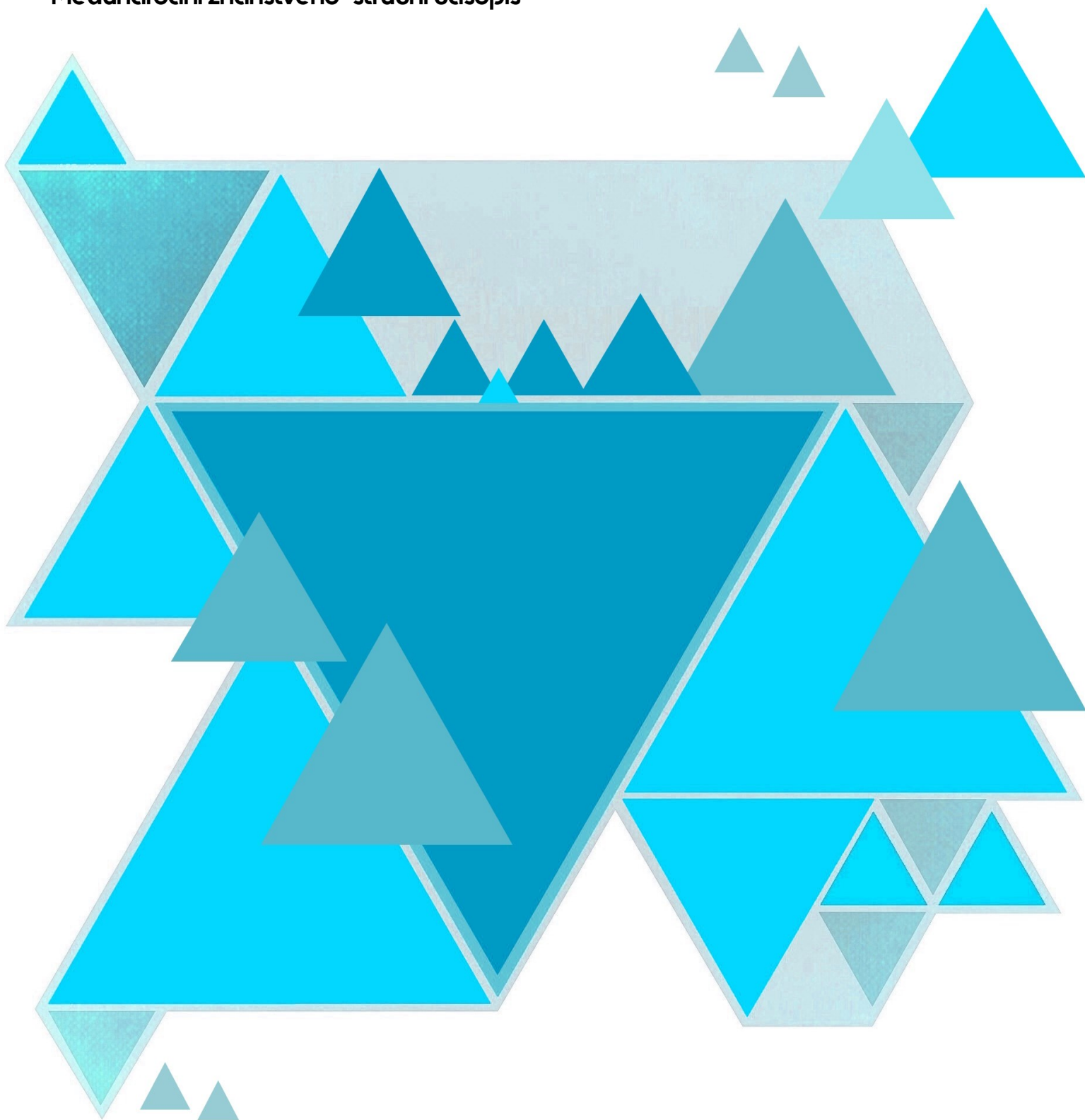


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## **FOREWORD**

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### **SAŽETAK**

*Rad se temelji na hipotezi kako su pripadnici generacije Z, u odnosu na svoju financijsku moć, a pod utjecajem suvremene izravne marketinške komunikacije, spremni izdvojiti sve više svote novaca kako bi povećali kvalitetu života svojih kućnih ljubimaca. Cilj rada bio je istražiti koliko suvremena izravna komunikacija usmjerena potrošaču generacije Z utječe na kreiranje njegove potražnje za proizvodima namijenjenima kućnim ljubimcima. Poseban fokus ovdje se stavlja na potrošače generacije Z jer oni rastu (ili su odrastali) s tehnologijom i ne poznaju svakodnevicu bez stalne mrežne povezanosti, stoga je bitno ispitati njihovo potrošačko ponašanje, koje bi se moglo vidno razlikovati u odnosu na prethodne generacije. Za potrebe dokazivanja postavljene hipoteze, provedeno je kvantitativno istraživanje putem ankete. Kao relevantan uzorak izdvojeno je 189 ispitanika koji su odgovarali profilu ispitanika primjerenog predmetnom istraživanju. Rezultati provedenog istraživanja ukazuju na to kako su pripadnici generacije Z pod utjecajem suvremene izravne marketinške komunikacije skloni izdvojiti sve više financijskih sredstava za proizvode koje percipiraju korisnim za njihove kućne ljubimce, uz fokus na njihovu sklonost kupovini istog branda bez obzira na cijenu. Vrijednost dobivenih rezultata ogleda se u činjenici kako će upravo ova generacija u budućnosti predstavljati sve veći udio potrošača, te je od iznimne važnosti istraživati ovo područje.*

**KLJUČNE RIJEČI:** komunikacija, izravna marketinška komunikacija, generacija Z, ponašanje potrošača, marketing kućnih ljubimaca.

# THE INFLUENCE OF DIRECT MARKETING COMMUNICATION ON GENERATION Z CONSUMERS WHEN PURCHASING PET PRODUCTS

## ABSTRACT

*The paper is based on the hypothesis that members of Generation Z, influenced by contemporary direct marketing communication and relative to their financial power, are willing to allocate increasingly larger sums of money to improve the quality of life for their pets. The aim of the paper is to investigate how contemporary direct communication targeted at Generation Z consumers affects the creation of their demand for pet products. Special focus is placed on Generation Z consumers because they have grown up (or are growing up) with technology and do not know daily life without constant online connectivity. This makes it important to understand their consumer behavior, which may significantly differ from that of previous generations. To test the hypothesis, a quantitative survey was conducted. A relevant sample of 189 respondents, fitting the profile suitable for the research, was selected. The results of the research indicate that Generation Z, influenced by contemporary direct marketing communication, is inclined to allocate increasing financial resources to products perceived as beneficial for their pets, with a tendency to purchase the same brand regardless of the price. The value of the obtained results is reflected in the fact that this generation will represent an increasingly larger share of consumers in the future, making it crucial to research this area.*

**KEYWORDS:** communication, direct marketing communication, Generation Z, consumer behavior, pet marketing

## 1. UVOD

Na suvremenom tržištu tvrtke se nalaze u vrtlogu dinamičnosti zbog brzih promjena u tehnologiji i digitalizaciji, konkurencije koja vješto prati trendove i sve informiranijih, educiranijih te umreženijih potrošača. Slijedom navedenog tvrtke su primorane svoje poslovanje i marketinške aktivnosti kontinuirano prilagođavati novim trendovima i novim generacijama potrošača. Zbog specifičnog načina odrastanja, koje se uvelike razlikuje od odrastanja pripadnika starijih generacija, pripadnici generacije Z mogli bi se od starijih generacija znatno razlikovati u svom potrošačkom ponašanju, primjerice, mladi bi potrošači mogli biti posebno osjetljivi na izravnu marketinšku komunikaciju. Nadalje, zbog posebne emocionalne veze koju stvaraju prema svojim kućnim ljubimcima, gledajući na njih kao na članove obitelji, mogli bi se itekako isticati kao potrošači proizvoda namijenjenih kućnim ljubimcima. Ovaj rad stoga istražuje utjecaj suvremene izravne marketinške komunikacije na potrošačko ponašanje generacije Z kod promocije proizvoda za kućne ljubimce. Riječ je o tehnološki progresivnoj generaciji koja svakodnevno traži i dijeli svoja potrošačka iskustva korištenjem interneta. Analizom stavova pripadnika ove generacije, istražuje se koliko suvremena izravna marketinška komunikacija definira njihove stavove, afinitete odnosno potrošačke navike kada se nalaze u ulozi skrbnika kućnih ljubimaca.

Postavlja se hipoteza da su pripadnici generacije Z, kao potrošači, pod utjecajem suvremene izravne marketinške komunikacije, a u odnosu na svoju financijsku moć, spremni izdvojiti sve više svote novaca u svrhu povećanja kvalitete života svojih kućnih ljubimaca. Fokus



istraživanja je na punoljetnim pripadnicima generacije Z, koji su odrastali uz tehnologiju koristeći ju i danas u svrhu informiranja o proizvodima i uslugama. Riječ je o ispitanicima koji žive na području Republike Hrvatske i koji su skrbnici barem jednog kućnog ljubimca. Ovaj rad koristi pregled literature i donosi kvantitativno istraživanje. Podaci za empirijski dio rada prikupljeni su putem ankete na pripadnicima generacije Z i pregledom relevantne znanstvene literature.

## 2. PREGLED DOSADAŠNJIH ISTRAŽIVANJA

Suvremeni kanali komunikacije omogućili su tvrtkama brzu izravnu komunikaciju s potrošačima, koja predstavlja snažan marketinški alat jer omogućuje prilagodbu, personalizaciju i kontakt prema užoj skupini potrošača, kao ciljnoj publici. Prema Chaffey, D., Ellis – Chadwick F. [2016: 611] „digitalna tehnologija utjecala je na donošenje odluka potrošača, pružajući ogromnu količinu informacija kojima kupci mogu pristupiti...“. Lin, C. A., Rauschnabel, P. A. [2016: 2153] navode kako su „društveni mediji otvorili marketinškim stručnjacima prozor za neposredno promatranje spoznaja, stavova, ponašanja i životnog stila potrošača. Kontinuiranim uvođenjem novih digitalnih tehnologija na potrošačko tržište, kao što su pametni satovi, svjedočimo i brzom povećanju sposobnosti tvrtki da prikupljaju demografske, psihografske, geodemografske, fiziološke i druge osobne podatke o potrošačima koje oni sami stvaraju.“

Potrošači su vrlo često, posebice kod *online* kupnje, primorani tvrtkama ustupiti određene osobne kontaktne podatke, a ujedno i dati dopuštenje da ih tvrtke smiju povratno kontaktirati putem e-maila ili aplikacija za razmjenu poruka (Viber, Facebook Messenger, WhatsApp...), na temelju čega tvrtke potrošače kasnije obavještavaju o ponudama koje nude. Ipak, izravna marketinška komunikacija nije nov pojam. Pojam „izravnog marketinga“ prvi je put korišten 1961., kao zamisao Amerikanca Lestera Wundermana [Baker. M., 2003: 565, Lancaster, G., Massingham L., 2011: 327], „međutim, načela kataloškog marketinga putem pošte, koji je bio rani oblik izravnog marketinga, mogu se pratiti unatrag do Europe u petnaestom stoljeću, nakon Gutenbergova izuma tiskarskog stroja i proizvodnje trgovačkih kataloga od strane tiskara kao izdavača“ [Lancaster, G., Massingham L., 2011: 327]. Prema Lancaster, G., Massingham L. [2011], „izravni marketing je proaktivan pristup marketingu, koji vodi proizvod ili uslugu do potencijalnih kupaca, umjesto da ih čeka da dođu u trgovinu ili na drugu točku pristupa. To je oblik kupnje "bez trgovine" i ponekad se naziva "precizni marketing" ili "jedan na jedan" marketing.“ Kako navode Karaxha, H., et. al. [2016: 55], „izravni marketing zadržava potrošače uspostavljanjem izravnih kontakata s njima, ispunjavanjem njihovih potreba i zahtjeva te na temelju toga povećava prodaju. Direktni marketing tvrtke sve više koriste kao jedan od glavnih oblika promocije, povećavajući tako uspješnost poduzeća.“ Prema Perčić, K., Perić, N. [2020: 21-22] „izravnim marketingom organizacije mogu izravno komunicirati sa svojim kupcima izostavljajući marketinške kanale“, dok kao elemente koji utječu na izbor medija izravnog marketinga navode: „karakteristike medija, prilagodljivost proizvodu/usluzi, opseg i karakteristike dosegnute ciljne skupine, troškovi koje različite vrste medija za oglašavanje zahtijevaju“. Kotler, P., Armstrong, G. [2021: 357], za izravni i digitalni marketing navode kako su to „najbrže rastući oblici marketinga. I dok se izravni marketing nastavlja usmjeravati prema digitalnom, digitalni izravni marketing preuzima sve veći udio u potrošnji na marketing i prodaju.“ Belch, G. E., Belch M. A. [2003: 463], izravni marketing definiraju kao „sustav marketinga kojim organizacije izravno komuniciraju sa ciljnim kupcima, kako bi generirale odgovor ili transakciju.“ Također, napominju kako „moramo razlikovati izravni marketing i medije izravnog marketinga“ [2003: 463], navodeći pri tome, kako „izravni marketing koristi

skup medija za izravni odgovor, uključujući izravnu poštu, telemarketing, interaktivni TV, tisak, internet i druge medije. Ovi mediji su alati pomoću kojih stručnjaci za izravni marketing provode komunikacijski proces. Kako navodi Mihaylova, M. [2021: 16], „fleksibilnost izravnog marketinga je njegova dokazana karakteristika. Njegova prilagodljivost različitim medijima pokazuje evoluciju ovog pristupa. Konstantne značajke izravnog marketinga kao što su doseganje i kontaktiranje kupaca bez posrednika, korištenje i analiza prikupljenih podataka, ostaju iste, dok se mediji i kontekst primjene mijenjaju. To je razlog zašto se definicije prirode izravnog marketinga redovito prilagođavaju.“ Albrecht, M. G., et. al. [2023: 444], za izravni marketing navode kako isti „omogućuje izravnu komunikaciju s kupcem.“ Nadalje, navode i kako se „poruke mogu prilagoditi određenim segmentima tržišta, pa čak i personalizirati prema pojedinačnim potrošačima. Rane taktike izravnog marketinga uključivale su telefon i poštu; međutim, tehnologija je omogućila nove metode povezivanja s kupcima koje uključuju tekstualne poruke i marketing e-poštom.“ Bekić, I., et. al. [2023: 42] spominju kako „u digitalnom društvu personalizacija marketinškog pristupa postaje imperativ, a time direktna marketinška komunikacija dobiva još više na značenju.“ Amirkhanpour, M., Vrontis, D. [2013: 264] navode da „mobilni marketing igra značajnu ulogu u poboljšanju interakcije između potencijalnih kupaca i njihovih omiljenih brandova.“

Prema rezultatima istraživanja autora Zarouali, B., et. al. [2021: 265], „povoljnija percepcija o WhatsAppu povećava povjerenje ljudi u brandove na WhatsAppu, što zauzvrat povećava njihovu namjeru da tim brandovima otkriju osobne podatke.“ Prema Kotleru, P., et. al. [2017] „način na koji marketinški stručnjaci pristupaju prodajnim i komunikacijskim kanalima trebao bi se mijenjati i prilagoditi ovoj novoj stvarnosti. U digitalnom dobu, put do kupca nije uvijek izravan, ponekad je čak i spiralni. Štoviše, postoji mnogo mogućih kombinacija dodirnih točaka kroz koje kupci mogu proći na svom putu do kupnje. Marketinški stručnjaci trebaju voditi kupce na svakom koraku putem fizičkih i online kanala. Također trebaju biti dostupni gdje god i kada god kupci odluče obaviti kupnju na svom putu.“ Shah, D., Murthi, B. P. S. [2021], navode kako su se „s gledišta podataka, marketinški stručnjaci počeli fokusirati na prikupljanje i analizu podataka o transakcijama kupaca, koji se sustavno i kronološki arhiviraju; “koji” kupac je i “kada” kupio “koji” proizvod/uslugu, prikupljajući tako relevantne informacije u vlastitim bazama podataka tijekom vremena. Pojavio se snažan tok istraživanja i marketinških praksi povezanih s direktnim i marketingom baze podataka, koji se fokusiraju na visoko ciljanu, diferenciranu i kupcu usmjerenu marketinšku strategiju.“ Uvidom u dostupnu znanstvenu literaturu, vidljivo je, da zbog neprestanog razvoja digitalnih tehnologija, brandovi moraju prilagoditi svoje marketinške strategije okruženju gdje se suvremeni potrošači nalaze, a to je upravo *online* okruženje.

Kada se izvrši uvid u pregled literature po pitanju pripadnika generacije Z, vidljivo je kako autori na ovu generaciju gledaju kao na novu generaciju potrošača, pa tako Özkan, M. [2017: 156] navodi kako „kultura kupnje ove generacije, koja je veliku većinu svojih dana provela na internetu, također snažno utječe na njihove prioritete kao i na očekivanja“. U svojoj studiji Thangavel, P., et. al. [2019: 725], zaključuju kako se „kupovne orijentacije generacije Z, znatno razlikuju od prethodnih generacija, pa marketinške strategije koje su usmjerene na online kupce generacije Z, moraju biti prilagođene.“ Mc Keever, M., et. al. [2021], spominju kako niti „etablirani brendovi nisu imuni na potencijalno razorni utjecaj potrošača generacije Z.“ Šramková, M., Sirotiaková, M. [2021: 9], navode da će pripadnici generacije Z u bliskoj budućnosti „biti sve zahtjevniji u pogledu kvalitete neprehrambenih i prehrambenih proizvoda, osobito kada zasnuju vlastita kućanstva i obitelji.“ Prema Alders, K.-M., Böttcher, T. [2023], „s obzirom na to da generacija Z, kao kohorta pokazuje povećanu zabrinutost u pogledu održivosti, moglo bi se teoretizirati da što se brand više usklađuje s održivim ili zelenim inicijativama,

generacija Z postaje spremnija za kupnju od tog branda.“ Prema Salam, K. N., et. al. [2024: 54] „generacija Z gravitira prema brandovima koji daju prioritet društvenim vrijednostima, brizi za okoliš i održivosti. Također, preferira brandove koji nude jedinstvena iskustva i personalizaciju, koja zadovoljava njihove individualne potrebe i preferencije. Stoga su marketinške strategije, usmjerene na stvaranje pozitivnih iskustava i isticanje dodane vrijednosti koju pružaju brandovi, presudne u privlačenju pozornosti i osvajanju srca generacije Z.“ Generacija Z danas predstavlja potrošače, koji definiraju suvremeno tržište na temelju svojih specifičnih karakteristika u potrošačkom ponašanju. Ključna karakteristika, koja se često u literaturi povezuje s ovom generacijom jest stalna internetska povezanost, pa ne čudi što je suvremena izravna marketinška komunikacija, postala jedan od esencijalnih alata marketinških strategija brandova.

S druge strane, industrija kućnih ljubimaca, doživljava značajnu transformaciju u vidu prilagođavanja dinamičnom okruženju u kojem se pojavljuje nova generacija potrošača, koja koristi modernu tehnologiju i čije se ponašanje znatno razlikuje od ponašanja njihovih roditelja. Myers, S., et. al. [2022], navode da „kako tehnologija napreduje, tvrtke usmjeravaju svoje proračune za oglašavanje s tradicionalnih medija na digitalne medije.“ Zhang, W., et.al. [2022: 1688], na temelju analize koju su napravili u svom radu, a po pitanju budućih trendova razvoja tržišta kućnih ljubimaca, koja promatraju s tri aspekta; gospodarstva, društva i tehnologije, zaključuju kako se „ekonomsko tržište kućnih ljubimaca postupno širi“, a uz „kontinuirano poboljšanje razine tehnologije, vrste proizvoda na tržištu kućnih ljubimaca bit će dodatno diverzificirane u budućnosti“. „Tržište kućnih ljubimaca temelji se na ideji i učvršćuje ju, da je potrebna određena količina roba i usluga, kako bi se bio brižan vlasnik kućnog ljubimca. Odnos s kućnim ljubimcima postao je potpuno potrošačko iskustvo, pružajući uobičajene pogodnosti, kao što su veterinarska skrb i naprednije usluge kao dnevna skrb za pse, hoteli za pse s mogućnošću Skypinga, toplice, teretane, pogrebne usluge, moderna odjeća i specijalizirana prehrana“ [Vänskä, A., 2016: 80, prema Coote, 2012, Winter i Harris, 2013, Grimm, 2014]“. „Mnoge od ovih ljudskih usluga, za pse postaju norma“ [Vänskä, A., 2016: 80]. Kako navode Gromek, N., Perek-Białas, J. [2022], prema Morais [2004.], „mnogi se vlasnici kućnih ljubimaca ne osjećaju kao vlasnici kućnih ljubimaca, već kao roditelji kućnih ljubimaca. Na ovaj način fenomen roditelja kućnih ljubimaca pokazuje da ljudi ne žale potrošiti novac na njihove “bebe”. Nije ni čudno da se 83% vlasnika kućnih ljubimaca identificira kao “mama” ili “tata”“. Jyrinki, H., Leipämaa-Leskinen, H. [2006: 548] u svom su istraživanju došle do zaključka kako postoji “posebna skupina potrošača”, koji svoje kućne ljubimce smatraju “produženim ja”, a isto tako rezultati navedenog istraživanja, pokazali su kako 28% ispitanika „svoje kućne ljubimce doživljava kao produžetke sebe.“

### **3. INTERPRETACIJA REZULTATA ISTRAŽIVANJA: SPREMNOST NA POTROŠNJU SKRBNIKA KUĆNIH LJUBIMACA**

Suvremeni potrošači sve više brinu o dobrobiti svojih kućnih ljubimaca, doživljavajući ih članovima obitelji. Ovu situaciju itekako danas koriste *brandovi* kroz oglašavanja u kojima koriste emotivne apele, stavljajući pritom fokus na duboku povezanost između skrbnika i njegovog kućnog ljubimca. Uloga skrbnika, kao zaštitnika kućnog ljubimca, posebno se ističe, čime se potiče senzibilnost, izaziva empatija i privrženost, što rezultira akcijom odnosno kupovinom oglašavane robe, kako bi se taj osjećaj koji se prikazuje stvorio ili ako je već stvoren, kako bi se isti naglasio. Slijedom do sad navedenog, hipoteza koja se postavlja u sklopu ovog istraživanja glasi:

**Hipoteza H1:** Potrošači, pripadnici generacije Z, u odnosu na svoju financijsku moć, a pod utjecajem suvremene izravne marketinške komunikacije, spremni su izdvojiti sve više svote novaca, kako bi povećali kvalitetu života svojih kućnih ljubimaca.

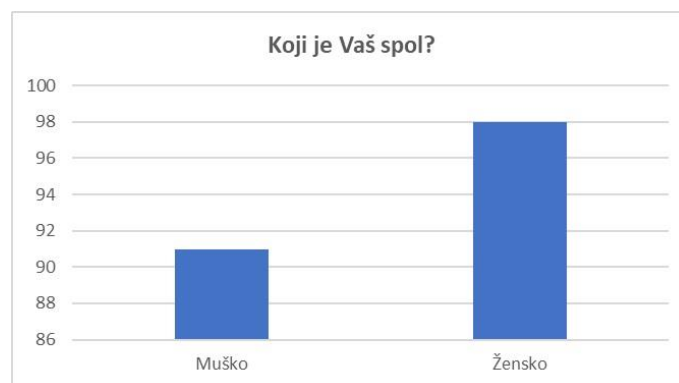
### 3.1. METODOLOGIJA ISTRAŽIVANJA

Za potrebe dokazivanja postavljene hipoteze, provedeno je kvantitativno istraživanje putem ankete. Podaci dobiveni analizom provedene ankete, omogućavaju uvid u osobne preferencije i navike potrošača pripadnika generacije Z, u kontekstu skrbnika kućnih ljubimaca. Od ukupnog broja ispitanika 273, za analizu je kao relevantan uzorak izdvojeno 189 ispitanika, koji su odgovarali profilu ispitanika primjerenog predmetnom istraživanju, odnosno izdvojeni su ispitanici koji su potvrdno odgovorili na pitanje jesu li su skrbnici kućnog ljubimca, te oni koji su godinama starosti unutar raspona definicije generacije Z (od 18 do 29 godina starosti). Isto tako, izdvojeni su i ispitanici koji žive na području Republike Hrvatske stalno ili povremeno (uz uvjet da u Republici Hrvatskoj žive veći dio godine).

### 3.2. REZULTATI ISTRAŽIVANJA

U nastavku slijedi prikaz rezultata provedenog kvantitativnog istraživanja.

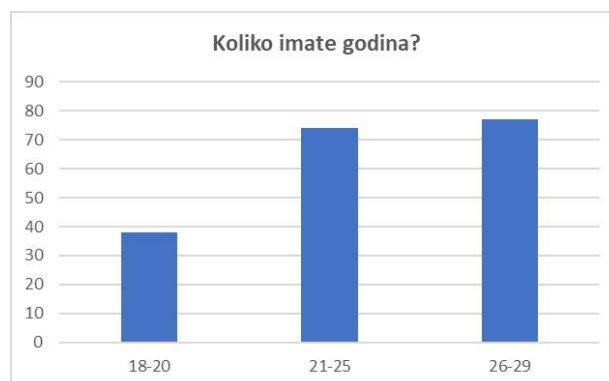
Grafikon 1. Ispitanici prema spolu.



Izvor: autori.

Od 189 ispitanika, 91 ispitanik je muškog roda, a 98 ispitanica je ženskog roda.

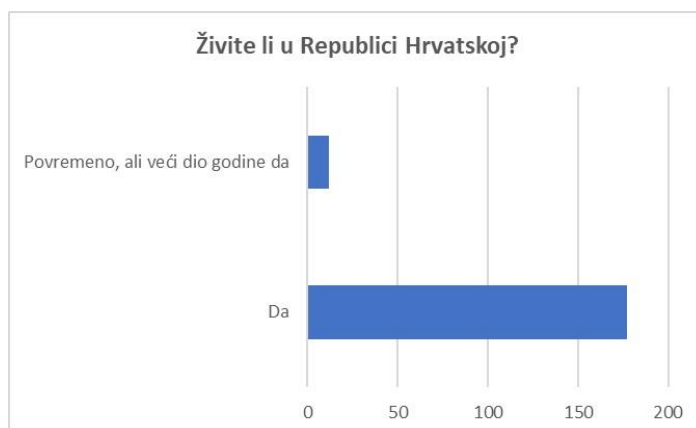
Grafikon 2. Ispitanici prema starosti.



Izvor: autori.

Od 189 ispitanika, 38 ispitanika je starosti od 18 do 20 godina, 74 ispitanika je starosti od 21 do 25 godina, dok je 77 ispitanika starosti od 26 do 29 godina.

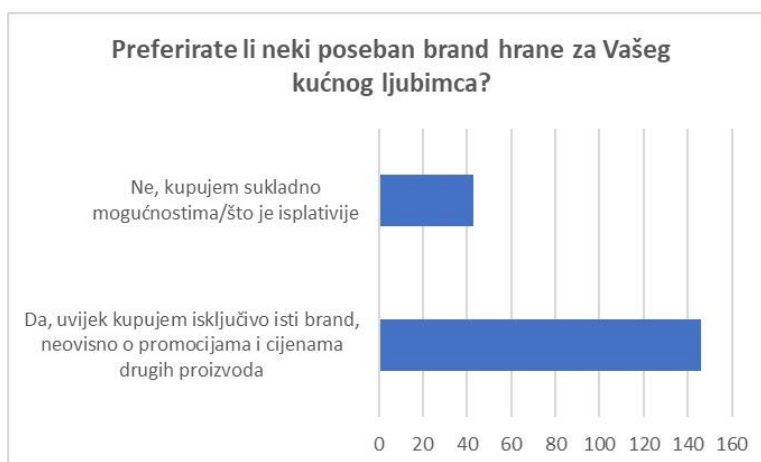
Grafikon 3. Ispitanici prema državi stanovanja.



Izvor: autori.

Ispitanika koji žive u Republici Hrvatskoj je 177, a onih koji u Republici Hrvatskoj žive povremeno, ali veći dio godine, ima 12.

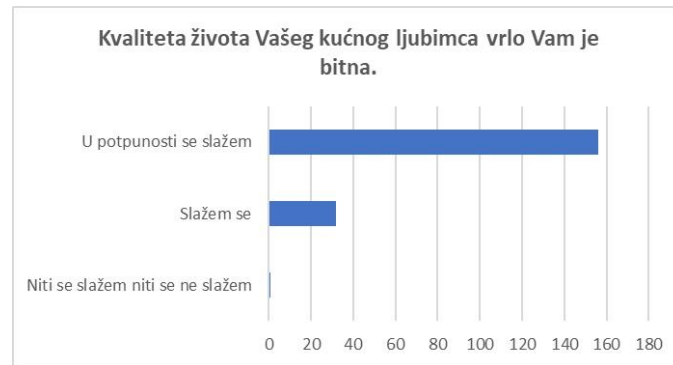
Grafikon 4. Preferencije branda hrane za kućne ljubimce.



Izvor: autori.

Ispitanika koji uvijek kupuju isključivo isti *brand* hrane za njihovog kućnog ljubimca, neovisno o promocijama i cijenama drugih proizvoda ima 146, dok je ispitanika koji hranu za njihovog kućnog ljubimca kupuju sukladno mogućnostima, odnosno što im je isplativije ima 43.

