Nadalje, karakteristike lean metodologije [Pettersen, 2009 prema Anđelković, Radosavljević i Stošić] jesu: *just in time* praksa, smanjenje sirovina, upravljanje ljudskim potencijalima, poboljšanje strategija, kontrola škarta, upravljanje lancima nabave, standardizacija, znanstveni pristup upravljanju i tehnike. Lean filozofija i alati pospješuju kontinuirana poboljšanja u širokom rasponu industrijskih aktivnosti obuhvaćajući područja kao što je održavanje, kvaliteta, logistika i planiranje [Pombal i sur., 2019]. Lean metodologija obuhvaća veliki broj alata, a u svojem radu Singh i Kumar [2019] istaknuli su neke od najzastupljenijih - vizualizacija radnih mjesta, kontinuirana poboljšanja, mapa toka vrijednosti i BIM (engl. *Building Information Modeling*). Poppendieck [2002] ističe kako su principi razvoja leana sljedeći: dodavanje isključivo vrijednosti i eliminacija otpada, usredotočenost na ljude koji stvaraju vrijednost, brzi protok na temelju potražnje (*pull* sistem) i optimizacija cijele organizacije.

Kada se lean metodologija primijeni na odgovarajući način doprinosi konkurentnosti poduzeća poboljšavajući sveukupne performanse, iako je implementacija zahtjevan i dugotrajan proces [Bhasin, 2012]. Iz navedenog razloga, postoji interes akademske zajednice za analiziranjem procesa implementacije lean pristupa u poduzeća i rezultatima utjecaja istog na performanse poduzeća. Jasti i Kodali [2015] u svom pregledu literature identificirali su povećanje empirijskih radova što ukazuje na rastući interes za navedenim područjem u znanstvenoj zajednici do 2011. godine te se provela bibliometrijska analiza kako bi se utvrdila situacija znanstvene produkcije zadnjeg desetljeća.

Cilj rada je identificirati dosadašnja znanstvena dostignuća u području lean menadžmenta i povezati s poslovnim slučajem. Kako bi se identificirali današnji trendovi u znanstvenim radovima, ali i poslovnoj praksi, primjenom kombinacije metoda bibliometrijske analize i metode slučaja definirana su sljedeća istraživačka pitanja:

- *Kakva je znanstvena produktivnost i zastupljenost zemalja u znanstvenom području?*
- *Koji ključni pojmovi su najzastupljeniji u području lean menadžmenta?*
- *Kakvi su trendovi u području lean menadžmenta i preporuke za buduća istraživanja?*
- *Kakva je povezanost znanstvene literature i prakse?*
- *Koje su ključne prednosti i nedostaci uvođenja lean metodologije u poslovanje?*

2. BIBLIOMETRIJSKA ANALIZA

2.1. METODOLOGIJA

Platforma Web of Science (*WOS*) s bazom koja sadržava više od 13.000 časopisa [Mongeon, Paul-Hus, 2016] predstavlja odgovarajući izbor za provedbu bibliometrijske analize [Fang i sur. 2018 prema Zhang, Quoquab i Mohammad]. Sukladno tome, za predmetnu analizu odabrana je WOS platforma. Bibliometrijska analiza prikladan je način za bolje razumijevanje postojećeg stanja u definiranom znanstvenom području kao i identificiranje preporuka za buduća istraživanja [Zhang, Quoquab i Mohammad, 2023]. Kao jedan od oblika bibliometrijske analize, analiza ključnih riječi (eng. *co-word analysis*), omogućava identificiranje najistaknutijih aspekata unutar određenog znanstvenog područja. Analiza ključnih riječi provedena je na način da su analizirani svi sažeci radova obuhvaćeni analizom, a način definiranja baze radova opisan je u Tablici 1. Cilj analize ključnih riječi je identificirati pojmove koji se najčešće javljaju u sažecima radova koji su predmet bibliometrijske analize kako bi se mogli donijeti zaključci o tome koji su najzastupljeniji pojmovi u analiziranom području. Dobiveni rezultati grafički će se prikazati korištenjem softwarea *VOSviewer* i *Biblioshiny*.

Autori su podatke za bibliometrijsku analizu prikupili 12. srpnja 2023. godine, obuhvativši cijeli vremenski horizont objavljenih članaka na navedenoj platformi. Prema podacima platforme WOS, prvi članak na temu lean metodologije objavljen je 1996. godine. Detaljan proces prikupljanja baze za bibliometrijsku analizu s kriterijima prikazan je u Tablici 1. Na platformi WOS upisan je pojam „lean methodology", a u bazu su uključeni članci u kategorijama „*management and business*" te *Social Sciences Citation Index*. Na temelju definiranih kriterija, baza radova za analizu obuhvatila je ukupno 799 radova.

Tablica 1. Detalji pretraživanja platforme WOS

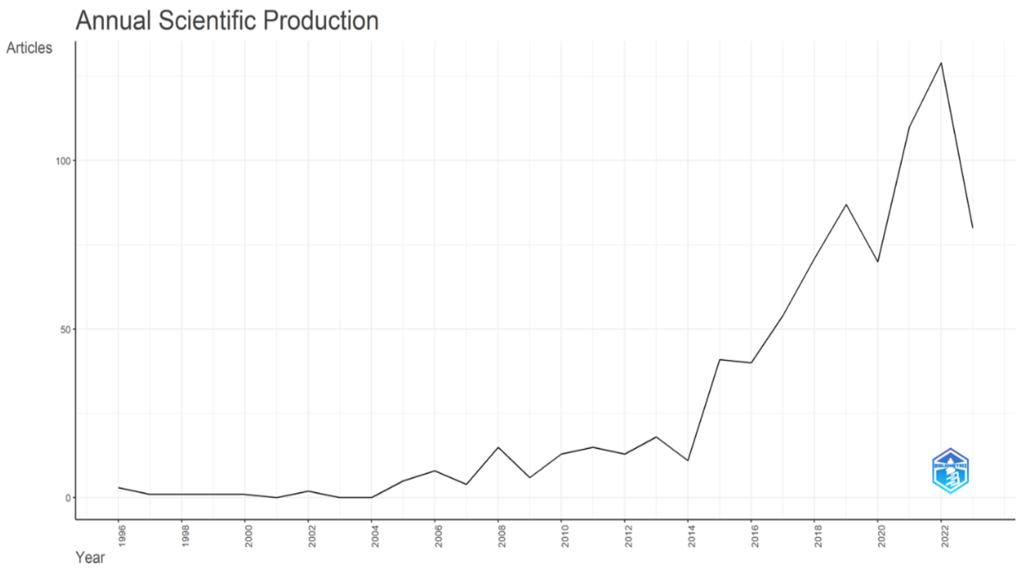
Kriteriji	**Opis**
Platforma	Web of Science
Period	Nije definiran
Pojmovi za pretraživanje	Lean metodologija (eng. *Lean methodology*)
Kriteriji za uključivanje članaka	Članci Kategorija: *management and business* *Social Sciences Citation Index*
Ukupno članaka uključenih u analizu	799

(Izvor: izrada autora)

2.2. REZULTATI BIBLIOMETRIJSKE ANALIZE

Kao što je prethodno spomenuto, najstariji članak obuhvaćen bibliometrijskom analizom, u području lean metodologije datira iz 1996. godine. Detaljna analiza znanstvene produktivnosti kroz navedeni period od 28 godina, ukazuju na znatno povećanje znanstvene produktivnost u zadnjem desetljeću. Prvo povećanje identificirano je u 2014. godini, dok je u 2020. identificiran najznačajniji porast. Porast u 2020. godini može se povezati s pojavom COVID-19 pandemije, u kojoj su poduzeća bila usmjerena na smanjenje troškova i povećanje produktivnosti, a lean metodologija može biti jedan od strateških pristupa poduzeća za ostvarivanje navedenog cilja. Pandemija je rezultirala povećanjem razine volatilnosti okruženja što menadžere u organizacijama navodi da provode promjene, a organizacije u različitim područjima usmjerile su se na lean metodologiju kao jedan od dokazanih pristupa za pomoć u poboljšanju performansi [mckinsey.com, 2020]. Znanstvena produktivnost u području lean metodologije za analiziranu platformu prikazana je Slikom 1.

Slika 1. Znanstvena produktivnost u području lean metodologije po godinama



(Izrada autora: software Biblioshiny)

Tablica 2 prikazuje znanstvenu produktivnost autora po zemljama, a analizom baze radova utvrđeno je kako je najmanje 67 zemalja objavilo barem jedan članak koji obuhvaća pojam lean metodologija, što znači kako barem jedan autor dolazi iz neke od zemalja. Vidljivo je kako u objavama visoku poziciju ima Ujedinjeno Kraljevstvo s 239 članka, sljedeća je Indija s 194 te Sjedinjene Američke Države s 191 objavom. Rezultati su u skladu s bibliometrijskom analizom autora Singh i Kumar [2019] koji su također identificirali nerazmjer između zemalja. Važno je spomenuti kako navedena analiza obuhvaća suautorstvo, što znači da nije uvjet da svi autori budu iz navedene zemlje, već su uključene internacionalne mreže za suradnju. Zanimljivo je kako u navedenoj bazi, uz zadane kriterije, samo je jedan članak autora iz Hrvatske. Navedena tablica izrađena je putem programa *Biblioshiny*.

Tablica 2. Popis zemalja i broj članaka

Zemlja	**Broj**
UK	239
INDIA	194
USA	191
BRAZIL	126
CHINA	93
ITALY	89
AUSTRALIA	72
SPAIN	65
SWEDEN	43
NETHERLANDS	42
NORWAY	40
MALAYSIA	37
IRELAND	35
CANADA	32
NEW ZEALAND	30
PORTUGAL	30
TURKEY	30
DENMARK	23
GERMANY	20
MEXICO	18
FRANCE	17
MOROCCO	17
PAKISTAN	16
INDONESIA	15
IRAN	15
JORDAN	15
CHILE	14
SAUDI ARABIA	14
SWITZERLAND	14
SOUTH KOREA	11
BANGLADESH	10
FINLAND	10
HUNGARY	10
BELGIUM	9
EGYPT	9
GREECE	9
SRI LANKA	9
ARGENTINA	8
POLAND	8
SOUTH AFRICA	8
GHANA	7
THAILAND	7
URUGUAY	6
VIETNAM	6
ISRAEL	5
JAPAN	5
LITHUANIA	5
NIGERIA	5
AUSTRIA	4
ROMANIA	4

CZECH REPUBLIC	3		ECUADOR	2		HONDURAS	1
LEBANON	3		ESTONIA	2		KAZAKHSTAN	1
NAMIBIA	3		KUWAIT	2		NORTH MACEDONIA	1
QATAR	3		LATVIA	2		RUSSIA	1
SINGAPORE	3		BULGARIA	1		ZIMBABWE	1
COLOMBIA	2		CROATIA	1			

(Izvor: Izrada autora prema podacima Biblioshiny)

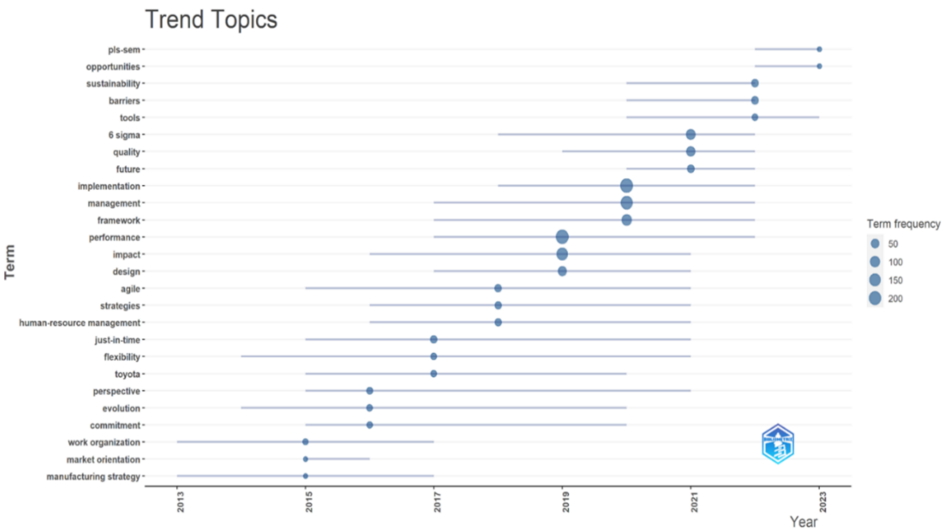
Analiza ključnih riječi (Slika 2) odrađena je u *VOSviewer* softwareu, a ukazala je na najvažnije pojmove na području lean metodologije: Performanse (248), implementacija (229), menadžment (193) i utjecaj (154). Navedeni pojmovi istaknuti su prema interesu znanstvene zajednice za područja poput performanse poduzeća (financijske i nefinancijske), važnost menadžmenta za proces implementacije navedene metodologije, kao i proces implementacije u cilju identificiranja razloga zašto su neke organizacije uspješnije u odnosu na druge.

Slika 2. Rezultati analize ključnih riječi

(Izvor: izrada autora pomoću Biblioshiny)

Slikom 3 prikazani su trendovi tema u području lean metodologije po godinama. Može se identificirati kako su 2019. godine u znanstvenoj literaturi prevladavali aspekti performanse i utjecaj, dok 2020. godine fokus se usmjerio na implementaciju i menadžment. U posljednjih nekoliko godina fokus u području lean metodologije usmjerava se na prilike i održivost te se navedeno područje prema učestalosti pojave može definirati kao potencijal za buduća istraživanja jer je vidljivo kako navedena područja nisu značajno zastupljena u analiziranim člancima. Prilikom interpretacije navedenih rezultata bibliometrijske analize potrebno je istaknuti činjenicu kako se odnose isključivo na analiziranu bazu koja je preuzeta na platformi WOS, uz definirane kriterije što se ujedno smatra i jednim od najvećih ograničenja rada.

Slika 3. Trendovi tema u području lean metodologije



(Izvor: izrada autora u softwareu Biblioshiny)

3. METODA SLUČAJA

U okviru metode slučaja proveden je intervju s dvoje zaposlenika na pozicijama senior inženjer i voditelj klijenata (engl. *Senior tech engineer i Account manager*] u komunikacijskoj digitalnoj agenciji. Cilj provedbe intervjua bio je prikupiti informacije o iskustvu s lean metodologijom unutar poduzeća, o primjeni pojedinih alata, razmišljanju vezanom uz uklanjanje otpada i ostale elemente lean metodologije. Kod implementacije lean metodologije često je riječ o nesistematičnom pristupu, iako znatan broj poduzeća primjenjuje neke od lean principa [Klačmer Čalopa, Kokot i Đunđek Kokotec, 2022] i upravo provedba intervjua omogućava dublju sliku poslovanja i analiziranja primjene lean metodologije.

Prije svega, potvrđena je teorijska pretpostavka kako su poduzeća sve više usmjerena na potrebe klijenata, što ukazuje sljedeća tvrdnja „*Istaknula bih da je još važnije razumjeti klijenta i pokušati sam shvatiti što bi potencijalno mogao biti problem ili što bi trebalo biti potrebno za rješavanje određene situacije*.“ U početnoj fazi intervjua jasno je istaknuta potreba poduzeća za personaliziranijem usluga koje poduzeće pruža na tržištu.

Tijekom intervjua istaknuto je kako se većina njihovih usluga pruža prema *pull sistemu*, odnosno „M*ožemo imati odličnu ideju, ali ona mora biti vezana uz činjenicu da postoji problem bilo kod kupaca našeg klijenta, odnosno njegovih potrošača bilo kod samog klijenta*“ (iz intervjua). Navedeno ukazuje kako poduzeće svoje usluge nudi isključivo na potrebama potražnje, čime se smanjuju usluge koje nisu tražene na tržištu.

Iako poduzeće nudi usluge koje su personalizirane, određeni procesi su standardizirani na razini klijenata, kao i faze svake pojedine usluge „*Proces je standardiziran od prikupljanja zahtjeva od klijenta, razvoja plana strategije i taktika do produkcije i dostave. Proizvodi, odnosno usluge koje nudimo i radimo za klijenta standardizirane su u okviru svakog odjela i same struke*“ (iz intervjua).

Vezano uz otpad istaknuto je kako sugovornici smatraju kako je otpad „*Gubitak vremena bilo kakve vrste. Ali i korekcija zahtijevana od strane klijenta, pogotovo puno korekcija. Znači da* *nešto bilo nejasno u samom procesu.*“ Vidljivo je kako imaju identificirane otpade u poslovanju i kako pokušavaju smanjiti njihovu količinu. Ono što je istaknuto tijekom intervjua su aplikacije koje se koriste u internim procesima i poslovanju poduzeća, a dovode do smanjenja otpada u obliku gubitka vremena. Navedeno ukazuje na potencijal digitalnih tehnologija i digitalne transformacije poslovanja kao jednu od mogućnosti smanjenja otpada svih vrsta poput softwarea za potrošnju sati, raspodjelu zadataka, financije i slično.

Ono što je istaknuto je i kontinuirano poboljšanje svih procesa kao dugoročna investicija, odnosno „*Isplativo je, ali dugoročno. Nije kratkoročno. Mi i dalje prodajemo usluge i gledamo svoju profitabilnost utrošenog u odnosu na prodano*“ (iz intervjua). Iako je nesporno kako su kontinuirana poboljšanja svakodnevica uspješnih poduzeća „*mislim da nijedno uspješno poduzeće neće funkcionirat ako se s vremenom ne nadograđuje i poboljšava svoje procese*“ (iz intervjua).

4. RASPRAVA

Rezultati bibliometrijske analize u području lean menadžmenta ukazuju na povećanje znanstvene produktivnosti, posebno zadnjih nekoliko godina, iako je interes znanstvene zajednice već početkom 2000-tih rastao [Jasti i Kodali, 2015]. Navedeno ukazuje kako područje još uvijek ima praznina u znanstvenim rezultatima, ali i na činjenicu kako je lean metodologija jedan od strateških pristupa poduzeća, posebno zastupljena u suvremenim uvjetima poslovanja. Bibliometrijska analiza identificirala je geografsku prazninu. Zemlje koje su najzastupljenije u znanstvenim radovima su Ujedinjeno Kraljevstvo, Indija, Sjedinjene Američke Države, dok se Hrvatska nalazi na samom začelju zastupljenosti zajedno s velikim brojem zemalja koji imaju manje od 5 članaka. Navedeno otvara brojne mogućnosti znanstvenicima u području lean metodologije. Analiza ključnih riječi identificirala je kako su najzastupljeniji pojmovi u promatranom području performanse, implementacija, menadžment i utjecaj, dok se kao pojmovi u novije vrijeme ističu prilike, održivost i prepreke, što predstavlja smjer i preporuke za buduća istraživanja.

Metoda slučaja istaknula je kako se u analiziranom poduzeću mogu prepoznati alati i lean principi koji se primjenjuju. Prije svega, fokus na smanjenju otpada svih vrsta, ali i kontinuirana poboljšanja. Istaknuto je kako je navedeno osnova uspješnog poslovanja u današnjim uvjetima. Rezultati metode slučaja ukazali su i na potencijal digitalne transformacije poduzeća u uvođenju lean metodologije. Metoda slučaja ukazala je prilike koje lean metodologija uz principe i alate nudi poduzećima, ali i izazov u pogledu dugoročnosti investicije, što je istaknuo Bhasin [2012]. Identificirana je povezanost znanstvene literature i prakse, odnosno lean principi identificirani bibliometrijskom analizom autora Poppendieck [2002] primjenjivani su u analiziranom poduzeću (brzi protok na temelju potražnje, eliminacija otpada) kao i lean alati poput kontinuiranog poboljšanja [Singh i Kumar, 2019]. Nadalje, metoda slučaja ukazuje kako je osnovna prednost lean metodologije održavanje konkurentske prednosti i kontinuirano poboljšanje bez kojeg nema uspješnosti poslovanja, dok su nedostaci dugoročna isplativost investicije i financijski i vremenski zahtjevan proces implementacije. Svakako, potencijal digitalne tehnologije i procesa digitalne transformacije s aspekta lean metodologije predstavlja nedovoljno zastupljeno područje i svakako preporuku za buduća istraživanja.

Rad ima i prepoznata ograničenja. Korištenje samo jedne baze znanstvenih radova, dovodi do isključenja znanstvenih radova u ostalim bazama i prilikom interpretacije rezultata bibliometrijske analize nužno je istaknuti navedeno. Nadalje, provedba metode slučaja na isključivo jednom poduzeću može rezultirati smanjenom objektivnošću dobivenih informacija i nemogućnošću usporedbe rezultata s ostalim poduzećima. Iako metoda slučaja pruža informacije o temi, preporuka je za buduća istraživanja metodom slučaja obuhvatiti veći broj poduzeća.

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Preliminary communication / Prethodno priopćenje

MAPPING THE CUSTOMER EXPERIENCE: UNVEILING THE CUSTOMER JOURNEY IN THE NAIL INDUSTRY

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ABSTRACT

After a period of a low-touch customer service approach due to the recent pandemic, delivering value to customers again becomes a focus for entrepreneurs in originally designed business models in the service industry. Pandemic experiences have prompted customers to accept the usual service process changes readily. A valuable tool for analyzing customer behavior through the most critical touchpoints of the value delivery process is customer journey mapping. In this research, the CJM tool was applied using the example of a micro-entrepreneur in the nail industry. Customer experiences (N = 476) indicate that users attach the most significant importance to appointment availability, loyalty/reward programs, staff expertise, and price. By creating a customer journey map for customers of the analyzed business entity and other surveyed service users of different providers, differences and potential improvement touchpoints in the entrepreneur's service process have been identified.

KEYWORDS: Customer Journey Mapping, Customer Experience, Nail Industry

1. INTRODUCTION

Historically, providers' interest in satisfying customers has gone through various stages. From the era of manual, artisanal production and direct, almost familial connections with customers, through the period of mass production and focus on product quality, to modern times and the global growth of the service sector's share, where delivering greater value to customers is once again placed at the forefront (Reis et al., 2003: 195-196). Empowering customers through the increasing use of online options for price and offer comparison, personalized content, and greater trust in online reviews has put many smaller or local providers in a position where they must offer their products or services, aware that customers will compare them with the offerings and experiences they enjoy with market leaders like Amazon, Google, or Apple (Duncan et al., 2016, 2016: 3). Furthermore, the recent COVID-19 pandemic, with its low-touch approach, has brought about a meteoric rise in online sales. For instance, between the end of March and mid-May 2020, global online sales increased by 29% (We Are Social, Hootsuite, July 2020: 163), and this growth trend persisted even after the pandemic. Weekly online sales (age 16-64) increased by 52.2% in the first quarter of 2023 compared to the first quarter of 2021 (We Are Social, Meltwater, 2023a: 300; We Are Social, Hootsuite, 2021: 167). Similar trends are observed in Croatia, where in 2022, compared to 2021, there was a 3.9% increase in the number of online customers, or a growth of 94,000 customers, totaling 2.51 million (We Are Social, Meltwater, 2023b: 59). These trends have accelerated the necessity of business digitalization and the easier accessibility of products and services in the online offering.

With the change in the structure of the purchasing process, the pandemic has temporarily or permanently altered consumption patterns and customer behavior. For example, in the nail care industry, which is the focus of this paper, customers have become more inclined towards healthier lifestyles and products. In 2020 and 2021, more innovative, safer, and non-toxic products were introduced (Barnes, 2021). The nail salon industry, chosen as the focus of this micro-level study, is a large market. For illustration, the global nail salon market size was valued at USD 11 billion in 2022 (https://www.grandviewresearch.com), whereas the global cinema box office market was valued at 25.34 billion in 2022 (https://www.pwc.com). A similar comparison for the Croatian market is not available.

Timely recognition of changes in customer behavior can be facilitated by tools such as customer journey mapping (CJM), the role of which in enhancing customer experience during the decision-making process, is analyzed in the following sections of this paper. Furthermore, a customer journey map is elaborated upon using the example of a micro-level business entity in the nail care industry.

2. LITERATURE OVERVIEW

The concept of the customer journey is closely related to the notion of customer experience. For instance, Følstad & Kvale (2018: 15) found this link in 40 (out of 45) papers in their systematic literature review. It is also evident from the comprehensive definition of customer experience as a multidimensional construct based on cognitive, emotional, behavioral, sensory, and social reactions to a company's offerings throughout the entire customer purchasing journey (Waqas et al., 2021: 151).

The pioneers of studying consumer experience as a distinct research area are considered to be Pine and Gilmore (1998), who classified experience as a critical element of consumer offerings akin to goods, products, and services, as well as Schmitt (1999), who established a distinction between traditional and experiential marketing and introduced five strategic experiential modules—sense, feel, think, act, and relate experience (Waqas et al., 2021: 144).

The origin of the CJM concept is somewhat unclear and is associated with Jan Carlzon's concept of moments of truth (1987). However, the actual phenomenon of CJM is attributed to authors Carbone and Haeckel, who spoke about the experience blueprint in their seminal work (1994, cited in Kalbach, 2021: 287). The beginnings of applying customer journey for mapping customer experience are tied to authors Theng et al. (1999, cited in Pantouvakis & Gerou, 2022: 7), who aimed to enhance service processes by mapping customer experience.

Mapping is a tool frequently used in service design methodology, and the user-centered approach involves observing actual user behavior and involving them in improving and creating services (Marquez et al., 2015: 136).[1] In addition to CJM, these tools encompass various others, such as service blueprints, experience maps, or mental model diagrams, which Kalbach (2021: 5) refers to as alignment diagrams, as they visualize the interaction between people and organizations.

CJM is defined from various standpoints. In their literature review of consumer journey and CJM, Pantouvakis & Gerou (2022: 9) found 146 scientific articles (between 1999 and 2019) and, through various approaches, distilled this definition: CJM is a depiction of the customer journey that visualizes the overall customer experience (CX) and includes all touchpoints between the customer and the company or service throughout the entire decision-making process and customer journey stages.

One key concept within CJM is touchpoints between customers and the company or service, through which the entire customer service process is analyzed. It is crucial to take a holistic approach to view the entire service - the entire journey, rather than just individual touchpoints, as excellent performance at individual touchpoints might result in a less satisfactory overall customer experience. Customer journey, in fact, significantly correlates with customer satisfaction or the propensity to recommend a service/product compared to touchpoints across various industries (Duncan et al., 2016: 5 and 20). However, CJMs are not just lists of touchpoints. They include a deeper understanding of customer motives and attitudes, decision-making processes, primary elements of customer satisfaction, and more (Kalbach, 2021: 299). Such an approach has been applied in this paper and is further explained in the following section.

3. METHODOLOGY

The CJM in this paper depicts the activities, thoughts/feelings, customer pains, objectives, situations (satisfaction with specific service elements), and touchpoints, following the approach suggested by Kalbach (2021: 189 and 300). It usually includes a (marketing) persona description, but due to volume, it is not the subject of this paper. A questionnaire was prepared to determine customer motives, attitudes, and behaviors that cover three major stages of the decision-making process or the customer journey, following the Lemon & Verhoef (2016: 77) approach: pre-purchase stage (recognition, search), purchase stage (choice, ordering, payment), and post-purchase stage (recommendation, loyalty). The questionnaire contains a total of 51 statements that explore the mentioned components of the customer journey, as well as the popularity of specific salons among respondents, the most commonly used types of services, preferred payment methods, and an additional four demographic variables (age, gender, status, and residence/domicile). All statements were independently developed. For most variables (except demographic ones), an interval (Likert) scale with five levels was used. Reliability testing determined that variables tested with the Likert scale have an acceptable Cronbach's α value of 0.847. The questionnaire for online completion was prepared using the Google Forms

[1] Although the authors Marquez et al. (2015) use the term "user" instead of "customer," the concepts of customer experience (CX) and user experience (UX) should not be equated. A more detailed differentiation of the terms can be found, for example, in Lee et al., 2018; 14.

tool. Since no pilot testing of the finalized questionnaire was conducted, this is indicative research.

The analysis was conducted in the field of nail care and on the example of a micro-entity - a nail care salon as a case study. The questionnaire was distributed to the email addresses of around 150 users of the nail care salon as a case study, as well as to the addresses of students, former students, and staff of the Polytechnic of Rijeka. A total of 476 complete responses were collected during June 2023. The sample characteristics are provided in Table 1.

Table 1. Demographic Characteristics of the Sample - Excerpt

Characteristics	**N**	**%**	**Characteristics**	**N**	**%**
Gender	**476**		*Age (years)*	**476**	
Female	465	97,7	< 18	4	0,8
Male	11	2,3	18 - 24	48	10,1
Residence/Domicile	**476**	%	25 - 34	222	46,6
I live in the City Center	62	13,0	35 - 44	148	31,1
I live outside the City Center of Rijeka	212	44,5	45 - 54	33	6,9
I live in Primorje-Gorski Kotar County	58	12,2	55 or more	21	4,4
I live outside Primorje-Gorski Kotar County	144	30,3			

Source: research

For a global comparison of this sample characteristics, the women segment dominated the market by around 69% in 2022 (https://www.grandviewresearch.com). In the sample of this research, the proportion of women might be unrealistically high. On the contrary, the age structure is approximately similar. The age group of 19 – 40 years dominates the global nail salon market with 46% in 2022 (https://www.grandviewresearch.com), while in this sample, the age group of 18 – 34 years constitutes 51.9%

4. RESULTS

The statistical tool Jamovi 2.3.21 was used to analyze the collected empirical data. Non-users of nail salons were initially excluded from the analysis, leaving a sample of 297 respondents who identified themselves as current or former users of nail salons. ANOVA and independent sample tests were conducted to compare the results of nail salon users concerning demographic and other control variables. Statistically significant differences were found in certain variables concerning the age of respondents and the frequency of visits. However, within the context of this study, the focus was placed on differences established between 'own' users (of a studied nail care salon) and other users (31 out of 55 variables). For this reason, the CJM is presented separately (Tables 2 and 3 below) for 'own' users (N = 92) and 'other' users (N = 205).

Table 2. Customer Journey Map for 'Own' Users

Stage	**PRE-PURCHASE**								
	Awareness of the salon brand		Selection criteria for choosing a salon	Regularly seeking nail design ideas before visiting the salon	Method of scheduling appointments		Experience with online appointment booking	Potential improvements in the booking process	
Activities	**Salon selection**				**Appointment scheduling**				
Thoughts / Feelings	Stimulating curiosity; Reducing insecurity			Entrusting to expertise; Approval	Time and care savings				
User Pains	Brand confusion; Risk of wrong choice			Reluctance to risk trying some new	Younger clients lack sufficient online options			Concerns about appoint. arrangement	
Objectives	Promotion through influencers and social media		Reevaluate working hours (more time slots)	Attract more younger clients	Promote online booking channels			Digitalization; Working hours?	
Situation	Word-of-mouth recommendation	76,1%	1. Service quality and staff expertise	40% fully agree or agree (43.3% among those aged 18-34), Average rating 3.11 (on a scale of 1-5)	SMS / WhatsApp / Viber	47,8%	38% have this experience (average rating 3.69 on a scale of 1-4)	Multiple appointments	3,60
	Regular client of the hair department	12,0%	2. Cleanliness and salon hygiene		Phone	33,7%		Introduction of the reminder system	3,54
	Following a favorite manicurist	7,6%	3. Appointment availability		Other	14,1%		Introduction of online reservations	3,39
	Through social media	2,2%	4. Quick and easy appointment reservation		Through social media	2,2%		Salon working hours	2,97
	Through internet searches	1,1%	5. Price and affordability		Through online system	2,2%		Faster response to reservations	2,96
	Proximity to the location	1,1%						(Scale 1 - 5)	
	Gift voucher	0,0%							
Touch-points	Social media/ Influencers; Working Hours		Appointment availability; Quality	Posting new nail designs on social media	Web applications; Social media			Appointment availability; Reminder application	

Source: research

Table 2. Customer Journey Map for 'Own' Users – Continued

Stage	**PURCHASE**				**POST-PURCHASE**				
	Experience during the visit	Possible improvements during the visit		Satisfaction with the overall service	Possible improvements after the service is provided		Acceptable price/quality ratio	Willingness to pay for premium services	
Activities	**Nail styling process**				**Usage**				
Thoughts / Feelings	Trust in the quality and expertise of the staff				Are clients satisfied; will they return; recommend the salon to others				
User Pains	:)	Location with more accessible parking?			Regular clients want to be rewarded				
Objectives	Maintain good client experiences				Building loyalty		Consider pricing levels	Offer premium services	
Situation	Rated 3,76 (on a scale of 1-4)	Parking	3,40	Rated 4,78 (on a scale of 1-5)	Loyalty program/rewards for loyalty	3,84	Rated 4,65 (on a scale of 1-5)	Willing	65,2%
		Quick service	2,97		More affordable prices or special offers	3,24		Maybe, it depends	23,9%
		Greater choice of designs and colors	2,95					Not willing	10,9%
		More professional service	2,86						
		Higher level of hygiene and cleanliness	2,86						
		Better communication	2,67						
		(Scale 1 - 5)							
Touch-points	Experience	Parking	Fast service	Loyalty	Loyalty programs	Special offers	Prices	Premium services	Recommendations

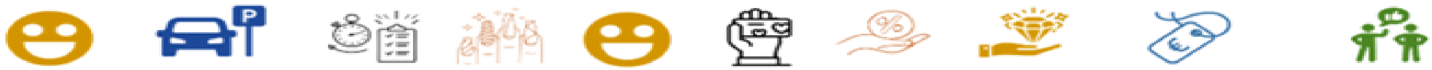
Source: research

Table 3. Customer Journey Map for Other Users

<table>
<tr><th rowspan="2">Stage</th><th colspan="9">PRE-PURCHASE</th></tr>
<tr><td colspan="2">Awareness of the salon brand</td><td>Selection criteria for choosing a salon</td><td>Regularly seeking nail design ideas before visiting the salon</td><td colspan="2">Method of scheduling appointments</td><td>Experience with online appointment booking</td><td colspan="2">Potential improvements in the booking process</td></tr>
<tr><td>Activities</td><td colspan="4">Salon selection</td><td colspan="5">Appointment scheduling</td></tr>
<tr><td>Thoughts / Feelings</td><td colspan="3">Stimulating curiosity; Reducing insecurity</td><td>Approval; experimentation</td><td colspan="5">Time and care savings</td></tr>
<tr><td>User Pains</td><td colspan="3">Brand confusion; Risk of wrong choice</td><td>Willingness to take risks</td><td colspan="3">Younger clients lack sufficient online options</td><td colspan="2">Concerns about appoint. arrangement</td></tr>
<tr><td>Objectives</td><td colspan="2">Social media promotion</td><td>Reevaluate pricing?</td><td>Retain younger clients</td><td colspan="3">Enhance and promote online booking channels</td><td colspan="2">Digitalization; Working hours?</td></tr>
<tr><td rowspan="7">Situation</td><td>Word-of-mouth recommendation</td><td>68,6%</td><td>1. Service quality and staff expertise</td><td rowspan="3">63% fully agree or agree (68.8% among those aged 18-34) Average rating 3.62 (on a scale of 1-5)</td><td>SMS / WhatsApp / Viber</td><td>39,2%</td><td rowspan="2">37.1% have this experience (rating of 3.28 on a scale of 1-4)</td><td>Multiple appointments</td><td>3,50</td></tr>
<tr><td>Through social media</td><td>16,7%</td><td>2. Cleanliness and salon hygiene</td><td>Phone</td><td>31,9%</td><td>Introduction of the reminder system</td><td>3,41</td></tr>
<tr><td>Internet searches</td><td>6,4%</td><td>3. Price and affordability</td><td>Other</td><td>13,7%</td><td rowspan="3"></td><td>Introduction of online reservations</td><td>3,29</td></tr>
<tr><td>Regular client of the hair department</td><td>2,9%</td><td>4. Quick and easy appointment reservation</td><td rowspan="2"></td><td>Through social media</td><td>11,8%</td><td>Faster response to reservations</td><td>3,11</td></tr>
<tr><td>Following a favorite manicurist</td><td>2,9%</td><td>5. Appointment availability</td><td>Through online system</td><td>3,4%</td><td>Working hours</td><td>3,05</td></tr>
<tr><td>Proximity to the location</td><td>2,0%</td><td colspan="5" rowspan="2"></td><td colspan="2">(Scale 1 - 5)</td></tr>
<tr><td>Gift voucher</td><td>0,5%</td><td colspan="2"></td></tr>
<tr><td>Touch-points</td><td colspan="9">Social media; Online advertisements; Prices; Appointment availability; Posting new nail designs on social meda; Web applications; Social media; Online booking platform; Reminder application; Working hours</td></tr>
</table>

Source: research

Table 3. Customer Journey Map for Other Users – Continued

Stage	**PURCHASE**				**POST-PURCHASE**				
	Experience during the visit	Possible improvements during the visit		Satisfaction with the overall service	Possible improvements after the service is provided		Acceptable price/quality ratio	Willingness to pay for premium services	
Activities	**Nail styling process**				**Usage**				
Thoughts / Feelings	Trust in the quality and expertise of the staff				Are clients satisfied; will they return; recommend the salon to others				
User Pains	:)	Location with more accessible parking?			Regular clients want to be rewarded				
Objectives	Maintain good client experiences				Building loyalty		Consider pricing levels	Offer premium services	
Situation	Rated 3,46 (on a scale of 1-4)	Parking	3,24	Rated 4,56 (on a scale of 1-5)	Loyalty program/rewards for loyalty	3,66	Rated 4,18 (on a scale of 1-5)	Willing	64,4%
		Quick service	3,08		More affordable prices or special offers	3,39		Maybe, it depends	22,9%
		Greater choice of designs and colors	3,06					Not willing	12,7%
		More professional service	3,06						
		Higher level of hygiene and cleanliness	3,02						
		Better communication	2,88						
		(Scale 1 - 5)							
Touch-points	 Experience	Parking		Fast service; Choice of design and colors	Service; Loyalty programs	Special offers	Premium services	Affordable prices	Recommendations and repurchase

Source: research

The CJMs of the two user groups (Tables 2 and 3) provide an opportunity for a detailed insight into the current state and differences in perceptions between own and other nail salon users based on the empirical research results. In this regard, even minor differences can be observed in the perceptions of own and other users.