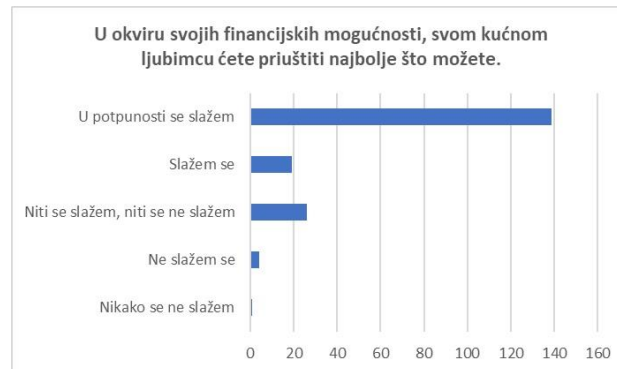
Grafikon 5. Mišljenje ispitanika o važnosti kvalitete života kućnog ljubimca.



Izvor: autori.

S izjavom da im je kvaliteta života njihovog kućnog ljubimca vrlo bitna, 156 ispitanika se u potpunosti složilo, 32 ispitanika je odgovorilo da se slaže, dok je 1 ispitanik odgovorio da se s takvom izjavom niti slaže niti se ne slaže.

Grafikon 6. Mišljenje ispitanika o važnosti kvalitete života kućnog ljubimca II.



Izvor: autori.

S izjavom da će u okviru svojih finansijskih mogućnosti, svom kućnom ljubimcu priuštiti najbolje što mogu, 139 ispitanika je odgovorilo da se s takvom izjavom u potpunosti slažu, 19 je ispitanika odgovorilo kako se s takvom izjavom slaže. Nadalje, 26 ispitanika s navedenom izjavom se niti slaže, niti se ne slaže, 4 se ispitanika s izjavom ne slažu, dok se 1 ispitanik s takvom izjavom nikako ne slaže.

Grafikon 7. Mišljenje ispitanika o važnosti kvalitete života kućnog ljubimca II.



Izvor: autori.

S izjavom da su u okviru svojih financijskih mogućnosti, a u svrhu povećanja kvalitete života svog kućnog ljubimca, spremni izdvojiti više novaca nego ikad prije, 118 ispitanika se u potpunosti slaže, 32 ispitanika se slaže, 28 ispitanika se niti slaže niti se ne slaže, 7 ispitanika se ne slaže, dok se 4 ispitanika nikako ne slažu s navedenim

Grafikon 8. Mišljenje ispitanika o važnosti kvalitete života kućnog ljubimca III.



Izvor: autori.

Ukoliko bi ispitanici na svoj e-mail primili *newsletter* o ponudi proizvoda koji bi njihovom kućnom ljubimcu podigao kvalitetu života na viši nivo, te ukoliko bi to bilo u skladu s njihovim financijskim mogućnostima isti bi i kupili, tvrdnja je s kojom se slaže 108 ispitanika, 60 ih se slaže, dok ih se 5 niti slaže niti se ne slaže. Nadalje, 11 ispitanika se ne slaže, a 5 ih se nikako ne slaže s navedenom tvrdnjom.

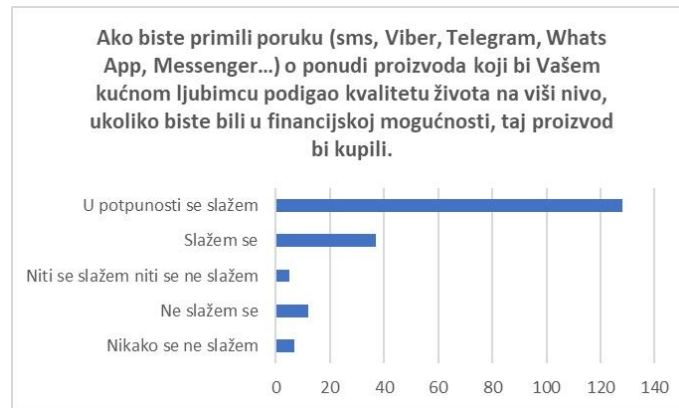
Grafikon 9. Mišljenje ispitanika o važnosti kvalitete života kućnog ljubimca IV.



Izvor: autori.

Nadalje, ukoliko bi ispitanici u mobilnoj aplikaciji (kreiranoj od strane neke trgovine ili *branda*) dobili obavijest o ponudi proizvoda, koji bi njihovom kućnom ljubimcu podigao kvalitetu života na viši nivo, te ako bi bili u financijskoj mogućnosti, taj bi proizvod i kupili, izjava je s kojom se u potpunosti slaže 108 ispitanika, dok se njih 53 slaže. Istodobno, 12 ispitanika se niti slaže niti se ne slaže, njih 9 se ne slaže, dok se njih 7 nikako ne slaže s navedenom tvrdnjom.

Grafikon 10. Mišljenje ispitanika o važnosti kvalitete života kućnog ljubimca V.



Izvor: autori.

Rezultati istraživanja pokazali su i da se 128 ispitanika u potpunosti se slaže s izjavom da bi u slučaju primitka poruke (sms, Viber, Telegram, WhatsApp, Messenger...) o ponudi proizvoda koji bi njihovom kućnom ljubimcu podigao kvalitetu života na viši nivo isti i kupili ako bi bili u financijskoj mogućnosti. Nadalje, 37 ispitanika se složilo s navedenim, 5 ispitanika niti se slaže niti se ne slaže. Istodobno, 12 ispitanika se ne slaže s navedenom tvrdnjom, dok se 7 njih nikako ne slaže.

Grafikon 11. Mišljenje ispitanika o važnosti kvalitete života kućnog ljubimca VI.



Izvor: autori.

S izjavom, ukoliko ispitanici primijete naizgled kvalitetan i dobar proizvod za njihovog kućnog ljubimca, o kojem su osobno obaviješteni kroz newsletter, poruke (sms, Viber, Telegram, WhatsApp, Messenger...) ili kroz poruku/obavijest iz mobilne aplikacije (kreirane od strane neke trgovine ili branda), spremni su izdvojiti višu svotu novaca nego ikada prije (koliko to njihovo trenutno financijsko stanje dopušta) za taj proizvod, kako bi povećali kvalitetu života njihovog kućnog ljubimca, 146 ispitanika se u potpunosti slaže, 25 ih se slaže, 7 ih se niti slaže niti se ne slaže, 8 ih se ne slaže, a 3 se nikako ne slažu.

Na temelju dobivenih rezultata istraživanja, zaključuje se kako je postavljena hipoteza: **Hipoteza H1:** Potrošači, pripadnici generacije Z, u odnosu na svoju financijsku moć, a pod utjecajem suvremene izravne marketinške komunikacije, spremni su izdvojiti sve više svote novaca, kako bi povećali kvalitetu života svojih kućnih ljubimaca, potvrđena.



Prije testiranja hipoteze istraživanja, testirala se razina pouzdanosti mjernih ljestvica pomoću Cronbach's Alpha koeficijenta. Cronbach's Alpha manji od 0,6 smatra se nezadovoljavajućom pouzdanosti, a veći od 0,7 predstavlja zadovoljavajuću pouzdanost.

Tablica 1. Cronbach's Alfa.

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.891	.792	7

Izvor: autori.

Iz tablice 1. uočljivo je da Cronbach's Alpha koeficijent iznosi 0,891, što govori da korištene mjerne ljestvice imaju visoku razinu pouzdanosti. Dobiveni koeficijent sugerira visoku razinu interne konzistentnosti pouzdanosti varijabli, te ukazuje na to da su pitanja ili čestice koje se odnose na komunikaciju generacije Z međusobno povezane što implicira dosljednost mjernog konstrukta. Tablica 2. donosi prikaz deskriptivne statistike o međusobnoj komunikaciji između proizvođača proizvoda za kućne ljubimce, odnosno trgovina (prodavača) i kupaca takvih proizvoda, te namjere o kupnji na temelju dobivenih informacija.

Tablica 2. Deskriptivna statistika.

	N	Min	Ma	Mean	Std. Deviation	Variance
Značaj kvalitete života kućnog ljubimca	189	1	5	4.82	0.458	1.840
U okviru financijskih mogućnosti za kućnog ljubimca izabrat ću najbolje	189	1	5	4.54	0.717	1.658
U okviru financijskih mogućnosti za kućnog ljubimca spreman/a sam izdvojiti više financijskih sredstava	189	1	5	4.34	1.001	1.911
Kupnja na temelju newslettera koja donosi kvalitetu života kućnog ljubimca na viši nivo u okviru financijskih mogućnosti	189	1	5	4.35	0.951	1.937
Kupnja na temelju mobilne aplikacije koja donosi kvalitetu života kućnog ljubimca na viši nivo u okviru financijskih mogućnosti	189	1	5	4.30	1.074	2.057
Kupnja na temelju poruka preko SMS-a, Viber-a, Telegram-a, WhatsApp-a, Messenger-a koja donosi kvalitetu života kućnog ljubimca na viši nivo u okviru financijskih mogućnosti	189	1	5	4.41	1.126	2.145
Spremnost na kupnju kvalitetnijeg proizvoda na temelju primljene poruke preko newslettera, mobilne aplikacije i/ili sms poruke, poruke preko SMS-a, Viber-a, Telegram-a, WhatsApp-a, Messenger-a uz izdvajanje veće količine novaca	189	1	5	4.60	0.761	1.846
Valid N (listwise)	189					

Izvor: autori.

Na postavljena pitanja, ispitanici su odgovarali s minimalnom ocjenom 1 i maksimalnom ocjenom 5. Na pitanje „Značaj kvalitete života kućnog ljubimca“ (prosječna ocjena iznosi 4.82 i SD=0.458), što je ujedno i čestica ocijenjena s najvećom prosječnom ocjenom i ispitanici je

smatraju iznimno važnom. „U okviru financijskih mogućnosti za kućnog ljubimca izabrat ću najbolje” (prosječna ocjena iznosi 4.54 i SD=0.717). „Kupnja na temelju newslettera koja donosi kvalitetu života kućnog ljubimca na viši nivo u okviru financijskih mogućnosti“ ocijenjena je s prosječnom ocjenom 4.35 i SD=0.951; „Kupnja na temelju mobilne aplikacije koja donosi kvalitetu života kućnog ljubimca na viši nivo u okviru financijskih mogućnosti“ (prosječna ocjena 4.30 i SD=1.074); „Kupnja na temelju poruka preko SMS-a, Viber-a, Telegram-a, WhatsApp-a, Messenger-a koja donosi kvalitetu života kućnog ljubimca na viši nivo u okviru financijskih mogućnosti“ (prosječna ocjena 4.41 i SD=1.126).

Općenito gledano generacija Z obično preferira brze i praktične načine komunikacije. Kada je riječ o SMS porukama, iako se ovaj oblik komunikacije sve manje koristi zbog popularnosti društvenih mreža i aplikacija za razmjenu poruka poput WhatsAppa, Viber-a, Telegram-a i Messenger-a, generacija Z i dalje koristi SMS za brzu i izravnu komunikaciju, posebno u situacijama kada je potrebno brzo i jednostavno dostavljanje informacija i razmjena međusobnog iskustva. *Newsletteri* su također dio komunikacijskog spektra koji generacija Z koristi kao sadržaj, iako možda nije njihov primarni izbor. Međutim, ako je sadržaj relevantan, zanimljiv i prilagođen njihovim interesima, pogotovo kada je riječ o njihovim kućnim ljubimcima, generacija Z je otvorena za primanje *newslettera* putem e-pošte. Prikaz načina komuniciranja među generacijom Z, kao i značajka pojedinih oblika, pobliže je objašnjen u Tablici 3.

Tablica 3. Kolmogorov-Smirnov test o normalnosti distribucije podataka vezano za komunikaciju među pripadnicima generacije Z.

Deskriptivna Statistika							The - Smirnov „normality“	Kolmogorov test for
	Results	N	Min.	Max	Average	Standard deviation	Coefficient of variation	
Kupnja na temelju <i>newslettera</i> koja donosi kvalitetu života kućnog ljubimca na viši nivo u okviru financijskih mogućnosti.	189	1	5	4.35	0.951	24.937	0.137	0.000
Kupnja na temelju mobilne aplikacije koja donosi kvalitetu života kućnog ljubimca na viši nivo u okviru financijskih mogućnosti.	189	1	5	4.30	1.074	25.139	0.365	0.000
Kupnja na temelju poruka preko SMS-a, Viber-a, Telegram-a, WhatsApp-a, Messenger-a koja donosi kvalitetu života kućnog ljubimca na viši nivo u okviru financijskih mogućnosti.	189	1	5	4.41	1.126	25.345	0.233	0.000

Izvor: autori.

Važno je napomenuti kako generacija Z obično preferira sadržaj koji je autentičan, interaktivan i relevantan za njihov životni stil i interese. Ukratko, iako generacija Z koristi različite kanale komunikacije, ključno je osigurati da sadržaj bude prilagođen njihovim preferencijama i potrebama, kako bi se postigla učinkovita komunikacija.

Pouzdanost dobivenih faktora mjerena je na osnovi vrijednosti koeficijenta Cronbach's Alpha. Za potrebe daljnje analize ispitana je pouzdanost podataka na temelju Kaiser-Meyer-Olkinova (KMO) testa i Bartlettova testa. Cronbach's Alpha je statistički indeks i mjeri koliko su svi elementi u okviru instrumenta međusobno povezani te mjere li istu latentnu varijablu. Kaiser-Meyer-Olkinova (KMO) mjera adekvatnosti uzorka i Bartlettov test sferičnosti često se koriste kao dijagnostički alati, kako bi se procijenila prikladnost korelacijske matrice, a za daljnju analizu prikazani su u Tablici 4. Vrijednost Kaiser-Meyer-Olkinova pokazatelja kreće se od 0 do 1, te ako je manja od 0,6 smatra se da korelacijska matrica nije prikladna za definiranje modela utjecaja izravne marketinške komunikacije na potrošnju izvan okvira budžeta za kupnju hrane koja će osigurati kvalitetniji život kućnom ljubimcu. Također, što je vrijednost Kaiser-Meyer-Olkinova bliže 1, veća je prikladnost provedbe daljnje analize. Kod Bartlettova testa, poželjno je da vrijednost signifikantnosti bude manja od 0,05 ( $p < 0,05$ ). Rezultati Kaiser-Meyer-Olkinova testa i vrijednosti analize varijance prikazane u Tablici 4., te u Tablici 5., pokazuju kako je omjer kvalitete i cijene ključan faktor pri odabiru i kupnji. Također, rezultati pokazuju da potrošači generacije Z, kada je u pitanju hrana za kućne ljubimce, prednost daju kvaliteti te preferiraju izravnu marketinšku komunikaciju proizvođača hrane za kućne ljubimce.

Tablica 4. Kaiser-Meyer-Olkinove mjere.

Varijabla	Kaiser-Meyer-Olkinove mjere
Preferencija prema markama proizvođača.	0,86263
Potrošnja u okviru svojih mogućnosti.	0.88543
Spremnost na izdvajanje veće svote novca za veću kvalitetu života kućnih ljubimaca	0.90013
Kupnja na temelju poruka preko SMS-a, Viber-a, Telegram-a, WhatsApp-a, Messenger-a koja donosi kvalitetu života kućnog ljubimca na viši nivo u okviru financijskih mogućnosti.	0.89800

Izvor: autori.

Kupnja hrane za kućne ljubimce postala je složen proces koji nadilazi jednostavno zadovoljenje osnovnih potreba za prehranom. Vlasnici kućnih ljubimaca sve više prepoznaju važnost visokokvalitetne prehrane kao ključnog faktora ( $KMO=0.90013$ ) za poboljšanje kvalitete života svojih ljubimaca. U tom kontekstu, potrošnja na hranu za ljubimce često prelazi okvire financijskih mogućnosti vlasnika, vođena željom za postizanjem boljeg zdravlja i dugovječnosti ljubimaca, kao i preferencijama prema određenim markama proizvođača ( $KMO=0.86263$ ). Kvaliteta života kućnih ljubimaca uvelike ovisi o vrsti hrane koju konzumiraju. Nutritivna vrijednost hrane igra ključnu ulogu u održavanju optimalnog zdravlja. Visokokvalitetna hrana sadrži uravnotežene količine proteina, masti, ugljikohidrata, vitamina i minerala, što je od suštinskog značaja za pravilno funkcioniranje organizma. Uz to, specijalizirane prehrane koje ciljaju specifične zdravstvene potrebe, poput hrane za starije ljubimce ili one s alergijama, mogu značajno poboljšati kvalitetu života. Zdravstveni benefiti koje donosi kvalitetna prehrana uključuju smanjenje rizika od brojnih bolesti poput pretilosti, dijabetesa, problema s kožom i dlakom. Također, istraživanja pokazuju kako pravilna

prehrana može produžiti životni vijek ljubimaca, čineći ih zdravijima i sretnijima, stoga spremnost na izdvajanje veće svote novca za veću kvalitetu života postaje neupitna.

Preferencije vlasnika prema određenim markama proizvođača hrane za ljubimce također igraju važnu ulogu u modelu potrošnje. Vjernost određenim *brandovima* često se temelji na prepoznatljivosti brenda, pozitivnim recenzijama i preporukama veterinara. *Brandovi* koji su stekli reputaciju za kvalitetu i pouzdanost obično imaju veći utjecaj na odluke vlasnika. Osim toga, etika brenda postaje sve važnija za mnoge vlasnike. *Brandovi* koji koriste održive prakse i visokokvalitetne, prirodne sastojke privlače sve veću pažnju. Raznolikost proizvoda koje brend nudi, kao i dostupnost tih proizvoda u trgovinama i *online*, također su ključni faktori koji utječu na potrošačke odluke.

Tablica 5. ANOVA test za dokazivanje hipoteza.

Model Summary <sup>0</sup>									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0,630 <sup>a</sup>	0,397	0,342	0,59518	0,397	7,234	24	264	0,003
2	0,666 <sup>b</sup>	0,444	0,374	0,58045	0,047	2,696	8	256	0,000
a. Predictors: (Constant), PURCHASING BASED ON THE NEWSLETTER WHICH BRINGS THE QUALITY OF LIFE OF THE PET TO A HIGHER LEVEL WITHIN THE FRAMEWORK OF FINANCIAL POSSIBILITIES_1 PURCHASING BASED ON MOBILE APPLICATIONS THAT BRING THE QUALITY OF LIFE OF THE PET TO A HIGHER LEVEL WITHIN THE FRAMEWORK OF FINANCIAL POSSIBILITIES_2 PURCHASE BASED ON SMS MESSAGES, MESSAGES THROUGH WHAT APP, MESSENGER WHICH BRINGS THE QUALITY OF LIFE OF THE PET TO A HIGHER LEVEL WITHIN FINANCIAL POSSIBILITIES_3									
b. Predictors: (Constant), WITHIN THE FRAMEWORK OF FINANCIAL POSSIBILITIES FOR A PET, I WILL CHOOSE THE BEST									
c. Dependent Variable: PURCHASE ON THE BASIS OF A RECEIVED MESSAGE OF A MORE EXPENSIVE PRODUCT WHICH BRINGS A BETTER QUALITY OF LIFE									

Izvor: autori.

Model potrošnje za kupnju hrane za kućne ljubimce iznad okvira mogućnosti vlasnika temelji se na želji za postizanjem veće kvalitete života ljubimaca i preferencijama prema određenim markama proizvođača. Razumijevanje ovih čimbenika kroz prikupljanje i analizu podataka omogućava stvaranje učinkovitih strategija koje zadovoljavaju potrebe i očekivanja vlasnika, osiguravajući pritom optimalno zdravlje i dugovječnost njihovih ljubimaca.

### 3.3. DISKUSIJA REZULTATA ISTRAŽIVANJA

Uvidom u prikupljene odgovore, zaključuje se, kako većina ispitanika uvijek kupuje isključivo isti brand hrane za njihovog kućnog ljubimca, neovisno o promocijama i cijenama drugih proizvoda, što ukazuje na to kako je pripadnicima generacije Z, vrlo bitna kvaliteta života njihovih kućnih ljubimaca, što su potvrdili kasnije i kroz odgovore na izjavu kako im je kvaliteta života njihovog kućnog ljubimca vrlo bitna. Isto tako, veći dio ispitanika, u potpunosti se složio ili se složio s izjavom da će u okviru svojih financijskih mogućnosti, svom kućnom ljubimcu priuštiti najbolje što mogu, kao i s izjavom da su u okviru svojih financijskih mogućnosti, a u svrhu povećanja kvalitete života svog kućnog ljubimca, spremni izdvojiti više novaca nego ikada prije. Na izjave, koje su uključivale razne vrste suvremene izravne marketinške

komunikacije koju koriste brandovi kako bi se obratili potrošačima, dakle, putem e-maila (*newsletter*), obavijesti kroz mobilne aplikacije, poruke (SMS, Viber, Telegram, WhatsApp, Messenger...), u smislu da im ponude proizvode, koji bi njihovim kućnim ljubimcima podigli kvalitetu života na viši nivo, ispitanici su se u najvećoj mjeri u potpunosti složili ili su se složili, da ako bi bili u financijskoj mogućnosti, taj proizvod bi i kupili.

Naposljetku, i s posljednjom izjavom u sklopu ovog istraživanja, ako ispitanici primijete naizgled kvalitetan i dobar proizvod za njihovog kućnog ljubimca, o kojem su osobno obaviješteni kroz *newsletter*, poruke (sms, Viber, Telegram, WhatsApp, Messenger...) ili kroz poruku/obavijest iz mobilne aplikacije (koju je kreirala trgovina ili *brand*), spremni su izdvojiti višu svotu novaca nego ikada prije (koliko to njihovo trenutno financijsko stanje dopušta) za taj proizvod, kako bi povećali kvalitetu života njihovog kućnog ljubimca, većina se ispitanika u potpunosti složila, a slijede ih oni koji se s takvom izjavom slažu.

#### 4. ZAKLJUČAK

Zbog umreženog načina života generacije Z, *brandovi* imaju više prilika nego ikad prije, utjecati na ponašanje mladih potrošača. Suvremena izravna marketinška komunikacija ima težak zadatak, u fokusu joj nije samo predstavljanje proizvoda u najboljem svijetlu, ona je usmjerena na potrošača, informira ga i uvjerava, potiče mu znatiželju, motivira ga da dijeli saznanja, oduševljava ga i naposljetku u njemu stvara želju ne samo za proizvodom, već i za osjećajem koji nudi korištenje oglašavanog proizvoda. Ovakva komunikacija kod potrošača stvara snažnu potrebu, čak i za proizvodima koji nisu namijenjeni njemu. Jedan od prikladnih primjera za navedeno je promocija proizvoda za kućne ljubimce. *Brandovi* ne stvaraju proizvode za kućne ljubimce, oni ih stvaraju za njihove skrbnike, koje takvi proizvodi moraju oduševiti do te mjere da ih bez velikog razmišljanja priušte svojim kućnim ljubimcima kako bi im poboljšali kvalitetu života.

Danas je više nego ikada bitnije razumjeti potrošača, u predmetnom slučaju ovog rada, suvremenog potrošača u ulozi skrbnika kućnog ljubimca. Dok industrija hrane i raznih dodataka za kućne ljubimce posljednjih godina bilježi rast, sve veći fokus u široj se javnosti stavlja na odgovornost skrbnika kućnih ljubimaca, a propisuju se i zakonske odredbe, koje predviđaju kažnjavanje neodgovornog ponašanja skrbnika. Posljednjih godina sve se više upozorava i na nužnost humanosti općenito prema životinjama, kao živim bićima. Prethodno navedeno ide u prilog marketingu *brandova*, koji na tržište plasiraju proizvode za kućne ljubimce, a svojim marketinškim strategijama, podižu pozitivan trend humanog postupanja prema životinjama na jednu novu razinu, nudeći pri tome razne proizvode za kućne ljubimce. Prilagođavaju se kod toga raznim skupinama potrošača, od onih starijih, teže pokretnih, koji od kućnih ljubimaca kao korist primaju društvo, do onih mlađih, koji se u društvu kućnih ljubimaca rekreiraju i putuju, općenito, kreiraju jedan zajednički životni stil. Upravo na ovu skupinu mladih potrošača generacije Z, ovaj rad stavlja fokus, kao na potrošače, koji su zbog raznolikosti interesa kojim mladi obiluju, a ujedno i sve većih mogućnosti, koje im se nude, spremni izdvojiti sve više financijskih sredstava u svrhu poboljšanja kvalitete života svojih kućnih ljubimaca. Način odrastanja ove generacije, mogao bi ih razlikovati u njihovom potrošačkom ponašanju od ostalih generacija na mnoge načine, stoga ovaj rad istražuje njihove stavove o načinu potrošnje, kada je u pitanju potrošnja vezana uz njihove kućne ljubimce. Da se ovdje radi o specifičnoj generaciji, prepoznali su odavno i *brandovi*, koji su svoje marketinške aktivnosti prilagodili novoj generaciji potrošača.

*Brandovi* stoga danas, svojom suvremenom marketinškom komunikacijom sve izravnije i konkretnije djeluju, a jedan od primjera za navedeno je izravna marketinška komunikacija, koja je usmjerena potrošaču izravno, kroz *newslettere* koji stižu na e-mailove, obavijesti trgovaca/*brandova*, koje stižu kroz mobilne aplikacije ili poruke koje potrošači, osim kao SMS, primaju i kroz razne aplikacije namijenjene komunikaciji (npr. Viber, Telegram, WhatsApp, Messenger...). Zbog umreženosti generacije Z, *brandovi* danas imaju više prilika nego ikada, suvremenom izravnom marketinškom komunikacijom utjecati na ponašanje mladih potrošača. Slijedom gore navedenog, ovim radom se, uz prikaz uvida iz stručne, znanstvene literature, prikazuju rezultati istraživanja utjecaja suvremene izravne marketinške komunikacije na potrošačko ponašanje pripadnika generacije Z, prilikom stvaranja potražnje, odnosno odabira i kupnje proizvoda za njihove kućne ljubimce, uz odgovor na pitanje, kolika je zapravo moć promocije, koja je temeljena na suvremenoj izravnoj komunikaciji i koja je usmjerena upravo potrošaču generacije Z, u smislu utjecaja na kreiranje njegove potražnje za proizvodima namijenjenima kućnim ljubimcima.

U kompleksnom okruženju suvremenog marketinga, koje obiluje promidžbenom bukom i koje se stalno razvija, industrija kućnih ljubimaca posebno se ističe svojim marketinškim pristupima potrošačima, a takvi *brandovi* danas zapravo „nude“ osjećaj pripadnosti i privrženosti između skrbnika i kućnog ljubimca. Naposljetku, sukladno rezultatima ovog istraživanja, unatoč trenutnoj inflaciji, mladi skrbnici, pripadnici generacije Z, svojim će kućnim ljubimcima priuštiti najbolje što mogu, kako bi im povećali kvalitetu života, što ovoj industriji jamči određenu održivost na tržištu, uz uvjet da se kontinuirano prilagođava preferencijama novih generacija potrošača. Kako se industrija kućnih ljubimaca sve više razvija, to više *brandovi* moraju ostati u toku s očekivanjima suvremenih generacija potrošača uz korištenje suvremenih i inovativnih načina komunikacije koji će im omogućiti što uspješnije približavanje i stvaranje posebne veze s ciljnom skupinom potrošača.

Treba istaknuti i nedostatke istraživanja što je vidljivo u profiliranju ispitanika. Naime, ispitanike se profiliralo samo prema spolu, dobi i državi stanovanja, što predstavlja određeno ograničenje kod detaljnije karakterizacije ispitanika i njihovih kućanstava. S obzirom na to da na području Republike Hrvatske nisu pronađena istraživanja koja se bave postavljenom hipotezom, predlažu se daljnja istraživanja u okviru ovog područja s detaljnijom analizom ispitanika u smislu socioekonomskih, demografskih i drugih sličnih faktora koji utječu na potrošačko ponašanje. Također, predlaže se povećati uzorak ispitanika i detaljnije istražiti spoznaju kako su mladi potrošači, pripadnici generacije Z, skloni izdvojiti sve više financijskih sredstava za proizvode koje percipiraju kao korisne za njihove kućne ljubimce, uz fokus na njihovu sklonost kupovini istog *branda* bez obzira na cijenu. Prethodno navedeno odnosi se na prijedlog proširenja istraživanja percepcije *brandova*, koji nude proizvode za kućne ljubimce i kako takva percepcija utječe na svijest, doživljaje te osjećaje mladih potrošača generacije Z kada kupuju proizvode za svoje kućne ljubimce, fokusirajući se pri tome posebno na snagu poruke koju *brandovi* šalju, u smislu emocionalnog brandinga i korporativne odgovornosti (koja prati opću odgovornost prema životinjama, kao jedan proširen svjetski trend).

Buduća istraživanja mogla bi proširiti ovo istraživanje i analizom marketinških kampanja *brandova* koji nude proizvode za kućne ljubimce u kombinaciji s istraživanjem stavova potrošača, pripadnika generacije Z o istima. Potrošači, pripadnici generacije Z, u budućnosti će predstavljati velik udio potrošača, te je bitno da se *brandovi* fokusiraju na duboko razumijevanje potreba i očekivanja ove generacije kako bi ponudu mogli što bolje prilagoditi ovoj sve bitnijoj skupini potrošača. S obzirom na to da u suvremenom dobu skrbnici na svoje kućne ljubimce sve više gledaju kao na članove obitelji, realan je trend povećanja potražnje za proizvodima,

koji će kućnim ljubimcima povećati kvalitetu života, a samim time i opće zdravstveno stanje, koje će naposljetku dovesti do duljeg života kućnog ljubimca.

Doprinos ovog istraživanja ogleda se u empirijskom uvidu koji pruža bolje razumijevanje ponašanja potrošača pripadnika generacije Z u situacijama svakodnevnih utjecaja suvremene izravne marketinške komunikacije na njihovo potrošačko ponašanje, konkretno na spremnost izdvajanja novčanih sredstava (u odnosu na financijsku moć), a sve s ciljem povećanja kvalitete života njihovih kućnih ljubimaca. Doprinos istraživanja ogleda se i u saznanju, da bi se marketinška komunikacija, posebno ona izravna, namijenjena mladim potrošačima, koja je tema ovog rada, trebala temeljiti i na relevantnim podacima o tome koliko određeni oglašavani proizvod poboljšava kvalitetu života kućnog ljubimca, kojem je namijenjen. Također, na taj se način može privući i zadržati potrošače generacije Z, ali i potaknuti kod njih jedan angažman prilikom poslijekupovnih aktivnosti s obzirom na njihovu karakteristiku stalne internetske povezanosti, gdje bi mogli svoja iskustva podijeliti s drugim potrošačima i na neki način djelovati kao glasnogovornici *branda*, provodeći marketing „od usta do usta“ *online*, koristeći suvremene mogućnosti koje nude društveni mediji. Konačno, nalazi ovog istraživanja mogu pomoći u boljem razumijevanju potrošačkog ponašanja ove mlade i specifične skupine potrošača.