In the pre-purchase stage, which involves awareness and salon selection, differences are noticeable in terms of criteria, as price and availability rank fifth for own users and third for other users. Furthermore, own users are less inclined to pre-select nail designs (40% for own users vs. 63% for other users) and are less prone to taking risks in choosing something new. Such results can be attributed to the higher proportion of younger age groups (18-34 years) in the sample (mainly student population) that visit other nail salons, compared to the age structure of own clients.

In the purchase stage (service provision), differences (statistically insignificant) should be highlighted in terms of service experiences, where own users have a slightly better perception (average ratings of 3.76 vs. 3.46 for other users).

In the post-purchase stage, own users are more interested in loyalty programs and rewards (average 3.84 vs. 3.66), and they have fewer complaints about price levels and availability (3.24 vs. 3.39), resulting in higher satisfaction with the price-to-quality ratio (4.65 vs. 4.18).

5. DISCUSSION

CJM serves as a tool for visualizing the decision-making process from the customer's perspective before, during, and after purchasing a service. Therefore, researching customer perceptions of individual touchpoints and the overall customer journey through a questionnaire is an appropriate approach to gaining a realistic view of the current state and issues that need an upgrade or even a redefinition.

CJM, through a separate presentation of its users and other users, provides a helpful comparison with competing salons. In that sense, this paper partially follows the approach of Canfield and Basso (2017: 111), who analyzed the customer journey of three typical couples of restaurant visitors, following the significant differences in demographic characteristics. The comparison results are mostly positive for the case study nail salon, although this information is of secondary importance. The primary goal is to utilize the customer journey visualization from the customers' perspective to improve individual touchpoints and the overall journey further.

The comparison with global research outcomes may confirm the usability of the insights obtained from this research. Pandemic experiences in this industry are reflected in a shift towards ordering systems via online booking platforms and mobile apps. It simultaneously reduces crowd waiting times and better utilizes salon capacities. The millennial group also seeks self-expression and individuality through unique nail designs, colors, and embellishments. Many millennials seek out nail technicians who can create customized and intricate nail art (https://www.grandviewresearch.com). This research also points to the lack of online options (primarily for younger users) and the need to introduce online booking channels. The same applies to the inclination of younger users towards experimenting with new nail designs

6. CONCLUSION AND FUTURE RESEARCH DIRECTIONS

The post-pandemic era brings new challenges and requires service providers to align their processes with potentially permanently altered customer expectations and habits. This task can be quite demanding, especially for small and micro businesses that, despite traditional shortcomings in entrepreneurial and managerial capabilities, must keep up with the pace set by leading global companies, thus shaping consumer experiences, especially those of the younger generation.

In this context, a data-based diagnostic contained in the CJM approach can significantly assist in identifying events that influence consumer frustrations or satisfaction. It also connects customer experiences with specific operational points in the customer journey, required time, or employee interactions. Ultimately, it facilitates the understanding of potential break points in the customer journey (Duncan et al., 2016: 34). Despite some limitations, CJM in this study provides a solid foundation for improving the nail salon's services that served as a case study.

A lack of a more comprehensive investigation into consumers' inclination to recommend their experiences to other existing or potential consumers (either through online or traditional word-of-mouth) was observed regarding future enhancements of this consumer journey research approach.

Additionally, it would be interesting to explore how employee commitment impacts consumer experience, and incorporating theoretical perspectives such as service-dominant (S-D) logic into the study of the consumer experience phenomenon could also yield valuable insights.

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Review article / Pregledni rad

MIGRATING DATA TO THE CLOUD: AN ANALYSIS OF CLOUD STORAGE PRIVACY AND SECURITY ISSUES AND SOLUTIONS

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ABSTRACT

The rise of a digital economy has transformed how individuals do business and carry out daily tasks, including how data is maintained. Because of the vast amount of data that organizations own, cloud storage, a component of the cloud computing paradigm, has emerged as a feasible solution to many businesses' data storage concerns. Despite this, organizations are still cautious about moving all of their data to the cloud due to security concerns, particularly since data management is outsourced to third parties. The aim of this paper is to provide an overview of current challenges in the field of cloud storage privacy and security, with an emphasis on issues related to data confidentiality, integrity, and availability. Using a comprehensive literature study, this research investigates innovative strategies for creating a secure cloud storage environment. The idea of maintaining privacy and data security through the very design of the services, or through the so-called "privacy by design" approach, is explained while avoiding getting into the technical details of how the algorithms and presented solutions work.

KEYWORDS: digital economy, cloud, storage, privacy, security, challenges, solutions

1. INTRODUCTION

The Digital Economy Report 2021 provides insight into the development and policy implications of cross-border digital data flows, focusing on rapidly expanding digital technologies, which have become a vital resource for today's economy [United Nations Conference on Trade and Development (UNCTAD), 2021]. Cloud computing is listed in the report as one of the critical fuels of the digital economy, particularly regarding the expansion of the cloud market. A 2019 survey of 400 professionals from industries worldwide revealed 84% used the cloud for data storage or backup, while 5% planned to implement it within the next six months [Statista, 2022]. With the increasing use of cloud technology across various industries, migrating data to the cloud poses significant privacy and security challenges.

1.1. DIGITAL ECONOMY AND CLOUD COMPUTING

The digital economy has shifted from goods and services to information production, thereby enabling new ways of creating value [UNCTAD, 2019]. As a result, this data-driven economy emerges due to the benefits it offers for strategic trade [Ciuriak, 2020].

The digital economy consists of three main components [UNCTAD, 2019]:
- core aspects (digital infrastructure and hardware),
- digital and information technology sectors (digital platforms, payments etc.),
- and the broader idea of digitized sectors (places where digital goods and services are primarily used, like finance, tourism, and transport).

The cloud computing paradigm has become an important aspect of the growing digital economy due to its tight link to technology stated in all three components. The National Institute of Standards and Technology (NIST) describes cloud computing as a concept for on-demand network access to shared computer resources, including cloud storage, as one example of these resources [Mell and Grance, 2011].

Consideration for the legal obligations should be analyzed when storing data. In Article 5 of Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation - GDPR), data processing principles such as the storage of personal data and measures to prevent unlawful processing are outlined. In order to promote data sharing among enterprises, the European Union (EU) enacted the Data Governance Act (DGA) and is drafting the Data Act proposal; nevertheless, these regulations may compromise data privacy under the GDPR [Eur-lex.com, 2022]. Moreover, it is important to mention the Free Flow of Non-Personal Data Regulation, which enabled non-personal data storage, processing, and transfer, as well as the development of Switching Cloud Providers and Porting Data (SWIPO) codes of conduct for enforcing data portability across cloud providers [Eur-lex.com, 2022]. Additionally, one of the Data Act proposal's specific goals deals with problem of simplifying cloud and edge service switching, enabling organizations to move data and assets between providers to build trust and facilitate data sharing [Eur-lex.com, 2022]. These principles are crucial for the further development of the digital economy.

1.2. CIA triad

According to the NIST: "Information system-related security risks arise from the loss of confidentiality, integrity, or availability of information or information systems" [Chandramouli and Pinhas, 2020]. The CIA triad, a commonly used framework for identifying security risks, stands for [Fortinet, n.d.]:
- **C**onfidentiality: keeping data hidden or private from unauthorized users,
- **I**ntegrity: ensuring accurate and dependable data that has not been altered,
- **A**vailability: proper and on-time functioning of systems and applications.

NIST security recommendations for storage infrastructures include data protection using encryption, regular backup testing to verify integrity, and multiple authentication servers to ensure availability [Chandramouli and Pinhas, 2020]. In this regard, Article 32 of GDPR [L

119/1] outlines technical and organizational measures for ensuring the CIA triad, including pseudonymization, encryption, regular testing, and evaluation.

The aim of this paper is to provide an overview of current challenges in the field of cloud storage privacy and security, focusing on issues related to data confidentiality, integrity, and availability. The following research questions (RQs) were developed to achieve this goal:

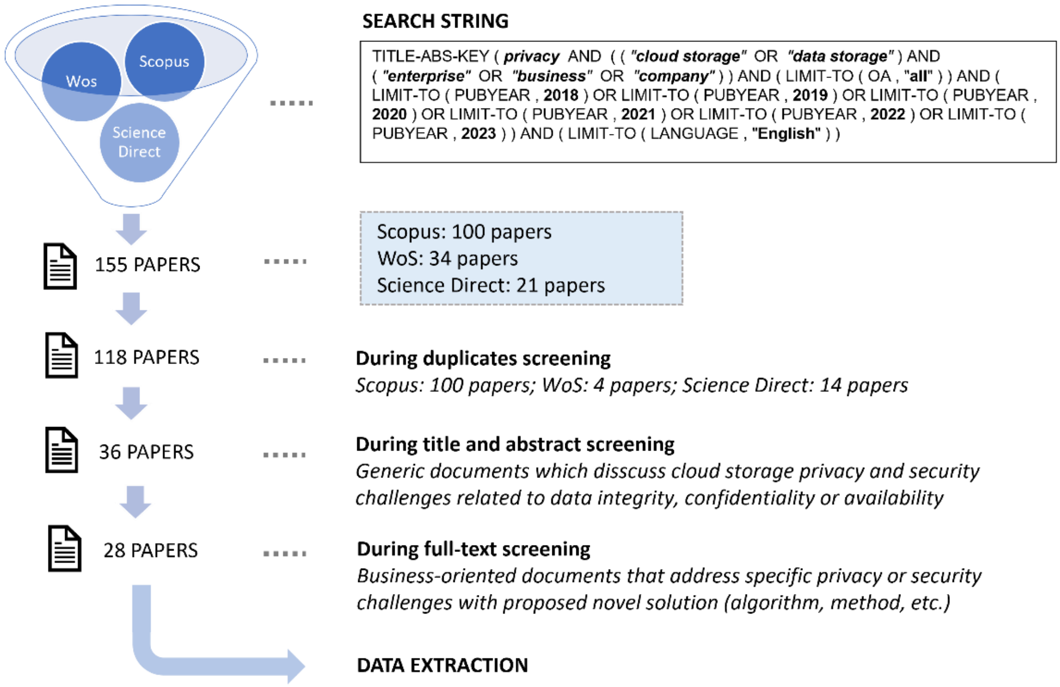
- RQ1: What are the key challenges with cloud storage privacy and security issues related to data confidentiality, integrity, and availability?
- RQ2: What modern solutions are being developed for data storage security and privacy protection in the cloud?

The remainder of the paper is structured as follows: Section 2 addresses applied research methodology; Section 3 presents results and findings; Section 4 discusses main challenges; Section 5 presents literature solutions; and Section 6 concludes the research article.

2. METHODOLOGY

The literature review was conducted utilizing the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) methodology, divided into search, screening, and data extraction phases [Moher et al., 2009]. Within the search phase, the appropriate search string was used to discover relevant publications on privacy and cloud data storage for business purposes. Scopus, WoS, and Science Direct databases were searched for articles that satisfied search criteria, limited to English-language publications published in the last five years, beginning in 2018 and ending in July 2023. Figure 1 presents the PRISMA methodology's steps graphically and provides thorough explanations.

Figure 1. PRISMA diagram with results of the literature search and screening



Source: Authors

The articles were analyzed by duplicate screening, title and abstract screening, and full-text screening. Inclusion and exclusion criteria were used to narrow the pool of articles. Articles had to address cloud storage challenges and at least one of the CIA triad issues to be included for further analysis. The analysis excluded studies that did not meet the search criteria or referred to articles with systematic literature reviews without presenting their own solution. Articles that met the inclusion and exclusion criteria were extracted and analyzed.

3. RESULTS

This study examined 28 papers to provide a systematic review of challenges and solutions associated with cloud storage over the last five years. The results were processed in the following order: identification of challenges, categorization of challenges, and presentation of solutions. Firstly, cloud storage issues were identified using the CIA triad. Table 1 depicts an overview of the main challenges mapped into the CIA triangle, where "C" refers to confidentiality, "I" to integrity, and "A" to data availability issues. If the security issues were addressed in publications, they were labeled with "x"; otherwise, the cells were left blank.

Table 1. Identification of challenges

No	Author(s)	Main challenges	C	I	A
1.	Liu et al. (2022)	Protect highly sensitive data during public sharing.	x	x	
2.	Chen et al. (2022)	Protect data shared between enterprises.	x	x	
3.	Vo et al. (2021)	Protect database and enable encrypted keyword search.	x		
4.	Rauthan & Vaisla (2021)	Ensure user data confidentiality with robust database.	x		
5.	Khashan (2020)	Secure outsourced and shared cloud data.	x	x	
6.	Li et al. (2019)	Protect smart grid data and enable keyword search.	x		
7.	Miao et al. (2018)	Support multi-keyword search and result verification.	x	x	
8.	Li et al. (2020)	Ensure data integrity scheme with quantum security.		x	
9.	Challagidad & Birje (2020)	Provide multi-authority access control for user data.	x	x	
10.	Kumar & Shafi (2020)	Protect stored data with RSA public key cryptosystem.	x	x	
11.	KL & Nair (2019)	Secure locking system for critical data.	x	x	x
12.	Yadav et al. (2019)	Provide reliable system for monitoring cloud data.	x	x	
13.	Liang et al. (2018)	Secure sharing and collaboration in healthcare systems.	x	x	x
14.	Mohammed & Abed (2020)	Secure storage of cloud data at rest.	x		
15.	Berrima et al. (2018)	Ensure data privacy and user authentication.	x		
16.	Yan et al. (2021)	Safeguard uploader privacy in group-shared data.	x	x	
17.	Divya et al. (2019)	Protect storage and enable keyword data retrieval.	x	x	
18.	Wu et al. (2019)	Enable privacy and retrieval in pay-as-you-go model.	x	x	
19.	Pinheiro et al. (2018)	Build security architecture for cloud data monitoring.	x	x	x
20.	Zheng et al. (2022)	Provide access control for user attribute revocation.	x		
21.	Bian et al. (2022)	Safeguard sensitive data during audits.	x	x	
22.	Uddin et al. (2021)	Prevent cloud threats in virtualization platforms.	x	x	x
23.	Jl & Maria (2020)	Improve data integrity in dynamic cloud auditing.	x	x	
24.	Nithya & Rhymend Uthariaraj (2021)	Preserve data integrity and key-exposure in multiple cloud storage.	x	x	
25.	Almuzaini et al. (2022)	Improve key aggregate cryptosystem for health systems.	x	x	
26.	Zhang et al. (2020)	Ensure cloud audit protocol with group user privacy.	x	x	
27.	Tian & Wang (2020)	Ensure secure deletion of sensitive data.	x	x	
28.	Zhang et al. (2019)	Enhance privacy of Internet of Things (IoT) layers.	x	x	x

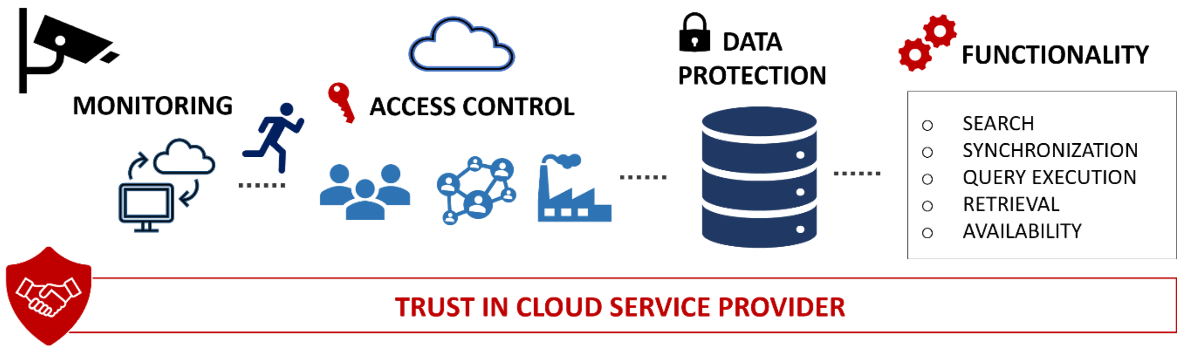
Source: Authors

The results showed that various industries have taken cloud security challenges into account. Most articles emphasized data integrity and confidentiality, with less focus on data availability issues. Further findings will be discussed in the sections that follow where first the categorization of privacy and security challenges is presented and then proposed solutions.

4. CATEGORIZATION OF PRIVACY AND SECURITY CHALLENGES

Companies often use multiple cloud storage to reduce costs and prevent vendor lock-in [Nithya & Rhymend Uthariaraj, 2021], but this requires security measures to protect sensitive data [KL and Nair, 2019]. This is particularly important for hospitals, banks, and IoT devices, which require verified data integrity for proper data analysis [Jl & Maria, 2020]. Based on a literature review, the recognized privacy and security challenges can be divided into four primary categories: monitoring, access control, data protection, and functionality challenges. In order to better visualize the main challenges, their graphic representation is shown in Figure 2.

Figure 2. Categorization of challenges



Source: Authors

According to this, all challenges can be connected to the larger problem of trust in service providers. Concerns related to monitoring, access control and data protection directly impact security and privacy. Despite not immediately jeopardizing safe storage, functional issues are identified as one of the obstacles to overcome when developing cloud storage systems.

4.1. MONITORING

Cloud service providers monitor and maintain a wide range of services for end users and businesses, making it challenging to track all cloud activities and perform efficient data security monitoring [Yadav et al., 2019]. Cloud service providers may seek for sensitive customer information during data integrity audits [Bian et al., 2022], return incorrect or irrelevant search results [Miao et al., 2018] or can easily fake authenticator to provide false proof of integrity [Zhang et al., 2020]. Data leakage may also occur when providers fail to destroy every copy of erased data, so users must be sure that they will delete all backups [Tian & Wang, 2020]. Sensitive data necessitates stronger privacy protection, but knowing when to do rigorous or less demanding checks remains difficult. It would be convenient if the user could choose when to execute further data integrity checks in the event of any security concerns. [Yadav et al., 2019]. According to Pinheiro et al. (2018), the security architecture must adjust the frequency of integrity checks based on the amount of trust in the cloud service provider. They underline the significance of observing cloud activities and proposing dynamic integrity checks with respect to the learned service provider behavior. Attacks are another thing to keep an eye on because they cause severe problems. Authors have addressed challenges with various attacks, such as inference attack [Vo et al., 2021], quantum attack [Li et al., 2020], side-channel attacks [Li et al., 2019], and keyword guessing attack [Miao et al., 2018]. In virtualized cloud infrastructure is common the "velocity-of-attack", where security threats spread and escalate faster due to the expanded infrastructure [Uddin et al., 2021]. Jl & Maria (2020) highlighted the problem of launching a distributed denial-of-service (DDOS) attack, causing network congestion and degrading service quality. With a detailed study of a chosen protocol, Berrima et al. (2018) revealed an unidentified attack that endangers user privacy. Therefore, with continuous observation, it's possible to uncover previously hidden drawbacks and improve security. Furthermore, design systems should continuously monitor data and alert about potential attacks for ensuring storage security [Yadav et al., 2019].

4.2. ACCESS CONTROL

Due to the on-demand nature of cloud computing, it is essential to put strong security measures to regulate data access and prevent unauthorized access [Mohammed & Abed, 2020]. This applies to data transfer, where reliable verification and access control mechanisms need to be established [Almuzaini et al., 2022] and for better control of sensitive data, such as private medical data [Liang et al., 2018]. To ensure that vital data is safely kept in the cloud, it is crucial that only the authenticated user can access or download data [KL and Nair, 2019], so access structures should restrict data to only those users with matching attributes [Tian & Wang, 2020]. Furthermore, KL and Nair (2019) considered multi-authentication challenges with acceptable data availability, while Liang et al. (2018) explored blockchain and smart contracts for reliable data access when dealing with multiple users. Zheng et al. (2022) focused on cloud access control in sensor networks and vehicular ad hoc networks (VANET). Considering cost effectiveness, systems with verifier authentication, may demand storage of verifier's unique key pairs, resulting in higher storage costs [Bian et al., 2022]. Moreover, cloud service providers face challenges in authenticating users while maintaining privacy. For instance, enterprise cloud storage systems with multiple user roles can compromise employee privacy through group user-based auditing protocols [Zhang et al., 2020]. To protect their employees' private data, organizations must provide fine-grained access control [Challagidad & Birje, 2020]. Berrima et al. (2018) analyzed private access control protocols where authenticate users must confirm storage rights without revealing their identity.

4.3. DATA PROTECTION

Data security was acknowledged in the new NIST Framework 2.0 draft as one of the outcomes to achieve in the prevention phase, distinguishing between securing data at rest, in use, and in transit [National Institute of Standards and Technology, 2023]. Rarely used archived documents pose a challenge due to poor access, allowing them to be compromised without the owner's knowledge. Mohammed and Abed (2020) focused on securing cloud data at rest to prevent leaks, illegal access, and threats. This is crucial, especially in smart grid data, as records contain common keywords, making them vulnerable to attacks [Li et al., 2019]. In order to secure storage, Vo et al. (2021) researched padding strategies against inference attacks, such as monitoring cluster caches and setting timers before flushing. Smart grid data is unique in that it is often updated and typically contains a large number of attributes, demanding a safe search index for performing such alternations [Li et al., 2019]. Providing effective integrity checks in situations involving dynamic data operations is likewise highly difficult [Divya et al., 2019]. Cloud service providers can free up storage by deleting or hiding instances of data loss [Wu et al., 2019], but this presents challenges for companies handling massive amounts of data. To ensure proper data handling, cloud service providers should follow appropriate practices for information assurance [Uddin et al., 2021], including modification and removal procedures. Patients' medical records, according to Liu et al. (2022), can be useful data sources for both researchers and healthcare providers. Shared data involves collaboration among several people, so Zhang et al. (2019) tackle the challenge of developing secure key sharing schemes in IoT systems, while Liang et al. (2018) underlined the importance of secure communication channels for requesting personal healthcare or insurance services, as well as enabling effective collaboration between them. In addition to sharing publicly available data, it's equally important to protect privacy when sharing data within or between organizations. Chen et al. (2022) dealt with ensuring safe data transfer between approved businesses, while Yan et al. (2021) investigated the issue of preserving file uploaders' anonymity in internal data shared between workgroups.

4.4. FUNCTIONALITY

It is difficult to design a database structure that is both secure and efficient [Rauthan & Vaisla, 2021]. An encrypted database limits the ability to query parts [Li et al., 2019], thus making traditional query execution extremely challenging [Rauthan & Vaisla, 2021]. It disables search functionality important for searching data gathered by smart grid devices, such as metering data [Li et al., 2019]. Divya et al. (2019) explore a "coordinate matching" keyword search strategy to gather linked documents; Vo et al. (2021) explore a search secure against inference attacks; and Miao et al. (2018) dealt with multiple keyword searches. Wu et al. (2019) examine safeguarding user privacy while enabling functionality like data retrieval and audits suitable for public utility cloud services, such as electricity, where customers pay based on storage volume and duration. Lack of agreement among participants can lead to availability issues, such as bottlenecks causing system crashes [Uddin et al., 2021]. Research on safe transmission after cloud server failures [Zhang et al., 2019] and ensuring data availability [KL & Nair, 2019] can help address these issues.

5. PROPOSED TRENDS FOR ADDRESSING PRIVACY AND SECURITY CHALLENGES

The authors primarily used encryption and digital signatures in their solutions, combined with methods to preserve integrity. To guarantee data security, KL & Nair (2019) introduced the Data Storage Lock Algorithm (DSLA), Wu et al. (2019) designed a privacy-preserving proof of storage for the pay-as-you-go business model, while Mohammed and Abed (2020) developed an encryption framework to defend cloud data at rest. Privacy preservation methods include certificateless auditing [Bian et al., 2022], enhanced integrity methods [Jl & Maria, 2020], and forward secure public auditing scheme to prevent key exposure attacks [Li et al., 2020]. To maintain uploader anonymity in group-shared data, Yan et al. (2021) developed a certificateless public auditing protocol, while Zhang et al. (2020) designed a group user privacy auditing protocol to prevent cloud server's integrity falsification. Identity-based techniques include parallel key insulation [Nithya & Rhymend Uthariaraj, 2021] and sanitizable digital signatures [Liu et al., 2022]. Khashan (2020) introduced user-side encrypted file systems (OutFS) for secure data exchange, while Zhang et al. (2019) proposed compressed sensing fault-tolerant encryption for secure key sharing in IoT cloud systems. Some authors explored blockchain solutions for virtualization [Uddin et al., 2021], enterprise data sharing scheme [Chen et al., 2022], and a safe collaboration system for sharing health data [Liang et al., 2018]. A fine-grained data deletion system with attribute association (ADAA) was proposed by Tian & Wang (2020) for secure data deletion. For data control, Yadav et al. (2019) proposed a monitor-based scheme, while Pinheiro et al. (2018) established a security architecture and protocol that dynamically modify checks based on trust in the cloud service provider. In terms of ensuring access control across multiple authorities, Challagidad and Birje (2020) created a hierarchy access structure for privacy protection, Berrima et al. (2018) introduced a corrected private access control, and Zheng et al. (2022) introduced a user attribute revocation strategy. For functionality issues, Vo et al. (2021) proposed encrypted document database search, while Li et al. (2019) focused on searchable smart grid data. For data retrieval, Divya et al. (2019) developed cloud storage with trust manager, while Miao et al. (2018) proposed verifiable multi-keyword search. Rauthan & Vaisla (2021) developed solution for efficient query execution, Kumar & Shafi (2020) proposed a modified RSA public key cryptosystem, and Almuzaini et al. (2022) developed a scalable key aggregate cryptosystem for health data protection.

6. CONCLUSION

This study is important since it identifies challenges and solutions related to privacy and security protection when using cloud storage. Secure cloud data storage face with monitoring, access control, data protection, and functionality challenges, each requiring a distinct strategy. While static data needs robust measures for safe storage, dynamic data needs procedures to avoid unauthorized changes. Many of these challenges are linked to the broader issue of trust in cloud service providers, demanding constant data monitoring. Proposed solutions for secure cloud storage like encryption, signatures, data sanitization and integrity methods follow guidelines presented in the NIST framework. These findings can serve as a reminder of the security risks associated with cloud storage with the aim of encouraging the implementation of presented solutions. Further research is needed to determine whether the concept of privacy by design, which seeks to provide security and privacy while maintaining high service functionality, can really be implemented.

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Review article / Pregledni rad

ELEKTRODERMALNA AKTIVNOST U ISTRAŽIVANJIMA U TURIZMU – BIBLIOMETRIJSKA ANALIZA

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SAŽETAK

Elektrodermalna aktivnost, ranije poznata i kao galvanski odgovor kože predstavlja jedan od osjetljivijih psihofizioloških indikatora emocionalne i kognitivne uzbuđenosti. Upravo iz toga razloga koristi se kao objektivna mjera nepristranog emocionalnog uzbuđenja pojedinca. Mjerenje elektrodermalne aktivnosti se primjenjuje u znanstvenim istraživanjima u raznim područjima. Prema tome, osnovna svrha ovoga rada je istražiti dosadašnju primjenu mjerenja elektrodermalne aktivnosti u istraživanjima u turizmu primjenom bibliometrijske analize. Obuhvaćena su 23 rada iz Web of science (WoS) online baze podataka od 1994. kada je, uz mjerenje otkucaja srca i krvnoga tlaka, prvi put primijenjena tehnika elektrodermalne aktivnosti za mjerenje psihofizioloških reakcija izazvanih sjećanjima na iskustva rekreacije na otvorenom, pa sve do danas - 2023. Podatci provedene analize su obrađeni, a bibliografski prikazi izrađeni pomoću Visualisation of Similarities (VoS) programa. Rad je baziran na analizi postojeće literature koja se bavi primjenom mjerenja elektrodermalne aktivnosti u turizmu i ugostiteljstvu, istraživanju vrste radova, autora i zemalja koje su se bavile ovom problematikom, a ostvarili su najveći doprinos u ovom području. Analizirali su se najcitiraniji članci, godišnji broj publikacija, ključne riječi, kocitiranja autora i časopisa te bibliografsko povezivanje zemalja i autora. Rezultati provedene bibliometrijske analize ukazuju na nedovoljnu primjenu mjerenja elektrodermalne aktivnosti u istraživanjima u turizmu uzimajući u obzir prednosti ove tehnike i rezultate koje u kombinaciji s drugim neuroznanstvenim metodama može imati.

KLJUČNE RIJEČI: elektrodermalna aktivnost, emocije, istraživanje, turizam, bibliometrijska analiza

ELECTRODERMAL ACTIVITY IN TOURISM RESEARCH – BIBLIOMETRIC ANALYSIS

ABSTRACT

Electrodermal activity, formerly known as the galvanic skin, represents one of the most sensitive physio-psychological indicators of emotional and cognitive arousal. It is precisely for this reason that it is used as an objective measure of an individual's unbiased emotional arousal. Measurement of electrodermal activity is applied by scientific research in various fields. Therefore, the main purpose of this paper is to research the current application of electrodermal activity measurement in tourism research. 23 papers from the Web of Science (WoS) online database are included since 1994, when, in addition to measuring heart rate and blood pressure, the electrodermal activity technique was first applied to measure psychophysiological reactions associated with memories of outdoor recreation experiences, up to today - 2023. The data of the conducted analysis were processed, and bibliographic presentations were created using the Visualization of Similarities (VoS) program. The work is based on the analysis of existing literature that deals with the application of electrodermal activity measurement in tourism and catering, research of the types of works, authors and countries that dealt with this issue and made the greatest contribution in this area. The most cited articles, annual number of publications, keywords, co-citations of authors and journals, and bibliographic linking of countries and authors were analysed. The results of the bibliometric analysis indicate insufficient application of electrodermal activity measurement in tourism research, considering the advantages of this technique and the results it can have in combination with other neuroscientific methods.

KEYWORDS: electodermal activity, emotions, research, tourism, bibliometric analyisis

1. UVOD

Mjerenje elektrodermalne aktivnosti se primjenjuje za ispitivanje implicitnih emocionalnih stanja koja nisu pod utjecajem svijesti pojedinca. U bihevioralnim istraživanjima mjerenje elektrodermalne aktivnosti počelo se primjenjivati krajem osamdesetih godina dvadesetog stoljeća, međutim u posljednjem desetljeću, primjena ove tehnike u mjerenju emocionalne uzbuđenosti potrošača je sve učestalija, prvenstveno radi dostupnosti opreme. Sva veća primjena neuroznanstvenih tehnika dovela je do napretka i u istraživanju ponašanja potrošača u turizmu u posljednjem desetljeću.

Elektrodermalna aktivnost kože (EDA) je električno svojstvo ljudske kože koje je ovisno o aktivnostima simpatičkog dijela autonomnog živčanog sustava svakog pojedinca. Mijenja se ovisno o psihološkom stanju osobe, što je prvenstveno rezultat kognitivnih i mentalnih zadataka koje osoba obavlja. Danas se EDA sve više koristi u raznim znanstvenim područjima, kao rezultat sve veće zainteresiranosti istraživačkih institucija za objektivne informacije o ljudskoj percepciji proizvoda (Geršak, 2020). Signal elektrodermalne aktivnosti je indikator pobuđenosti simpatičkog živčanog sustava i može opisivati stupanj uzbuđenosti ili anksioznosti osoba, kao i promjene uzbuđenosti povezane s raznim osjećajima. Najčešće promatrano svojstvo elektrodermalne aktivnosti i jedan od najčešće korištenih fizioloških parametara u psihofiziologiji je vodljivost kože (engl. Skin conductance-SC). Zbog svoje jednostavne primjene, cjenovno prihvatljivih mjernih instrumenata i razumne korelacije s aktivnošću autonomnog živčanog sustava, koristi se u mnogim psihofiziološkim istraživanjima pa tako i u turizmu i ugostiteljstvu. Nastavno na prethodno, svrha ovoga rada biblometrijskom analizom utvrditi primjenjuje li se u istraživanjima u turizmu mjerenje elektrodermalne aktivnosti, gdje se najviše primjenjuje i jesu li radovi na ovu problematiku izazvali određeni interes među znanstvenicima iz područja turizma.

2. PREGLED LITERATURE

2.1. ELEKTRODERMALNA AKTIVNOST KOŽE

Brojni su autori u prošlosti istraživali EDA i poistovjetili je s vodljivošću kože (SC), galvanskim odgovorom kože (GSR), elektrodermalnim odgovorom (EDR), psihogalvanskim refleksom (PGR), razinom vodljivosti kože (SCL), odgovorom vodljivosti kože (SCR) i simpatičkim odgovorom kože (SSR) (Kołodziej, 2019). Primjena elektrodermalne analize se smatra jednim od najučinkovitijih alata za procjenu emocionalnog uzbuđenja s obzirom da vodljivost kože visoko reagira na različite psihološke podražaje (Gangadharbatla i sur., 2013.). Kada su pojedinci izloženi podražaju, aktivira se njihov autonomni živčani sustav. Taj proces dovodi do aktivnosti žlijezda znojnica, a time i do promjene vodljivosti kože (Grabe i sur., 2000.). Primjena mjerenja elektrodermalne aktivnosti u istraživanjima nije usmjerena samo na sirovi signal, nego na njegove komponente i to na njegovu faznu komponentu koja je definirana u suprotnosti s drugom toničnom komponentom. Tonička komponenta se odnosi na razinu vodljivosti kože koja je povezana sa sporim, prirodnim pomacima elektrodermalne aktivnosti i koristi se za procjenu odgovora pojedinca na tonički podražaj (Boucsein et al., 2012.).

Razina vodljivosti kože je apsolutna razina vodljivosti na koju utječu prirodne varijacije zbog regulacije tjelesne homeostaze kao što je temperatura na primjer, razina vodljivosti kože općenito je niska tijekom spavanja i visoka dok je osoba budna ili aktivna (Dawson et al., 2017.). Fazna komponenta ili reakcija vodljivosti kože osjetljiva je na novost, intenzitet i značaj podražaja. Zbog određenog događaja ili podražaja (npr. glasna buka), reakcija vodljivosti kože dogodit će se u obliku brzog povećanja vidljivog u dermalnoj aktivnosti (Braithwaite et al., 2013.). U skladu s dimenzionalnom teorijom emocija, emocija se sastoji od najmanje dvije dimenzije: valencije i uzbuđenja. Valencija se fokusira na osjećaj zadovoljstva ili pozitivnosti, dok je uzbuđenje razina stimulacije ili intenzitet hedonistički izražene vrijednosti (Bigné & Andreu, 2004.). Nedavno istraživanje pokazalo je da je emocionalno uzbuđenje značajan psihološki mehanizam koji podupire motivaciju za putovanje (Güzel i sur., 2020), nezaboravno turističko iskustvo (Şahin i Güzel, 2020) i ponašanje turista (Su et al., 2020). Ova spoznaja nije iznenađujuća s obzirom na to da teorija uzbuđenja ili teorija aktivacije u psihologiji sugeriraju da specifično okruženje, poput atmosfere turističke destinacije ili doživljaja, može potaknuti uzbuđenje, koje zauzvrat utječe na ponašanje (Picard et al., 2016). Međutim, Tuerlan et al. (2021) su u sustavnom pregledu literature o istraživanju emocija u kategorijama turizma i ugostiteljstva utvrdili da je većina prethodnih studija otkrila da je utvrđivanje i mjerenje učinka emocionalnog uzbuđenja zahtjevno i da su se analizirane studije većinom usredotočile na ispitivanje emocija na temelju njihove valencije dok zanemaruje druge dimenzije emocija, kao što je uzbuđenje. Jedno od mogućih objašnjenja je činjenica da je uzbuđenje u velikoj mjeri subjektivan i nesvjestan proces, pa ga je stoga teško precizno utvrditi primjenom samo tradicionalnih metoda istraživanja ponašanja potrošača.