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## EMOTIONS DURING SOCIAL MEDIA USAGE ACROSS TRAVEL STAGES: DREAMING, EXPERIENCING, AND SHARING

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### ABSTRACT

*This study explores the relationship between social media use and the emotions associated with planning and sharing trips on social media, focusing on the dreaming, experiencing, and sharing stages. Social media platforms based on Web 2.0 technology have revolutionized the way tourists plan and experience their trips and have significantly influenced their decision-making processes. This study aims to fill a gap in understanding potential travellers' attitudes towards social media content at these stages. Using a structured questionnaire, data was collected from 168 social media users, who have travelled in the past year, and was analysed with PLS-SEM. The results show that the Dreaming and Experiencing phases significantly influence users' emotions, while the Sharing phase shows no significant influence. These results highlight the importance of engaging users emotionally in the Dreaming and Experiencing phases and suggest that companies should use immersive storytelling, experiential marketing, and personalized experiences. Despite the non-significant effect of the Sharing phase, optimizing this phase remains crucial for seamless transitions and higher user satisfaction. This study highlights the central role of emotion in user perception and behaviour and recommends that companies prioritize emotionally engaging initiatives to drive positive user experiences.*

**KEYWORDS:** social media, emotions, planning phase, dreaming phase, sharing phase, travel stages

### 1. INTRODUCTION

Social networks are based on the technological foundations of Web 2.0 and enable the creation and exchange of user-generated content (Kaplan and Haenlein, 2010). These platforms have become an integral part of all stages of the tourism decision-making process and are seen by tourists as essential to the tourism industry (Sigala et al., 2012). The development of technology has revolutionized the way tourists plan and experience their trips (Buhalis and Amaranggana, 2013). According to Kim and Tussyadiah (2013), tourists rely on social networks to get support from their social circle while travelling. Visual content such as photos and videos play an increasingly important role in influencing travel decisions (Prasetya, Jaya and Thio, 2021). Social media plays a crucial role in shaping travellers' decision-making processes through various user-generated content (UGC) (Rathore, 2020), which serves as an important source of information (Boley et al., 2018). The abundance of UGC greatly facilitates the evaluation of services during travel planning (Savolanien, 2014).

Travel reviews play an important role in informing tourists about destinations and their offerings, with identification and internalization being crucial factors that encourage the sharing of travel experiences on social media, mediated by perceived enjoyment (Kang and Schuett, 2013). In addition, online suggestions and comments from other users enhance brand image and significantly influence purchase intent and destination image (Ye et al., 2011).

Although travellers actively engage with influencers and destination marketing organizations (DMOs) on social media, destination choice is not solely based on influencer content (Caruana and Caruana, 2022). Therefore, there is a gap in understanding potential travellers' attitudes towards posts or reviews on social media. The present study aims to address this gap by examining the determinants of the dreaming phase, the experiencing phase, and the sharing phase on social media, as well as their relationship with the emotions associated with social media use. The theoretical significance lies in exploring the specific factors that influence destination choice and associated emotions. By examining how the phases of dreaming, experiencing, and sharing on social media influence users' emotions, this study provides insights into the underlying emotions that drive travellers' decision-making processes.

## **2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT**

The literature on destination or travel planning processes usually follows the general consumer decision-making model (Kotler & Keller, 2016). Several researchers have proposed alternative stages in the travel process. Fotis et al. (2011) described four steps, distinguishing between the pre-trip phase and the post-trip destination choice phase. Fotis (2015) later adapted a cyclical model that begins with the dream phase, in which travellers share their experiences and ideas on social media and with friends and family. This phase ends shortly before a new vacation decision and marks the beginning of the pre-travel phase. In the post-trip phase, travellers return home and share their experiences. Tong (2018) expanded Fotis' (2015) model to include five phases that are particularly relevant for social media research, as social media is used in every phase. Based on the research of Cox et al. (2009), who presented a model of the travel planning process that includes three phases, pre-trip, during-trip, and post-trip, this paper analyses three stages: dreaming, experiencing, and sharing. The stage of dreaming precedes the trip, during which travellers actively or passively seek inspiration for their next trip. According to Prasetya et al. (2021), the stage of planning follows destination selection and involves information gathering. The booking stage is used for making reservations for tickets, accommodations, and dining options. The experiencing stage encompasses the actual journey and the experiences encountered, where travellers may seek additional information about activities, restaurants, and stay connected with loved ones during their trip. The sharing stage is after the trip, where travellers share their experiences and destination-related information. These stages, dreaming, experiencing, and sharing (Prasetya et al., 2021), were selected to capture the emotional journey travellers undergo during the three main stages of the travel process, providing a fresh view of the travel experience from initial inspiration to post-trip reflection.

There is a significant body of research focusing on the usage of social media for travel stages. The studies, however, employ varying methodologies, sometimes hindering the full recognition of participants' emotional experiences (Nawijn et al., 2013). Notably, Nawijn's (2010) study analysing the evolution of tourists' emotions over time highlighted a prevalence of positive emotions among participants, consistent with previous research findings. Emotions undergo changes throughout different phases of a vacation, influenced by environmental stimuli, as well as the individual's motivations for visiting specific destinations, which are intertwined with

personal and interpersonal factors. Consequently, depicting the entire emotional journey shaping tourist behaviour during vacations proves challenging. While some studies have explored the role of emotions in leisure enjoyment and tourism services (Bigné, Andreu, & Gnoth, 2005), as well as the factors affecting tourists' emotional responses to destinations (Hosany, 2012), limited attention has been given to investigating emotions according to the usage of social media in the travel stages.

It is assumed that users are more likely to engage with social media if they have a positive attitude towards these platforms in all travel stages. Users' attitudes can be influenced by various factors, such as the value they see in using social media or the emotions they experience when using these media. Sparks (2007) explains the influence of desires on behavioural intention and argues that attitudes and subjective behavioural norms together with individual desires determine users' behavioural intention. Behavioural intention refers to the planning of a specific behaviour based on autonomous motivation. The more positive a user's attitude and desire for certain behaviours, the stronger their behavioural intention. Dai et al. (2021) point out that users' attitude positively influences their travel intention. An important factor for users when using social media is the satisfaction they experience, which is perceived as added value for them. Users feel relaxed and satisfied when they use social media, which has a positive effect on their mood and therefore increases the likelihood of continued use. Emotions can be positive (e.g. joy, satisfaction or relaxation) or negative (e.g. dissatisfaction, anger or boredom) (Gursoy et al., 2019; Lin et al., 2020). Gursoy et al. (2019) conclude that consumers who have positive emotions towards AI devices are more willing to accept AI devices as service providers. In addition, Vitezić and Perić (2021) point out that positive emotions have a very strong positive influence on the willingness to use AI devices. It is therefore suggested:

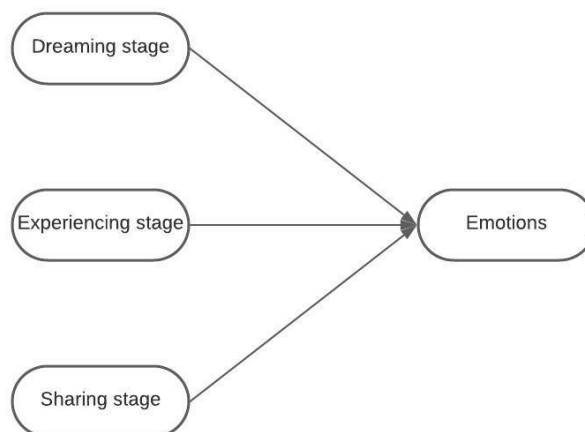
*H1: There is a statistically significant relationship between the dreaming stage on social media and emotions*

*H2: There is a statistically significant relationship between the experiencing stage on social media and emotions*

*H3: There is a statistically significant relationship between the sharing stage on social media and emotions.*

To complement these hypotheses, a conceptual model is proposed in Figure 1.

Figure 1: The conceptual model



### 3. METHODOLOGY

Primary research was conducted online between May and June 2023 with a purposive sample. The research population comprised members of social media with at least one active account and who had travelled at least once in the last year. Thus, 168 valid responses were collected. A structured questionnaire based on previous literature was utilized. The questionnaire consists of two parts, which were adapted according to the requirements of the study and rated on a 5-point Likert scale, where 1 was “strongly disagree” and 5, “strongly agree”. The three stages of travel included four items each from Prasetya et al. (2021), while the construct of Emotions with four items was adapted from Vitezić and Perić (2021). The last part of the questionnaire deals with socio-demographic data such as gender, education level, employment status, and monthly income.

Among the respondents, 65% were female and 35% were male. Most of the respondents were aged 25-35, and were full-time workers with a monthly income up to 800 euros.

### 4. FINDINGS

The study examined the three primary hypotheses using a two-step analytical approach. Firstly, reliability, internal consistency, and convergent validity of the measurement scales were assessed. Secondly, the evaluation of the research model involved testing the hypotheses, using a bootstrapping procedure with a sample of 5000 subsamples. The data collected were analysed using the Partial Least Squares (PLS) approach to analysing structural equations (SEM), with a formative measurement model. PLS-SEM has no problems with identifying relations between individual theoretical constructs in small samples (<250) and has no special requirements tied to the distribution of manifest variables because it is a non-parameter method.

#### 4.1. MEASUREMENT MODEL RESULTS

The analysis of convergent validity is assessed by factor loadings and average variance extracted. Internal consistency is measured by composite reliability and Cronbach’s alpha coefficient, while discriminant validity, by the Heterotrait-Monotrait ratio (HTMT) (Henseler et al., 2016).

Table 1: Outer model evaluation

Code of constructs/variables	Outer loadings	Cronbach's Alpha	Composite Reliability	AVE
<b>Dreaming stage</b>		0.888	0.892	0.748
DREAM1	0.842			
DREAM2	0.883			
DREAM3	0.895			
DREAM4	0.838			
<b>Experiencing stage</b>		0.771	0.785	0.596
EXPER1	0.784			
EXPER2	0.871			
EXPER3	0.735			
EXPER4	0.687			
<b>Sharing stage</b>		0.847	0.857	0.695

SHARE1	0.658			
SHARE2	0.892			
SHARE3	0.909			
SHARE4	0.851			
<b>Emotions</b>		0.935	0.936	0.838
EMOT1	0.911			
EMOT2	0.910			
EMOT3	0.908			
EMOT4	0.931			

The values presented in Table 1 indicate satisfactory levels of all metric attributes (Hair et al., 2019). The outer loadings are all above 0.6. Composite reliability (CR) values indicate good reliability of the reflective constructs, because are all greater than the threshold of 0.7 (Sarstedt et al., 2014). The Cronbach's alpha values surpass 0.7 and therefore internal consistency is satisfactory. The average variance extracted (AVE) surpasses the recommended minimum value of 0.5.

Table 2 presents the assessment of discriminant validity using the Heterotrait-Monotrait ratio (HTMT).

Table 2. Heterotrait-Monotrait ratio

	Dreaming stage	Emotion	Experience stage	Sharing stage
Dreaming stage				
Emotion	0.456			
Experience stage	0.659	0.532		
Sharing stage	0.410	0.408	0.705	

The Heterotrait-Monotrait ratio (HTMT) ranges from 0.410 to 0.705; therefore, the model has achieved discriminant validity. These findings affirm that the study's measurement model has adequate convergent and discriminant validity.

## 4.2. TESTING HYPOTHESES

Table 3 presents the findings of the study model, featuring the estimated path coefficients, standard deviations, t-values, effect sizes ( $f^2$ ), p-values, and confident intervals.

Table 3. Structural model assessment

		$\beta$	SD	t-value	Effect size	p-value	Supported
<b>H1</b>	Dreaming stage → Emotions	0.235	0.081	2.868	0.051	0.004	✓
<b>H2</b>	Experiencing stage → Emotions	0.246	0.104	2.335	0.043	0.020	✓
<b>H3</b>	Sharing stage → Emotions	0.153	0.079	1.891	0.021	0.059	x

The results of the structural model show that the construct Dreaming stage ( $\beta=0.235$ ;  $p<0.05$ ) has a significant and positive effect on Emotions. Therefore, H1 is supported.

The construct Experiencing stage ( $\beta=0.246$ ;  $p<0.05$ ) has a significant and positive effect on Emotions, confirming hypothesis H2.

The construct Sharing stage ( $\beta=0.153$ ;  $p>0.05$ ) has a non-significant effect on Emotions; thus, H3 is not supported.

The coefficient of determination ( $R^2$ ) indicates that the Dreaming stage, Experiencing stage, and Sharing stage explain 26.2% of the variable Emotions.

The PLSpredict was conducted to test the predictive relevance ( $Q^2_{\text{predict}}$ ) of the research model. The  $Q^2$  values indicate that the model's predictive relevance is acceptable, where the value for Emotion is 0.221, thus greater than 0.

## 5. DISCUSSION AND CONCLUSIONS

The study underscores the significance of the Dreaming and Experiencing stages in influencing users' emotions within the use of social media for travel stages. These findings suggest that businesses and organizations should prioritize initiatives that cater to these stages to positively influence user emotions. Strategies such as immersive storytelling, experiential marketing, and personalized experiences can be employed to engage users during the dreaming and experiencing phases, thus fostering positive emotional responses. Similar to Prasetya et al. (2021) and Čuić Tanković & Vidović (2023), Instagram can influence the travel process by inspiring and providing entertaining travel-related content. According to Chung and Koo (2015), information reliability has a significant effect on pleasure.

Moreover, while the Sharing stage did not show a significant effect on emotions in the study, it still holds importance in the overall user journey. Businesses and organizations operating in the relevant domain should not overlook this stage but rather focus on optimizing it to ensure seamless transitions from experiencing to sharing. This may involve enhancing user interface design, simplifying sharing processes, and incentivizing user-generated content creation to facilitate smoother transitions and enhance overall user satisfaction.

Additionally, the study emphasizes the pivotal role of emotions in shaping user perceptions and behaviours. Businesses and organizations should prioritize initiatives that aim to evoke positive emotions among users throughout their interactions with the platform. This could involve incorporating elements of delight, surprise, and joy into the user experience, leveraging gamification techniques, and fostering a sense of belonging and community among users. Developers and marketers should collaborate to create user-centric experiences that align with the key findings of the study. By focusing on enhancing user emotions, optimizing the sharing stage, and prioritizing initiatives that cater to the dreaming and experiencing phases, businesses can cultivate more engaging and satisfying user experiences, ultimately driving adoption and usage of their platforms.

It is important, however, to acknowledge the limitations of the study, such as its focus on specific constructs and the potential gap between intention and actual behaviour. A notable limitation is the small sample size, which could limit the generalizability of the results. A larger sample would provide more robust data, allowing for greater confidence in the results and their transferability to a wider population. In addition, the study was based on a purposive sample, which may lead to bias due to the non-random selection of participants. This sampling method may result in a sample that is not representative of the wider user population and may skew the results. Future research should aim to address these limitations by exploring a broader range of

factors and incorporating measures of real-world behaviour. Additionally, conducting cross-platform comparisons and employing mixed-methods approaches can provide further insights into users' decision-making processes and behaviours in technology adoption contexts.

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## **COMPARISON OF AI AND HUMAN AGENT INTERACTION IN PURCHASING DECISION-MAKING PROCESS – PERCEPTION OF CROATIAN CUSTOMERS**

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### **ABSTRACT**

*Interaction with customers in the purchasing decision-making process has been modernized with the development of digital technologies. In traditional environment, the service providers played a key role in interacting with the customer. Still in the digital age, this role is increasingly being taken over by a virtual assistant (chatbot), a service provider based on artificial intelligence. Customers' opinions vary and depend on the content of the message they expect when interacting with the service provider and today this interaction can take place through contact with a physical person (human agent) and/or a chatbot.*

*Desk research was conducted in order to collect secondary data needed for the creation of a theoretical overview of customer perception through interaction in the purchasing decision-making process, and a conceptual research model was defined based on this. To collect primary data, quantitative descriptive research was conducted to gain insight into customer perception resulting from the interaction between the human agent and the chatbot. The analysis of variance (ANOVA) method is used to compare the dependent variable (customer perception) between the two types of service agents, considering the independent variables.*

*The contribution of this research is the identification of weaknesses arising from the interaction in the purchasing decision-making process, considering the two mentioned types of service providers separately. Based on the identified weaknesses, interpreted through independent variables, recommendations will be provided to improve the interaction with customers in both cases.*

**KEYWORDS:** service provider, human agent interaction, chatbot, purchasing decision-making process, customer perception, customer satisfaction

## **USPOREDBA INTERAKCIJE POTPOMOŠNE UMJETNOM INTELIGENCIJOM I KONTAKTOM S LJUDSKIM AGENTOM U PROCESU DONOŠENJA ODLUKE O KUPNJI - PERCEPCIJA KUPACA U HRVATSKOJ**

### **SAŽETAK**

*Interakcija s kupcima u procesu donošenja odluke o kupnji modernizirala se s razvojem digitalnih tehnologija. U tradicionalnom okruženju pružatelji usluga imali su ključnu ulogu u interakciji s kupcem. No u digitalno doba tu ulogu sve više preuzima virtualni asistent (chatbot), pružatelj usluga temeljen na umjetnoj inteligenciji. Mišljenja kupaca su različita i variraju ovisno o sadržaju poruke koji očekuju primiti kroz interakciju s pružateljem usluge, a danas se ta interakcija može odvijati kroz kontakt s fizičkom osobom (ljudskim agentom) i/ili chatbotom.*

*Istraživanjem za stolom prikupljeni su sekundarni podaci potrebni za kreiranje teorijskog pregled o percepciji kupaca interakcijom u kupoprodajnom procesu te je na temelju toga definiran konceptualni model istraživanja. U svrhu prikupljanja primarnih podataka provedeno je kvantitativno opisno istraživanje kako bi se dobio uvid u percepciju kupaca proizašlu iz interakcije s pružateljem usluge kroz kontakt s ljudskim agentom i chatbotom. Metodom analize varijance (ANOVA) usporedit će se zavisna varijabla (percepcija kupaca) između dva tipa pružanja usluge, uzimajući u obzir nezavisne varijable.*

*Doprinos ovog istraživanja ogleda se u identifikaciji slabosti proizašlih iz interakcije u procesu donošenja odluke o kupnji, promatrajući odvojeno dva spomenuta tipa pružatelja usluge. Temeljem identificiranih slabosti, interpretiranih kroz nezavisne varijable, pružit će se preporuke za poboljšanje interakcije s kupcima u oba slučaja.*

**KLJUČNE RIJEČI:** pružatelj usluge, kontakt s fizičkom osobom, chatbot, proces donošenja odluke o kupnji, percepcija kupaca, zadovoljstvo kupca

### **1. INTRODUCTION**

In the traditional business environment, the interaction between customers and companies usually takes place face-to-face. As telephony, television, and the first web services emerged, novel methods of information exchange or mentioned interaction were implemented [Kira et al., 2009]. This interaction involved two actors: the customer and the human agent. A human agent was responsible for communicating with customers, either in person or through various channels. Its tasks included providing information about products or services, as well as helping customers with the selection of appropriate products or services and making a purchase decision [Hoyer et al., 2020; Song et al., 2022]. In addition to acting as a service agent, the human agent developed a relationship with customers, showed emotion and empathy, and encouraged customers' purchasing decisions [Shmueli-Scheuer et al., 2018; Aattouri et al., 2023].

Nowadays, companies often streamline their business processes, allowing customers to interact with virtual agents as a substitute for the services of a human agent. With the advent of advanced digital technologies, especially artificial intelligence, digital entities have been created that take on the role of intermediaries in interaction. These digital entities represent virtual agents created by artificial intelligence, and the most popular is chatbot. A chatbot is an autonomous, artificial intelligence-based computer program that mimics the communication process with a human, either in written or verbal form, by relying on predefined, automated, repetitive and standardized phrases [Schanke et al., 2021]. Their role goes beyond the traditional framework and enables interaction with customers on new levels. Chatbots can provide information, analyze data and respond to customers' needs more quickly and efficiently. In addition, their presence is not limited to a specific time or place, which enables continuous support and interaction with customers [Sun et al., 2023].

Given the perceived shortcomings of interacting with a chatbot identified in scientific literature, which includes a lack of humanity, empathy, and emotional sharing, numerous researchers have devoted themselves to researching customer satisfaction with interacting with a chatbot versus a human agent [Shmueli-Scheuer et al., 2018; Aattouri et al., 2023]. Previous literature has shown that adding humanity (virtual traits) to a chatbot increases customer satisfaction [Rapp et al., 2023]. The literature lacks sufficient examination of customer satisfaction regarding the information (feedback) obtained during interaction with a chatbot compared to a human agent. Based on this, the main aim of this paper was to examine whether customers are satisfied with interaction with the chatbot compared to human agents. The quality of the obtained information can be assessed through four variables mentioned in the paper written by Ruan & Mezei [2022]: perceived information quality, perceived waiting time, pleasure, and arousal [Ruan & Mezei, 2022]. These variables represent the basis of the research conceptual model for the examination of customer perception of their (dis)satisfaction with interaction with the mentioned types of service providers: chatbot and human agent.

The paper comprises seven chapters, with the first one being the introduction. This section defines relevant points related to the research and the paper's structure. In the second chapter, the research methodology is elaborated. The third chapter provides an overview of previous research, emphasizing relevant findings in the research field. Research results are presented in the fifth chapter, while the sixth chapter includes discussion questions according to research limitations. The overall understanding of the research is summarized in the conclusion.

## **2. LITERATURE REVIEW**

A literature review was based on secondary data obtained through desk research, from a total of 31 papers that were taken into consideration. According to that data, the purchasing decision-making process is one of the key processes in the interaction with the customer, as the customer receives relevant information to make a purchase decision [Aattouri et al., 2023]. The central figures in this process were the potential customer and the human agent (seller). Through their presence and active participation, human agents aim to provide the customer with essential information about products and services. However, with the advent of digital technologies, the landscape of the purchase decision-making process is evolving. In a digital environment, customers demand immediate, real-time access to comprehensive, high-quality information [Krishnan et al., 2021]. Simultaneously, they seek clarity regarding their interests. This shift necessitates adjustments in how businesses engage with customers during the decision-making process. Understanding these dynamics empowers businesses to meet customer expectations

effectively and create positive experiences. Artificial intelligence (AI) – powered by computer agents, including chatbots, actively engage with customers in today's digital era [Song et al., 2022]. These AI-powered digital entities facilitate conversations, correspondence, negotiations, and communication with customers [Shreekumar et al., 2020; Bouras et al., 2024]. They are used in different industries, and their role is to provide 24/7 customer support, quick problem-solving, or personalized interaction with customers [Bouras et al., 2023; Bouras et al., 2024]. As a result, daily tasks typically handled by human agents are circumvented. Using chatbots provides opportunities to reduce customer waiting times, improve efficiency and minimize costs. But some drawbacks have also been identified. The negative impact on customer experiences is reflected in problems such as a lack of knowledge of IT systems, the inability to correctly answer individualized customer questions, and more [Sun et al., 2023]. The question arises whether customers are satisfied with the chatbot service and the information they receive back in the buying and selling process. Some scientists believe that there should be an optimal balance in the use of virtual and human agents taking into account the requirements and preferences of customers [Al-Araj et al., 2022].

There are several studies in which the satisfaction of interacting with a chatbot or with a human agent was researched. Zhou et al., [2023] found in their experimental study that the expected quality of customer communication with chatbots was lower than with human agents. The problem was observed in the attention the chatbot paid to the customer during the interaction and the lack of empathy. As some researchers mentioned, adding an emotional dimension and empathy to the chatbot influences an increase in customer satisfaction and service efficiency [Aattouri et al., 2023]. Analysis of customer behavior and interaction with them indicates that emotional responses enhance the quality of dialogue and contribute to customer satisfaction. Additionally, expressing emotion by simply adding an emotional confirmation at the beginning of the response has been demonstrated to contribute to positive customer opinion and customer experience [Shmueli-Scheuer et al., 2018; Söderlund et al., 2022]. But, the challenge in communication with a chatbot is humanity [Rapp et al., 2023]. Some of the human factors that are proposed to be incorporated into the interaction with the chatbot are the understanding ability, the reasoning ability, the memory ability, the emotional ability and the ability to act [Rapp et al., 2023]. Crucial moments for a chatbot to successfully replace a human agent are: understanding the message it receives, drawing conclusions based on the received message, remembering past interactions, recognizing the customers' emotions and empathizing with customers, and at the end fulfilling his/her requests. Despite potential drawbacks, there are positive aspects to the influence of chatbots on customers. Notably, studies indicate that AI agents exhibit unbiased intentions when providing products or services to customers [Garvey et al., 2023].

Based on the literature review, it is clear that scientific papers address customer satisfaction in chatbot interactions and propose ways to enhance their effectiveness. However, none of the analyzed research papers specifically examine whether customers are satisfied with the feedback they receive during interactions with chatbots. It is essential to separately assess overall satisfaction with the interaction process and satisfaction with the results and feedback based on customer requests. Therefore, this paper fills the research gap observed from conducted desk research. Based on it, the main goal of the paper, as well as the conducted empirical research, was set.

### 3. METHODOLOGY

The main aim of this paper was to examine whether customers are satisfied with the feedback received from the chatbot compared to the feedback they receive from human agents. According to the aim two research was conducted: desk research and quantitative, descriptive research. The desk research entailed gathering and summarizing secondary data from various sources. Conducted desk research facilitated, the establishment of the theoretical background and the development of a questionnaire as a research instrument for collecting primary data. As a part of the research, a search was conducted in the Web of Science (WoS) platform and Scopus databases with the search query ("chatbot assistant" OR "sales assistant" OR "human agent") AND ("customer satisfaction"). The search was carried out by topic and there were no additional criteria related to the total number of papers available on this topic. According to a search query in the Scopus database, 29 papers were available, while 7 papers were available on the Web of Science platform. Of the total of 36 papers, 5 duplicate papers were identified. Finally, a total of 31 papers were included in the analysis to present the theoretical background of the research topic. Furthermore, the most pertinent paper in the research field was identified and selected to provide a conceptual research model for the development of a measuring instrument, a questionnaire. It is a paper written by Ruan and Mezei, published in 2022, entitled "When do AI chatbots lead to higher customer satisfaction than human staff in online shopping assistance?". The research model proposed in the referenced paper played a crucial role in shaping the questionnaire by informing the creation of its components (questions).

The questionnaire, created in Google Forms survey administration software, included a total of 12 questions, from which 2 were related to demographic characteristics of respondents and 10 of them covered statements measured with a Likert scale to determine the respondents' perception of the defined variables. The questionnaire was distributed via social media and e-mail, so a non-probability sample (convenience sample) was used. Primary data was collected by snowballing method, by sending e-mails to acquaintances and sharing on social media with friends. The authors of the paper assessed the reliability and validity of the measurement instrument, examining each construct. Cronbach's alpha for each construct was between 0.793 and 0.886, which is above the recommended value of 0.7 and indicates good reliability of the questionnaire. Convergent validity was acceptable, i.e. the average variance extracted (AVE) value of the constructs was between 0.670 and 0.899, above the acceptable value of 0.5, and the loading of each particle was above the limit of 0.7.

The hypotheses defined in this research are:

H<sub>0</sub>: There are no significant differences in customer interaction between human agents and chatbots.

H<sub>1</sub>: There are significant differences in customer interaction between human agents and chatbots.

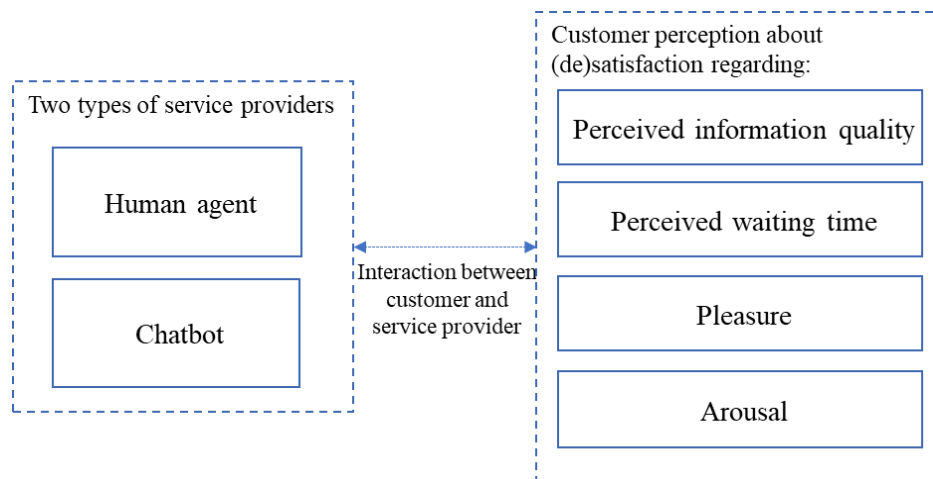
The second phase of the study was focused on quantitative, descriptive research. The primary data was gathered through a questionnaire and analyzed using the analysis of variance (ANOVA) method. Additionally, the Kruskal-Wallis test was applied for the analysis due to the small sample of data for individual variables in the groups and the ordinal nature of the data. The results analysis involved comparing customer satisfaction, as a dependent variable, between two different types of service providers while considering the independent variables (Perceived quality of information, Perceived waiting time for feedback, Pleasure derived from the interaction, Arousal derived from the interaction).