U turizmu, dominantne mjere emocionalnog uzbuđenja temelje se na upitnicima koje ispitanici sami procjenjuju, kao što je 'zadovoljstvo—ljestvica uzbuđenja-dominacije (Bigné & Andreu, 2004.). Međutim, dovodi se u pitanje pouzdanost tih mjera u kojima ispitanici - subjektivno bilježe emocionalne reakcije, zasebno dimenzije emocija (npr. uzbuđenje) između ostaloga i u turizmu s obzirom na to da turisti možda nisu svjesni ili se nedovoljno sjećaju svojih emocionalnih iskustava koja su obično nesvjesna i prolazna (Tuerlan et al., 2021). Kako bi se unaprijedilo razumijevanje značenja uloge istraživanja emocija u turizmu, javlja se sve veća potreba za primjenom neuroznanstvenih ili psihofizioloških metoda koje omogućuju mjerenje određenih emocionalnih dimenzija u izolaciji. Dosadašnja istraživanja iz psihologije utvrdila su pozitivnu korelaciju između emocionalnog uzbuđenja i elektrodermalne aktivnosti s empirijskim dokazima (Bradley & Lang, 1999.). Stoga sve više znanstvenika u različitim područjima primjenjuju mjerenje elektrodermalne aktivnosti kao izuzetno pouzdanu tehniku za bilježenje kontinuiranog i nepristranog emocionalnog uzbuđenja posjetitelja u turizmu (Hadinejad et al., 2019; Li et al., 2018; Mitas et al., 2022).

2.2. PRIMJENA BIBLIOMETRIJSKE ANALIZE U TURIZMU

Bibliometrijska analiza predstavlja kvantitativni, sustavni pregled znanstvene literature s ciljem procjene znanstvenog napretka određenog područja istraživanja (Ruhanen et al., 2015). Znanstveno je računalno potpomognuta metoda koja identificira temeljna područja istraživanja ili autore i njihov međusobni odnos, stavljajući u suodnos sve publikacije povezane s određenom temom istraživanja (de Bellis, 2009). Primjena bibliometrijske analize omogućuje znanstvenicima istraživanje elemenata istraživanja, trendova u određenim područjima, intelektualnih struktura istraživačke domene, uspješnosti časopisa i članaka te obrazaca suradnje (de Bruyn et al., 2023). Bibliometrijska analiza se primjenjuje kao posebna metoda analize velikog broja znanstvenih podataka u različitim u različitim područjima istraživanja pa tako i u turizmu. U razdoblju od 2005. do 2023. prema podatcima Clarivate Web of Science objavljeno je 300 znanstvenih radova sa 3.909 ukupnog broja citata (3.662 bez osobnog citiranja) i 41 H indeksom. Radovi se objavljuju u različitim dijelovima Svijeta, a najviše je izdano u Kini (20%), Španjolskoj (19%), SAD-u (15%), Indiji (11%), Turskoj (10,3%), Portugalu (7,7%), Engleskoj (7,3%), Australiji (7%)i Brazilu (6,3%). Može se zaključiti da znanstveni radovi koji primjenjuju bibliometrijsku analizu u području turizma dobivaju sve veće značenje.

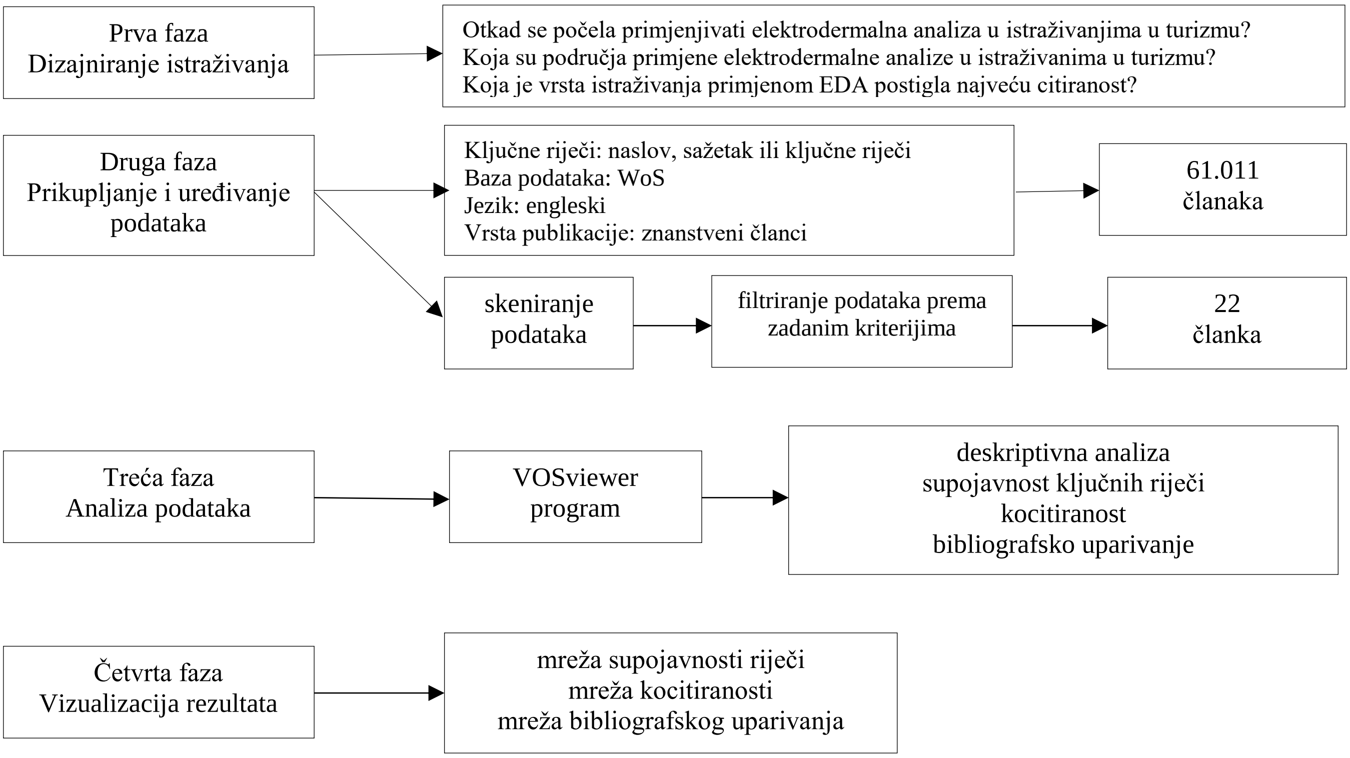
Palmer et al., (2005) su ispitivali primjenu statističkih metoda u turizmu od 1998. do 2002. pri čemu su analizirali 1790 članaka. Benckendorff (2009) je analizirao znanstvene radove australskih i novozenlandskih istraživača u časopisima Annals of Tourism research i Tourism Management od 1994. do 2007. Hall (2011) je istaknuo važnost primjene bibliometrijske analize radova koji su istraživali kvalitetu u turizmu. Ye et al. [20] su ispitivali različite akademske suradnje nekoliko časopisa koji se odnose na hotelijerstvo i turizam od 1991. do 2010. koristeći bibliometrijsku analizu. Ruhanen et al. (2015) su istraživali trendove i modele istraživanja održivog turizma u razdoblju od 25 godina u četiri najbolje rangirana časopisa iz područja turizma. Figueroa et al. (2015) su nastojali potaknuti raspravu o funkcioniranju istraživanja u turizmu kao sustava za generiranje znanja kroz kritički prikaz potpodručja rodnog istraživanja u turizmu 466 radova časopisa objavljenih od 1985. do 2012. Omerzel (2016) je primijenila bilbiometrijsku analizu u istraživanju inovacija u turizmu. Analiza je obuhvatila 152 rada. Güzeller i Çeliker, (2018) su analizirali 4.473 rada objavljena između 2007. i 2016., a nastojali su ispitati sličnosti i razlike u trendovima turskih i drugih međunarodnih publikacija u turizmu. Johnson i Samakovlis, (2019) su istraživali radove o pametnom turizmu u razdoblju od 2000. do 2018.: Shahbaz et al. (2021). analizirali radove koji se bave turizmom i njegovim utjecajem na degradaciju okoliša korištenjem bibliometrije, analizirajući članke s Web of Science objavljene između 1999. i 2020. Usredotočujući se na ekonomiju dijeljenja i turizam, Mody et al. (2021) su primjenom bibliometrijske analize objavili kritički pregled istraživanja objavljenih u turizmu između 2010. i 2020. Atabay i Güzel (2021) su bibliometrijskom analizom istražili primjenu neuroznastvene tehnike praćenja kretanja očiju u istraživanjima u turizmu. Analizirali su 64 rada i to u razdoblju odn 2013. do 2019. Sousa et al. (2022) su analizirali primjenu virtualne stvarnosti u istraživanjima u turizmu i utvrdili su da je unatoč prednostima, primjena VR tehnike u turizmu je jako mala. Knani et al. (2022) su analizirali primjenu umjetne inteligencije u turizmu i ugostiteljstvu od 1984. do 2021.

3. METODOLOGIJA

Osnovna svrha ovoga rada je dati detaljan pregled literature koja se bavila primjenom elektrodermalne analize u turizmu koristeći bibliometrijsku analizu. Podaci za bibliometriju se mogu dobiti iz baza podataka kao što je Scopus. Bibliometrijsku analizu o raznim temama istraživanja u turizmu su primijenili sljedeći znanstvenici: Hall, 2011; Chim-Miki & Batista-Canino, 2017; Mulet-Forteza et al., 2018; Rama, 2019; Sharma & Rao, 2019; Miskiewicz, 2020; Padrón Ávila & Hernández-Martín, 2020; Atabay i Güzel, 2021; Soliman et al. , 2021; Rathi, 2022; Toker, & Oktay, 2023. Osim Scopus baze podataka, bibliometrijska analiza o istraživanjima u turizmu se može realizirati i preko Web of Science (WoS) baze podataka (Barrios et al., 2008; Muñoz-Leiva , 2017; Yuan, 2018; Su et al., 2019; Merigó et al., 2019; Mavric et al., 2021; Hocevar & Bartol, 2021; Dimitrovski 2021; Guanghui et al., 2021; Atsız et al., 2022; Şimşek & Kalıpçı, 2022; Liu et al., 2022; Fauzi, 2023; Dinç et al., 2023; Ercan, 2023). Treća skupina autora kombinira ove dvije baze podataka u primjeni bibliometrijske analize (Durán-Sánchez, 2017; Batista Sánchez, et al. 2022; Shekhar & Valeri, 2022; Kabil et al., 2022; Rojas-Lamorena et al., 2022; Bernardo, E., et al, 2023; Gulyas & Molnar, 2023). Za potrebe izrade ovoga rada baza podataka WoS smatrala se prikladnom iz nekoliko razloga. Prvo, cilj je bio smanjiti mogućnost ponavljanja analize istih studija jer neki članak može biti i u Scopus i u WoS bazi i to može proći neprimijećeno (Mavric et al., 2021.). Osim toga, WOS je citantna i bibliografksa baza podataka koja ima tri indeksa koji pokrivaju preko 18.500 časopisa i prati izdanja s najvišim impakt faktorima i sa citantnom analizom te je jedna od svjetskih vodećih relevantnih baza podataka (Merigó et al., 2015; Liu et al., 2022; Fauzi, 2023; Dinç et al., 2023) Treće, u WoS bazi podataka postoji veliki broj bibliometrijskih analiza koju su proveli mnogi znanstvenici iz područja turizma.

U ovome radu u bibliometrijskoj analizi su primijenjeni podatci od 15. srpnja 2023. Kako bi se provela bibliometrijska analiza mjerenja elektrodermalne aktivnosti u istraživanjima u turizmu, iz baze su filtrirani dokumenti prema sljedećim kriterijima, članci objavljeni na engleskom jeziku, koji uključuju ključne riječi: „TURIZAM“ ILI „TURIST“ ILI „TURISTIČKA DESTINACIJA“ I „ELEKTRODERMALNA AKTIVNOST“ ILI „EDA“ ILI „GALVANSKI ODGOVOR KOŽE“ ILI „GALVANSKA REAKCIJA KOŽE“ ILI „GSR“ ILI „VODLJIVOST KOŽE“ ILI „SC“ ILI „TONIČNA FAZA“ ILI „FAZIČNA FAZA“ ILI „SCL“ ILI „SCR“ ILI „RAZINA VODLJIVOSTI KOŽE“ ILI „ODGOVOR VODLJIVOSTI KOŽE“. Pretraživanje je uključilo varijacije svih navedenih pojmova. Rezultati su ograničeni na članke objavljene na engleskom jeziku.

Prikaz 1. Faze izrade bibliometrijske analize primjene elektrodermalne aktivnosti u istraživanjima u turizmu



Izvor: Izrada autora

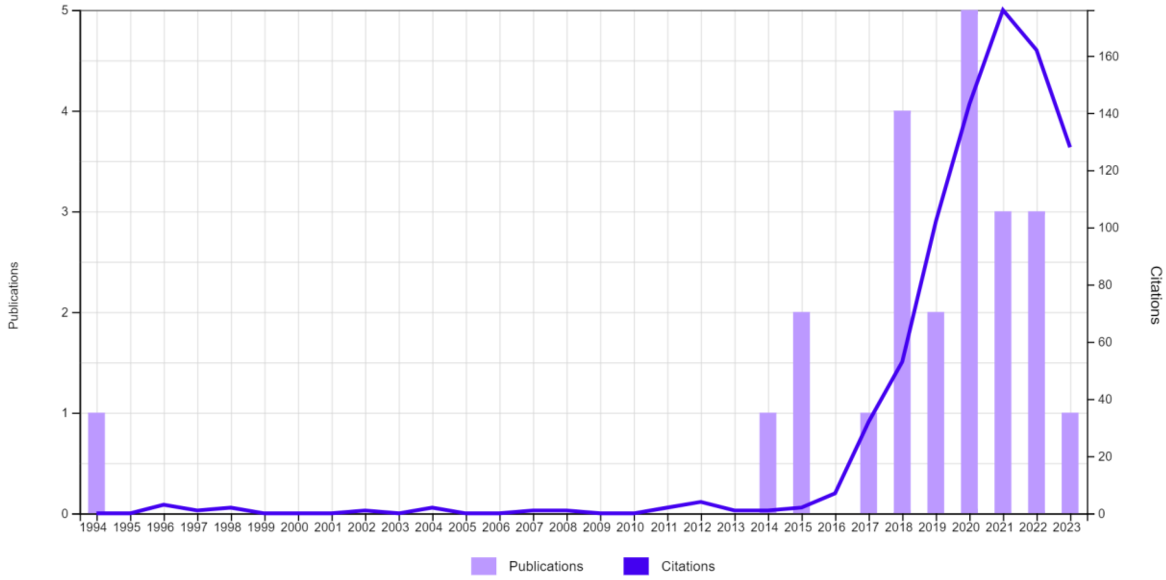
Prema navedenim kriterijima u cijeloj WOS bazi dobiveno je 61.011 radova u svim kategorijama, međutim analizom kategorije „ugostiteljstvo, slobodno vrijeme, sport i turizam" filtrirano je 66 radova. Nakon filtracije dobivenih rezultata s definiranim kriterijem ugostiteljstva, turizma, dokolice eliminirana je kategorija sporta i radovi koji uključuje gore navedene ključne riječi – kratice koje ne podrazumijevaju analiziranu problematiku npr. „SCR" pod kojim se analiziralo „Scale, change and resilience", a ne „odgovor vodljivosti kože" - „skin conduntance response" ili u drugom slučaju „SCL" pod kojim se analizirala skala lista simptoma „symptom checklist", a ne „razina vodljivosti kože" („skin conduntance level – SCL"), također je bio slučaj i kratice „EDA" koja je uključila nekoliko radova s ključnom riječi „ekonomska razvojna agencija" („economic development agency" – EDA, a ne „elekrodermalnu aktivnost"), dobivena su 22 dokumenta koja su proslijeđena u daljnju analizu. Analiza filtriranih dokumenata realizirana je bibliometrijskim mapiranjem u programu VOSviewer. Primijenjena je deskriptivna analiza, analiza supojavnosti ključnih riječi, analiza kocitiranosti te analiza bibliografskog uparivanja (Prikaz 1.).

4. REZULTATI ISTRAŽIVANJA

U WoS bazi, nakon druge faze analize, filtrirana su 22 rada koja se bave primjenom elektrodermalne analize u istraživanjima u području turizma u kategoriji „ugostiteljstvo, slobodno vrijeme, sport i turizam". Prvi rad je objavljen 1994. godine. Od tada do danas, citiran je 561 rad na ovu temu, ukupne citiranost 824 (728 bez osobne citiranosti) od 35,83 po radu i H-indeksom 13.

Distribucija broja objavljenih radova kao i broja citata te ukupnog broja citata u razdoblju od 1994. godine, grafički je prikazana na Prikazu 2. Prvi rad pod naslovom „Recollections of Outdoor Recreation Experiences - A Psychophysiological Perspective“ je objavljen 1994. godine. Provedeno je laboratorijsko istraživanje za identificiranje psihofizioloških odgovora koje su povezane sa sjećanjima na doživljena iskustva na otvorenome. Analiziran je krvni tlak, otkucaji srca i elektrodermalna aktivnost kože. Njegova citiranost je evidentirana 1996. Najveći broj radova analiziran problematike je objavljen 2020. godine (pet radova).

Prikaz 2. Distribucija broja objavljenih radova i citiranosti po godinama



Izvor: Clarivate Web of Science, Copyright Clarivate 2023.

Najviša razina citiranosti ostvarena je 2021. godine. Najcitiraniji rad pod naslovom „Measuring Emotions in Real Time: Implications for Tourism Experience Design“ autori Kim i Fesenmajer objavljen je 2015. godine. Njegova citiranost je 181 (prosjek po godini je 20,11). Rad je analizirao reakcije turista u prirodnom okruženju primjenom elektrodermalne analize na dvoje putnika u Philadelfiji (SAD). Li et al. (2016) su analizirali primjenu psihofizioloških mjera u turizmu, a poseban naglasak su stavili na istraživanje prednosti primjene analize vodljivosti kože i elektromiografije lica u praćenju emocionalnih reakcija na oglase turističke destinacije. Trideset i troje sudionika bilo je izloženo trima oglasima destinacije. Babakhani et al. (2017) su analizirali učinkovitost marketinških komunikacijskih poruka primjenom psihofizioloških alata i mjerenjem stavova. Shoval et al. (2018) su primijenili suvremene metode pomoću kojih su prostorno-vremenske podatke kombinirali s fiziološkim mjerama emocija i semantičkim kontekstualnim informacijama da bi dobili sveobuhvatno i integrativno razumijevanje iskustva turista u vremenu i prostoru na uzorku od 68 turista u Jeruzalemu. Hadinejad et al. (2019) uspoređuju psihofiziološke metode i metode samoprocjene za utvrđivanje emocionalnih odgovora na marketinške podražaje u turizmu u kojima se manipuliralo glazbom na 37 sudionika koristeći četiri ključne tehnike *FaceReader*™, vodljivost kože, ankete o samoprocjeni i post hoc intervjue (Tablica 1.).