#### 4. CONCEPTUAL RESEARCH MODEL

An effective interaction process between a company and its customers establishes an interaction between them, where the service provider engaged by the company plays a crucial role as an intermediary in building customer relationships. By collecting relevant information, the company can shape customer perception, which is essential for creating and fostering customer loyalty, satisfaction, and brand commitment [Malhotra et al., 2013]. The research model, presented in Figure 1, is based on two types of service providers: a human agent and a chatbot that interacts with the customer and creates their perception [Ruan & Mezei, 2022]. According to the literature, customer perception consists of four independent variables that synergistically influence the emergence of customer (dis)satisfaction and they are [Ruan & Mezei, 2022]:

1. Perceived information quality – a cognitive dimension that allows customers to assess sub-variables Completeness of information, Accuracy of information, Credibility of information, Significance of information, Timeliness of information, Quantity of information;
2. Perceived waiting time – a cognitive dimension by which customers define the duration of waiting for feedback, whether it's reasonable, expected or acceptable;
3. Pleasure – an affective dimension that reflects the positive emotions customers experience during their interaction with a service provider and presents unhappy or happy feelings of the customer; and
4. Arousal – an affective dimension that customers use to express their emotions resulting from their interaction with the service provider and present relaxed/calm or stimulated/excited feelings of the customer [Ruan & Mezei, 2022].

Figure 1. Conceptual research model



Source: Authors according to [Ruan & Mezei, 2022]

According to Figure 1, the primary goal of this research model is to characterize the extent of customer (dis)satisfaction in interaction with chatbot and human agents [Ruan & Mezei, 2022]. The reason lies in customer satisfaction which is a pivotal factor that can significantly influence their purchase decision [Intyas & Primyastanto, 2020]. The presented conceptual model shows two service providers and the perception of customer satisfaction with the actions in the interaction as well as their satisfaction with the outcomes of the interaction is reexamined.

## 5. RESULTS

Out of the 128 participants who took part in the questionnaire, 100 of them provided complete answers to all the questions. The statistical analysis presented below is based on their responses. 64% of respondents were women and 36% were men. The respondents were predominantly a younger population. 45% of them were between the ages of 25 and 34. Respondents between 35 and 44 years old followed with 25% and next were respondents aged 15 to 24 (13%). A slightly smaller percentage of respondents who filled out the questionnaire were between the ages of 45 and 54 (9%) and 5% of respondents were between 55 and 64 years old, while the smallest distribution of answers provided respondents over 65 years, only 3% of the sample.

According to the analysis of variance (ANOVA), for the variable *Perceived quality of information*, a statistically significant difference was found between the analyzed service providers with a *P-value* of 0.01609. For the variable *Perceived waiting time for feedback*, a statistically significant difference between the observed groups was determined, and the *P-value* is 0.01518 and is less than the *Alpha value*. A statistically significant difference between the observed groups was also determined for the variable *Pleasure*, with a *P-value* of 0,02699. From the results, it can be concluded that the *P-value* is less than Alpha (the value is set to 0.05) in analyzed variables, while the *F value* is greater than the *F crit value*. This indicates statistically significant differences between human agents and chatbots in interaction with customers. The variable *Arousal* with a *P-value* of 0.91110 achieves a non-significant difference between the observed groups, i.e. the *P-value* is greater than the *Alpha value*.

Observing together all the independent variables that influence customer satisfaction with the services received from the two types of providers, a statistically significant difference was confirmed between the human agent and the chatbot, with a *P-value* of 0.01299 (Table 1).

Table 1. Analysis of variance – customer satisfaction in interaction with human agent and chatbot

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
<b>Between Groups</b>	0,527439	1	0,527439	6,542391	0,012992	3,995887
<b>Within Groups</b>	4,998359	62	0,080619			
<b>Total</b>	5,525798	63				

Source: Authors

By analyzing the results obtained by the Kruskal-Wallis test, it is determined that there are differences in the variables between the observed groups (human agent and chatbot) confirming the results obtained by the analysis of variance (ANOVA) can be confirmed. This indicates that there are statistically significant differences in the variables *Perceived information quality*, *Perceived waiting time* and *Pleasure* based on analyzed results. The values obtained by the Kruskal-Wallis test, for the variable *Perceived information quality* is  $H=14.14$ , for the variable *Perceived waiting time*  $H=3.86$ , for the variable *Pleasure*  $H=3.86$ .

## 6. DISCUSSION

Customers exhibit greater satisfaction when interacting with chatbots in the quest for information about product functionality, whereas they still prefer human agents for transferring experiences [Ruan & Mezei, 2022]. Consequently, chatbots enhance customer satisfaction by reducing *Perceived waiting time* [Ruan & Mezei, 2022], as evidenced by this research. When service agents are requested to transfer experiences or provide additional product information, customers report higher satisfaction with the *Perceived quality of information* and *Pleasure* [Ruan & Mezei, 2022; Shmueli-Scheuer et al., 2018], while the *Perceived waiting time* remains similar for both types of agents. The results of this study verify these findings.

No significant difference in customer satisfaction between the two types of service providers was observed concerning the variable *Arousal*. Findings from existing literature have shown that customers are more satisfied when interacting with human agents precisely because of the emotional character of the interaction, which contributes to the quality of the dialogue (*Perceived quality of information*) [Rapp et al., 2023], while chatbots are better because of the impartial influence in the interaction (*Pleasure*) [Shmueli-Scheuer et al., 2018].

For the variable *Perceived quality of information*, a statistically significant difference was found between the human agent and the chatbot. This variable required a deeper analysis because it included six sub-variables, however, the variable *Perceived quality of information*, as a main variable, is analyzed taking into account all sub-variables together. With the first sub-variable *Completeness of information*, more respondents believe that a human agent provides more complete information. It is interesting that when asked questions related to the sub-variable *Accuracy of information*, the respondents confirmed that they believe in the accuracy of the information provided by the human agent, even though the literature states that human agents are biased in providing service as well as trust in the accuracy of the information they provide. In the case of chatbots, the respondents have a little more doubt about the accuracy of the information. Analyzing the data for the sub-variable *Credibility of information*, respondents give a slight advantage in agreeing with the statements that a human agent provides credible, true and reliable information compared to a chatbot. The same applies to the analysis of the sub-variable *Significance of information*. As for the sub-variable *Timeliness of information*, the respondents believe that they receive sufficiently current, timely and up-to-date information without a time gap from both service providers. The analysis of the sub-variable *Quantity of information* revealed that the respondents get more information from the human agent, while the opinions about the chatbot are divided.

An analysis of the variable *Perceived waiting time* showed that the chatbot is still ahead here. Several respondents agreed that the waiting time in the interaction with the chatbot was appropriate and that the response arrived within the expected time.

Regarding the variable *Pleasure*, respondents confirmed that they felt happier, more satisfied and optimistic when interacting with a human agent. In interaction with the chatbot, the respondents' opinions were divided, i.e. a large number of respondents remained indifferent. This confirms findings from the literature that indicate the shortcomings of chatbots, namely humanity, empathy and emotional aspects. With a human agent, respondents feel more connected and better during the interaction.

Analyzing the variable *Arousal*, the respondents agreed that feelings such as nervousness or relaxation and boredom or excitement could not be distinguished in interaction with service



providers. The respondents agreed with these claims and there was no excitement in the interaction with human agents and chatbot.

The data analysis and its results have shown that a statistically significant difference exists in comparing customer interaction between the human agent and the chatbot, and thus the null hypothesis (H0) is rejected, i.e. the alternative hypothesis (H1) is accepted. Limitations in the paper were the small sample of respondents and the distribution of the sample among different groups of respondents (age and gender). So, the precision and the generalization of the results to the wider population can be questionable. However, this limitation can be minimized in future research when a broader sample can be taken into consideration. Additionally, in the desk research, a small number of relevant papers were included in the research field analysis, which points to a still not enough explored area in this context. So, in future research, it is necessary to expand the research query and search in other relevant databases to diminish this limitation.

## 7. CONCLUSION

This research tried to determine the difference between customer perception resulting from interaction with two types of service providers, human agents and chatbots in the purchasing decision-making process. For this purpose, a theoretical review of the literature was made and quantitative research was conducted using the analysis of variance (ANOVA) method and additionally, the Kruskal-Wallis test.

The advent of digital technologies has led to innovative ways of interacting with customers. In this context, human agents as service providers have been supplanted by chatbots. In the existing literature, customer satisfaction with chatbots is analyzed in general, while this paper provides a broader overview of customer perception of activities in the interaction process and the outcomes of that interaction. Observing human agents, their subjective influence on making a purchase decision is criticized, while the lack of humanity and emotional dimension of chatbots is emphasized.

Based on the respondent's perception of their satisfaction when interacting with service providers, it can be concluded that there are certain differences. Additionally, the respondents prefer a certain service provider depending on the observed variables. For example, when analyzing the variable's *Perceived quality of information* and *Pleasure*, respondents give priority to the human agent. Furthermore, according to the *Perceived waiting time for feedback*, respondents prefer chatbots. For the variable *Arousal*, it was determined that the respondents did not have a specific opinion and no statistically significant difference was found.

One of the key limitations that need to be addressed in future research is the small sample size and unequal distribution among demographic characteristics of respondents. Future research will include a comparison of the effectiveness of human agents and chatbots in customer service by observing the variables analyzed in the paper, which aims to compare the performance of two different service providers and assess their effectiveness and impact on the customer experience.

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## **THE INFLUENCE OF DIGITAL TECHNOLOGIES ON CONSUMER BEHAVIOR**

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### **ABSTRACT**

*Due to globalization, the variances among markets are increasingly diminishing, concurrently with consumers becoming more educated and demanding to satisfy their specific needs. The accelerated development of digital technologies significantly contributes to these phenomena. Adopting digital technologies has become the predominant mode of communication between manufacturers and consumers and a means of socialization within the population. The distinctions between the offline and digital worlds are becoming less discernible. Digital technologies are shaping the individual's world and encouraging specific behaviors. They facilitate the organization of both professional and private life, ranging from scheduling meetings to orchestrating activities in one's personal life. Simultaneously, they are employed for product searches, generating insights about them, and facilitating purchases. Thus, consumer digital behavior has emerged as a phenomenon that compels researchers and organizations to engage in ongoing investigation and adaptation to garner new insights or enhance their business processes. It can be asserted that digital technologies have become an indispensable daily practice for every individual, irrespective of their lifestyle or life choices. This study aims to identify consumer behaviors through the utilization of digital technologies. The research findings will elucidate the types of content most frequently accessed by the population through digital technology.*

**KEYWORDS:** digital technologies, consumer digital behavior, marketing.

## 1. INTRODUCTION

During the past decades, digital technology and the development of social media have significantly changed how consumers worldwide live, work, and alter their purchasing habits. Modern consumers value their time and prefer to make purchases when it suits them while comparing products to find the best quality-price ratio that meets their needs. The development of social media enables consumers to connect to virtual communities, facilitating the exchange of information. Naturally, increasingly educated and demanding consumers exert pressure on companies, urging them to keep up with these changes and improve the online consumer experience. Companies that quickly recognize and adapt to these changes are the ones that can become market leaders in the future. However, companies must be aware that, regardless of the characteristics of their market segment, their approach to consumers and communication with them cannot remain the same. They cannot rely solely on traditional communication channels that were primary in the past. The approach to communication must change, and companies must urgently embrace digital transformation, enabling them to better track environmental changes, engage in more effective communication with all stakeholders, and explore new ways to position their brand [Kostić-Stanković, et al., 2020].

## 2. PREVIOUS RESEARCH

The digital revolution has significantly influenced changes in consumer behavior and digital activity, resulting in a new individual culture where consumers are not just information users but collaborators, co-creators, and consumers themselves [Solomon, 2013]. Technological advancements have changed the flexibility of businesses and the speed of digital transformation [Deloitte, 2022]. The development of modern technology provides new opportunities for both consumers and businesses. To remain competitive, companies must acquire new technologies to interact with consumers. On the other hand, the digital environment offers individuals opportunities for personal and professional development, communication with family and friends, and daily access to various services. Therefore, companies make significant efforts in recognizing the desires and needs of individuals to adapt their business processes and services offered in the digital environment. Companies that fail to accept new ways of operating in the digital environment lose their competitive edge. Consumers in the digital environment differ significantly from “traditional” consumers primarily because the online environment offers the possibility of profiling consumers, creating consumer personas, and collecting consumer feedback through reviews and comments [Mahmutović, 2021]. Understanding the desires and needs of consumers in the online environment is essential, requiring the classification of their habits. Various studies explain consumers' digital habits by classifying users using different access technologies such as general media, the internet, social networks, and online shopping [Brandtzæg, 2010; Livingstone and Helsper, 2007]. Kalmus et al. [2011] identified two motives for using digital technologies: social networking, entertainment, and connection with work and information. The same authors propose that comprehensive classifications can be used to distinguish between internet, social, accessible, and informational services [Kalmus, et al., 2011]. Landers and Lounsbury [2006] classified the use of digital technologies according to social needs, leisure time, and academic internet usage. Van Deursen and van Dijk [2014] identified a comprehensive range of seven types of consumer activities: personal development, leisure time, commercial transactions, social interactions, information, news, and gaming. Researchers have gone further by connecting categories of digital technology usage with socio-demographic variables and lifestyle, finding that people with lower levels of education in the Netherlands use the internet more frequently and for longer hours per day than those with higher

education levels [Van Deursen and van Dijk, 2014]. Gender analysis shows that adult women are more likely to use internet communication tools [Zillien and Hargittai, 2009], confirmed by later studies of Lemenager et al., [2020] showing increased usage of digital technologies for browsing information and social networking by women during the COVID-19 pandemic. The same authors found that during the pandemic, the male population increased the volume of online gaming usage. Similarly, studies indicate that women are more likely to buy groceries online than men [Naseri and Elliott, 2011; Saphores and Xu, 2020] and that consumers with higher levels of education and income tend to have a greater inclination towards online food purchasing [Saphores & Xu, 2020]. Earlier studies among younger participants (adolescents) suggest that females (girls) spend more time on social media and smartphones, while males (boys) engage more in online gaming [Twenge & Martin, 2020]. Overall, males tend to use digital technologies more for online gaming [Kim et al., 2016], while the time spent on digital technologies among adolescents has doubled, with the average American teenager spending up to nine hours daily on digital technologies for entertainment purposes [Twenge, et al., 2019; Common Sense Media, 2015]. The World Health Organization acknowledges the potential of digital health technologies to improve health as a supplement to traditional health services [WHO, 2021]. Individuals with developed digital skills are more inclined to explore digital health measures to enhance their health and well-being [Hao et al., 2024]. Given the diversity in content consumption habits through digital technologies as indicated by various global studies, the authors decided to explore consumer behavior in Bosnia and Herzegovina with the following objectives: 1) To investigate content consumption on digital technologies; 2) To examine significant differences in content consumption on digital technologies, both in general and in frequency, with regard to gender of respondents.

### 3. METHODOLOGY

The research was conducted in April 2024 and included 280 participants from Bosnia and Herzegovina. It was an online survey, with the questionnaire prepared and hosted on the SurveyMonkey platform. The survey link was distributed via email and communication applications such as Viber and WhatsApp. The authors developed the questionnaire used in the research based on similar studies. It consisted of two parts. The first part focused on the online content participants search for and consume: communication (6 options), entertainment (6 options), daily organization (7 options), informing (4 options), hobbies/free time activities (3 options), transactions (7 options), and education (4 options). Participants had the option to add other content not provided by the authors. To indicate the frequency of searching and consuming specific content, participants were presented with the following categories: 0 - Never use; 1 - Several times a year; 2 - Several times a month; 3 - Several times a week; 4 - Several times a day. The second part included questions related to participant characteristics: gender, age, education, devices for internet access, time of day, and duration of internet usage during the day. Necessary conditions for participation in the research were internet usage, and an elimination question was included at the beginning of the questionnaire: “Do you use the Internet?”

- *Characteristics of the sample*

The sample comprised 210 (75.0%) women and 70 (25.0%) men. The age distribution is as follows: 72 (25.7%) are between 15 and 25 years old, 99 (35.4%) are between 26 and 40 years old, 99 (35.4%) are between 40 and 60 years old, and 10 (3.6%) respondents are over 60 years old. More than half of the respondents have completed higher education (163 respondents, 58.2%), 42 (15.0%) have completed further education, and 75 (26.8%) state that high school is

their highest level of education. By occupation, most of the sample consists of employed individuals (198, 70.7%), and 20.4% are students or pupils.

Analysis was conducted in two ways: investigating consumption habits of individual items (consumes, does not consume) and the frequency of consumption of individual items. To examine differences in the frequency of consumption of individual items, an aggregated result was formed by summing individual responses, where a higher score indicates more frequent consumption.

Data were statistically analyzed in IBM SPSS Statistics 25 (IBM SPSS Statistics for Windows, version 25.0. Armonk, NY: IBM Corp. Released 2017). Results are expressed as number (n) and percentage (%), and mean (M) and standard deviation (SD). The chi-square test and the t-test for independent samples were used to test the statistical significance of the differences. Level  $P=0.05$  was taken as the limit of statistical significance. P values that could not be expressed to three decimal places are shown as  $p<0.001$ .

#### 4. RESEARCH RESULTS

Nearly three-quarters of respondents, precisely 73.2%, indicate that they use the Internet on multiple devices, while 71 respondents (25.4%) state they do so only on a mobile device, and four respondents only on a computer. Most respondents cannot specify when they use the Internet the most, noting that they use it throughout the day (196 respondents, 70%). The others report their usage as follows: 11 (3.9%) in the morning, 20 (7.1%) in the afternoon, 50 (17.9%) in the evening until midnight, and 3 (1.1%) after midnight. When looking at the duration of Internet usage per day, the results are as follows: 53 (18.9%) use the Internet for up to half an hour, 101 (36.1%) use it for one to two hours, and 126 (45.0%) report using it for more than two hours.

- *Content consumption among respondents*

Analysis of specific content in the “Communication” category shows respondents consume the most available content through digital technologies. All respondents use free communication services such as WhatsApp, Viber, Messenger, etc., for sending/receiving messages, while the fewest respondents write comments on published articles or posts (Table 1).

In the “Entertainment” category, a more significant variation in the consumption of available content is observed. Almost all respondents use digital technologies to watch short video clips and music videos, listen to music, etc. More than half of them watch longer video content, post photos or short video clips on social networks, and watch sports content. Only a third of respondents use digital technologies to play video games or post their own content (Table 1).

In the “Daily Organization” category, the most commonly used applications and sites are those for weather forecasts, online dictionaries, spell checkers, calendars, to-do lists, business organizers, etc. The least used are applications for monitoring health status (Table 1).

For “Informing”, respondents most often use digital technologies to read or watch news to stay informed about important current events (Table 1). They also usually search for products they want to buy and read their reviews. They relatively frequently read reviews of restaurants, cafes, and clubs. The fewest respondents state that they search for jobs through digital services.

When considering activities respondents do as “Hobbies”, it was found that they most often use digital technologies for photography and photo editing, adding effects, cropping photos, etc., and least often for running their own blog or vlog (Table 1).



The results obtained for the options in the “Transactions” category show that the majority of the offered applications are used by between 50% and 80% of respondents. The most frequently used are applications for online shopping and applications for bill payments via the Internet or mobile banking. The least used are applications for online betting (Table 1).

The results show that in the “Education” category, respondents most often use digital technologies for reading online educational content, while they least often use them for attending online courses and education (Table 1).

Table 1. Consumption of specific content among respondents

	Does not consume		Consumes	
	n	%	n	%
<b>Communication</b>				
Services of sending/receiving messages via free communication services such as WhatsApp, Viber, Messenger, etc.	0	0.0	280	100.0
Video call services via free communication services such as WhatsApp, Viber, Messenger, etc.	26	9.3	254	90.7
SMS messages and calls via the service of the mobile operator.	23	8.2	257	91.8
Voice messages/phoning via free communication services such as WhatsApp, Viber, Messenger, etc.	17	6.1	263	93.9
Writing comments on published articles or posts.	180	64.3	100	35.7
E-mail communication.	21	7.5	259	92.5
<b>Entertainment</b>				
Watching short video content, videos, video clips, listening to music, etc.	5	1.8	275	98.2
Watching sports events - matches, competitions, races, etc.	115	41.1	165	58.9
Playing video games – online or offline	187	66.8	93	33.2
Watching longer video content - movies, TV series, documentaries.	62	22.1	218	77.9
Posting your own video content and clips.	184	65.7	96	34.3
Posting photos or short video content on social networks.	90	32.1	190	67.9
<b>Daily organization</b>				
Calendar, “to-do” list, business organizer etc.	78	27.9	202	72.1
Device and/or applications for monitoring exercise – fitness trackers, counters for steps, calories, heart rate, etc.	130	46.4	150	53.6
Applications for monitoring health status.	185	66.1	95	33.9
Recipes, ideas and tips for food preparation.	67	23.9	213	76.1
Dictionary, spell checker (e.g. Google Translate, Grammarly).	44	15.7	236	84.3
Lifestyle bloggers who, for example, travel or visit restaurants, deal with fashion, etc.	107	38.2	173	61.8
Weather apps and sites.	21	7.5	259	92.5
<b>Informing</b>				
Reading or watching the news, informing about important current events.	7	2.5	273	97.5
Searching and browsing for products you want to buy and reading reviews of those products.	25	8.9	255	91.1

	Does not consume		Consumes	
	n	%	n	%
Looking for jobs through digital services.	138	49.3	142	50.7
Reading reviews of restaurants, cafes, clubs you plan to go to (e.g., Trip Advisor).	68	24.3	212	75.7
<b>Hobbies</b>				
Photography and photo processing, adding effects, cutting photos, etc.	86	30.7	194	69.3
Reading electronic books or listening to audio books.	157	56.1	123	43.9
Running your own blog and vlog.	256	91.4	24	8.6
<b>Transactions</b>				
Applications for online betting.	253	90.4	27	9.6
Applications or sites for ordering ready-made food.	147	52.5	133	47.5
Applications for paying bills via the Internet or mobile banking.	67	23.9	213	76.1
Applications for booking accommodation (hotels, apartments, etc.).	96	34.3	184	65.7
Applications for buying travel tickets.	124	44.3	156	55.7
Applications for online purchase of tickets for cinema, concerts, matches, festivals, etc.	119	42.5	161	57.5
Applications for online shopping - buying various products via the Internet.	57	20.4	223	79.6
<b>Education</b>				
Reading educational online content.	29	10.4	251	89.6
Searching scientific databases.	81	28.9	199	71.1
Browsing different tutorials.	58	20.7	222	79.3
Attending online education and courses.	130	46.4	150	53.6

Source: Authors

Frequency analysis of consuming various types of content using digital technologies among respondents who highlighted consuming specific content shows that content related to everyday organization is consumed the most. In contrast, content related to hobbies is consumed the least (Table 2). Respondents using digital technology frequently use digital technologies to consume entertainment content and engage in online transactions.

Table 2. Ranking of content categories according to frequency of consumption

	M (SD)	Ranking
Communication	17.73 (3.27)	2
Entertainment	15.84 (4.16)	3
Daily organization	18.02 (4.79)	1
Informing	9.42 (2.66)	5
Hobbies	6.94 (2.05)	7
Transactions	14.13 (4.49)	4
Education	8.46 (2.78)	6

Source: Authors

- *Content consumption with regard to the gender of the respondents*

The analysis of the consumption of specific content on digital technologies with regard to the gender of the respondents shows significant differences in all categories except for the “Communication” category.

In the “Entertainment” category, it was found that more men use digital technologies to watch sports events and play video games. At the same time, women are more active in posting photos or short video content on social media. Significant differences were found in several subcategories in the “Daily Organization” category, all favoring women. Women use digital technologies more for task management, tracking exercises, searching for recipe ideas and cooking tips, following lifestyle bloggers, and as a dictionary and spell checker than men. In the “Informing” category, it was observed that more women use digital technologies to read or watch the news, search for products they want to buy, and read reviews about them.

Furthermore, photography and photo editing, adding effects, cropping photos, and similar activities are more commonly performed by women than men. Online betting applications are more prevalent among men, while online shopping applications are more popular among women. In the “Education” category, a significant difference was found in the option of searching scientific databases – it was noticed that this is practiced more by women.

Table 3. Consumption of certain contents with regard to the gender of the respondents

	Men		Women		p
	n	%	n	%	
<b>Communication</b>					
Services of sending/receiving messages via free communication services such as WhatsApp, Viber, Messenger, etc.	70	100.0	210	100.0	-
Video call services via free communication services such as WhatsApp, Viber, Messenger, etc.	63	90.0	191	91.0	0.812
SMS messages and calls via the service of the mobile operator.	65	92.9	192	91.4	0.706
Voice messages/phoning via free communication services such as WhatsApp, Viber, Messenger, etc.).	67	95.7	196	93.3	0.470
Writing comments on published articles or posts.	25	35.7	75	35.7	1.000
E-mail communication.	66	94.3	193	91.9	0.512
<b>Entertainment</b>					
Watching short video content, videos, video clips, listening to music, etc.	69	98.6	206	98.1	0.794
Watching sports events - matches, competitions, races, etc.	53	75.7	112	53.3	0.001
Playing video games – online or offline.	34	48.6	59	28.1	0.002
Watching longer video content - movies, TV series, documentaries.	58	82.9	160	76.2	0.245
Posting your own video content and clips.	21	30.0	75	35.7	0.383
Posting photos or short video content on social networks.	34	48.6	156	74.3	<0.001
<b>Daily organization</b>					
Calendar, “to-do” list, business organizer etc.	43	61.4	159	75.7	0.021

	Men		Women		p
	n	%	n	%	
Devices and/or applications for monitoring exercise – fitness trackers, counters for steps, calories, heart rate, etc.	29	41.4	121	57.6	0.019
Applications for monitoring health status.	23	32.9	72	34.3	0.827
Recipes, ideas and tips for food preparation.	27	38.6	186	88.6	<0.001
Dictionary, spell checker (e.g. Google Translate, Grammarly).	52	74.3	184	87.6	0.008
Lifestyle bloggers who, for example, travel or visit restaurants, deal with fashion, etc.	23	32.9	150	71.4	<0.001
Weather apps and sites.	64	91.4	195	92.9	0.694
<b>Informing</b>					
Reading or watching the news, informing about important current events.	66	94.3	207	98.6	0.047
Searching and browsing for products you want to buy and reading reviews of those products.	59	84.3	196	93.3	0.022
Looking for jobs through digital services.	39	55.7	103	49.0	0.334
Reading reviews of restaurants, cafes, clubs you plan to go to (e.g., Trip Advisor).	51	72.9	161	76.7	0.520
<b>Hobbies</b>					
Photography and photo processing, adding effects, cutting photos, etc.	40	57.1	154	73.3	0.011
Reading electronic books or listening to audio books.	30	42.9	93	44.3	0.835
Running your own blog and vlog.	6	8.6	18	8.6	1.000
<b>Transactions</b>					
Applications for online betting.	14	20.0	13	6.2	0.001
Applications or sites for ordering ready-made food.	32	45.7	101	48.1	0.730
Applications for paying bills via the Internet or mobile banking.	53	75.7	160	76.2	0.936
Applications for booking accommodation (hotels, apartments, etc.).	47	67.1	137	65.2	0.771
Applications for buying travel tickets.	39	55.7	117	55.7	1.000
Applications for online purchase of tickets for cinema, concerts, matches, festivals, etc.	37	52.9	124	59.0	0.364
Applications for online shopping - buying various products over the Internet.	48	68.6	175	83.3	0.008
<b>Education</b>					
Reading educational online content.	60	85.7	191	91.0	0.213
Searching scientific databases.	42	60.0	157	74.8	0.018
Browsing different tutorials.	53	75.7	169	80.5	0.395
Attending online education and courses.	33	47.1	117	55.7	0.213
*Chi-square test					

Source: Authors

Differences in the frequency of consumption of specific content categories based on gender were found for the “Communication” category, with women using these contents more

frequently (Table 4). For other categories, no significant differences were found between women and men. However, it is possible to observe that women use all kinds of content, except educational content, slightly more often. Both women and men usually consume educational content equally.

Table 4. The frequency of consumption of different types of content with regard to the gender of the respondents.

	Man	Woman	P*
	M (SD)	M (SD)	
Communication	15.65 (3.01)	18.45 (3.06)	<0.001
Entertainment	14.83 (3.13)	16.47 (4.67)	0.293
Daily organization	17.00 (2.58)	18.09 (4.91)	0.665
Informing	9.22 (2.31)	9.49 (2.79)	0.617
Hobbies	6.75 (.96)	7.00 (2.34)	0.841
Transactions	12.00 (1.63)	16.00 (5.42)	0.084
Education	8.46 (2.95)	8.46 (2.76)	0.995
* t test for independent samples			

Source: Authors

## 5. DISCUSSION

The results of the conducted research indicate the versatility in consumer behavior regarding the use of digital technologies across various categories, aligning with previous classifications and usage habits [Livingstone and Helsper, 2007; Brandtzæg, 2010; Van Deursen and van Dijk, 2014]. Furthermore, respondents utilize digital technologies for various activities throughout the day [Rodrigues et al., 2021], as confirmed by 70% of the participants in this study. This finding suggests that communication is continuous, and companies must always be “vigilant” to maintain a competitive advantage. An interesting point is the time spent on the internet, with 45% of the participants in this research stating that they spend more than two hours online. Through analysis of the offered content in individual categories, it can be concluded that respondents utilize all types of content. For instance, most respondents use digital technologies for online shopping and Internet banking, indicating a well-developed market and businesses or individuals who have digitalized their operations, enabling such consumer activities.

In contrast, the research results in the category of everyday organization indicate less frequent use of health status tracking applications (men 32.9%, women 34.2%), which may suggest the continued presence of traditional communication habits with healthcare providers and simultaneously presents an opportunity for the digitalization of the healthcare sector. Considering gender, the results of this research indicate higher activity among women in digital technologies across almost all categories, such as posting photos, tracking exercises, managing tasks, searching scientific databases, and online shopping. Men are more oriented towards online gambling, which aligns with the findings of previous research on gender-specific digital technology usage habits [Kim et al., 2014; Salmensalo et al., 2020].

## 6. CONCLUSION

The development of digital technologies provides the groundwork for transforming human lives. As individuals spend hours daily on digital platforms, continuous research into digital consumer behavior is essential for companies to adapt their business processes and maintain competitiveness. The research results are practical and expected. They indicate extensive use of digital technologies in terms of time and access to the devices: 70% of respondents use the internet throughout the day and 73.2% of participants use the internet across various devices. Consumers, whether searching for information, reading educational content, communicating with friends, or making purchases, compel companies to embrace new trends and rapidly develop their digital processes and services. Analysis of consumption across different categories via digital technology indicates that respondents primarily consume content related to everyday organization, while hobbies are least consumed. The most commonly used content in everyday organizations can be a solid foundation for computer and mobile device manufacturers to enhance their products and services. Results concerning content consumption via digital technologies by gender show that women lead in consuming more content across various categories. Women utilize digital technologies for task management, exercise tracking, recipe searching, following lifestyle bloggers, and social media communication. The findings also indicate higher online shopping consumption by the female population, consistent with previous research.

Conversely, men tend to consume digital technologies more for online gaming, betting, and watching short video clips, while similar preferences are observed between men and women in “Communication” content category. Focusing on the purposes for which people use the internet in association with psychographic characteristics should prompt consideration and examination of the specific needs of different user groups, which can provide valuable material for digital user segmentation by companies. Furthermore, considering the types of content consumed by women on digital technologies, companies should contemplate their future promotional programs. Devising promotional campaigns that appeal to women, emphasizing features such as online shopping, could confer a competitive advantage for the company.

It would be beneficial in future research to set longer timeframes for digital technology consumption, such as three, five, or more hours, to compare data with European or global trends regarding time spent on digital technologies (e.g., American teenagers spending over nine hours daily on the internet). The study compared respondents' attitudes by gender. In contrast, other respondent characteristics were not considered, warranting exploration of potential differences based on other characteristics in future research, primarily age but also gender and age combinations. Moreover, increasing the sample size to investigate consumer digital behavior further is necessary to draw more valuable conclusions.

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## **ODREDNICE ZADOVOLJSTVA I SUKREIRANJA VRIJEDNOSTI PUTEM PLATFORMI EKONOMIJE DIJELJENJA: ISTRAŽIVANJE STAVOVA GENERACIJE Z**

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### **SAŽETAK**

*Brojne inovacije u području informacijsko-komunikacijske tehnologije u proteklome desetljeću utjecale su na ubrzan razvoj ekonomije dijeljenja. Poslovni modeli ekonomije dijeljenja, utemeljeni na digitalnim platformama, okarakterizirani su kao trijadni, gdje posrednici, putem digitalnih kanala povezuju pružatelje i korisnike usluga te na taj način omogućuju zajedničko kreiranje vrijednosti. S obzirom na sve veću važnost koju mlađe generacije imaju u korištenju suvremenim tehnologijama svrha je ovoga rada istražiti ključne odrednice zadovoljstva i sukreiranja vrijednosti putem platformi ekonomije dijeljenja među pripadnicima generacije Z. Provedeno je empirijsko istraživanje metodom ispitivanja na uzorku od 483 pripadnika generacije Z, korisnika platformi ekonomije dijeljenja. U obradi podataka i testiranju hipoteza rabile su se univarijatne i multivarijatne statističke metode. Rezultati istraživanja pokazuju da osobno sudjelovanje, aktivno sudjelovanje te predanost platformama ekonomije dijeljenja statistički značajno utječu na zadovoljstvo korisnika, no informativno sudjelovanje u aktivnostima tih platformi nema statistički značajan utjecaj na zadovoljstvo korisnika. Rezultati istraživanja također sugeriraju da zadovoljstvo korisnika ima statistički značajan i pozitivan utjecaj na namjere sukreiranja vrijednosti. Ovim je radom moguće nadopuniti znanja iz područja ponašanja potrošača s posebnim naglaskom na segment mladih potrošača, odnosno generacije Z. Također razumijevanjem tih odrednica moguće je optimizirati digitalne marketinške strategije za poticanje sudjelovanja u aktivnostima ekonomije dijeljenja.*

**KLJUČNE RIJEČI:** osobno sudjelovanje, aktivno sudjelovanje, informativno sudjelovanje, predanost, zadovoljstvo, sukreiranje vrijednosti, generacija Z

# DETERMINANTS OF SATISFACTION AND VALUE CO-CREATION THROUGH SHARING ECONOMY PLATFORMS: EXPLORING THE ATTITUDES OF GENERATION Z

## ABSTRACT

*Numerous innovations in the field of information and communication technology in the past decade have influenced the accelerated development of the sharing economy. Business models of the sharing economy, based on digital platforms, are characterized as triadic, where intermediaries connect providers and users of services through digital channels and thus enable the value co-creation. Considering the increasing importance that younger generations have in the use of modern technologies, the purpose of this paper is to investigate the key determinants of satisfaction and value co-creation through sharing economy platforms among members of generation Z. Empirical research was conducted using a survey method on a sample of 483 members of generation Z, users of sharing economy platforms. Univariate and multivariate statistical methods were used in data processing and hypothesis testing. The research results show that attitudinal participation, actionable participation and commitment to sharing economy platforms have a statistically significant effect on user satisfaction, however informational participation in the activities of these platforms on customer satisfaction was found to be insignificant. The research results also suggest that customer satisfaction has a statistically significant and positive impact on value co-creation intentions. Within this study, it is possible to supplement knowledge in the field of consumer behavior with a special emphasis on the segment of young consumers, i.e., generation Z. Also, by understanding these determinants, it is possible to optimize digital marketing strategies to encourage participation in sharing economy activities.*

**KEY WORDS:** informational participation, actionable participation, attitudinal participation, commitment, satisfaction, value co-creation, generation Z

## 1. UVOD

Ekonomija dijeljenja, koja se sve više razvija u suvremenu društvu, temelji se na zajedničkoj uporabi različitih resursa putem digitalnih platformi. Predviđa se da će do 2025. godine prihod od usluga dijeljenja prijevoza i smještaja premašiti 335 milijardi USD [Casidy i sur., 2022]. Ekonomija dijeljenja odnosi se na „ekonomske aktivnosti koje uključuju dijeljenje nedovoljno korištene imovine putem internetske platforme“ [Huang i Kuo, 2020, str. 555). Kreiranje vrijednosti u ekonomiji dijeljenja postiže se putem digitalnih platformi na kojima korisnici kupuju, prodaju i razmjenjuju vlastita iskustva [Nadeem i Salo, 2023). Sve veći broj poslovnih subjekata koristi se poslovnim modelima ekonomije dijeljenja u kojima sudjelovanje korisnika postaje nužnost pri zajedničkome stvaranju vrijednosti [Shah i sur., 2021]. Sukreiranje vrijednosti predstavlja relativno novu premisu u teoriji uslužno dominantne logike, gdje potrošač u suradnji s organizacijom postaje aktivan sukreator vrijednosti proizvoda ili usluge [Vargo i Lusch, 2004; Prahalad i Ramaswamy, 2004]. Iako dosadašnja istraživanja pružaju uvide u tematiku sukreiranja vrijednosti u ekonomiji dijeljenja [Jiang i sur., 2019; Nadeem i sur.,

2020; Nadeem i sur., 2021; Casidy i sur., 2022; Nadeem i Salo, 2023], nedostaju istraživanja koja istovremeno istražuju odnos sudjelovanja korisnika, njihova zadovoljstva i namjera sukreiranja vrijednosti putem platformi ekonomije dijeljenja, osobito na razini Republike Hrvatske, te će stoga ovo istraživanje nastojati popuniti navedeni istraživački jaz.

S obzirom na sve veću važnost koju mlađe generacije imaju u korištenju suvremenim tehnologijama, svrha je ovoga rada istražiti ključne odrednice zadovoljstva i sukreiranja vrijednosti putem platformi ekonomije dijeljenja među pripadnicima generacije Z. Cilj je ovoga istraživanja utvrditi povezanost između informativnoga sudjelovanja, osobnoga sudjelovanja, aktivnoga sudjelovanja te predanosti platformama ekonomije dijeljenja i zadovoljstva korisnika istima. Također cilj istraživanja jest utvrditi u kojoj mjeri zadovoljstvo korisnika platformama ekonomije dijeljenja determinira namjere sukreiranja vrijednosti putem ovih platformi.

Rad je podijeljen u pet dijelova. Nakon uvoda u drugom je dijelu predstavljen teorijski okvir i formulirane su hipoteze istraživanja. U trećem dijelu objašnjena je metodologija istraživanja, nakon čega slijedi prikaz rezultata istraživanja. Posljednje poglavlje uključuje raspravu i sintezu cjelokupnoga rada.

## **2. TEORIJSKI OKVIR I POSTAVLJANJE HIPOTEZA**

U marketinškoj se literaturi koncept sudjelovanja odnosi na razinu komunikacije, interakcije, partnerstva i suradnje između korisnika i organizacije tijekom određene aktivnosti [Bazrkar, 2021]. Sudjelovanje korisnika u aktivnostima organizacije predstavlja skup informacijskih, bihevioralnih i emocionalnih čimbenika koji utječu na zajedničko kreiranje vrijednosti [Chen i Raab, 2014], čime se postiže veća razina zadovoljstva korisnika i povećava percepcija kvalitete usluge [Bazrkar, 2021]. Sudjelovanje korisnika u zajedničkome stvaranju vrijednosti obuhvaća tri ključne dimenzije [Guo i sur., 2021]: informativno sudjelovanje, aktivno sudjelovanje i osobno sudjelovanje. Informativno sudjelovanje definira se kao „stupanj stjecanja informacija i ispunjavanja općih interesa koje potrošač posjeduje u vezi s proizvodom ili uslugom“ [Nadeem i sur., 2021, str. 425]. Informativno sudjelovanje doprinosi procesu zajedničkoga oblikovanja usluge, a odražava se u traženju i dijeljenju informacija o proizvodu ili usluzi [Jiang i sur., 2019]. Aktivno sudjelovanje podrazumijeva razinu međusobne interakcije između korisnika platformi ekonomije dijeljenja te učestalost korisnika u aktivnostima istih, dok se osobnim sudjelovanjem ocjenjuju performanse, a u kontekstu iznošenja pozitivnih ili negativnih stavova prema sudjelovanju u aktivnostima platformi ekonomije dijeljenja [Nadeem i sur., 2021]. Dosadašnjim je istraživanjima utvrđeno da informativno sudjelovanje, aktivno sudjelovanje i osobno sudjelovanje predstavljaju važne pokazatelje zadovoljstva te sukreiranja vrijednosti [Jiang i sur., 2019; Bazrkar, 2021; Nadeem i sur., 2021; Zhao 2021], stoga se postavljaju sljedeće hipoteze:

H1: Informativno sudjelovanje je pozitivno i statistički značajno povezano sa zadovoljstvom korisnika platformi ekonomije dijeljenja.

H2: Aktivno sudjelovanje je pozitivno i statistički značajno povezano sa zadovoljstvom korisnika platformi ekonomije dijeljenja.

H3: Osobno sudjelovanje je pozitivno i statistički značajno povezano sa zadovoljstvom korisnika platformi ekonomije dijeljenja.

U kontekstu platformi ekonomije dijeljenja koncept predanosti mjeri se spremnošću korisnika da redovito sudjeluju i koriste platforme ekonomije dijeljenja [Nadeem i Al-Imamy, 2020]. Claffey i Brady [2019] naglašavaju da korisnici koji su skloniji aktivnom sudjelovanju u mrežnim zajednicama pokazuju višu razinu predanosti organizaciji i njezinoj mrežnoj zajednici. Dosadašnjim je istraživanjima dokazano da korisnici koji su predani redovito sudjeluju u aktivnostima platformi ekonomije dijeljenja te pokazuju veći stupanj zadovoljstva i lojalnosti prema njima [Nadeem i sur., 2020]. Štoviše, Hajli i suradnici [2017] dokazali su da veći stupanj predanosti korisnika mrežnih zajednica pozitivno utječe na zajedničko stvaranje vrijednosti. Stoga se postavlja sljedeća hipoteza:

H4: Predanost je pozitivno i statistički značajno povezana sa zadovoljstvom korisnika platformi ekonomije dijeljenja.

Zadovoljstvo predstavlja jedan od najvažnijih koncepata u marketinškoj literaturi, a odnosi se ukupan stav korisnika prema pružatelju proizvoda ili usluge [Nadeem i sur., 2020] ili korisnikov emocionalni odgovor koji proizlazi iz razlike između njegovih ili njezinih očekivanja i percepcija [Thaichon, 2015]. Ako proizvod ili usluga ispunjava očekivanja korisnika, zadovoljstvo korisnika utjecat će na njihovu namjeru da ih nastavi rabiti [Oliver, 1980]. Zadovoljstvo je korisnika veće kada su stvarna iskustva jednaka ili bolja od očekivanih iskustava. Za potrebe ovoga rada zadovoljstvo se definira kao „psihološko stanje ili ispunjenje koje proizlazi iz ukupnih iskustava potrošača, a ne iz samo ograničenoga broja transakcija na platformama ekonomije dijeljenja“ [Nadeem i Salo, 2023, str. 8].

Koncept sukreiranja vrijednosti podrazumijeva zajedničko kreiranje vrijednosti poslovnih subjekata i potrošača [Pralhad i Ramaswamy, 2004]. Vargo i Lusch [2004] navode da poslovni subjekti mogu samo razviti i ponuditi prijedlog vrijednosti za potrošače, a korisnici su ti koji određuju vrijednost proizvoda ili usluge, sudjeluju u njezinu kreiranju kroz proces sukreiranja te se vrijednost proizvoda ili usluge oblikuje u procesu zajedničkoga stvaranja vrijednosti. Poslovni subjekti kreiraju vrijednost angažiranjem potrošača, ohrabrivanjem da sudjeluju u zajedničkoj proizvodnji na osnovu odgovarajućih aktivnosti, oblikovanjem konteksta određenoga iskustva u kojemu potrošač sudjeluje, rješavanjem problema potrošača te njihovim uključivanjem u preuzimanje dijela posla i rizika zajedničkoga oblikovanja proizvoda [Pralhad, 2004]. U kontekstu ekonomije dijeljenja sukreiranje vrijednosti podrazumijeva proces suradnje u kojem i korisnici i pružatelji usluga putem platformi doprinose stvaranju vrijednosti jedni za druge [Nadeem i Salo, 2023]. Osobito je važno sudjelovanje drugih potrošača jer ono potiče aktivniju interakciju što omogućava platformama ekonomije dijeljenja poboljšanje pozitivnih interakcija i stvaranje veće vrijednosti za sve sudionike [Nadeem i sur., 2021]. Dosadašnja su istraživanja proučavala odnos zadovoljstva i sukreiranja vrijednosti. Itani i suradnici [2019] dokazali su da postoji pozitivna i značajna veza između zadovoljstva i sukreiranja vrijednosti. Također Nadeem i suradnici [2020] u svojem istraživanju potvrđuju pretpostavku da zadovoljstvo korisnika platformama ekonomije dijeljenja povećava njihove namjere zajedničkoga stvaranja vrijednosti. Sukladno prethodno navedenome postavljena je sljedeća hipoteza:

H5: Zadovoljstvo korisnika je pozitivno i statistički značajno povezano s namjerama sukreiranja vrijednosti putem platformi ekonomije dijeljenja.

U nastavku je objašnjena metodologija i prikazani su rezultati empirijskoga istraživanja.

### **3. METODOLOGIJA**

#### **3.1. GENERACIJA Z**

Kao rane usvojitelje tehnologije generaciju Z odlikuje visoki stupanj obrazovanja, inovativnost i kreativnost te interes za novim tehnologijama, kojima se koriste gotovo neprestano [Priporas i sur., 2017]. U bliskoj budućnosti generacija Z postat će najvažniji tržišni segment, stoga ponašanje te generacijske skupine predstavlja poseban predmet interesa marketinških stručnjaka [Vitezić and Perić, 2021]. Iako različite studije definiraju različite dobne granice u kontekstu određivanja pripadnosti pojedinoj generacijskoj skupini, većina znanstvenika slaže se da pripadnici generacije Z pripadaju dobnoj skupini rođenih između 1995. i 2010. godine [Fan i sur., 2023; Monaco, 2018; Pham i sur., 2021].

#### **3.2. MJERNI INSTRUMENT**

Anketni upitnik strukturiran je u tri dijela. U prvome, uvodnom dijelu postavljena su eliminacijska pitanja koja su se odnosila na pripadnost generacijskoj skupini Z te prethodno iskustvo u korištenju platformama ekonomije dijeljenja tijekom godine dana. Drugi se dio anketnoga upitnika sastojao od šest skupina strukturiranih pitanja. Prva su se tri seta pitanja odnosila na istraživanje stavova ispitanika o informativnome sudjelovanju, aktivnome sudjelovanju i osobnome sudjelovanju u aktivnostima platformi ekonomije dijeljenja. Mjerni je instrument prilagođen iz prethodnih istraživanja autora Nadeem i suradnika [2021]. Četvrtim i petim setom pitanja mjereni su stavovi ispitanika o predanosti platformama ekonomije dijeljenja i zadovoljstvu istima. Tvrdnje su preuzete iz prethodnih istraživanja autora Nadeem i Al-Imamy [2020]. Šestom skupinom pitanja obuhvaćeni su stavovi ispitanika o namjerama sukreiranja vrijednosti putem platformi ekonomije dijeljenja. Taj je set pitanja preuzet iz prethodnih istraživanja autora Nadeem i suradnika [2020]. Ispitanici su ocjenjivali tvrdnje pomoću Likertove ljestvice od 5 stupnjeva (od 1 – u potpunosti se ne slažem; do 5 – u potpunosti se slažem). Posljednji se, treći dio anketnoga upitnika odnosi na sociodemografske podatke ispitanika.

#### **3.3. UZORAK I PRIKUPLJANJE PODATAKA**

Za potrebe ovoga rada provedeno je empirijsko istraživanje primjenom metode ispitivanja putem mrežnoga strukturiranoga anketnog upitnika. Istraživanje je provedeno u razdoblju od ožujka do svibnja 2023. godine u Hrvatskoj putem uzorka snježne grude. Primjena metode snježne grude činila se opravdana i primjerena, s obzirom na to da je ciljana populacija mala i jedinstvena [Hair i sur., 2006]. Naime, u Republici Hrvatskoj upotreba platformi ekonomije dijeljenja još je u fazi razvoja [Dumančić, Čeh Časni, 2021], te se stoga pretpostavilo da se manji broj ispitanika koristi platformama ekonomije dijeljenja. U cilju identifikacije sudionika, pripadnika generacije Z, od ispitanika se tražilo da navedu pripadnost određenoj dobnoj skupini. Također ispitanici su trebali zadovoljiti i kriterij da su se u posljednjih godinu dana koristili nekom od platformi ekonomije dijeljenja. Nakon identifikacije početnoga broja sudionika, koji udovoljavaju prethodno navedenim kriterijima, zamolilo ih se da iz vlastitoga kruga poznanika identificiraju dodatne ispitanike koji su voljni sudjelovati u istraživanju. Postavljena je poveznica na mrežnu anketu gdje su potencijalni sudionici mogli pokazati svoj interes za sudjelovanje u studiji te su pri tome trebali udovoljiti navedenim kriterijima istraživanja. Prikupljeno je ukupno 483 pravilne i u potpunosti ispunjene ankete.

#### 4. REZULTATI EMPRIJSKOGA ISTRAŽIVANJA

U nastavku su prikazani rezultati provedenoga istraživanja. U istraživanju je sudjelovalo 483 ispitanika, od kojih je 55,9 % ženskoga i 44,1 % muškoga spola. Najviše ispitanika pripada dobnoj skupini godišta od 2000. do 2004. (50,72 %), te dobnoj skupini godišta od 1995. do 1999. (39,75 %). Manji se broj ispitanika nalazi u dobnoj skupini godišta od 1990. do 1994. (7,87 %) i godišta od 2005. do 2009. (1,66 %). Prema stupnju obrazovanja najviše je ispitanika s visokoškolskim (57,76 %) obrazovanjem, nakon čega slijede ispitanici sa srednjoškolskim obrazovanjem (41,61 %), dok je samo 0,63 % ispitanika s osnovnoškolskim obrazovanjem. Većinu su ispitanika činili studenti (58,59 %) i zaposlene osobe (37,89 %), dok je samo 3,52 % nezaposlenih. Prosječni mjesečni prihod od 801 do 1300 eur ima 26,5 % ispitanika, 22,15 % ispitanika ima mjesečne prihode od 471 do 800 eur, dok 21,53 % ispitanika ima prosječni mjesečni prihod do 220 eur. Slijede ispitanici s osobnim prihodom od 221 do 470 eur (18,22 %), a samo 11,6 % ispitanika ima osobne prihode veće od 1300 eur.

Tablicom 1 prikazani su rezultati deskriptivne statističke analize i analize pouzdanosti konstrukata rabljenih za testiranje hipoteza.

Tablica 1. Rezultati deskriptivne statistike i analize pouzdanosti (N=483).

VARIJABLE	AS	SD	Cronbach alpha
<b>INFORMATIVNO SUDJELOVANJE</b>			0,871
1. Često pružam korisne informacije online drugim članovima na platformama ekonomije dijeljenja.	2,67	1,28	
2. Često ostavljam poruke i dajem odgovore online na platformama ekonomije dijeljenja.	2,61	1,26	
<b>AKTIVNO SUDJELOVANJE</b>			0,886
1. Aktivno sudjelujem online u raznim aktivnostima na platformama ekonomije dijeljenja.	2,45	1,26	
2. Provodim puno vremena online sudjelujući u aktivnostima na platformama ekonomije dijeljenja.	2,37	1,21	
<b>OSOBNOST SUDJELOVANJE</b>			0,867
1. Mislim da je sudjelovanje na platformi ekonomije dijeljenja koju sam koristio/la bilo dobro za mene.	3,12	1,19	
2. Mislim da je sudjelovanje na platformi ekonomije dijeljenja koju sam koristio/la bilo korisno.	3,29	1,23	
<b>PREDANOST</b>			0,916
1. Ponosan sam što sam korisnik platforme ekonomije dijeljenja koju sam koristio/la.	3,21	1,10	
2. Osjećam pripadnost platformi ekonomije dijeljenja koju sam koristio/la.	3,00	1,19	
3. Stalo mi je do dugoročnog uspjeha platforme ekonomije dijeljenja koju sam koristio/la.	3,13	1,14	
4. Vjeran/na sam platformi ekonomije dijeljenja koju sam koristio/la.	3,12	1,17	
<b>ZADOVOLJSTVO</b>			0,896
1. Sveukupno, zadovoljan/na sam platformom ekonomije dijeljenja koju sam koristio/la.	3,53	1,11	
2. Posljednje korištenje platforme ekonomije dijeljenja ispunilo je moja očekivanja.	3,59	1,15	
3. Platforma ekonomije dijeljenja koju sam koristio/la predstavlja idealnu verziju platforme ekonomije dijeljenja.	3,31	1,07	
<b>NAMJERA SUKREIRANJA VRIJEDNOSTI</b>			0,892

1. Spreman/na sam pružiti svoja iskustva i prijedloge kada moji prijatelji putem platforme ekonomije dijeljenja žele moj savjet o kupnji nečega s platforme ekonomije dijeljenja koju sam koristio/la.	3,54	1,17	
2. Spreman/na sam kupiti proizvode/usluge koje preporučuju moji prijatelji putem platforme ekonomije dijeljenja koju sam koristio/la.	3,51	1,10	
3. Razmotrit ću kupovna iskustva svojih prijatelja putem platformi ekonomije dijeljenja kada budem želio/la koristiti neku uslugu koju još nisam koristio/la.	3,57	1,14	

Izvor: rezultati istraživanja

Prosječne ocjene varijabli kreću se od 2,37 do 3,59. Najnižu prosječnu ocjenu ima varijabla „Provodim puno vremena online sudjelujući u aktivnostima na platformama ekonomije dijeljenja“, a najvišu varijabla „Posljednje korištenje platforme ekonomije dijeljenja ispunilo je moja očekivanja“. Ispitanici su najvećim prosječnim ocjenama ocijenili konstrukt „Zadovoljstvo“ (AS = 3,48; SD = 1,11) i konstrukt „Namjera sukreiranja vrijednosti“ (AS = 3,54; SD = 1,14). Ostali konstrukti također su dobili prosječne ocjene 3 i više osim konstrukta „Aktivno sudjelovanje“ (AS = 2,41; SD = 1,24). Vrijednosti koeficijenata Cronbach alpha prihvatljive su za sve konstrukte i kreću se od 0,867 do 0,916. Naime, sve su vrijednosti veće od 0,7 i ukazuju na visoku pouzdanost mjernoga instrumenta [Hair i sur., 2006].

Također provedena je korelacijska analiza kako bi se otkrila bilo kakva multikolinearnost među promatranim varijablama. Rezultati korelacijske analize prikazani su u Tablici 2.

Tablica 2. Korelacijska matrica.

VARIJABLE	INFORMATIVNO SUDJELOVANJE	AKTIVNO SUDJELOVANJE	OSOBNO SUDJELOVANJE	PREDANOST	ZADOVOLJSTVO
INFORMATIVNO SUDJELOVANJE	1				
AKTIVNO SUDJELOVANJE	0,798**	1			
OSOBNO SUDJELOVANJE	0,561**	0,564**	1		
PREDANOST	0,595**	0,608**	0,603**	1	
ZADOVOLJSTVO	0,454**	0,416**	0,643**	0,712**	1

\*\*Napomena: korelacija je značajna na razini  $p=0,01$ .

Izvor: rezultati istraživanja

Izračunati koeficijenti korelacije pokazuju da postoji pozitivna, statistički značajna korelacija među promatranim varijablama. Vrijednosti koeficijenata korelacije manje su od 0,80, što ukazuje na to da ne postoji problem multikolinearnosti [Bryman i Cramer, 2009].

Rezultati višestruke regresijske analize za varijable koje predviđaju zadovoljstvo korisnika prikazani su u Tablici 3.

Tablica 3. Višestruka regresijska analiza za varijable koje predviđaju „Zadovoljstvo“ korisnika.

<b>Pokazatelji</b>				
Koeficijent korelacije R	0,769			
Koeficijent determinacije R <sup>2</sup>	0,591			
Prilagođeni R <sup>2</sup>	0,588			
Standardna greška	1,948			
F omjer	172,971			
Sig.	0,000			
<b>Nezavisne varijable</b>	<b>b</b>	<b>Beta</b>	<b>t</b>	<b>Sig.</b>
Konstanta	2,818		9,250	0,000
INFORMATIVNO SUDJELOVANJE	0,063	0,050	0,986	0,325
AKTIVNO SUDJELOVANJE	-0,231	-0,178	-3,499	0,001*
OSOBNOST SUDJELOVANJE	0,502	0,376	9,640	0,000*
PREDANOST	0,416	0,564	13,880	0,000*

Napomena: zavisna varijabla – Zadovoljstvo; B – nestandardizirani koeficijent; Beta – standardizirani koeficijent; \* - signifikantnost na razini  $p < 0,01$ .

Izvor: rezultati istraživanja

Kako bi se utvrdilo može li se na temelju „Informativnoga sudjelovanja“, „Aktivnoga sudjelovanja“, „Osobnoga sudjelovanja“ i „Predanosti“ predvidjeti „Zadovoljstvo“ korisnika platformi ekonomije dijeljenja provedena je višestruka regresijska analiza. U promatranome regresijskom modelu utvrđeno je da kombinacija nezavisnih varijabli statistički značajno predviđa zavisnu varijablu ( $F=172,971$ ;  $p < 0,05$ ). Pri tom, „Aktivno sudjelovanje“ ( $\beta = -0,178$ ;  $p < 0,05$ ), „Osobno sudjelovanje“ ( $\beta = 0,376$ ;  $p < 0,05$ ) i „Predanost“ ( $\beta = 0,564$ ;  $p < 0,05$ ) objašnjavaju 59,1 % ( $R^2 = 0,591$ ) varijacije u „Zadovoljstvu“ korisnika platformi ekonomije dijeljenja. Osim toga „Informativno sudjelovanje“ ima vrlo mali pojedinačni utjecaj na „Zadovoljstvo“ korisnika platformi ekonomije dijeljenja, te on nije statistički značajan ( $\beta = 0,050$ ;  $p > 0,05$ ). Može se zaključiti da su hipoteze H2, H3 i H4 dokazane, dok je hipoteza H1 opovrgnuta.

U nastavku je provedena jednostavna regresijska analiza kako bi se istražio utjecaj „Zadovoljstva“ korisnika na „Namjere sukreiranja vrijednosti“ putem platformi ekonomije dijeljenja.

Tablica 4. Jednostavna regresijska analiza za varijablu predviđanja „Namjere sukreiranja vrijednosti“.

<b>Pokazatelji</b>				
Koeficijent korelacije R	0,767			
Koeficijent determinacije R <sup>2</sup>	0,589			
Prilagođeni R <sup>2</sup>	0,588			
Standardna greška	1,922			
F omjer	687,909			
Sig.	0,000			
<b>Nezavisna varijabla</b>	<b>b</b>	<b>Beta</b>	<b>t</b>	<b>Sig.</b>
Konstanta	2,382		7,293	0,000
ZADOVOLJSTVO	0,788	0,767	26,228	0,000*

Napomena: zavisna varijabla – Namjere sukreiranja vrijednosti; B – nestandardizirani koeficijent; Beta – standardizirani koeficijent; \* - signifikantnost na razini  $p < 0,01$ .