Tablica 1. Najcitiraniji radovi u WoS bazi na temu primjene elektrodermalne aktivnosti u istraživanjima u turizmu

	Autori	**Naslov rada**	**Naziv časopisa**	**God.**	**WoS citati**
1.	Kim, J. & Fesenmaier, D.	Measuring Emotions in Real Time: Implications for Tourism Experience Design	Journal Of Travel Reserach	2015	181
2.	Li, S. S.; Scott, N & Walters, G	Current and potential methods for measuring emotion in tourism experiences: a review	Current Issues In Tourism	2015	138
3.	Shoval, N.; Schvimer, Y. & Tamir, M.	Real-Time Measurement of Tourists' Objective and Subjective Emotions in Time and Space	Journal Of Travel Research	2018	90
4.	Li, S.S.; Walters, G.; (...); Scott, N.	Using skin conductance and facial electromyography to measure emotional responses to tourism advertising	Current Issues In Tourism	2018	76
5.	Kim, S.B.; Kim, D.Y. & Bolls, P.	Tourist mental-imagery processing: Attention and arousal	Annals Of Tourism Research	2014	75
6.	Li, S.S.; Walters, G.; (...); Scott, N.	A Comparative Analysis of Self-Report and Psychophysiological Measures of Emotion in the Context of Tourism Advertising	Journal Of Travel Research	2018	48
7.	Babakhani, N.; Ritchie, B.W. and Dolnicar, S.	Improving carbon offsetting appeals in online airplane ticket purchasing: testing new messages, and using new test methods	Journal Of Sustainable Tourism	2017	39
8.	Tarrant, M.; Manfredo, M. & Driver, B.	Recollections of Outdoor Recreation Experiences - A Psychophysiological Perspective	Journal Of Travel Research	1994	26
9.	Hadinejad, A.; Moyle, B.D.; (...); Scott, N.	Physiological and self-report methods to the measurement of emotion in tourism	Tourism Recreation Research	2019	23

Izvor: Clarivate Web of Science, Copyright Clarivate 2023.

Sljedeća tablica prikazuje vrste radova koji su objavljeni u WoS bazi na ovu temu. Najviše je članaka i preglednih članaka dok je od ukupno 22 rada jedan rad objavljen kao poglavlje u knjizi.

Tablica 2. Vrsta radova objavljenih u WoS bazi na temu primjene elektrodermalne aktivnosti u istraživanjima u turizmu

Vrsta rada	**Broj radova**	**%**
Članak	19	86,364
Pregledni članak	2	9,091
Poglavlje u knjizi	1	4,545

Izvor: Clarivate Web of Science, Copyright Clarivate 2023.

WoS baza se sastoji od 252 tematske kategorije koje su raspoređene u opću kategoriju znanosti općenito (*Science Citation Indeks*), u kategoriju društvenih znanosti (*Social Science Citation Indeks*) i u kategoriju umjetnosti i humanističkih znanosti (*Arts & Humanities Citation Indeks*). Sljedeća tablica je izrađena dodjeljivanjem svakog pojedinačnog časopisa jednoj ili više predmetnih kategorija. Osim bazne kategorije „ugostiteljstvo, slobodno vrijeme, sport i turizam“ radovi na temu primjene elektrodermalne aktivnosti u istraživanjima u turizmu objavljeni su u časopisima koji su dodijeljeni još i u kategoriju „sociologije“, „menadžmenta“, „poslovanja“, „kulture“ i „zelene održive znanstvene tehnologije“.

Tablica 3. Vrsta radova objavljenih u WoS bazi na temu primjene elektrodermalne aktivnosti u istraživanjima u turizmu

Kategorije Web of Science	**Broj radova**	**%**
Ugostiteljstvo, slobodno vrijeme, sport i turizam	22	100,000
Sociologija	5	21,739
Menadžment	4	17,391
Poslovanje	2	8,696
Kultura	1	4,348
Zelena održiva znanstvena tehnologija	1	4,348

Izvor: Clarivate Web of Science, Copyright Clarivate 2023.

Tablica 4. prikazuje pregled objavljenih radova na temu primjene mjerenja elektrodermalne aktivnosti u istraživanjima u turizmu po državama. Na prvom mjestu po zastupljenosti radova u ovom znanstvenom području je NR Kina s udjelom od 30,435%. Potom su tri zemlje (Australija, Nizozemska i SAD) s podjednakim brojem radova i zastupljenošću od 26,087% u ukupnom broju objavljenih radova.

Tablica 4. Pregled objavljenih radova na temu primjene elektrodermalne aktivnosti u istraživanjima u turizmu po državama

Zemlje	**Broj radova**	**%**
Narodna Republika Kina	7	30,435
Australia	6	26,087
Nizozemska	6	26,087
SAD	6	26,087
Engleska	2	8,696
Izrael	1	4,348
Meksiko	1	4,348
Švedska	1	4,348
Turska	1	4,348

Izvor: Clarivate Web of Science, Copyright Clarivate 2023.

Analizirani radovi su dosegli najveću razinu citiranosti (343 citata) u kategoriji „ugostiteljstvo, slobodno vrijeme, sport i turizam“, potom u kategoriji „menadžmenta“ 85 citata, potom u kategoriji „studije zaštite okoliša“ 51 citat, u „poslovanju 50 citata te u kategoriji „sociologija“ 39 citata. Citati iz ovoga područja se još javljaju u kategorijama zaštite okoliša, elektroničkog i računalnog inženjerstva, psihologije geografije itd. (Tablica 5.)

Tablica 5. Citiranost radova na temu primjene elektrodermalne aktivnosti u istraživanjima u turizmu prema WoS kategorijama

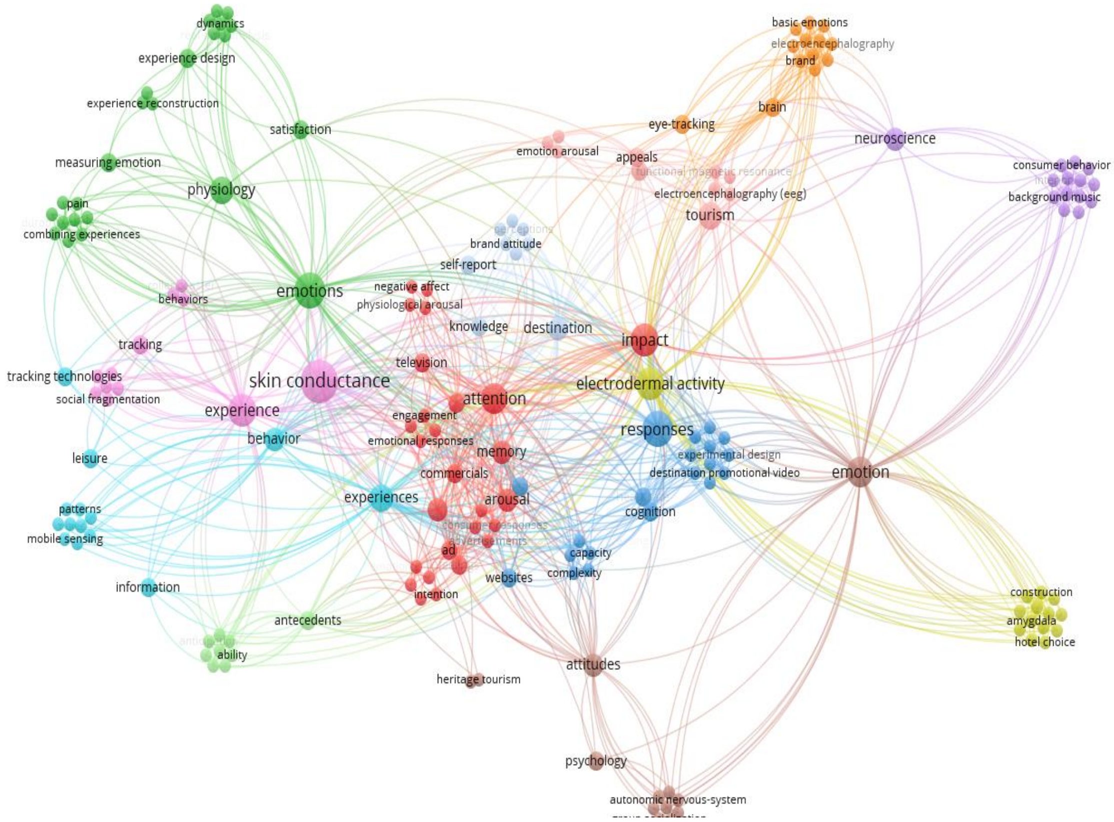
Web of Science kategorije	**Broj citata**	**%**
Ugostiteljstvo, slobodno vrijeme, sport i turizam	343	61,470
Menadžment	85	15,233
Studije zaštite okoliša	51	9,140

Poslovanje	50	8,961
Sociologija	39	6,989
Zelena održiva znanstvena tehnologija	27	4,839
Znanost o okolišu	24	4,301
Elektroničko i računalno inženjerstvo	21	3,763
Računalni informacijski sustavi	18	3,226
Psihologija	17	3,047
Računalne znanosti Interdisciplinarni pristup	13	2,330
Geografija	13	2,330

Izvor: Clarivate Web of Science, Copyright Clarivate 2023.

Ključne riječi u radovima na temu primjene elektrodermalne aktivnosti u istraživanjima u turizmu u WoS bazi podataka raspoređene su u 12 klastera (min jedna apojavnost). U prvi klaster spada 27 ključnih riječi, drugi klaster obuhvaća 24 ključne riječi, treći klaster obuhvaća 20 ključnih riječi, četvrti, peti i šesti 14 ključnih riječi, šesti, sedmi i osmi po 13 ključnih riječi, deveti 12, deseti obuhvaća deset ključnih riječi i jedanaesti i dvanaesti po devet ključnih riječi. Najučestalije ključne riječi koje se pojavljuju su „vodljivost kože“ („skin conduntance“) s 10 pojavnosti i ukupnom snagom veze od 111, zatim je ključna riječ „emocije“ sa razinom pojavnosti 7 i ukupnom snagom veze 70, slijedi ključna riječ „reakcije“ također sa razinom 7 pojavnosti i ukupnom snagom veze 98 te ključna riječ „elektrodermalna aktivnost“ s razinom pojavnosti 6 i ukupnom snagom veze od 79. U drugom slučaju analizirano je minimalno 3 pojavnosti ključnih riječi i dobilo se tri klastera. U prvom klasteru je osam riječi, u drugome šest, a u trećemu su četiri ključne riječi, a najčešća ključna riječ je kao i u prethodnom slučaju „vodljivost kože“ („skin conduntance“).

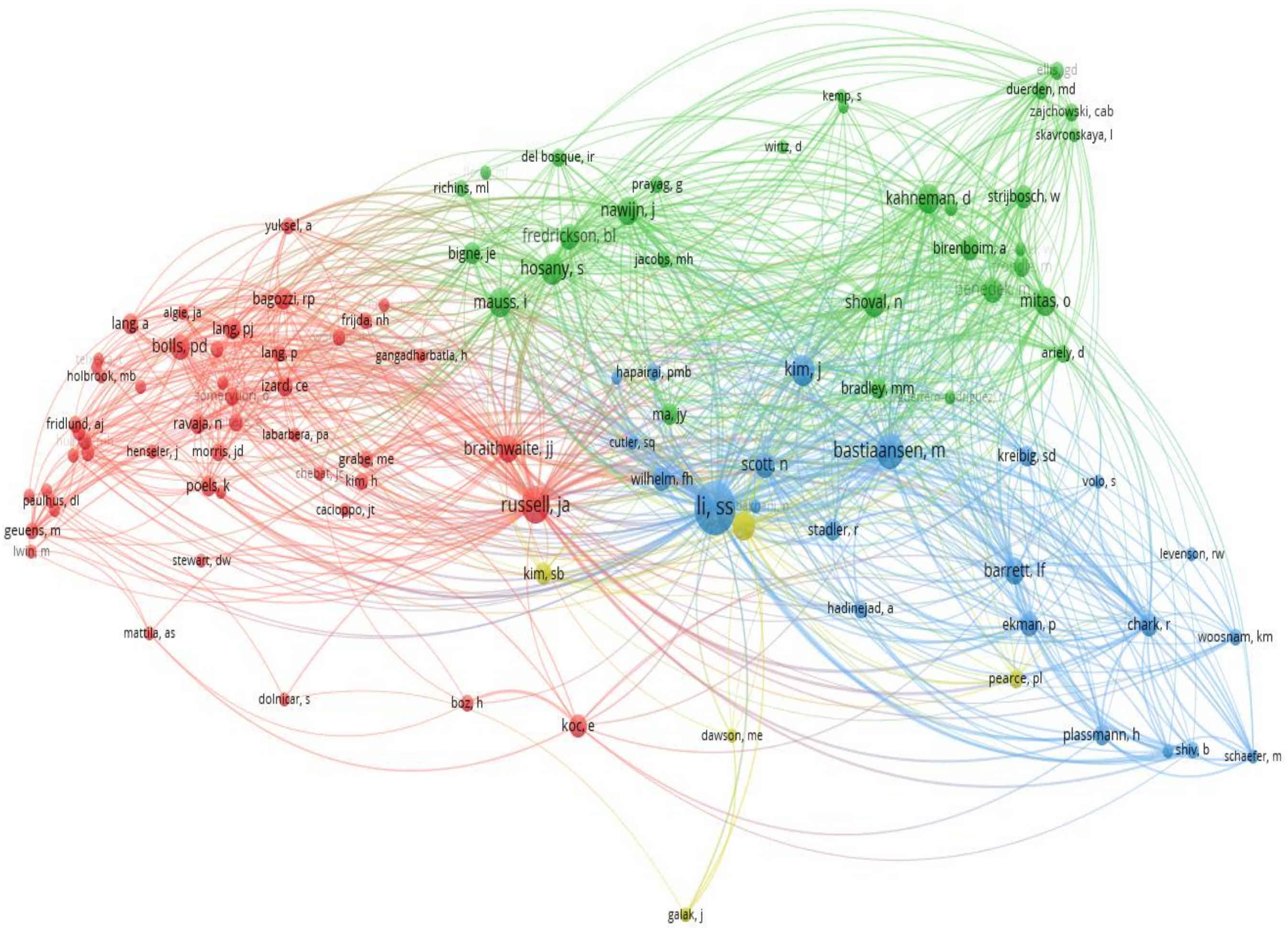
Prikaz 2. Supojavnost ključnih riječi



Izvor: Izrada autora u programu VOSviewer prema izvorima WoS baze podataka

Metoda kocitiranja autora koristi se u bibliometrijskim analizama kao značajna metoda za prepoznavanje intelektualne strukture istraživačkog područja. Primjenjuje se za određivanje učestalosti kojom se bilo koje istraživanje nekog autora citira zajedno s drugim autorom u referencama nekog drugog rada. Po ovoj metodi se utvrđuje sličnost dva citirana dokumenta. Snaga kocitiranja dva rada je veća što je veći broj dokumenata koji te radove citiraju skupa. Prema kocitiranosti autora, podijeljeni su autori u četiri klastera koji dijele sličnost predmeta istraživanja. U prvi klaster spada 48 autora, u drugi klaster spada 30 autora, u treći klaster spada 22 autora i u četvrti klaster spada 6 autora. Radove na temu primjene elektrodermalne analize u turizmu citiralo je 824 autora. Rad „Current and potential methods for measuring emotion in tourism experiences: a review“ autora Li et al. (2015.) ima zabilježene 43 citiranosti zajedno s nekim drugim autorima u referencama nekog drugog rada s ukupnom snage veze je 1.253 (Prikaz 3.).

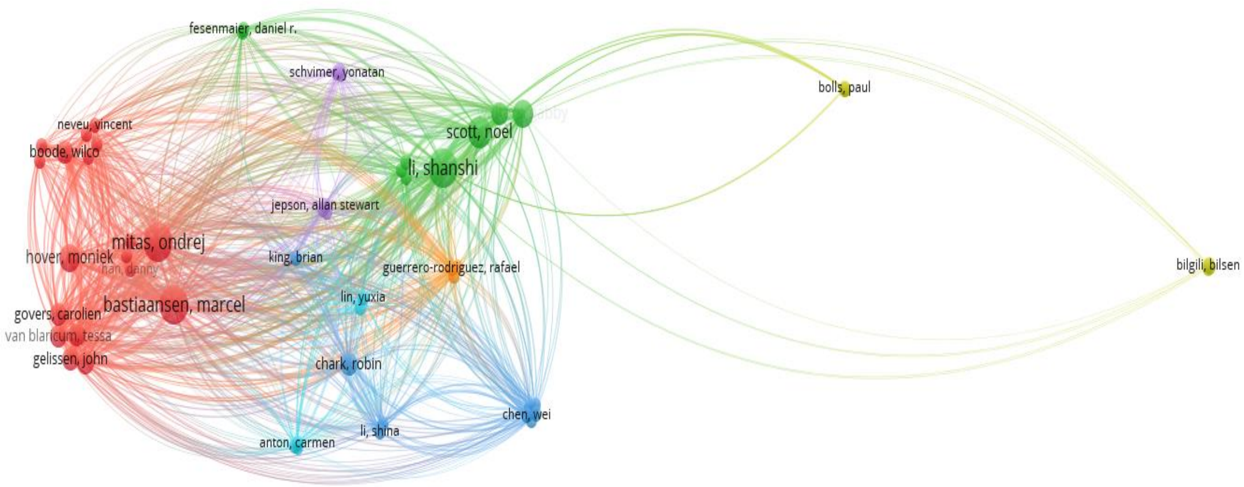
Prikaz 3. Kocitiranost autora na temu primjene elektrodermalne aktivnosti u istraživanjima u turizmu



Izvor: Izrada autora u programu VOSviewer prema izvorima WoS baze podataka

Bibliografsko uparivanje se javlja kada dva rada ukazuju na zajednički treći rad u svojim bibliografijama. To je pokazatelj da postoji vjerojatnost da dva rada obrađuju sličnu temu. Dva su dokumenta bibliografski povezana ako oba citiraju jedan ili više zajedničkih dokumenata. Ova se metoda primjenjuje kao nadopuna analizi kocitiranja. Dok kocitiranje pokazuje da se dva rada pojavljuju zajedno u popisu literature drugog rada, bibliografsko uparivanje zbraja broj referenci koje grupa dokumenata ima zajedno. Prema ovoj metodi autori su raspoređeni u sedam klastera. U prvom klasteru je 18 autora, u drugom i trećem je devet autora, u četvrtom je sedam, u petom je šest autora, u šestom je pet autora i u sedmom su tri autora. Najjaču snagu veze bibliografskog uparivanja ima autor Bastaiaansen 5.159, Mitas 4.989 te Li 3.781 (Prikaz 4.).