Izvor: rezultati istraživanja



Iz prethodne je tablice vidljivo da su rezultati statistički značajni ( $F=687,909$ ;  $p<0,05$ ). „Zadovoljstvo“ korisnika platformi ekonomije dijeljenja snažno i pozitivno utječe na „Namjere sukreiranja vrijednosti“ ( $R = 0,767$ ). Osim toga „Zadovoljstvo“ objašnjava oko 60 % varijance u „Namjerama sukreiranja vrijednosti“ ( $R^2 = 0,589$ ). Može se zaključiti da je hipoteza H5 prihvaćena.

## 5. RASPRAVA I ZAKLJUČAK

Nalazi ove studije pružaju vrijedan uvid u odnose između sudjelovanja, predanosti, zadovoljstva i namjera sukreiranja vrijednosti putem platformi ekonomije dijeljenja. Ovo istraživanje pridonosi teoriji ponašanja potrošača s posebnim naglaskom na segment generacije Z. U odnosu na prethodne studije, koje su primarno usredotočene na ispitivanje stavova korisnika platformi ekonomije dijeljenja zanemarujući fokus dobne strukture, ovo istraživanje pruža korisne spoznaje temeljene na razumijevanju namjera ponašanja generacije Z. Budući da ta generacija predstavlja rane usvojitelje tehnoloških rješenja te najbrže rastući tržišni segment pri usvajanju nove tehnologije [Priporas i sur., 2017; Vitezić and Perić, 2021], ovo istraživanje može pružiti korisne implikacije znanstvenicima i marketinškim stručnjacima kako bi bolje razumjeli odrednice zadovoljstva i namjera sukreiranja vrijednosti generacije Z u digitalnome okružju.

Rezultati provedenoga empirijskog istraživanja ukazuju na značajan pozitivan utjecaj aktivnoga i osobnoga sudjelovanja te predanosti na zadovoljstvo korisnika platformi ekonomije dijeljenja. Sukladno zaključcima autora Zhao [2021] sudjelovanje korisnika u zajedničkom stvaranju vrijednosti putem aplikacija pametnih telefona značajan je prediktor zadovoljstva korisnika. Također dokazana je značajna i pozitivna veza između zadovoljstva i namjera sukreiranja vrijednosti putem platformi ekonomije dijeljenja, što je u skladu s nalazima istraživanja autora Itani i suradnika [2019], Nadeem i Al-Imamy [2020] te Nadeem i suradnika [2020].

Detaljnije razumijevanje povezanosti prethodno navedenih čimbenika omogućuje organizacijama da bolje razumiju i privuku različite segmente potrošača, a posebice potrošače pripadnike generacije Z. Budući da je u ovome istraživanju utvrđeno kako informativno sudjelovanje u aktivnostima tih platformi nema statistički značajan utjecaj na zadovoljstvo korisnika, potrebno je primjerenim marketinškim aktivnostima stimulirati korisnike u cilju povećanja angažmana putem tih platformi. Navedeno uključuje razvoj inovativnih strategija nagrađivanja korisnika, programa vjernosti i posebnih ponuda. Nadalje u cilju kreiranja i objavljivanja sadržaja korisnika potrebno je poticati korisnike na dijeljenje autentičnih iskustava, a kako bi se unaprijedila kvaliteta korisnički generiranoga sadržaja i privukla ciljna publika.

U ovome su istraživanju prisutna i određena ograničenja, iz kojih proizlaze i preporuke za buduća istraživanja. Iako nalazi ove studije pružaju korisne uvide, rezultati se ne mogu generalizirati, s obzirom na to da su podaci dobiveni namjernim uzorkovanjem. Stoga se rezultati ovoga istraživanja mogu smatrati indikativnima. Također istraživanje je provedeno ispitivanjem isključivo državljana Republike Hrvatske. U budućim istraživanjima potrebno je uključiti i inozemne ispitanike s ciljem dobivanja šire slike u kontekstu stavova i preferencija generacije Z. Također u ovome istraživanju koristilo se metodom ispitivanja primjenom strukturiranoga upitnika. Iako ova metoda ima svojih prednosti, u budućim istraživanjima

moгуće je rabiti i druge metode, primjerice metoda intervjua, metoda fokus-grupe, a u cilju dobivanja dubljega uvida u uzročno-posljedičnu vezu među proučavanim varijablama.

## NAPOMENA

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## **PRIMJENA UMJETNE INTELIGENCIJE U OBRAZOVANJU: STAVOVI MLADIH**

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### **SAŽETAK**

*Umjetna inteligencija (AI) smatra se jednim od najuzbudljivijih suvremenih tehnoloških postignuća i nezaobilazan je predmet proučavanja i rasprave u znanstvenoj zajednici i šire. AI se već primjenjuje u različite svrhe, a nove mogućnosti stalno se pronalaze. Područje AI-ja se i nadalje ubrzano razvija, iako sve koristi i rizici od primjene AI-ja za društvo i okoliš još nisu u potpunosti sagledani.*

*Jedno od važnih pitanja je kako osigurati etičan razvoj i primjenu AI-ja o čemu su prve opće smjernice donesene na razini Ujedinjenih naroda i Europske unije, a i sve veći broj poduzeća donosi vlastite smjernice etike o AI-ju. Etičan razvoj i primjena AI-ja od iznimne je važnosti za djelatnost obrazovanja, zbog dalekosežnog utjecaja na sve sudionike, sam obrazovni proces kao i ishode.*

*U radu su izloženi rezultati provedenog kvantitativnog istraživanja na uzorku od 280 mladih ispitanika iz Hrvatske u dobi do 35 godina. Cilj istraživanja bio je steći uvid u stavove mladih o primjeni AI-ja u obrazovanju. Rezultati ukazuju da mladi podržavaju postavljanje jasnih pravila i sankcija za njihovo nepridržavanje kod primjene AI-ja u obrazovanju te smatraju da vještine digitalne medijske pismenosti trebaju biti zastupljene na svim razinama obrazovanja. U radu su navedena ograničenja te smjernice za buduća istraživanja.*

**KLJUČNE RIJEČI:** umjetna inteligencija (AI), generativna umjetna inteligencija (gen AI), primjena AI-ja, etika, obrazovanje, stavovi mladih

## **APPLICATION OF ARTIFICIAL INTELLIGENCE IN EDUCATION: ATTITUDES OF YOUNG PEOPLE**

### **ABSTRACT**

*Artificial intelligence (AI) is considered one of the most exciting modern technological achievements and is an inevitable subject of study and debate in the scientific community and beyond. AI is already being applied for various purposes, and new possibilities are constantly being found. The field of AI continues to develop rapidly, although all the benefits and risks of the application of AI for society and the environment have not yet been fully understood.*

*One of the important issues is how to ensure the ethical development and application of AI, on which the first general guidelines were adopted at the level of the United Nations and the European Union, and an increasing number of companies are adopting their own ethics guidelines on AI. Ethical development and application of AI is extremely important for the activity of education due to its far-reaching impact on all participants, the educational process itself as well as the final outcomes.*

*The paper presents the results of a quantitative research conducted on a sample of 280 young respondents from Croatia aged up to 35. The goal of the research was to gain insight into young people's views on the application of AI in education. The results indicate that young people support the setting of clear rules and sanctions for non-compliance with the application of AI in education and believe that digital media literacy skills should be represented at all levels of education. Limitations and guidelines for future research are listed in the paper.*

**KEYWORDS:** artificial intelligence (AI), generative artificial intelligence (gen AI), application of AI, ethics, education, attitudes of young people

## 1. UVOD

Pojam umjetne inteligencije (engl. *Artificial Intelligence*, AI) nema jednoznačnu definiciju, stoga su ovdje izdvojene neke od njih. Pod AI smatraju se „*tehnološki sustavi koji imaju sposobnost obrade informacija na način koji nalikuje inteligentnom ponašanju, a obično uključuje aspekte razmišljanja, učenja, percepcije, predviđanja, planiranja ili kontrole*” [UNESCO, 2020, 4], odnosno „*sustavi koji pokazuju inteligentno ponašanje, analizirajući svoje okruženje i poduzimajući radnje – uz određeni stupanj autonomije – za postizanje određenih ciljeva*“ [Vijeće EU-a, 2018, a ovu definiciju detaljnije je elaborirala i proširila Stručna skupina na visokoj razini o AI 2019a]. AI se često opisuje kao „*sposobnost digitalnog računala ili računalno kontroliranog robota da obavlja zadatke koji se obično povezuju s inteligentnim bićima*“ [Copeland, 2023; Oxford rječnik engleskog jezika, 2023; Hrvatska enciklopedija, 2024], a sve češće se u vezi s AI-jem naglašava „*sposobnost strojeva da obavljaju kognitivne funkcije svojstvene ljudskom umu, kao što su opažanje, zaključivanje, učenje, interakcija s okolinom, rješavanje problema, pa čak i da demonstriraju kreativnost*“ [McKinsey, 2023; McKinsey, 2024].

Iako se koncepti i tehnologije na kojima se bazira umjetna inteligencija razvijaju više od 50 godina, u novije vrijeme dolazi do ubrzanog razvoja i primjene AI-ja, zahvaljujući sve većoj snazi računala, dostupnosti velikih količina podataka kao i razvoju algoritama [Europski parlament, 2023a]. Postojeći oblici AI-ja mogu se podijeliti na **tradicionalne i generativne** (gen AI). Tradicionalni AI („uska“ ili „slaba“) koristi se za inteligentno obavljanje specifičnih zadataka (analiza podataka i predviđanja), dok generativni AI (gen AI) predstavlja sljedeću generaciju koja je sposobna kreirati nove podatke poput onih na kojima je obučavana [Marr, 2023]. Tradicionalne forme AI-ja već su prilično uobičajene i široko rasprostranjene, iako ljudi često toga nisu svjesni, primjerice prevođenje na druge jezike, titlovi na videozapisima, blokiranje neželjene e-pošte, glasovni asistent (kao što su Siri i Alexa), *chatbot* kao oblik korisničke podrške na web-stranicama, opcija prepoznavanja lica na pametnim uređajima itd. Gen AI-ja već sada nalazi svoju primjenu od glazbe i umjetnosti do medicine i inženjerstva [Pranić, 2023], autonomne vožnje, medicinske skrbi, medija, financija, industrijskih robota do internetskih usluga [Huang et al., 2023, 799], i postupno se pretvara u nezamjenjivu tehnološku podršku u svakodnevnim društvenim i ekonomskim aktivnostima [Naimi-Sadigh et al., 2021],

a mogu se očekivati i još veće promjene u načinu rada i poslovanja [Vijeće EU-a, 2018]. AI se smatra ključnim za digitalnu transformaciju društva i proglašen je jednim od prioriteta na razini EU-a [Europski parlament, 2023a]. **Koristi od AI-ja** mogu se promatrati na razini građana (pojedinaca), poduzeća i društva u cjelini, a najčešće se navode; povećanje kvalitete života, podizanje efikasnosti i konkurentnosti poduzeća, unapređenje razine javnih usluga, jačanje demokracije, zaštite i sigurnosti. Međutim, uz primjenu AI-ja vežu se i određene **prijetnje i rizici** koji mogu proizaći iz prekomjerne, ali i nedovoljne uporabe AI-ja: primjerice problemi kod utvrđivanja odgovornosti za eventualno prouzročene štete, prijetnje temeljnim pravima i demokraciji, utjecaj na radna mjesta, narušavanje tržišnog natjecanja, sigurnosni rizici i transparentnost [Europski parlament, 2023b]. AI predmet je sve većeg interesa javnosti, institucija, istraživača i poslovne zajednice [Heylighen, 2017], ipak, sve njezine prednosti kao i rizici još uvijek nisu poznati niti dovoljno istraženi, stoga ne čudi postojanje potpuno oprečnih stavova u vezi AI-jem, od onih koji zagovaraju njegovu potpunu zabranu, do onih koji zagovaraju njezinu ubrzanu primjenu [Byk, 2021].

Kontinuirano se naglašava važnost podizanja javne svijesti i razumijevanja AI tehnologija te potreba za podizanjem digitalnih vještina i medijske pismenosti kako bi se osiguralo sudjelovanje svih članova društva u donošenju informiranih odluka o korištenju i zaštiti od nedopuštenog utjecaja AI-ja [UNESCO, 2020, 10-11]. Digitalna medijska pismenost, medijska pismenost, i medijska i informacijska pismenost često se koriste kao sinonimi zbog značajnog međusobnog preklapanja [Chapman et. al., 2021, 15]. Digitalna medijska pismenost (DMP) „sposobnost odgovornog i sigurnog korištenja digitalnih medijskih servisa, uz maksimalne mogućnosti i minimalne rizike“, smatra se temeljnom vještinom, a s obzirom na razvoj tehnologija, potreban je i cjeloživotan pristup njezinu razvoju [Chapman et. al., 2021, 16-18].

Stavovi predstavljaju „stečene, relativno trajne i stabilne strukture pozitivnih ili negativnih emocija, vrjednovanja i ponašanja prema nekom objektu (osobi, skupini, pojavi, ideji), a oblikuju se procesima socijalizacije i stječu na osnovi izravnog iskustva ili posredno, u interakciji s društvenom okolinom“ [Hrvatska enciklopedija, 2024a].

U fokusu ovog rada interes je mladih u Hrvatskoj za AI, kao i njihovi stavovi u vezi primjene AI-ja u obrazovanju, s obzirom na nedovoljan broj istraživanja na navedenu temu. Slijedom navedenog postavljena su sljedeća istraživačka pitanja:

1. Kako mladi ocjenjuju svoju digitalnu medijsku pismenost (DMP)?
2. U kojoj mjeri su mladi zainteresirani za praćenje razvoja i primjene AI-ja?
3. Kakvi su stavovi mladih u vezi primjene AI-ja u obrazovanju?

U nastavku slijedi osvrt na etička pitanja u vezi primjene AI-ja s naglaskom na primjenu AI-ja u obrazovanju, prikaz rezultata dosadašnjih istraživanja o stavovima nastavnika i studenata u vezi s primjenom AI-ja u obrazovanju, prikaz rezultata empirijskog istraživanja, diskusija o rezultatima i zaključak.

## **2. ETIČKA PITANJA U VEZI S PRIMJENOM UMJETNE INTELIGENCIJE**

Razvoj i primjenu AI-ja prate brojne kontroverze o kojima se vode rasprave, a sve u nastojanju da se pronađe cjelovito i zadovoljavajuće rješenje. Upozorava se da će način kojim se pristupa AI-ju definirati budućnost svijeta te da sustavi AI-ja trebaju biti sigurni, transparentni, sljedivi, ne diskriminirajući i ekološki prihvatljivi [Vijeće EU-a, 2018]. Potencijalno ugrađene predrasude u AI-ju mogle bi dovesti do „nejednakosti, isključivosti, prijetnji kulturnoj,

društvenoj i ekološkoj raznolikosti te društvenim ili ekonomskim podjelama“ [UNESCO, 2020, 1]. Glavni razlog za zabrinutost je kibernetička sigurnost [Svjetski ekonomski forum, 2020], ali i mogućnost generiranja uvjerljivih, ali netočnih, plagiranih ili pristranih rezultata bez ikakvih naznaka da se radi o problematičnim rezultatima [McKinsey, 2023; Brynjolfsson i McAfee, 2017], kao i nedostatak dokaza da će sustav funkcionirati u svim slučajevima, posebno u situacijama koje nisu bile zastupljene u podacima za obuku, dok će u slučaju pogrešaka bit izuzetno teško dijagnosticirati i napraviti ispravke [Brynjolfsson i McAfee, 2017]. Primjena AI-ja može dovesti do gubitka poslova, pristranosti i predrasuda, ugrožavanja privatnosti i zloupotrebe, a u slučaju gen AI-ja do manipulacije i kreiranja neistinitih sadržaja [Copeland, 2023]. Pretjerano i dugoročno oslanjanje na AI može rezultirati određenim prijetnjama za ljude poput nezaposlenosti, moralnih i etičkih rizika kao i ugroze osobne privatnosti [McClure, 2017; Kak 2018; citirano u: Qin et al., 2023; Huang et al., 2023], kao i rizike od curenja informacija, ugrožene privatnosti i sigurnosti, diskriminacije i nezaposlenosti [Huang et al., 2023, 799]. Klasifikacija etičkih pitanja u vezi s AI-jem prikazana je u tablici 1.

Tablica 1. Klasifikacija etičkih pitanja u vezi s AI-jem

Etički izazovi na razini pojedinca	sigurnost, privatnost i zaštita podataka, sloboda i autonomija, ljudsko dostojanstvo
Etički izazovi na društvenoj razini	poštenje i pravda, utvrđivanje odgovornosti za obavljanje poslova kao i njihove posljedice, transparentnost, nadzor i prikupljanje podataka, mogućnost kontrole umjetne inteligencije, demokracija i građanska prava, gubitak poslova, ljudski odnosi
Etički izazovi vezano uz okoliš	prirodni resursi, energija, onečišćenje okoliša, održivost

Izvor: Huang et al. [2023, 802]

Predložena su četiri osnovna etička načela: poštovanje ljudske autonomije, sprečavanje nastanka štete, pravednosti i objašnjivosti [Stručna skupina na visokoj razini o AI-ju, 2019b, 16] na tragu kojih su razvijene smjernice za stvaranje pouzdanog AI-ja: ljudsko djelovanje i nadzor, tehnička stabilnost i sigurnost, privatnost i upravljanje podacima, transparentnost, raznolikost, nediskriminacija i pravednost, dobrobit društva i okoliša te odgovornost [Europska komisija 2020, 9]. Preporuka o etici AI-ja prvi je globalni normativni akt za etički razvoj i korištenje AI-ja usvojile su ga 193 zemlje članice UNESCO-a 2021. godine [UNESCO, 2023].

## 2.1. ETIČKA PITANJA U VEZI S PRIMJENOM UMJETNE INTELIGENCIJE U OBRAZOVANJU

Primjena AI-ja u obrazovanju također je povezana s različitim etičkim izazovima od „pitanja privatnosti i sigurnosti, potencijalne pristranosti u algoritmima te mogućnost zamjene učitelja automatizacijom procesa poučavanja [Kralj et al., 2024, 14]. AI u obrazovanju stvara etičke probleme u vezi s pristupom obrazovnim sustavima, individualiziranim preporukama učenicima, koncentracijom osobnih podataka, odgovornošću, utjecajem na posao nastavnika, privatnošću podataka i vlasništvom nad algoritmima za unos podataka [Pedro et al., 2019, 7]. Smatra se da bi „neregulirana i neracionalna upotreba AI-ja u obrazovanju mogla dovesti do etičkih, sigurnosnih, pedagoških, psiholoških i socioloških problema“ [Göçen i Aydemir, 2020, citirano u: Mrnjaus et al., 2023, 436-437]. U Aktu o AI-ju klasificirani su sustavi AI-ja prema riziku koji predstavljaju za korisnike, a primjena AI-ja u obrazovanju uvrštena je u visokorizičnu kategoriju [Europski parlament, 2024]. I dok se s jedne strane „uvođenje AI-ja u obrazovanje smatra važnim, zbog promicanja visokokvalitetnog digitalnog obrazovanja i osposobljavanja kako bi se svim učenicima i nastavnicima omogućilo stjecanje potrebnih digitalnih vještina i kompetencija, uključujući medijsku pismenost i kritičko razmišljanje“, primjeni AI-ja treba pristupiti s dužnom pažnjom jer sustavi AI-ja između ostalog „mogu



utjecati na obrazovni i profesionalni tijek života osobe i stoga utjecati na njezinu mogućnost da osigura vlastita sredstva za život“ [Europski parlament, 2024, citirano u: Kralj et al., 2024, 17]. Obrazovanje treba biti usklađeno s društvenim vrijednostima, stoga je pored etičkih smjernica važna i otvorena komunikacija između nastavnika, učenika, roditelja, programera i kreatora politika [Berendt et al., 2020, citirano u: Mrnjajus et al., 2023, 440], a potreban je ljudski nadzor i zaštitne mjere te provjera načina dizajniranja sustava AI-ja [Nguyen et al., 2023, citirano u: Mrnjajus et al., 2023, 440].

Primjena AI-ja u obrazovanju može se pratiti u administraciji, poučavanju i učenju [Chassignol et al., 2018; Chen et al., 2020, citirano u: Mrnjajus et al., 2023, 433]. Analiza znanstvenih radova ukazuje na primjenu AI-ja u obrazovnim institucijama za automatizaciju administrativnih procesa i zadataka, razvoj kurikuluma i obrazovnih materijala te za potrebe unaprjeđivanja podučavanja i olakšavanja procesa učenja. Primjena AI-ja rezultirala je povećanjem učinkovitosti u obavljanju administrativnih zadataka nastavnika (npr. pregledavanje učeničkih radova, ocjenjivanje i davanje povratnih informacija), dok nove tehnologije olakšavaju učenicima proces učenja. Nastavnici koji koriste AI učinkovitiji su i uspješniji, a učenici imaju personalizirano i bogatije iskustvo učenja [Chen et al., 2020, citirano u: Mrnjajus et al., 2023, 432]. Međutim, neke studije ukazuju na štetne učinke AI-ja na proces učenja. AI može potaknuti na nepoštenje i ugroziti akademski integritet [Crowe et al., 2017, citirano u: Mrnjajus et al., 2023, 434]. S obzirom na to da nema konsenzusa o dobrobiti ili štetnosti AI-ja, „nisu zanemarivi glasovi koji govore o dobrobiti AI-ja za učenje, jer dobrobiti nadmašuju izazove“ [D’Mello et al., 2010; Rowe et al., 2011, citirano u: Mrnjajus et al., 2023, 434].

## **2.2. STAVOVI NASTAVNIKA I STUDENATA O PRIMJENI AI-JA U OBRAZOVANJU**

U Francuskoj provedeno je istraživanje na uzorku od 1.242 nastavnika i 4.443 studenta (Institut Sphinx i Compilatio, tvrtka specijalizirana za prevenciju akademskih prijevара). Prema navedenom istraživanju 55 % studenata izjavilo je da koristi gen AI-ja (često ili povremeno), (dok je to isto smatralo 88 % nastavnika). Nadalje, nastavnici i studenti složili su se da je korištenje AI-ja za domaće zadaće ili ispite varanje; tri četvrtine nastavnika (76 %) i dvije trećine studenata (65 %). Zabranu korištenja AI-ja smatra nepoželjnom gotovo 2/3 nastavnika i studenata. I nastavnici i studenti zabrinuti su zbog utjecaja AI-ja na budućnost učenja (72 % studenata i 81 % nastavnika). Većina nastavnika nije upoznata s gen AI-ja (65 %), dok kod studenata čak 1 od 4 (28 %) smatra prihvatljivim pisanje odlomaka zadaća uz pomoć gen AI-ja. Da primjena AI-ja može utjecati na dobivanje bolje ocjene smatra 63 % nastavnika, a gotovo polovica (47 %) studenata koji koriste AI izjavili su da dobivaju bolje ocjene zahvaljujući njegovoj upotrebi. I nastavnici (93 %) i studenti (79 %) smatraju da treba uvesti mjere za reguliranje upotrebe AI-ja u obrazovanju. Kao glavni rizici i ograničenja za gen AI-ja navedeni su: plagiranje, kršenje autorskih prava, dezinformacije, iskrivljenje kritičkog i kreativnog razmišljanja, smanjenje vještina pisanja itd. [Compilatio, 2023].

U SAD-u provedeno je istraživanje na uzorku od 1.000 studenata (gdje je 95 % ispitanika bilo u dobi od 18 do 38 godina). 56 % studenata izjavilo je da je koristilo AI za zadaće ili ispite, a (79 %) je izjavilo da su imali nastavnika s kojim su razgovarali o etici kod primjene AI-ja. Većina studenata (54 %) smatra da je korištenje AI-ja za zadaće ili ispite varanje ili plagijat, (dok je 21 % smatralo da primjena AI-ja za rješavanje zadataka nije varanje ili plagijat, a neutralnih je bila jedna četvrtina ispitanika). Više od polovice studenata (58 %) izjavilo je da njihova škola ili program imaju politiku o korištenju gen AI-ja za zadaće ili ispite [Nam, 2023].

Većina studenata zabrinuta je u vezi primjene AI-ja, odnosno (55 %) smatra da primjena AI-ja umanjuje vrijednost stjecanja fakultetske diplome. Muškarci u većoj mjeri smatraju da je učenje novih vještina u području AI-ja važno za njihov karijerni put (52 % naspram 32 % žena). Također, milenijalci izražavaju veću zabrinutost i više zanimanja za učenje vještina AI-ja nego pripadnici generacije Z [Bryant, 2023].

### 3. METODOLOGIJA I REZULTATI ISTRAŽIVANJA

#### 3.1. METODOLOGIJA ISTRAŽIVANJA

U ovom radu prikazan je dio preliminarnih rezultata istraživanja o percepciji hrvatskih građana o umjetnoj inteligenciji. Istraživanje je provedeno u razdoblju od siječnja do ožujka 2024. godine na uzorku od 532 ispitanika različitih dobnih skupina. U istraživanju je sudjelovalo ukupno 280 ispitanika u dobi između 15 do 35 godina starosti, a u nastavku rada izloženi su preliminarni rezultati o stavovima mladih u vezi primjene AI-ja u obrazovanju. Treba napomenuti da među istraživačima nema jedinstvenog stava prema utvrđivanju dobnih granica mladosti u populaciji. Uglavnom se kao donja granica uzima 15 godina, dok se gornja granica s nekadašnjih 25 pomiče na 30, a sve češće i na 35 godina [Središnji državni ured za Demografiju i mlade, 2023; HAI – Sveučilište Stanford, 2023].

*Online* istraživanje je provedeno na prigodnom uzorku iz baze kontakata autora kojima je upućen mail s pozivom na sudjelovanje u istraživanju i s poveznicom na anketu u Google obrascu. Kontakti su zamoljeni da ispune anketu te je dalje distribuiraju čime je stvoren efekt „grude snijega“. Također, roditelji s djecom u dobi od 15 do 18 godina zamoljeni su da im podijele poveznicu kako bi mogli sudjelovati u istraživanju. Anketa je sadržavala 13 pitanja zatvorenog tipa grupiranih u nekoliko skupina; o demografskim obilježjima ispitanika, digitalnoj medijskoj pismenosti i primjeni AI-ja u obrazovanju te koristima i rizicima AI-ja. Lista preliminarnih tvrdnji formulirana je na temelju uvida u literaturu [Brauner i sur., 2023; Kopal, 2023; McKinsey, 2023], a u sljedećem koraku sužena je na temelju šest intervjua s konzultantima, IT stručnjacima i predavačima. U zadnjem koraku anketu je probno ispunilo šest mlađih ispitanika (tri učenika srednjih škola i tri studenta prijediplomskih studija) kako bi se provjerila razumljivost pitanja, odnosno ponuđenih tvrdnji.

#### 3.2. REZULTATI PROVEDENOG ISTRAŽIVANJA

U nastavku prikazani su preliminarni rezultati na temelju odgovora 280 ispitanika u dobi između 15 do 35 godina. Demografske karakteristike ispitanika navedene su u tablici 2.

Tablica 2. Demografske karakteristike ispitanika

	N =280	(u %)
<b>Dob</b>		
a) (manje od 18)	42	15,00
b) (18 to 23)	84	30,00
c) (24 to 29)	102	36,43
d) (30 to 35)	52	18,57
<b>Spol</b>		
Ž (žensko)	196	70,00
M (muško)	80	28,57

Ne želim se izjasniti	4	1,43
<b>Obrazovanje</b>		
a) Osnovna škola	36	12,86
b) Srednja / gimnazija	102	36,43
c) Prijediplomski studij	64	22,86
d) Diplomski studij	66	23,57
e) Poslije diplomski studij	12	4,28
<b>Radni status</b>		
a) Učenik/ca	50	17,86
b) Student/ica	66	23,57
c) Studiram i radim	60	21,43
d) Zaposlen/a	100	35,71
e) Nezaposlen/a	4	1,43

Izvor: Autor

Ocjene ispitanika o razini vlastite digitalne medijske pismenosti (DMP) kao i ocjene njihova interesa u vezi praćenja i primjene AI-ja navedeni su u tablici 3. DMP ispitanici su ocjenjivali ocjenama od 1 do 5 Likertove skale (gdje je 1 – nedovoljan, 5 – izvrstan), a stupanj osobnog interesa za područje AI-ja također ocjenama od 1 do 5 (gdje je 1 – ne zanima me, 5 – jako me zanima). U predzadnjoj koloni prikazana je srednja vrijednost ocjene DMP-a, a u zadnjoj koloni srednja vrijednost ocjene osobne zainteresiranosti za područje AI-ja.

Tablica 3. Digitalna medijska pismenost i interes ispitanika za područje AI-ja

	DMP					DMP (sred. vr.)	Interes za AI (sred. vr.)
	1	2	3	4	5		
<b>Dob</b>							
a) (manje od 18)	-	2	8	24	8	3,90	2,67
b) (18 to 23)	-	4	18	42	20	3,93	3,00
c) (24 to 29)	-	2	16	46	38	4,18	3,49
d) (30 to 35)	-	-	8	16	28	4,38	3,35
<b>Spol</b>							
Ž	-	4	40	86	66	4,09	3,09
M	-	4	10	40	26	4,10	3,48
Ne želim se izjasniti	-	-	-	2	2	4,50	2,50
<b>Obrazovanje</b>							
a) Osnovna škola	-	-	8	22	6	3,94	2,72
b) Srednja / gimnazija	-	6	20	50	26	3,94	2,98
c) Prijediplomski studij	-	2	10	28	24	4,15	3,50
d) Diplomski studij	-	-	12	22	32	4,30	3,33
e) Poslije diplomski studij	-	-	-	6	6	4,50	4,00
<b>Radni status</b>							
a) Učenik/ca	-	2	12	28	8	3,84	2,72
b) Student/ica	-	4	16	34	12	3,81	2,97
c) Studiram i radim	-	2	6	26	26	4,27	3,23
d) Zaposlen/a	-	-	16	38	46	4,30	3,54
e) Nezaposlen/a	-	-	-	2	2	4,50	3,50
N = 280	-	8	50	128	94	4,10	3,19

Izvor: autor

Iz tablice 3 vidljivo je da se osobna procjena stupnja DMP-a povećava s dobi, stupnjem obrazovanja te kod ispitanika s radnim iskustvom. Slična tendencija uočava se i kod interesa za praćenje razvoja i primjene AI-ja (zadnji stupac u tablici 3), iako su ispitanici svoj interes za AI ocijenili jednom ocjenom niže u odnosu na DMP (interes za AI 3,19 u odnosu na DMP 4,10).

Treba napomenuti da je nešto viši stupanj zainteresiranosti za AI prisutan kod muških ispitanika (3,48) u odnosu na pripadnice ženskog spola (3,09).

U tablici 4 prikazani su odgovori vezano uz stavove o primjeni AI-ja u obrazovanju. Od ukupnog broja ispitanika 62,86 % bilo je uključeno u neku fazu obrazovnog procesa, dok je preostalih 37,14 % ispitanika svoj status definiralo odabirom opcije zaposlen ili nezaposlen (tablica 2). Ispitanicima je bilo ponuđeno deset tvrdnji na koje su trebali izraziti svoj stupanj slaganja u rasponu od 1 – ne slažem se, 2 – niti se slažem, niti se ne slažem, do 3 – slažem se s navedenim.

Tablica 4. Stavovi ispitanika o primjeni AI-ja u obrazovanju

	Tvrdnje		Stupanj slaganja		
			1	2	3
1.	Digitalne vještine zahtijevaju cjeloživotno učenje.	N	34	68	178
		(%)	12,14	24,29	63,37
2.	DMP treba uključiti u sve razine obrazovanja.	N	22	76	182
		(%)	7,86	27,14	65,00
3.	AI treba uključiti u nastavni proces na što više kolegija tijekom studija.	N	86	132	62
		(%)	30,72	47,14	22,14
4.	Korištenje AI-ja u izradi studentskih radova obavezno se mora navesti.	N	46	92	142
		(%)	16,43	32,86	50,71
5.	Potrebna su jasna pravila i sankcije u slučaju nepridržavanja kod primjene AI-ja u obrazovanju.	N	26	66	188
		(%)	9,29	23,57	67,14
6.	AI u obrazovanju dovodi do plagiranja i povrede autorskih prava.	N	50	128	102
		(%)	17,86	45,71	36,43
7.	AI u obrazovanju potiče kreativnost i inovativnost.	N	80	114	86
		(%)	28,57	40,72	30,71
8.	AI u obrazovanju dovodi do lijenosti i gubitka volje za učenjem.	N	68	102	110
		(%)	24,29	36,43	39,28
9.	"Halucinacije" tj. izmišljanje informacija otežava primjenu AI-ja u obrazovanju.	N	48	152	80
		(%)	17,14	54,29	28,57
10.	AI u obrazovanju otežava vrednovanje osobnog doprinosa studenta.	N	42	80	158
		(%)	15,00	28,57	56,43

Izvor: Autor

Više od polovice ispitanika podržava (slaže se) sa sljedećih pet tvrdnji (tablica 4): *Potrebna su jasna pravila i sankcije u slučaju nepridržavanja kod primjene AI-ja u obrazovanju* (67,14 %), *DMP treba uključiti u sve razine obrazovanja* (65,00 %), *Digitalne vještine zahtijevaju cjeloživotno učenje* (63,37 %), *AI u obrazovanju otežava vrednovanje osobnog doprinosa studenata* (56,43 %), *Korištenje AI-ja u izradi studentskih radova obavezno se mora navesti* (50,71 %).

Kod tvrdnje *AI u obrazovanju dovodi do lijenosti i gubitka volje za učenjem* složilo se 39,28 % ispitanika, (dok je neodlučnih 36,43 %, i 24,29 % onih koji se ne slažu). U vezi preostale četiri tvrdnje najveći broj ispitanika bio je neodlučan (tablica 4): *"Halucinacije" tj. izmišljanje informacija otežava primjenu AI-ja u obrazovanju* (54,29 %), *AI treba uključiti u nastavni proces na što više kolegija tijekom studija* (47,14 %), *AI u obrazovanju dovodi do plagiranja i povrede autorskih prava* (45,71 %), *AI u obrazovanju potiče kreativnost i inovativnost* (40,72 %).

### 3.3. DISKUSIJA, OGRANIČENJA I PREPORUKE ZA BUDUĆA ISTRAŽIVANJA

S obzirom na to da mladi vole eksperimentirati, otvoreni su i znatiželjni te lakše prihvaćaju tehnološke inovacije u odnosu na ostale dobne skupine početna pretpostavka je bila da mladi posjeduju odgovarajuće vještine DMP-a, i da su u podjednakoj mjeri zainteresirani za praćenje razvoja i primjene AI-ja. Međutim, rezultati istraživanja ukazali su da iako mladi smatraju da imaju razvijene vještine DMP (ocjena 4,1), osobni interes za praćenje AI-ja ocijenili su jednom ocjenom niže (3.19), pri čemu su muški ispitanici ocijenili svoj interes nešto većom ocjenom u odnosu na ženske. Ocjena DMP-a povećavala se sa stupnjem obrazovanja ispitanika te kod ispitanika s radnim iskustvom. Navedeno ujedno predstavlja odgovor na prvo i drugo istraživačko pitanje.

Što se tiče trećeg istraživačkog pitanja u vezi stavova mladih u Hrvatskoj u vezi primjene AI-ja u obrazovanju može se zaključiti da više od polovice ispitanika smatra da je potrebno postaviti jasna pravila i sankcije za njihovo kršenje kod primjene AI-ja u obrazovanju (67,14 %), da DMP treba biti zastupljena na svim razinama obrazovanja (65,00 %), da digitalne vještina zahtijevaju cjeloživotno učenje (63,37 %), kao i da AI otežava vrednovanje osobnog doprinosa studenata (56,43 %) te da se upotreba AI-ja u izradi studentskih radova obavezno mora navoditi (50,71 %). Navedeno je usporedivo i u dobroj mjeri sukladno prikazanim rezultatima istraživanja u SAD-u i Francuskoj prema kojima također većina mladih ispitanika smatra da je potrebno uvesti jasna pravila za primjenu AI-ja u obrazovanju, ali i da se korištenje AI-ja bez navođenja smatra prevarom, odnosno plagijatom.

Ograničenja provedenog istraživanja proizlaze iz vrste uzorka (prigodnog, a ne reprezentativnog) te neravnomjerne spolne zastupljenosti ispitanika u uzorku (70,00 % žena u odnosu na 28,57 % muških i 1,43 % ispitanika koji se nisu željeli izjasniti), uzimajući u obzir rezultate drugih istraživanja prema kojima muškarci iskazuju veći interes za AI, dok su žene više zabrinute u vezi primjene AI-ja.

Preporuke za buduća istraživanja odnose se na provedbu istraživanja na reprezentativnom uzorku kao i na smjernicu da bi ova istraživanja trebalo periodično ponavljati radi praćenja promjena u stavovima ljudi prema AI-ju. Nadalje, bilo bi uputno i u Hrvatskoj provesti usporedno istraživanje o primjeni AI-ja u obrazovanju na uzorku nastavnika i studenata.

## 4. ZAKLJUČAK

AI se smatra ključnom sastavnicom digitalne transformacije društva, ali način kojim se pristupa AI-ju definirat će budućnost čitavog svijeta. Iako se AI razvija više od 50 godina, u posljednje vrijeme dolazi do većeg interesa javnosti uslijed ubrzanog tehnološkog razvoja, pojave i primjene novih oblika tzv. gen AI-ja. Razvoj i primjena AI-ja donose određene koristi, ali i rizike i otvaraju niz etičkih pitanja o kojima su prve normativne akte usvojile zemlje članice UNESCO-a, kao i EU-a. Naglašava se i potreba za podizanjem javne svijesti i razumijevanja AI tehnologija kao i podizanja digitalnih vještina i medijske pismenosti u društvu radi donošenja informiranih odluka o korištenju i zaštiti od nedopuštenog utjecaja AI-ja. Europski parlament je primjenu AI-ja u obrazovanju uvrstio u kategoriju visokog rizika s obzirom na razinu rizika za korisnike, ali i iznimno važnom za stjecanje visokokvalitetnog digitalnog obrazovanja. Rezultati provedenog istraživanja ukazuju da više od polovice mladih ispitanika u Hrvatskoj podržava postavljanje jasnih pravila i sankcija za nepridržavanje u vezi primjene AI-ja u obrazovanju (67,14 %), kao i da se korištenje AI-ja u izradi studentskih radova obavezno

mora navoditi (50,71 %) što je usporedivo s rezultatima provedenih istraživanja u SAD-u i Francuskoj.

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## **MAXIMIZING PRODUCT PROMOTION THROUGH STRATEGIC COMMUNICATION: THE ROLE OF SOCIAL MEDIA INFLUENCERS**

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### **ABSTRACT**

*Strategic communication is vital for the successful promotion of products in the contemporary digital economy. Social media influencers play a crucial role in helping brands connect authentically and engagingly with their target audiences. This research investigates the impact of social media influencers on consumer perceptions and purchase decisions. By employing theoretical data exploration and empirical quantitative methods, the study aims to validate the hypothesis that social media influencers have a direct and positive effect on maximizing product promotion. Primary data were collected via an online survey as a quantitative research instrument from 115 participants, and the responses were analyzed using SPSS software. The findings reveal that consumers frequently engage with influencer content, often make purchases based on influencer recommendations, and perceive influencers as more influential than traditional advertisements. Furthermore, the study highlights that influencer promotions encourage consumers to research products and that the relevance of recommendations to personal interests significantly enhances trust in influencers. This research contributes to both marketing practices and academic discourse by providing empirical evidence on the effectiveness of influencer marketing. It offers insights into optimizing digital marketing strategies through the strategic use of social media influencers, thereby enhancing promotional outcomes in today's dynamic marketplace.*

**KEYWORDS:** product promotion, strategic communication, social media influencers, digital marketing

## 1. INTRODUCTION

In the dynamic landscape of contemporary marketing, social media influencers have emerged as pivotal agents of change, fundamentally transforming traditional advertising paradigms. Their pervasive influence profoundly affects consumer behaviour and purchasing decisions, positioning them as essential components of modern marketing strategies. This shift underscores the growing importance of ethical considerations in influencer collaborations as the ethos of socially responsible marketing continues to evolve. This introduction sets the stage for a comprehensive exploration of the multifaceted role of influencers and their significant impact on product promotion, while highlighting the increasing emphasis on ethical marketing practices.

The emergence of social media influencers has catalyzed a profound transformation in product promotion, ushering in a new era characterized by authentic and engaging connections with consumers. The scale of this transformation is reflected in the substantial financial investments being made in influencer marketing. Recent data reveals that global spending on influencer marketing is projected to surpass \$21 billion by 2024, marking a dramatic increase from \$8 billion in 2019. This contrasts sharply with the relatively modest growth rates observed in traditional advertising expenditures, such as TV and print media, indicating a significant shift toward digital and influencer-driven promotional strategies. For example, overall global advertising spending, including traditional media, is expected to reach approximately \$900 billion in 2024, demonstrating a slower growth trajectory compared to the exponential rise in influencer marketing investments [Influencer Marketing Hub, 2022]. Furthermore, global ad spending in the influencer advertising market is forecasted to reach \$35.09 billion by 2024, with an anticipated annual growth rate of 9.91% from 2024 to 2029, leading to a projected market volume of \$56.28 billion by 2029. The average ad spending per internet user in the influencer advertising market is estimated at \$6.16 in 2024 [Statista, 2022].

Despite the widespread belief in the impact of social media influencers on consumer behaviour, more empirical research is needed to specifically address their direct and positive effect on product promotion. While influencers are acknowledged for shaping consumer decisions, detailed analyses of how they drive engagement, purchasing behaviour, and trust are limited compared to traditional advertising methods. This study aims to fill this gap by providing empirical evidence on how consumers interact with influencer content, make purchasing decisions based on influencer recommendations, and perceive influencers in comparison to traditional advertisements. The research also seeks to identify key factors contributing to influencer effectiveness, such as the relevance of recommendations to personal interests and the authenticity of influencer content. By addressing these aspects, the study aims to deepen academic understanding of influencer marketing dynamics and provide practical insights for marketers seeking to enhance their promotional strategies.

The primary objective of this research is to evaluate how social media influencers affect consumer behaviour, including engagement, purchase frequency, comparisons with traditional ads, impact on product research, and trust based on product relevance. Specifically, the study aims to (1) examine the extent to which respondents engage with influencer content, (2) evaluate the frequency of purchases based on influencer recommendations, (3) analyze the comparative influence of influencers versus traditional advertisements on purchasing decisions, (4) investigate whether influencer promotions lead to further research on promoted products or services, and (5) understand how the relevance of a product or service affects trust

in influencer recommendations. The hypothesis guiding this research is H1: Social media influencers directly and positively influence the maximization of product promotion.

Through these objectives, the study seeks to provide empirical evidence on the effectiveness of social media influencers in promoting products and to identify key factors that enhance their influence. The findings are expected to offer valuable insights for marketers and contribute to a more comprehensive understanding of influencer marketing dynamics in the modern marketplace.

## **2. LITERATURE REVIEW**

According to Hallahan (2004), a growing number of organizations recognize that various communication disciplines aim to achieve organizational objectives, and are thus seeking ways to optimize communication strategies to enhance efficiencies and reduce redundancies. Strategic communication is defined by six communication strategies employed by organizations: management communication, marketing communication, public relations, technical communication, political communication, and information/social marketing campaigns.

Strategic communication can also be explained by considering why companies need it. As defined by Hallahan et al. (2007), organizational communications are worth analyzing for several reasons: the ability to distinguish between traditional communication activities and their effects is rapidly disappearing; fundamental changes in public communication are being driven by technology and media economics; organizations increasingly use a variety of methods to influence the behaviors of their constituencies—what people know, how people feel, and how they act relative to the organization; and finally, strategic communication acknowledges that purposeful influence is the core goal of organizational communications. These reasons, particularly those related to digital marketing—which also includes social media marketing and the role of influencers in promoting products and services—are essential to contemporary marketing communication. "Strategic communication further includes the study of all communication practices, including those of public relations, advertising, and marketing, as well as other disciplines" (Hallahan et al., 2007).

Rosengren (2000) defines strategic communication as involving entities and their intentional attempts to communicate or create meaning. These efforts also generate essential factors for establishing meaning between an organization and its stakeholders. Hallahan et al. (2007) add that strategic communication involves examining how an organization presents itself as a social actor in creating public culture and discussing public issues.

To understand the impact of social media, it is essential to recognize how social media has transformed the rules of strategic communication (Scott, 2007). Scott (2007) describes how web marketing aims to deliver content precisely when buyers need it, emphasizing the need for two-way engagement with customers rather than delivering one-way messages. In this context, social media allows marketing communication to engage customers and invite them into the conversation. Strategic communication is also closely related to corporate communication, reflecting an organization's goals and efforts to engage multiple audiences simultaneously (Cornelissen, 2011). As defined by Falkheimer and Heide (2014), a robust communications department enables the development of expertise in the field and facilitates optimal handling of strategic communication issues, where the boundaries between internal

and external communications are increasingly blurred.

Influencer marketing can be considered part of a company's communication strategy. According to Gundová and Cvoligová (2019), influencer marketing is a "marketing practice that leverages well-followed online users who are able to influence consumers' attitudes and decision-making processes in favor of brands or ideas." Numerous studies have examined the effectiveness of social influencers in product promotion. For instance, research conducted by Nielsen (2012) found that 92% of consumers worldwide trust user-generated content and word-of-mouth recommendations more than they trust advertising. According to various data analyses, influencer marketing can generate up to eleven times higher ROI than other digital marketing techniques, especially as innovative industries continue to evolve. "Influencers and marketers alike are finding new ways to reach audiences and promote products, with the industry projected to grow to \$13.8 billion by 2021" (Dimitrieska & Efremova, 2021).

In recent years, influencer marketing has undergone a profound transformation, revolutionizing the conventional landscape of advertising. Various authors assert that social media influencers have become pivotal figures in marketing, wielding significant influence over the promotion of products and services (Brown & Hayes, 2018; Blazevic Bognar et al., 2019; Nascimento, 2019; Joshi et al., 2023). Influencers are often classified based on audience reach and engagement, with their role extending beyond mere promotional activities to curating content that fosters genuine connections with followers, thus nurturing relationships of trust and personalization (Usman & Okafor, 2019; Gu & Duan, 2024; Joshi et al., 2023; Ao et al., 2023).

Several authors explore the methodologies of influencers and the intricacies of brand alignment, emphasizing the importance of fostering mutually beneficial relationships between influencers and companies (Choi & Rifon, 2012; Gustavsson et al., 2018; Belanche et al., 2021; Ibáñez Sánchez et al., 2021; Okonkwo & Namkoisse, 2023). Their findings highlight the necessity of negotiation processes that go beyond financial considerations, requiring both parties to navigate issues such as creative control, exclusivity, and the duration of collaboration in the evolving landscape of influencer engagement.

Focusing on socially responsible influencer campaigns, Khamis et al. (2016) emphasize ethical considerations such as transparency, citing case studies like the collaboration between Patagonia and environmental influencers as examples of this trend. Masuda et al. (2022) extend ethical considerations beyond transparency, examining the ethical implications of influencer endorsements, particularly in relation to sensitive topics. Their work underscores the need for influencers to navigate ethical grey areas with caution. However, Farivar and Wang (2022) highlight the challenges of balancing business objectives with moral obligations, calling for careful navigation of these ethical dilemmas.

Mammadli (2021) provides insights into the distinctions between macro-influencers and micro-influencers, highlighting the unique traits and engagement dynamics associated with influencers targeting different audience sizes. To explore the psychological aspects of influencer impact, Nguyen and Johnson (2020) delve into the cognitive processes that shape consumer behavior in response to influencer content. Their work adds a psychological perspective, shedding light on how influencers shape consumer perceptions and decision-making. Jean et al. (2019) examine the importance of authenticity in influencer marketing, analyzing how perceived authenticity affects audience trust and engagement by deconstructing the notion of authenticity in influencer-generated content. Furthermore, Kim

and Chen (2018) explore the cultural dimensions of influencer marketing, investigating how influencers adapt their content to align with diverse cultural expectations—a crucial consideration for brands involved in global influencer campaigns.

The literature provides a comprehensive overview of social media influencer marketing, encompassing strategies, effectiveness, ethical challenges, and socially responsible practices. Ongoing research is essential for successfully navigating the evolving terrain of this powerful marketing paradigm.

### **3. RESEARCH DESIGN AND METHODOLOGY**

This research employs a dual approach, combining theoretical data exploration with a quantitative methodology, to understand the impact of influencer endorsements on consumer perceptions and purchase decisions. The theoretical aspect involves a comprehensive secondary data collection process, drawing from books, articles, and academic papers to enhance understanding of influencer tactics, customer reactions, and ethical considerations within contemporary marketing environments. Additionally, the study utilizes a quantitative research methodology to investigate the direct impact of social media influencers on product promotion.

The research design integrates primary data collected through a structured survey questionnaire. Data was gathered via an online survey distributed to a representative sample of 115 participants. Stratified random sampling was used to ensure the representativeness of the sample, dividing the population into subgroups based on characteristics such as age, gender, and geographic location. Targeted recruitment strategies ensured diverse participation, and the final sample was designed to reflect variations in age, gender, education, and geography, thereby enhancing the generalizability and accuracy of the findings. The survey included Likert-scale questions to measure respondents' engagement with influencer content, purchasing behaviour influenced by influencers, comparisons of influencers to traditional advertisements, research behaviour following influencer promotions, and the relevance of product recommendations to personal interests.

Advanced statistical analyses were conducted using SPSS software to test the hypothesis. A One-Sample t-test was utilized to assess whether the mean responses to specific survey statements significantly differed from a neutral midpoint (typically set at 3 on a 5-point scale). This test helped gauge the level of agreement or disagreement with statements regarding engagement with influencers, purchasing behaviour, and perceptions of influencers compared to traditional advertisements.

Additionally, a regression model was developed to evaluate how multiple independent variables—such as consumer behaviour, ethics and transparency, influencer content authenticity, and social media influencers' content—impact the dependent variable of product promotion. The Normal P-P Plot was used to verify the normality of residuals, with points near the diagonal line suggesting that residuals were approximately normally distributed. Furthermore, a scatterplot of standardized residuals against standardized predicted values displayed a random distribution around the horizontal axis, indicating no increasing or decreasing variability with predicted values, thus confirming the assumption of homoscedasticity.

This study also carefully considered ethical guidelines. All participants provided informed consent, and their responses were anonymized to ensure privacy. The research adhered to ethical standards to maintain the integrity and confidentiality of the data collected.

#### **4. RESEARCH RESULTS**

A survey questionnaire was employed to investigate consumer views on influencer marketing, yielding valuable insights into people's expectations, interests, and habits in the digital age. The findings provide critical feedback to both companies and influencers regarding key issues that shape influencer partnerships.

The research sample (N=115) included respondents with diverse sociodemographic characteristics. In terms of age distribution, the majority of participants fell within the 18-34 age group, with 35.7% aged 18-24 and 33.9% aged 25-34. Other age groups were represented in smaller proportions, including 14.8% aged 35-44, 9.6% aged 45-54, 5.2% aged 55-64, and 0.9% above 65 years. The average age of respondents was approximately 31.73 years. Gender distribution was predominantly female, accounting for 64.3%, with males constituting 33.9%. A small percentage (1.8%) preferred not to disclose their gender.

Regarding education, 30.4% of the respondents held a bachelor's degree, and an equal proportion (30.4%) held a master's degree. A notable portion (19.1%) had completed some college or vocational training, while 13.9% were high school graduates. A smaller percentage (6.1%) held doctoral degrees, and none reported having less than a high school education. In terms of income distribution, the majority fell into the lower income brackets, with 34.8% earning below €1,000 and another 34.8% earning between €1,000-2,500 per month. Additionally, 22.6% reported earning between €2,501-5,000, while smaller percentages fell into higher income brackets: 3.5% earned €5,001-7,500, 0.9% earned €7,501-10,000, and 3.5% earned more than €10,000 per month.

The respondents' usage of internet-accessible devices revealed several notable patterns. All participants (100%) reported using smartphones, followed by 72.2% who use laptops, 20.9% who use tablets, and 16.5% who use desktop computers. In terms of device usage, most respondents (86.1%) used their devices primarily for communication. Additionally, 81.7% used them for social media, 77.4% for work or professional tasks, 65.2% for education, and 56.5% for entertainment.

Regarding time spent on social media, the distribution was as follows: 16.5% of respondents spent less than 30 minutes per day, 17.4% spent 30 minutes to 1 hour, 27% spent 1 to 2 hours, 23.5% spent 2 to 3 hours, 9.6% spent 3 to 4 hours, and 6.1% spent more than 4 hours daily. The most frequently used social media platforms among the respondents were Instagram (68.7%), followed by Facebook (42.6%), TikTok (39.1%), LinkedIn (36.5%), Snapchat (13.9%), and Twitter (13%).

Cronbach's alpha coefficient (Table 1) of 0.878 indicates a high level of internal consistency reliability for the scale used in this study, suggesting that the items are reliable measures of the construct being investigated. With a sample size of 115 respondents and 18 items in the scale, this coefficient reflects a strong correlation among the items, implying that they consistently assess the same underlying construct or concept. In general, a Cronbach's alpha value above 0.7 is considered acceptable for research purposes, while values exceeding

0.8 are regarded as very good [DeVellis, 2016]. Descriptive statistics display 18 statements on which hypothesis H1 is based. It presents values: sample size, minimum and maximum range, mean, standard deviation, and variance.

Table 1. Cronbach's alpha coefficient (H1)

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,878	,877	18

Source: Authors

Questions are posed on a Likert scale, where "1" represents the lowest and "5" is the highest. The "Mean" column denotes the arithmetic mean of the items, while the standard deviation results represent the deviation from the arithmetic mean. The table's standard deviations per selected item are small, indicating that the arithmetic mean accurately represents the research results. From the obtained results of descriptive statistics, it can be observed that the highest number of respondents assigned the highest mean score to statements: "It is important for influencers to promote socially responsible or ethical brands/products" (Mean=4.15;  $\sigma$ =0.984), "I believe the influence of social media influencers on consumer behaviour will increase in the future" (Mean=4.04;  $\sigma$ =0.981), and "Stricter regulations in influencer marketing would enhance trust and credibility in the industry" (Mean=4.02;  $\sigma$ =0.963). Based on these descriptive statistics, it appears that while respondents generally tend to more or less agree with the statements, there is relatively little variability in their responses.

Table 2. One-sample t-test (H1)

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
I frequently engage with content created by social media influencers.	24,956	114	,000	2,704	2,49	2,92
I often purchase a product/service based on an influencer's recommendation.	20,756	114	,000	2,026	1,83	2,22
The relevance of a product or service to my interests significantly influences my decision to trust an influencer's recommendation.	30,732	114	,000	3,357	3,14	3,57
I engage in product/service research after encountering it in an influencer's promotion.	27,830	114	,000	3,174	2,95	3,40
I consider social media influencers more influential in purchasing decisions compared to traditional advertisements.	25,823	114	,000	3,078	2,84	3,31

Source: Authors

To confirm the hypothesis that social media influencers have a direct and positive impact on maximizing product promotion, the most relevant statements from the One-Sample Test (Table 2) are as follows:

- *I frequently engage with content created by social media influencers* - the results  $t(114) = 24.956$ ,  $p < 0.001$ , mean difference = 2.704 (95% CI: 2.49 to 2.92) indicate that respondents frequently engage with influencer content, demonstrating their active role in product promotion.

- *I often purchase a product/service based on an influencer's recommendation* – the t-test results are  $t(114) = 20.756$ ,  $p < 0.001$ , mean difference = 2.026 (95% CI: 1.83 to 2.22). This statement confirms that influencer recommendations lead to product or service purchases, a critical aspect of product promotion.

- *I consider social media influencers more influential in purchasing decisions compared to traditional advertisements.* The results  $t(114) = 25.823$ ,  $p < 0.001$ , mean difference = 3.078 (95% CI: 2.84 to 3.31) highlight the influence of social media influencers in comparison to traditional advertising, indicating their superior role in product promotion.

- *I engage in product/service research after encountering it in an influencer's promotion.* This statement and its t-test results  $t(114) = 27.830$ ,  $p < 0.001$ , mean difference = 3.174 (95% CI: 2.95 to 3.40) show that influencer promotions prompt product/service research, contributing to promotion and potential purchases.

- *The relevance of a product or service to my interests significantly influences my decision to trust an influencer's recommendation* - the t-test results are  $t(114) = 30.732$ ,  $p < 0.001$ , mean difference = 3.357 (95% CI: 3.14 to 3.57) This highlights the importance of targeted content in product promotion, where the relevance of the product significantly influences trust and purchase decisions.

All results are statistically significant ( $p < 0.001$ ) and indicate mean differences significantly greater than zero. This provides strong support for the hypothesis that social media influencers today directly and positively influence product promotion. Respondents frequently engage with influencer-generated content, purchase products based on influencer recommendations, perceive influencers as more relevant and influential than traditional advertisements, and often research products or services after encountering them in influencer promotions.

The regression model (Table 3) was employed to assess the impact of multiple independent variables on the dependent variable, specifically evaluating how factors such as understanding consumer behaviour, ethics and transparency, influencer content authenticity, and social media influencers' content influence product promotion.

Table 3. Regression analysis (H1)

		ANOVA <sup>a</sup>				
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46,482	4	11,620	10,305	,000 <sup>b</sup>
	Residual	124,040	110	1,128		
	Total	170,522	114			

a. Dependent Variable: Product promotion.

b. Predictors: (Constant), Understanding consumer behaviour, Ethics and transparency, Influencer content authenticity, Social media influencers' content.

Source: Authors

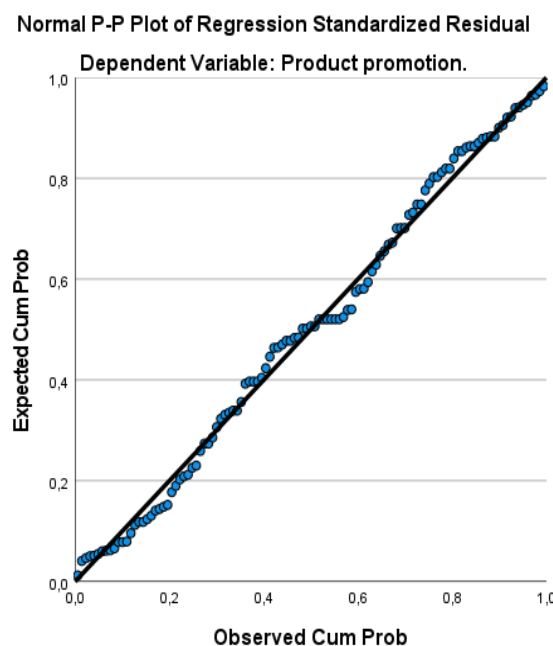
This test utilizes ANOVA to evaluate the significance of the regression model and the influence of the independent variables on the dependent variable. The results indicate degrees of freedom (df) of 4 for the regression model and 110 for the residuals, for a total of 114. Mean Square values are 11.620 for the regression and 1.128 for the residuals. The F-value of 10.305 is statistically significant ( $p < 0.001$ ), indicating that the combination of the



independent variables (understanding consumer behaviour, ethics and transparency, influencer content authenticity, and social media influencers' content) significantly predicts the dependent variable (product promotion).

The results suggest that the model includes significant predictors that collectively explain the variation in product promotion, further supporting the hypothesis that social media influencers have a direct and positive impact on maximizing product promotion. The findings indicate that the independent variables substantially influence product promotion, confirming the critical role that social media influencers and related factors play in this context. Consequently, the regression model demonstrates that the independent variables are significant predictors of product promotion, reinforcing the hypothesis that social media influencers positively and directly contribute to product promotion.