Prikaz 4. Bibliografsko uparivanje autora na temu primjene elektrodermalne aktivnosti u istraživanjima u turizmu



Izvor: Izrada autora u programu VOSviewer prema izvorima WoS baze podataka

5. ZAKLJUČAK

Mjerenje elektrodermalne aktivnosti se primjenjuje u znanstvenim istraživanjima kao objektivan indikator nepristranog emocionalnog uzbuđenja pojedinca. Koristi se za ispitivanje implicitnih emocionalnih stanja koja nisu pod utjecajem svijesti pojedinca što znači da na njih pojedinac nikako ne može utjecati. Primjena elektrodermalne analize se smatra jednim od najučinkovitijih alata za procjenu emocionalnog uzbuđenja s obzirom da vodljivost kože visoko reagira na različite psihološke podražaje. Upravo iz toga razloga se počela primjenjivati u istraživanju ponašanja potrošača uz tradicionalne metode istraživanja. Prvenstveno zbog svoje jednostavne primjene, cjenovno prihvatljivih mjernih instrumenata i razumne korelacije s aktivnošću autonomnog živčanog sustava, koristi se u mnogim psihofiziološkim istraživanjima pa i u turizmu i ugostiteljstvu od 1994. godine. U razdoblju od 1994. do danas u kategoriji ugostiteljstva, slobodnog vremena, sporta i turizma objavljeno je 66 radova koji su primijenili tehniku elektrodermalne aktivnosti da bi istražili nesvjesne reakcije na podražaje.

Iz područja turizma u razdoblju od 29 godina objavljeno je tek 22 rada iz kojih je u drugim radovima evidentirano 561 citat, ukupne citiranosti 824 sa H-indeksom 13. Prema vrsti radova najviše je članaka i preglednih članaka. Ova tema se najviše obrađivala u NR Kini, Australiji, Nizozemskoj i SAD-u. Najviša razina citiranosti (343 citata) realizirana je u kategoriji "ugostiteljstvo, slobodno vrijeme, sport i turizam" te u kategoriji „menadžment" – 85 citata. Najučestalije ključne riječi koje se pojavljuju u radovima koji primjenjuju tehniku elektrodermalne analize u istraživanjima u turizmu su „vodljivost kože", „emocije", „reakcije" te „elektrodermalna aktivnost". Prema kocitiranosti autora, autori su podijeljeni četiri klastera koji dijele sličnost predmeta istraživanja, a autori Li et al. (2015.) imaju zabilježene 43 citiranosti zajedno s nekim drugim autorima u referencama nekog drugog rada s ukupnom snage veze je 1.253. Najjaču snagu veze bibliografskog uparivanja ima autor Bastaiaansen 5.159, Mitas 4.989 te Li 3.781.

Može se zaključiti da korištenje tehnike elektrodermalne aktivnosti u istraživanjima reakcija turista nije dovoljno prepoznata i primijenjena s obzirom na mogućnosti njene aplikacije i rezultata do kojih se može doći upotrebom ove tehnike. Provedena bibliometrijska analiza može biti od koristi znanstvenicima iz područja turizma koji se bave istraživanjem emocija za razumijevanje novih trendova i pristupa u istraživanju reakcija turista.

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Review article / Pregledni rad

PREGLED RAZVOJA TEORIJE USLUŽNOSTI PRIMJENOM METODA BIBLIOMETRIJSKE ANALIZE

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SAŽETAK

Teorija uslužnosti je jedna od teorija menadžmenta koja se u literaturi često spominje kao suprotnost agencijskoj teoriji, jednoj od najpoznatijih teorija u području menadžmenta i korporativnog upravljanja. Obje teorije nastoje objasniti odnos između vlasnika i menadžera u velikim poduzećima, iako su temeljne pretpostavke uslužnog ponašanja menadžera u velikoj mjeri zastupljene u malim i obiteljskim poduzećima.

Cilj ovog rada je istražiti razvoj teorije uslužnosti pronalaženjem i analizom radova unutar područja društvenih znanosti pomoću bibliometrijskih metoda analize citata i zajedničkih citata. Iz početnog uzorka od 1354 radova, temelj za daljnju analizu bilo je 637 radova. Rezultati prikazuju najistraženije koncepte, ključne časopise, autore, radove i zemlje u području teorije uslužnosti. Ovaj rad prvi prikazuje sveobuhvatan bibliometrijski pregled literature o teoriji uslužnosti te je to prvi pokušaj mapiranja uređene konceptualne strukture razvoja teorije uslužnosti primjenom bibliometrijskih tehnika vizualizacije.

Glavni doprinos ovog rada su rezultati proučavanja literature na strukturiran, sveobuhvatan i objektivan način. Rezultati rada nude istraživačima i znanstvenicima smjernice za istraživanje daljnjih područja u polju društvenih znanosti te omogućuju izgradnju mreže s autorima diljem svijeta koji su značajno pridonijeli razvoju teorije uslužnosti. Na taj način se mogu promovirati i popularizirati temeljne pretpostavke teorije uslužnosti i poticati menadžere na uslužno ponašanje, kao i stvaranje kulture uslužnosti unutar samih organizacija.

KLJUČNE RIJEČI: teorija uslužnosti, uslužnost, bibliometrijska analiza, analiza citata, analiza zajedničkih citata

A REVIEW OF THE DEVELOPMENT OF STEWARDSHIP THEORY USING THE METHODS OF BIBLIOMETRIC ANALYSIS

ABSTRACT

Stewardship theory is one of the management theories often mentioned in the literature as the opposite of agency theory, one of the most famous theories in management and corporate governance. Both theories seek to explain the relationship between owners and managers in large companies, although the basic assumptions of managerial stewardship behavior are mainly present in small and family businesses.

This paper aims to investigate the development of stewardship theory by finding and analyzing papers within the field of social sciences using bibliometric methods of citation and co-citation analysis. From the initial sample of 1354 papers, the basis for further analysis was 637 papers. The results show the most researched concepts, key journals, authors, papers, and countries in the field of stewardship theory. This paper is the first to present a comprehensive bibliometric review of the literature on stewardship theory, and it is the first attempt to map the ordered conceptual structure of stewardship theory development using bibliometric visualization techniques.

The main contribution of this paper is the results of studying the literature in a structured, comprehensive, and objective way. The results of the paper offer researchers and scientists guidelines for researching further areas in the field of social sciences and allow for building a network with authors worldwide who have significantly contributed to the development of stewardship theory. In this way, the basic assumptions of stewardship theory can be promoted and popularized, and managers can be encouraged to practice stewardship behavior and create a culture of stewardship in organizations.

KEYWORDS: stewardship theory, stewardship, bibliometric analysis, citation analysis, co-citation analysis

1. UVOD

Teorija uslužnosti jedna je od teorija menadžmenta koja uz agencijsku teoriju pokušava u prvom redu objasniti odnos između vlasnika i menadžera i to prvenstveno u velikim poduzećima i dioničkim društvima, gdje često dolazi do razdvajanja funkcije vlasništva od upravljačke funkcije. S obzirom na navedenu činjenicu, ova teorija je ujedno jedna od najvažnijih teorija korporativnog upravljanja, uz svima dobro poznatu agencijsku teoriju. Međutim, kroz razvoj teorije uslužnosti, njezine osnovne pretpostavke mogu se prepoznati i u upravljanju malim i obiteljskim poduzećima. Kako tvrde Davis i sur. (2010), teorija uslužnosti je savršena za objašnjavanje upravljanja u obiteljskim poduzećima zbog osobnog ugleda i zadovoljstva vlasnika obiteljskog poduzeća koji prihvaća ulogu uslužitelja u svojoj organizaciji te koji je motiviran prvenstveno interesima organizacije. Stoga se u ovom radu naglasak stavlja na pregled razvoja teorije uslužnosti u obiteljskim poduzećima, odnosno kako je ova teorija postala dominantna za objašnjavanje upravljanja upravo u obiteljskim poduzećima.

Ovaj rad identificira ključna istraživačka područja, trenutnu dinamiku i buduće smjerove razvoja teorije uslužnosti. Bibliometrijska analiza odgovorit će na sljedeća istraživačka pitanja: (1) *Kako se do sada razvila teorija uslužnosti?*, (2) *Koje su ključne riječi teorije uslužnosti?*, (3) *Koji su časopisi, radovi, autori i zemlje najutjecajniji u teoriji uslužnosti?* te (4) *Kakva je struktura razvoja područja teorije uslužnosti i koje teme su bile značajne*? Kako bi se odgovorilo na spomenuta istraživačka pitanja, u radu se koristi bibliometrijski pristup na temelju kojeg se može dati opsežan pregled postojećih istraživanja koja su usredotočena na teoriju uslužnosti. Cilj rada je pružiti strukturiranu, kvantitativnu i objektivnu analizu postojećih istraživanja iz područja teorije uslužnosti čime se mogu identificirati potencijalna područja i nedostaci u istraživanjima koja će budući istraživači moći razmotriti. Prije prikaza rezultata bibliometrijske analize, objasnit će se temeljne pretpostavke i polazišta teorije uslužnosti.

2. TEMELJNE PRETPOSTAVKE I POLAZIŠTA TEORIJE USLUŽNOSTI

Teorija uslužnosti svoje korijene vuče iz psihologije i sociologije, a prema toj teoriji model čovjeka se temelji na menadžeru uslužitelju kojeg karakterizira proorganizacijsko i kolektivističko ponašanje (Davis i sur., 2007). Tipurić i Podrug (2010) naglašavaju da je teorija uslužnosti nastala kao alternativa agencijskoj teoriji, pa su temeljne postavke teorije uslužnosti definirane kao razlikovne postavkama agencijske teorije. Iako, postoje i autori koji tvrde kako je teorija uslužnosti samo poseban slučaj agencijske teorije jer dovode u pitanje temeljnu pretpostavku agencijske teorije prema kojoj se odnos između agenta (menadžera) i principala (vlasnika) uvijek može okarakterizirati agencijskim sukobom (Caers i sur., 2006). Agencijski sukob proizlazi iz suprotstavljenih interesa između menadžera i vlasnika nastalih uslijed razdvajanja funkcije vlasništva i kontrole, gdje menadžer maksimizira vlastitu korisnost na štetu vrijednosti za vlasnike (Badu i Appiah, 2017).

Prema Caers i sur. (2006) postoje dvije struje u razvoju teorije uslužnosti: jedna prikazuje odnos u kojem su ciljevi agenta u sukobu s ciljevima principala, a druga pretpostavlja da su ciljevi agenta savršeno usklađeni s ciljevima principala. Upravo prva struja je ta prema kojoj se teorija uslužnosti smatra posebnim slučajem agencijske teorije jer za razliku od tradicionalne agencijske teorije pretpostavlja da će agent djelovati u skladu s interesima principala i da neće slijediti vlastite ciljeve i interese (Davis i sur., 2007), bez obzira što postoji sukob različitih ciljeva i interesa. Drugim riječima, agent cijeni učinak svojeg djelovanja na korisnost principala i smatra da postizanje vlastitih ciljeva stvara veće troškove te da može postići višu razinu korisnosti kada surađuje s principalom (Caers i sur., 2006).

Podrug i Burazin (2011) ističu da *„iz perspektive teorije uslužnosti menadžeri nisu sebični i vode računa prvenstveno o interesu organizacije“*, odnosno oni *„nastoje dobro obaviti svoj posao i biti dobri upravljači sredstvima poduzeća.“* U tom smislu je temeljna premisa teorije uslužnosti težnja za postojanjem sklada između ciljeva vlasnika i menadžera te uslužni odnos zapravo postoji toliko dugo dok jedna strana ne iznevjeri drugu stranu, a koji onda postaje klasičan agencijski odnos (Tipurić i Podrug, 2010). Davis i sur., (2007) naglašavaju da čak i kad interesi uslužitelja (menadžera) i principala (vlasnika) nisu usklađeni, uslužitelj stavlja veću vrijednost na suradnju nego na pobjedu, ukoliko bi se koristili termini teorije igara.

Temeljni koncept koji se spominje u okviru teorije uslužnosti je koncept uslužnosti. Podrug i Šutalo (2011) navode da se uslužnost može definirati kao *„predanost menadžera pri osiguranju opće dobrobiti na takav način da su dugoročni interesi organizacije prioritet u njegovu* *djelovanju, a ne njegovi vlastiti ciljevi i interesi, niti interesi i ciljevi drugih pojedinaca ili skupina"* te sukladno navedenome teorija uslužnosti odbacuje pretpostavku agencijske teorije da je prirodno ponašanje menadžera okarakterizirano kao oportunističko. Kako tvrde (Davis i sur., 1997), uslužitelj štiti i maksimizira bogatstvo dioničara kroz performansu poduzeća te je na taj način i njegova funkcija korisnosti maksimizirana. Tipurić i Podrug (2010) zaključuju da ulaganjem napora u ostvarivanje ciljeva organizacije menadžer može osigurati zadovoljenje osobnih potreba te da je korisnost koja proizlazi iz proorganizacijkog ponašanja znatno veća od korisnosti individualističkog ponašanja.

Podrug (2011) navodi temeljne pretpostavke teorije uslužnosti koje se mogu opisati kroz menadžera koji ima ulogu uslužitelja, sociološki i psihološki pristup upravljanju, model ljudskog ponašanja kojeg karakterizira kolektivističko, proorganizacijsko i vjerodostojno ponašanje, menadžere koji su motivirani ciljevima principala, ciljeve menadžera i principala koji su konvergirani, strukture koje trebaju olakšati i osnažiti, stav vlasnika kojeg karakterizira sklonost riziku te odnos između principala i menadžera koji je zasnovan na povjerenju. Sve navedeno je prikazano u Tablici 1. koja prikazuje temeljne pretpostavke teorije uslužnosti.

Tablica 1. Temeljne pretpostavke teorije uslužnosti

menadžer kao	uslužitelj
pristup upravljanju	sociološki i psihološki
model ljudskog ponašanja	kolektivistički, proorganizacijski, vjerodostojan
menadžeri motivirani	ciljevima principala
interesi menadžera i principala	konvergirani
strukture koje	olakšavaju i osnažuju
stav vlasnika	sklonost riziku
odnos između principala i menadžera temeljen na	povjerenju

Izvor: prilagođeno prema Podrug (2011)

3. PODACI I PROCEDURA PROVEDBE BIBLIOMETRIJSKE ANALIZE

Kako bi se provele metode bibliometrijske analize radova teorije uslužnosti ponajprije je bilo potrebno pripremiti bazu podataka. Važno je spomenuti kako su Zupic i Čater (2015) objasnili "bibliometriju" kao kvantitativnu mjeru za analizu različitih elemenata radova, kao što su časopisi, autori, ključne riječi, države, citati, koautori i slično. S druge strane, bibliometrijska analiza zahtijeva softver za vizualizaciju i mapiranje kako bi se provela kvantitativna analiza (Cobo i sur., 2011). Zbog spomenutog, nakon pripreme konačne baze, korišten je softverski alat VOS Viewer pomoću kojeg je moguće provesti razne oblike mapiranja područja istraživanja, kao i druge analize. Softverski alat VOS Viewer pruža deskriptivnu statistiku među raznim radovima te pomaže u analizi više složene povezanosti između različitih karakteristika radova (primjerice analiza citata, zajedničkih citata ili bibliografsko spajanje) (Van Eck i Waltman, 2009).

Koliko je autorima rada poznato, ne postoji bibliometrijska analiza teorije uslužnosti unutar baze podataka Web of Science. Iako svaka metoda pregleda literature ima određene prednosti i slabosti, ima smisla koristiti nekoliko različitih metoda pri pregledu literature. S obzirom na to da se metodom bibliometrijske analize dosad nije pregledavala literatura iz ovog područja, svakako ju je važno koristiti radi novih spoznaja i brojnih prednosti (Zupic i Čater, 2015).

Prvi korak u analizi citata i zajedničkih citata je određivanje uzorka, odnosno baze radova. Pretraživanje je provedeno u bazi podataka Web of Science koristeći pojam: "stewardship theory". Važno je naglasiti da ne postoje radovi u bazi podataka Web of Science objavljeni prije 1994. godine, a koji se odnose na teoriju uslužnosti. Upravo zbog navedenog, pretraženi su svi radovi od 1994. do 2023. godine, a pretraga je obavljena 10. srpnja 2023. godine. Najprije se primarna baza radova suzila prema sljedećim Web of science indeksima: Social Sciences Citation Index (SSCI), Emerging Sources Citation Index (ESCI), Science Citation Index Expanded (SCI-EXPANDED), Conference Proceedings Citation Index – Social Science & Humanities (CPCI-SSH), Conference Proceedings Citation Index – Science (CPCI-S) i Book Citation Index – Social Sciences & Humanities (BKCI-SSH), što je rezultiralo bazom od 1354 radova.

Nakon toga, primarna baza radova suzila se prema znanstvenom području i vrsti rada. Odabrana su znanstvena područja menadžmenta, poslovne ekonomije, ekonomike, primijenjene psihologije, multidisciplinarne psihologije i multidisciplinarne znanosti, što je rezultiralo sa 648 radova. Na kraju, kao vrsta dokumenta odabrani su članci, pregledni članci, zbornici radova, poglavlja u knjizi i prikazi knjiga. Ovi kriteriji doveli su do baze od 637 radova. Radovi su poredani prema kriteriju relevantnosti u Web of Science bazi podataka. Takvo rangiranje uzima u obzir u kojoj mjeri se naslov, sažetak i ključne riječi svakog rada poklapaju sa zadanim ključnim riječima u pretraživanju. Na kraju su izvezeni podaci o referencama 637 radova koji su bili temelj za daljnju analizu.

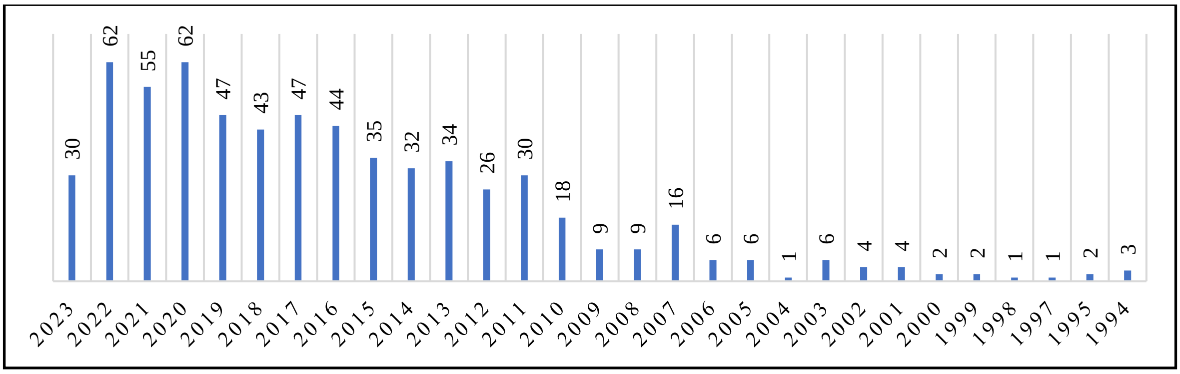
4. REZULTATI BIBLIOMETRIJSKE ANALIZE

Kako bi se odgovorilo na prvo istraživačko pitanje, napravljena je vremenska analiza istraživanja teorije uslužnosti od početka (1994.), pa do danas (2023.). Velte (2010) tvrdi da je teorija uslužnosti nastala na temelju opažanja Donaldsona, Davisa te njihovih suradnika. Njihovi prvi radovi su nastali puno ranije od prvih zabilježenih radova u bazi Web of Science, odnosno kako se naglašava u radu Donaldsona i Davisa (1991), prvi puta se teorija uslužnosti kao alternativni pristup agencijskoj teoriji spominje u radovima Donaldsona iz 1985. i 1990. godine. Prvi značajniji rad o samoj konceptualizaciji teorije uslužnosti bio je rad Davisa i sur. (1997), nakon čega slijedi razdoblje slabijeg objavljivanja radova povezanih s teorijom uslužnosti.

Međutim, 2007. godine su Davis i sur. objavili rad u kojem su prikazali rezultate empirijskog testiranja samih pretpostavki teorije uslužnosti te je od te godine vidljiv značajniji porast broja objavljenih radova koji imaju polazište u ovoj teoriji. Nakon te godine objavili su se i prvi radovi koji su testirali temeljne pretpostavke teorije uslužnosti u obiteljskim poduzećima. Jedan od tih radova je i rad autora Zahre i sur. (2008) koji tvrde da obiteljska poduzeća najčešće karakteriziraju povjerenje, nesebična briga, odanost i kolegijalnost, dok su uvjeti koji su povezani s uslužnošću u obiteljskim poduzećima visoka razina identifikacije obitelji s poduzećem, dijeljenje i usklađivanje vrijednosti između obitelji i poduzeća te orijentacija prema dugoročnom uspjehu poduzeća. Novim radom Davisa i sur. (2010) nastavila su se daljnja istraživanja teorije uslužnosti u obiteljskim poduzećima, a isti autori tvrde da je teorija uslužnosti zapravo savršena za objašnjavanje upravljanja u obiteljskim poduzećima. Kao što se može vidjeti iz Prikaza 1., nakon te godine raste broj objavljenih radova koji se vežu uz teoriju uslužnosti, a kao što će se vidjeti u daljnjoj analizi, najveći broj radova se temeljio na istraživanjima provedenima u obiteljskim i malim poduzećima, iako ima i radova koji su se bavili teorijom uslužnosti i u ostalim poduzećima, kao što su javna poduzeća (Simpkins i

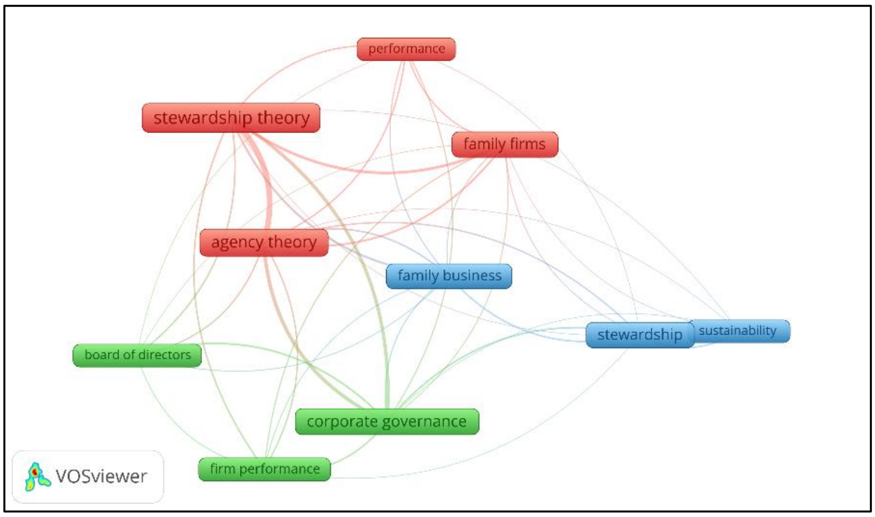
Lemyre, 2018), poduzeća iz uslužnog sektora djelatnosti (Kuppelwieser, 2011), ali društvena poduzeća (Bacq i Eddleston, 2018). Ono što se također može vidjeti je i značajan broj objavljenih radova i u prvoj polovici 2023. godine, pa se može zaključiti kako će taj brojka na kraju 2023. godine također biti velika.

Prikaz 1. Vremenska crta radova



Kako bi se odgovorilo na drugo istraživačko pitanje, napravljena je analiza ključnih riječi. Prikaz 2. prikazuje vizualizaciju ključnih riječi. Analizirano je ukupno 1737 ključnih riječi, od kojih je identificirano10 ključnih riječi koje se navode u nastavku i koje su zadovoljile kriterije od minimalnog broja pojavljivanja, a to je 18. Rezultati pokazuju da ključna riječ teorija uslužnost (*engl. stewardship theory*) ima 133 pojavljivanja i 149 međusobnih veza nakon čega slijedi ključna riječ agencijska teorija (*engl. agency theory*) s vrijednošću pojavljivanja od 102 i 139 međusobnih veza. Ostale ključne riječi povezane s teorijom uslužnosti bile su: korporativno upravljanje (*engl. corporate governance*) (79 pojavljivanja, 85 međusobnih veza), obiteljska poduzeća (*engl. family firms*) (63 pojavljivanja, 41 međusobnih veza), obiteljski posao (*engl. family business*) (47 pojavljivanja, 35 međusobnih veza), uslužnost (*engl. stewardship*) (57 pojava, 29 međusobnih veza), odbor direktora (*engl. board of directors*) (20 pojava, 25 međusobnih veza), uspješnost poduzeća (*engl. firm performance*) (23 pojave, 25 međusobnih veza), uspješnost (*engl. performance*) (18 pojava, 22 međusobnih veza), održivost (*engl. sustainability*) (18 pojava, 10 međusobnih veza). Ovakvi rezultati samo potvrđuju dosadašnje nalaze ove analize prema kojoj se u prvom redu u prvim istraživanjima teorija uslužnosti najviše uspoređivala s agencijskom teorijom i korporativnim upravljanjem, dok su se kasnija istraživanja bavila upravljanjem u obiteljskim poduzećima.

Prikaz 2. Vizualizacija ključnih riječi



Nadalje, kako bi se odgovorilo na treće istraživačko pitanje, provedena je osnovna analiza citata na konačnoj bazi radova, s ciljem prikaza osnovnih karakteristika područja teorije uslužnosti. Pomoću VOS Viewera izdvojeni su ključni časopisi, ključni autori, ključni radovi i ključne zemlje za spomenuto područje. Kao primarni kriterij značajnosti za sve kategorije (radovi, autori, časopisi i zemlje) korišten je broj citata unutar područja. Analiza ključnih časopisa provedena je kako bi se pronašao najutjecajniji časopis u području. Zadana minimalna vrijednost praga postavljena je na 10 radova po časopisu. Od ukupno 262 radova, devet radova je zadovoljilo zadane uvijete. Iz Tablice 2. se može vidjeti kako časopis *Family Business Review* ima najveći broj radova (29), 2283 citata i 17335 međusobnih veza. Ovo je također u skladu s dosadašnjim nalazima do kojih se došlo provedbom ove analize, a to je da se teorija uslužnosti zapravo najviše povezuje s upravljanjem u obiteljskim poduzećima te se stoga objavljuju takvi radovi u časopisu s tematikom vezanom uz obiteljska poduzeća. Nadalje, *Entrepreneurship Theory and Practice*, ima 16 radova, 1465 citata i 9043 međusobnih veza, dok ga slijedi *Corporate Governance-An International Review*, s 27 radova, 1212 citata i 8843 međusobnih veza.

Tablica 2. Pregled časopisa u kojima su objavljeni značajni radovi

Časopis	**Broj objavljenih radova**	**Broj citata**	**Broj međusobnih veza**
Family Business Review	29	2283	17335
Entrepreneurship Theory and Practice	16	1465	9043
Corporate Governance-An International Review	27	1212	8843
Journal of Small Business Management	13	1064	9475
Journal of Business Ethics	32	1050	7988
Journal of Business Research	28	918	13931
Journal of Family Business Strategy	21	612	15386
Corporate Governance-The International Journal of Business In Society	14	277	4062
Journal of Family Business Management	14	67	6837

Analiza ključnih autora provedena je kako bi se pronašli najutjecajniji autori u području. Zadana minimalna vrijednost praga postavljena je na 5 radova po časopisu. Od ukupno 1496 autora, osam autora je zadovoljilo zadane uvjete. Iz Tablice 3. se može vidjeti kako je autor s najviše radova Kellermanns, F. W., sa 16 radova, 1635 citata i 7584 međusobnih veza. Ovaj autor najviše se bavio različitim istraživanjima upravo u obiteljskim poduzećima. Slijede ga Chrisman, J. J. sa 6 radova, 1420 citata i 2646 međusobnih veza te Eddleston, K. A. s 10 radova, 1234 citata te 4803 međusobnih veza.

Tablica 3. Pregled autora s najcitiranijim radovima

Autori	**Broj objavljenih radova**	**Broj citata**	**Broj međusobnih veza**
Kellermanns, Franz W.	16	1635	7584
Chrisman, James J.	6	1420	2646
Eddleston, Kimberly A.	10	1234	4803
De Massis, Alfredo	6	776	2930
Miller, Danny	5	629	1504
Madison, Kristen	7	248	3637
Kidwell, Roland E.	6	195	3206
Hiebl, Martin R. W.	6	65	2134

Analiza ključnih radova provedena je kako bi se pronašli najutjecajniji radovi u području. Zadana minimalna vrijednost praga postavljena je na 250 citata po radu. Od ukupno 637 rada, 14 radova je zadovoljilo zadane uvjete. Glavni radovi u području prikazani su u Tablici 4. Ako se uzme u obzir i citiranost pojedinog rada, najviše se ističu tri rada, a to su: *''Toward a stewardship theory of management''*, *''Variations in R&D investments of family and nonfamily firms: Behavioral agency and myopic loss aversion perspectives''* te *''Family Governance and Firm Performance: Agency, Stewardship, and Capabilities Family''*. Upravo je rad s najviše citata rad od Davisa, Schroomana i Donaldsona iz 1997. godine.

Tablica 4. Pregled najcitiranijih radova u području

Naslov rada	**Godina objave**	**Broj citata**	**Broj međusobnih veza**
Toward a stewardship theory of management	1997	1995	48
Variations in R&D investments of family and nonfamily firms: Behavioral agency and myopic loss aversion perspectives	2012	783	41
Family Governance and Firm Performance: Agency, Stewardship, and Capabilities Family	2006	632	55
Control and collaboration: Paradoxes of governance	2003	580	55
CEO duality and firm performance: A contingency model	1995	546	31
Destructive and productive family relationships: A steward theory perspective	2007	498	28
Integrating sustainable development in the supply chain: The case of life cycle assessment in oil and gas and agricultural biotechnology	2007	370	2
Beyond agency conceptions of the work of the non-executive director: Creating accountability in the boardroom	2005	365	45
Ownership structures and R&D investments of US and Japanese firms: Agency and stewardship perspectives	2003	315	52
Servant leadership: A review and synthesis	2011	314	4
Implications for GAAP from an analysis of positive research in accounting	2010	283	16
Agency vs. stewardship in public family firms: A social embeddedness reconciliation	2009	266	61
Toward an Understanding of the Psychology of Stewardship	2012	257	46
Are family managers agents or stewards? An exploratory study in privately held family firms	2007	253	34

Analiza ključnih zemlja provedena je kako bi se pronašle najutjecajnije zemlje u području. Zadana minimalna vrijednost praga postavljena je na 25 radova po zemlji. Od ukupno 76 zemlja, devet zemlja je zadovoljilo zadane uvjete. Iz Tablice 5. se može vidjeti kako SAD ima najjače vrijednosti s 220 objavljenih radova, 12897 citata i 143816 međusobnih veza dok ga slijede Kanada, Engleska i Australija. S obzirom na činjenicu da su najcitiraniji autori oni koji dolaze iz SAD-a, ne iznenađuju rezultati koji ukazuju kako u SAD-u ima najveći broj objavljenih radova, citata i međusobnih veza.

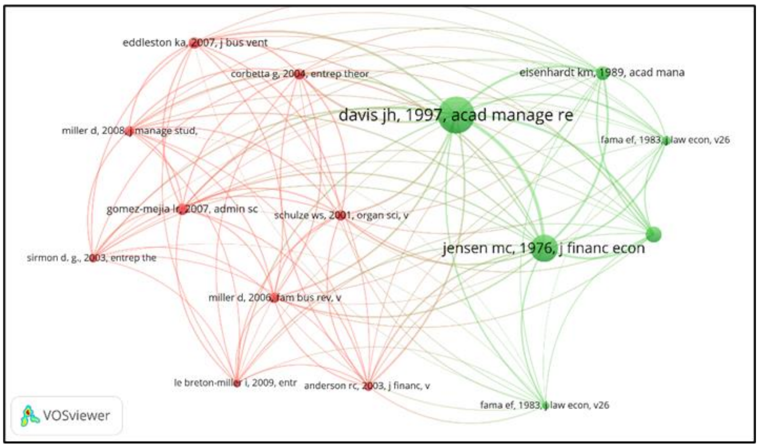
Tablica 5. Pregled zemlja s najcitiranijim radovima u području

Zemlja	**Broj objavljenih radova**	**Broj citata**	**Broj međusobnih veza**
SAD	220	12897	143816
Kanada	51	4342	56477
Engleska	75	3319	67178
Australija	32	2823	21452
Italija	42	2016	62507
Njemačka	50	1820	78127

Španjolska	43	1393	55426
Francuska	27	749	26402
Kina	38	737	28781

Kako bi se odgovorilo na četvrto istraživačko pitanje, primijenjena je analiza zajedničkih citata. Provedbom analize zajedničkih citata identificirana su dva zasebna klastera, kao što se može vidjeti na Prikazu 3.. Klastere čine skupovi povezanih radova na temelju analize zajedničkih citata. Mjerenje sličnosti, odnosno povezanosti radova temelji se na pretpostavci da su radovi koji se često zajedno citiraju povezani u većoj mjeri (Zupic i Čater, 2015), što je slučaj i kod dvaju klastera koji su identificirani ovom analizom. Može se primijetiti kako jedan klaster čine Davis i sur. (1997), koji su u svojim radovima često radili usporedbe između agencijske teorije, čiji su idejni začetnici Jensen i Meckling (1976) i teorije uslužnosti. Drugi klaster čine autori koji su se dominantno bavili istraživanjima teorije uslužnosti u obiteljskim poduzećima. Iz ove vizualizacije klastera se najbolje vidi kako je tekao razvoj i primjena teorije uslužnosti od teorijskog okvira, preko mogućih način korporativnog upravljanja u velikim poduzećima, do dominantne primjene u obiteljskim poduzećima.

Prikaz 3. Vizualizacija klastera



5. RASPRAVA I ZAKLJUČCI

Prije rasprave o rezultatima provedene bibliometrijske analize te iznošenju zaključaka, treba navesti nekoliko ograničenja ovog istraživanja. U prvom redu, provedene su samo dvije bibliometrijske metode i to analiza citata i analiza zajedničkih citata. Osim spomenutih metoda, kao što navode Zupic i Čater (2015), mogu se provesti još bibliografsko spajanje, analiza koautora ili analiza zajedničkih riječi, čime bi se dodatno upotpunili dosadašnji nalazi dobiveni ovom analizom. Također, moglo se vidjeti kako u analizu nisu uključeni stariji radovi jer nisu indeksirani u bazi Web of Science te da su prvi uključeni radovi od 1994. godine nadalje, iako je bilo prikazano da je početak razvoja ove teorije krenuo s prvim radovima Donaldsona iz 1985. i 1990. godine. Također, analiza se fokusirala na pretraživanje baze radova samo korištenjem pojma „teorija uslužnosti“, a dodatno bi se razvoj ove teorije mogao istražiti ako bi se analiza proširila pretraživanjem s pojmom „uslužnost“.

U ovom radu su provedene analize citata i zajedničkih citata kako bi se mogao vidjeti razvoj teorije uslužnosti. Provedenom analizom je utvrđeno da je ova teorija nastala na temelju zapažanja Donaldsona, Davisa i njihovih suradnika koji su u različitim vremenskim razdobljima osnovne pretpostavke ove teorije provjeravali u različitim vrstama poduzeća. Najprije se teorija uslužnosti promatrala kao alternativa agencijskoj teoriji te su prva istraživanja bila vezana uz usporedbe ovih dviju teorija. Naime, za razliku od agencijske teorije koja pretpostavlja da menadžera (agenta) karakterizira isključivo oportunističko ponašanje i da će on uvijek djelovati u svojem vlastitom interesu, teorija uslužnosti naglašava kako se ponašanje menadžera (uslužitelja) može okarakterizirati kao kolektivističko i proorganizacijsko te da je menadžer kao uslužitelj motiviran dugoročnim ciljevima poduzeća.

Kasnija istraživanja su se najvećim dijelom bavila uslužnošću menadžera u obiteljskim poduzećima jer se pokazalo da je teorija uslužnosti savršena za objašnjavanje upravljanja u obiteljskim poduzećima, sukladno zapažanjima Davis i sur. (2010). Iz vizualizacije klastera koje čine skupovi povezanih radova identificirano je kako je tekao razvoj i primjena teorije uslužnosti od teorijskog okvira, preko mogućih način korporativnog upravljanja u velikim poduzećima, do dominantne primjene upravo u obiteljskim poduzećima.

Daljnji razvoj teorije uslužnosti ide u smjeru da se sve više govori o kulturi uslužnosti u suvremenim obiteljskim poduzećima (Bacq i Eddleston, 2018; Bormann i sur., 2021; Dibrell i Moeller, 2011; Eddleston i sur., 2012; Zahra i sur., 2008), kao i o klimi uslužnosti kao jednoj od vrsti organizacijske klime (Neubaum i sur., 2017). Daljnja istraživanja će najvjerojatnije ići u smjeru razvoja i promoviranja koncepata kulture i klime uslužnosti u svim poduzećima, a ne samo u obiteljskim poduzećima te povezivanja tih koncepta s organizacijskom uspješnošću, održivosti i stavovima zaposlenika prema poslu i prema organizaciji. Suvremeni menadžeri bi svakako trebali voditi računa o implementiranju ovih koncepata u svojim organizacijama, jer kako je utvrđeno i u ovoj analizi, uslužnost se u velikoj mjeri povezuje s organizacijskom uspješnošću te održivim poslovanjem.

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