Graph 1. Testing the normality of residuals (H1)



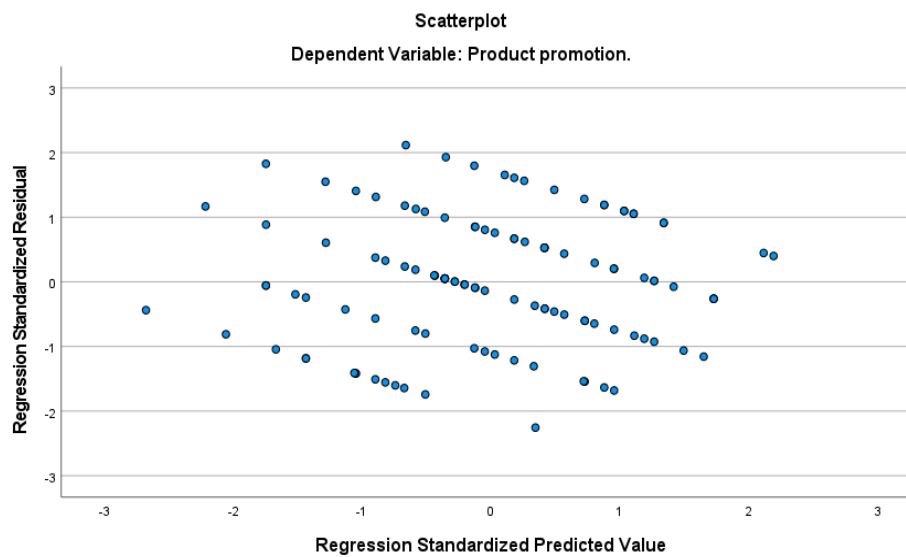
Source: Authors

Based on the provided graphs (Graph 1 and Graph 2), the normality of residuals and the presence of any patterns or deviations were analyzed. The Normal P-P Plot (Graph 1) illustrates the cumulative probability of observed standardized residuals against the expected cumulative probability for a normal distribution.

The points on the plot lie close to the diagonal line (the line of 45 degrees), suggesting that the residuals are approximately normally distributed. Minor deviations from the line are standard and do not necessarily indicate a serious violation of the normality assumption. Overall, the P-P plot indicates that the distribution of residuals closely matches a normal distribution, supporting the normality assumption.

The Scatterplot (Graph 2) displays standardized residuals against standardized predicted values. The dispersion of points is randomly distributed around the horizontal axis ( $y=0$ ), which is a good sign.

Graph 2. Testing the homoscedasticity of residuals (H1)



Source: Authors

This finding indicates the absence of any obvious patterns, suggesting that the residuals do not exhibit variability that increases or decreases with predicted values. The lack of straightforward linear or curvilinear patterns indicates that the model's linear assumptions are satisfied. Consequently, the assumption of homoscedasticity (equal variability) is fulfilled, which is crucial for the validity of the regression model. Based on these graphs, the fundamental assumptions of regression analysis are met, providing confidence in the accuracy and reliability of the model results. This further supports the hypothesis that social media influencers have a direct and positive impact on maximizing product promotion.

## 5. DISCUSSION

This paper reveals crucial insights into influencer marketing, emphasizing the significant role of transparency and authenticity in influencer partnerships. The findings highlight a shifting consumer landscape, where individuals increasingly value genuine connections and trustworthy recommendations. This observation aligns with prior research by Voramontri and Lieb (2019) and Joshi et al. (2023), reinforcing the impact of influencers on purchasing decisions.

The study supports the hypothesis that social media influencers significantly enhance product promotion. Furthermore, the high Cronbach's alpha coefficient of 0.878 indicates strong internal consistency reliability for the scale used, suggesting that the items effectively measure the intended construct. This reliability enhances the validity of the research findings and instills confidence in the drawn conclusions. Descriptive statistics provide a comprehensive overview of respondents' perceptions, revealing consistent trends in their attitudes toward influencer marketing. The minor standard deviations indicate minimal variability in responses, suggesting a high level of agreement among participants.

The One-Sample t-tests conducted reveal that respondents frequently engage with influencer content [ $t(114) = 24.956, p < 0.001$ ], often purchase products based on influencer recommendations [ $t(114) = 20.756, p < 0.001$ ], and perceive influencers as more influential than traditional advertisements [ $t(114) = 25.823, p < 0.001$ ]. Moreover, influencer promotions

prompt significant product research [ $t(114) = 27.830, p < 0.001$ ], and the relevance of a product to personal interests greatly influences trust in influencer recommendations [ $t(114) = 30.732, p < 0.001$ ]. These findings align with prior research emphasizing the growing impact of social media influencers on consumer behavior. For instance, Hughes et al. (2019) demonstrated that influencers' recommendations significantly affect purchase intentions, particularly among younger demographics more engaged with social media platforms. Similarly, De Veirman et al. (2017) highlighted that the perceived authenticity of influencers enhances consumer trust and engagement, leading to higher conversion rates. The importance of message value and credibility in influencer marketing is further supported by Lou and Yuan (2019), who found that these factors significantly affect consumer trust in branded content on social media. Additionally, Djafarova and Rushworth (2017) explored the credibility of online celebrities' Instagram profiles, showing that such credibility influences the purchase decisions of young female users, reinforcing the critical role of trust and authenticity in influencer marketing.

The regression model used in this study further supports the hypothesis by identifying significant predictors of product promotion, including understanding consumer behavior, ethics and transparency, influencer content authenticity, and the nature of social media influencers' content. The ANOVA results [ $F(4, 110) = 10.305, p < 0.001$ ] confirm that these variables collectively explain a significant portion of the variance in product promotion, corroborating findings from existing literature on the critical role of these factors in influencer marketing effectiveness.

Graphical analysis of residuals confirms the validity of the regression model, indicating that the assumptions of normality and homoscedasticity are met. The Normal P-P Plot and Scatterplot demonstrate that residuals are normally distributed and exhibit no apparent pattern, thereby supporting the reliability of the model results.

## 6. CONCLUSION

This paper affirms the significant impact of social media influencers on product promotion, demonstrating their effectiveness in engaging consumers, influencing purchase decisions, and driving product research. The findings underscore the importance of transparency, authenticity, and relevance in influencer marketing. Marketers can leverage these insights to optimize their strategies, ensuring that influencer partnerships align with consumer expectations and preferences.

The research findings comprehensively explain why influencers are more impactful than traditional advertising. According to the results from the One-Sample t-tests, respondents frequently engage with influencer content and often purchase products based on these recommendations. This is supported by Brown and Hayes (2008), who highlight that understanding consumer behaviour allows brands to effectively target and engage influencers who resonate with their audience's interests. Consequently, consumers are more likely to purchase products based on influencer endorsements. Furthermore, Khamis et al. (2016) assert that ethics and transparency play a crucial role in building trust in influencers. Transparency in labelling sponsored content enhances the credibility of influencers, explaining why respondents tend to trust them more than traditional advertisements. The authenticity of influencer content and the number of followers significantly impact consumer attitudes, as shown by De Veirman et al. (2017). Influencer content that appears authentic and relevant

improves brand attitudes and increases the likelihood of consumers responding positively to recommendations, including making purchases and conducting product research.

Additionally, Lou and Yuan (2019) emphasize that social media influencer content directly influences consumers' purchase intentions, indicating that influencer promotions significantly stimulate product research. The relevance of a product to personal interests further enhances the credibility of influencers, supporting the notion that product relevance contributes to trust in their recommendations. Collectively, these findings confirm that engagement with influencer content, transparency, authenticity, and product relevance make influencers significantly more impactful than traditional advertisements, greatly contributing to prompting product research and purchase decisions among consumers. The results underscore the shifting dynamics of digital marketing, wherein influencer-driven approaches increasingly supplement traditional advertising methods. As consumers continue to seek authentic and relatable content, the role of social media influencers is likely to expand, necessitating a focus on ethical and transparent practices in brand collaborations.

This study makes a significant scientific contribution to understanding the role of social media and influencers in product promotion. It provides empirical evidence that influencers have a direct and positive impact on product promotion, aligning with and extending existing literature through specific quantitative data. The insights related to digital marketing—including social media marketing and the role of influencers—are crucial elements of strategic communication in today's marketing landscape. Additionally, the study identifies key predictors of successful product promotion through influencers, such as understanding consumer behaviour, ethics and transparency, influencer content authenticity, and the nature of social media content. These findings can assist marketing professionals in directing their strategies with influencers, thereby enhancing strategic communication and digital marketing efforts. Moreover, the analysis of residual plots confirms the reliability of the statistical models employed, offering a methodological framework for future research in this area. This study contributes to a better understanding of how influencers affect consumer behaviour and provides practical guidelines for optimizing strategic communication and marketing strategies in the digital age.

However, this study has several limitations. First, the sample size is relatively small and homogeneous, which may limit the generalizability of the results to a broader population. Most respondents belong to a specific demographic group already active on social media, potentially introducing bias into the findings. Second, the study relies on self-reported data, which can lead to subjective biases and inaccuracies. Third, the research was conducted within a specific timeframe without accounting for potential changes in consumer behaviour over time. Finally, not all variables that could impact the effectiveness of product promotion via influencers were included in the analysis, suggesting that additional factors may warrant consideration in future studies.

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## **ISTRAŽIVANJE UTJECAJA STAVOVA I SKEPTICIZMA NA NAMJERU KUPOVINE ZELENIH PROIZVODA U KASNIH ADOLESCENATA U GRADU ZAGREBU**

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### **SAŽETAK**

*Stavovi o kupnji zelenih proizvoda kod kasnih adolescenata igraju ključnu ulogu u oblikovanju njihovih potrošačkih navika i doprinose ukupnoj održivosti društva. Kasna adolescencija je važno razdoblje kad mladi razvijaju svoj identitet i postaju sve samostalniji u donošenju odluka, uključujući i one koje se odnose na kupovinu. Cilj rada bio je istražiti utjecaj stavova i skepticizma na namjeru formiranja kupovine zelenih proizvoda u kasnih adolescenata na području Grada Zagreba. Primarnim eksplorativnim istraživanjem obuhvaćeno je 282 kasnih adolescenata, odnosno osoba između 18. i 24. godine života. Rezultati pokazuju umjereno visoku razinu svjesnosti o potrebi očuvanja i brige za okoliš. Međutim, ta briga se ne pretače u akciju, odnosno ne ogleda se u proporcionalno zastupljenoj kupnji zelenih proizvoda koja je relativno niska. Pritom muški adolescenti pokazuju veću skeptičnost prema zelenim proizvodima u odnosu na adolescentice koje ujedno pokazuju i veće znanje te aktivnosti vezane uz ekološke probleme i samu kupnju zelenih proizvoda. Rezultati ovog istraživanja pokazuju stupanj znanja o ekologiji, razinu skepticizma, razinu povjerenja u zelene proizvode te poduzetih ekoloških aktivnosti. Identificirane su najčešće zelene marke i učestalost njihove kupnje. Rezultati ovog istraživanja značajni su za marketinške stručnjake koji ih mogu koristiti kako bi adekvatno oblikovali ponudu, informiranje i komunikaciju vezanu uz zelene proizvode te tako utjecali na pozitivne promjene u odgovornom kupovnom ponašanju kasnih adolescenata u Republici Hrvatskoj.*

**KLJUČNE RIJEČI:** ekologija, kasni adolescenti, zeleni proizvodi, marketing, namjera kupnje, Zagreb

## RESEARCH ON THE IMPACT OF ATTITUDES AND SKEPTICISM ON THE INTENTION TO PURCHASE GREEN PRODUCTS AMONG LATE ADOLESCENTS IN THE CITY OF ZAGREB

### ABSTRACT

*Attitudes towards the purchase of green products among late adolescents play a crucial role in shaping their consumer habits and contribute to the overall sustainability of society. Late adolescence is a significant period when young individuals develop their identity and become increasingly independent in decision-making, including those related to shopping. The aim of the study was to investigate the influence of attitudes and skepticism on the intention to form the purchase of green products in late adolescents in the City of Zagreb. The primary exploratory research included 282 late adolescents, individuals aged between 18 and 24 years. The results indicate a moderately high level of awareness of the need for environmental protection and global environmental problems. However, this concern does not translate into action, as reflected in the relatively low proportional representation of purchasing of the green products. In this context, male adolescents exhibit greater skepticism towards green products compared to female adolescents, who also demonstrate higher knowledge and activities related to ecological issues and the purchase of green products. The results of this research reveal the level of knowledge about ecology, the level of skepticism, trust and confidence in green products, and ecological behavior and activities. The most common green brands and the frequency of their purchase were identified. The findings of this study are significant for marketing professionals who can use them to appropriately shape value offers, information, and communication related to green products, thereby influencing positive changes in responsible purchasing behavior among late adolescents in the Republic of Croatia.*

**KEYWORDS:** ecology, late adolescents, green products, marketing, purchase intention, Zagreb

### 1. UVOD

Ovaj rad vezan je uz istraživanje stavova i skepticizma te njihov utjecaj na kupnju zelenih proizvoda kod kasnih adolescenata. S obzirom da se ljudska populacija mijenja kroz godine i generacije, tako se mijenjaju i njihovi stavovi što posebno ovisi o obrazovanju, informiranosti, svjesnosti i razini znanja pojedinih generacija. S obzirom na aktualnosti vezane uz negativne klimatske promjene te na sve veći izbor i ponudu zelenih proizvoda u trgovinama, nameće se nužnost istraživanja stavova i skepticizma mlađih skupina potrošača prema tim, važnim pitanjima. Jedan od segmenata vezanih uz to područje su i zeleni proizvodi, koji, ukoliko ih se na pravilan način proizvodi i koristi te nakon korištenja i zbrinjavanja, mogu postupno doprinijeti smanjenju štetnog ljudskog utjecaja na okoliš. Marketing je kao znanost upućen u istraživanje ponašanja potrošača i ima veliku ulogu u informiranju i utjecaju na potrošače. On svojom sveprisutnošću kroz komunikacijske i distribucijske kanale lako dopire do skupine kasnih adolescenata koji redovito koriste Internet i društvene mreže te na taj način ima ulogu u formiranju njihovih stavova, bilo pozitivnih ili negativnih. S obzirom na to da stavovi, kao središnja komponenta misaone strukture, imaju vrlo važnu ulogu u ponašanju pojedinaca često će o njima ovisiti i poduzimanje ili nepoduzimanje akcije u odnosu na pojedine situacije ili objekte. Osim stavova, razina skepticizma također ovisi o djelovanju prema nekoj situaciji ili



objektu, te s povećanjem razine skepticizma, dolazi i do negativnih konotacija pa se pojedinac odlučuje ne djelovati. Prema Nefat [2015] ciljevi zelenog marketinga su upravo jačanje ekološke svijesti potrošača i poticanje promjene pristupa poslovanju na način da poduzeća smanje zagađenje te potiču osviještenost. Poduzeća su svjesna jačanja uloge zelenog marketinga i važnosti smanjenja zagađenja što dovodi do privlačenja zelenih potrošača. No, zbog toga učestalo dolazi i do zloupotreba, odnosno javlja se zavaravanje potrošača kroz neistinito oglašavanje poduzeća kao ekološki prihvatljivih, dok zataškavaju negativne informacije koje njihovo djelovanje ima na okoliš.

U ovom radu predstavljeno je istraživanje vezano uz stavove i skepticizam kasnih adolescenata te kako oni utječu na namjeru kupovine zelenih proizvoda, ali i kako na nju utječe promjenjivost okruženja, utjecaj obitelji i prijatelja te individualne vrijednosti pojedinih osoba.

## **2. ULOGA I VAŽNOST ZELENOG MARKETINGA I ZELENIH PROIZVODA**

Potrošači se susreću s brojnim promjenama u okruženju, a jedna od njih svakako je i značajan negativni utjecaj koje klimatske promjene imaju na svijet u kojem živimo. Zbog jačanja i očitosti negativnih klimatskih promjena, dolazi i do sve veće ekološke osviještenosti o potrebi promjene ponašanja kako bi se smanjili negativni ljudski utjecaji na cjelokupni ekološki sustav. Marketing je često opravdano na meti kritika zbog poticanja na povećanu i katkad nepotrebnu potrošnju, odnosno na naglašavanje potrošačkog stila života, gdje se potrošnja i kupnja proizvoda i usluga postavljaju u središte interesa i čine sustav vrijednosti. To uključuje tendenciju da se identitet, društveni status i sreća često mjere na temelju materijalnih dobara i statusnih simbola koje osoba posjeduje. Međutim, isto tako suvremeni, društveno osviješteni marketing proizašao iz konzumerističkih pokreta 60-ih godina prošlog stoljeća [Kotler, 1972] predstavlja pozitivnu promjenu usmjerenu na više društvene odgovornosti, uključujući i onu ekološku. Tako uloga marketinga danas može imati snažan značaj pri stvaranju promjena u ponašanju i životima potrošača što može rezultirati smanjivanjem negativnog utjecaja na okoliš, a upravo je to glavna odrednica zelenog marketinga. Prema Nefat [2015], jedna od komponenta u funkciji ostvarenja održivosti jest upravo zeleni marketing. Održivi razvoj postaje imperativ, a zeleni marketing služi kao sredstvo njegove provedbe u poduzećima s ciljem očuvanja okoliša. American Marketing Association [2023] definira zeleni marketing kao „razvijanje proizvoda za koje se pretpostavlja da su sigurni za okoliš, odnosno da su dizajnirani da minimaliziraju negativne učinke na okoliš ili da poboljšaju njegovu kvalitetu. Također, taj se izraz može koristiti za opisivanje truda uloženog u proizvodnju, promociju, pakiranje i ponovni povrat proizvoda na način koji je odgovoran prema ekološkim pitanjima“.

Važnost zelenog marketinga očituje se u aktualnim pitanjima vezanim uz globalne klimatske promjene koje postupno mijenjaju lice Zemlje, svijet biljaka i životinja te na kraju i živote ljudi koji će se, ukoliko se ne dogodi bitna promjena, naći u svom materijalizmu s tehničkim dostignućima, ali u svijetu čija je bioraznolikost zauvijek uništena [Nefat, 2015]. Prema Polonsky [1994], zeleni je marketing dobio na važnosti temeljem osnovne ekonomske definicije: ekonomija proučava kako koristiti ograničene resurse, a da se zadovolje želje; uzevši to u obzir, zeleni marketing promatra kako marketinške aktivnosti koriste resurse koji su ograničeni, a da i dalje zadovoljava potrebe potrošača i industrije te da poduzeća ostvaruju svoje ciljeve. Shinde [2023] u časopisu Emeritus navodi da se važnost zelenog marketinga očituje u: podizanju svijesti o zaštiti okoliša te da on potiče na donošenje održivih odluka, omogućujući poduzećima diferencijaciju od konkurenata te privlačenju zelenih potrošača, pomaže smanjiti

negativan utjecaj na okoliš, donosi veću korist poduzeću kroz stjecanje lojalnih zelenih kupaca i pozitivne reputacije te može pomoći u stvaranju pozitivnih promjena i doprinosi održivoj budućnosti.

Zeleni proizvodi su oni proizvodi koji imaju manji učinak na okoliš te su manje štetni za zdravlje ljudi od konvencionalnih proizvoda [Nefat, 2015 prema Thogersenu, Haugaardu i Olsenu, 2010]. Oni su prijateljski okolišu ne samo za vrijeme upotrebe, već i u njihovoj proizvodnji te odlaganju [Nefat, 2015 prema Kumaru, 2011]. Zeleni su proizvodi rješenja koja su manje štetna za okoliš kako bi se prilagodili novonastalom ponašanju društva [Bergamaschi, Ferraz i Martins, 2022 prema Ottmanu, 2012]. Franky i sur. [2021] navode da su zeleni proizvodi danas jedan od najbrže rastućih trendova u poslovanju, a njihova proizvodnja i navike zelene potrošnje iz dana u dan doživljavaju veliki rast [Nekmahmud i Fekete-Farkas, 2020]. Navedeno se očituje i u ponašanju potrošača pa tako istraživanja pokazuju kako primjerice oko 75% studenata u Europi tvrdi da su počeli usvajati ekološke navike [Uddin i Khan, 2016]. Prema Kumaru i Ghodeswaru [2015], postoje dvije skupine čimbenika zbog kojih zeleni potrošači donose odluke o kupovini zelenih proizvoda: prva skupina uključuje realizaciju ekološke odgovornosti, stjecanje znanja, interesa i djelovanje za očuvanje resursa te smanjenje utjecaja na okoliš; a u drugu spadaju vanjski čimbenici poput kvalitete, sigurnosti, cijene, promocije, utjecaja na zdravlje. Zeleni su potrošači pojedinci koji u trenutku donošenja kupovne odluke uzimaju u obzir raspoloživo znanje za odabir alternative koja za njih predstavlja optimalnu kombinaciju zadovoljavanja potreba i dobiti za okoliš [Ham, 2009], a povećana svijest potrošača o ekološkim i zdravstvenim pitanjima značajno je povećala potrošnju zelenih i organskih proizvoda u posljednjih nekoliko godina [Sunaryo i Aisjah, 2018]. Istraživanje Uddina i Khana [2018] pokazuje da niža razina znanja o zelenim proizvodima rezultira slabijem ekološkim ponašanjem. Rastuća svijest o ekološkim problemima i njihovim posljedicama te povezanim zdravstvenim implikacijama [Khare i Pandey, 2016] promijenila je obrasce potrošnje među mladim potrošačima na tržištima u razvoju [Kautish P. i Sharma R., 2019 prema Adnan i sur., 2017 i Jaiswal i Singh, 2017]. Prema Norazahu [2016], potrošači su svoju rastuću zabrinutost za okoliš usmjerili u potražnju za ekološki prihvatljivim proizvodima, a pokret „zelenog života“ se rasprostranio diljem svijeta zbog povećanja svijesti o važnosti življenja na zdraviji način. Prema Sarkaru i Yadavu [2018] održivost je postala ključna za organizacije koje teže stvaranju konkurentskih prednosti na globalnom tržištu, a održiva su ponašanja ona koja poduzimaju akcije za očuvanje i zaštitu ekosustava i okoliša [Royne i sur., 2016 prema Harvard University Office for Sustainability, 2010].

### **3. STAVOVI I SKEPTICIZAM KAO ODREDNICE NAMJERE KUPNJE ZELENIH PROIZVODA U KASNIH ADOLESCENATA**

Obilježje procesa donošenja odluke o kupnji zelenih proizvoda karakterizira dodatni utrošak vremena. To obilježje je prisutno zbog potrošačeve nedovoljne informiranosti o zelenim proizvodima i o poduzećima koja ih proizvode pa potrošači na prodajnom mjestu trebaju pronaći zelenu alternativu koja će odgovarati uobičajenom proizvodu koji su do tada kupovali [Nefat, 2015, prema Basgoze, 2012]. Cheah i Phau [2011] prema Robertsu i Baconu [1997] navode da su ponašanje potrošača i ekološki stavovi vitalni i složeni koncepti koji su nužni za razumijevanje profila ekološki osviještenog potrošača, no varijabla poput skepticizma vrlo se rijetko istražuje iako je on do sada imao ili još uvijek ima negativan utjecaj na potrošačevo ponašanje pri kupnji zelenih proizvoda [Albayrak, Aksoy i Caber, 2013]. Franky [2021] prema Hamu [2010] navodi kako mnogobrojni istraživači smatraju da osobe s višom razinom obrazovanja imaju bolju sposobnost razumijevanja ove teme u odnosu na ljude s nižom razinom

obrazovanja te da je razumijevanje stavova mladih generacija neophodno i da toj skupini treba posvetiti više pažnje jer će oni biti „budući čuvari pitanja okoliša i utjecat će na održivost postojanja“ [Franky, 2021 prema Vermu i Chandri, 2018]. Mlade osobe smatraju se polazištem za racionalizaciju ekoloških dilema koje postoje u svijetu te su zbog fleksibilnosti njihova stava, svijesti, ideja i znanja o ekologiji, najutjecajniji potrošači zelenih proizvoda [Franky 2011]. Joshi i Rahman [2016] prema Tanneru i WölfingKastu [2003] i Vermeiru i Verbekeu [2006] navode da su prethodna istraživanja rezultirala slabom povezanosti između pozitivnog stava potrošača prema kupnji zelenih proizvoda te njihova stvarnog ponašanja pri kupnji. Iako potrošači pokazuju zabrinutost prema ekologiji te imaju pozitivan stav prema ekološkim proizvodima i održivosti, tržišni udio takvih proizvoda ograničen je na samo 1% do 3% ukupnog tržišta [Joshi i Rahman, 2016 prema Brayju i sur., 2011]. To znači da ekološki aspekti nemaju uvijek važnu ulogu u odlukama potrošača pri kupnji te da oni često zanemaruju ekološki utjecaj pri kupovini proizvoda [Joshi i Rahman, 2016 prema Mohru i sur., 2001]. Shodno navedenom, Hughner i sur. [2007] navodi da iako puno potrošača pokazuje pozitivan stav prema kupovini prehrambenih proizvoda koji su organski (njih 67%), samo će ih 4% zaista i kupiti. Dosadašnja su istraživanja pokazala da su žene više zabrinute za ekološka pitanja od muškaraca [Lee, 2018 prema Mostafa, 2007] te da, primjerice u Indiji, potrošači mlađi od 30 godina više cijene i vjeruju u zelene proizvode i njihov utjecaj na okoliš nego starije osobe [Sindhart, 2016 prema DuPontu, 2014]. Pri kupovini zelenih proizvoda, važan čimbenik je prethodno pozitivno iskustvo potrošača s tim proizvodom ili nekim drugim zelenim proizvodom [Nefat, 2015]. Skepticizam nije vrsta raspoloženja i javlja se samo u određenim okolnostima, a osobe koje sumnjaju u ono što drugi čine ili govore nazivaju se skepticima, no njihove se sumnje mogu ukloniti ukoliko im se pružiti relevantni dokazi i objašnjenja [Albaryak, 2013]. Iako se skepticizam treba uzeti u obzir kod proučavanja ekološki osviještenih potrošača, ova varijabla često je zanemarena prilikom provedbe istraživanja, a istraživanja koja povezuju zeleno ponašanje pri kupnji zelenih proizvoda sa skepticizmom su vrlo ograničena [Albayrak, 2013 prema Obermilleru i sur., 2005]. Kreczmańska-Gigol [2022] prema Kalamasu, Clevelandu i Larocheu, [2014] te prema Scrutonu [2014] utvrđuje da su osobe koje imaju izražen religijski i konzervativni svjetonazor skloniji skepticizmu o pitanjima ljudske sposobnosti utjecanja na globalno okruženje. Manuel, Youn i Yoon [2014] i Mohr, Eroglu i Ellen [1998] navode da je skepticizam prema zelenom oglašavanju „negativna, kontekstualno specifična, kognitivna komponenta stavova potrošača prema zelenim proizvodima“, a povezuje se s procesom socijalizacije čiji razvoj proizlazi iz interakcije s vršnjacima, roditeljima te masovnim medijima [Mangleburg i Bristol, 1998]. Nadalje, Mangelburg [1998] prema Boushu, Friestadu i Rose [1994] te Brucksu, Armstrongu i Goldbergu [1988] navodi da skepticizam, u ovom kontekstu, implicira sposobnost mlađih dobnih skupina potrošača da prepoznaju „skriven“ motive oglašivača kojima je primarni cilj potaknuti kupnju zbog čega smatraju komunikaciju takve vrste pristranom i neistinitom. Zbog sve veće svjesnosti potrošača oko potencijalnog utjecaja na okoliš pri kupnji, proizvodi koji su označeni kao organski, održivi ili „eco-friendly“ postaju sve popularniji [Schmuck, Matthes i Naderer, 2018 prema Baum, 2012 te Parguelu, Benoit-Moreau i Russellu, 2015] pa zbog toga mnogi oglasi prikazuju iskrivljene činjenice koje ne sadrže konkretne informacije o stvarnim ekološkim karakteristikama proizvoda [Schmuck, Matthes i Naderer, 2018 prema Baum, 2012], a to se definira pojmom *greenwashing*. Greenwashing može kratkoročno stvoriti dobit za obmanjujuće tvrtke, no dugoročno će cijelo zeleno tržište doživjeti pad povjerenja a time i prodaje [Polonsky i sur., 1994], što je situacija u kojoj sve strane gube [Akturan, 2018]. Ali [2021] navodi da obrazac zelene potrošnje podrazumijeva korištenje proizvoda koji su proizvedeni upotrebom obnovljivih izvora energije ili preradivih materijala koji ne štete prirodnom okolišu, a razlozi kupovine takvih proizvoda su raznovrsni, no opće je poznato da briga za okoliš potječe iz marketinških kampanja i komunikacijskih kanala proizvodnih organizacija [Ali, 2021 prema

Chanu 2013]. Barbarossa i Pastore [2012] prema Öbersederu i sur. [2011] navode da percepcija dodatnih troškova kod kupovine ekoloških alternativa dovodi potrošače do zaključka da ekološki proizvodi nisu prihvatljiva zamjena za konvencionalne proizvode, stoga potrošači nastavljaju kupovati konvencionalne proizvode. Silva i sur. [2018] napominje da odnos između zelenog skepticizma potrošača i zelene potrošnje ovisi o tržištu koje se proučava pa tako u manje razvijenim zemljama, gdje je stupanj povjerenja u interakciji između tvrtki i potrošača obično nizak, povećanje znanja potrošača o ekološkim pitanjima dovodi do većeg stupnja zelenog skepticizma, što rezultira negativnim stavovima prema oglašavanju te nižom namjerom za kupovinom zelenih proizvoda. Istovremeno, skeptični potrošači razvijaju zabrinutost prema okolišu i potiču sklonost pretraživanju racionalnih informacija [Sinha i Annamdevula, 2022].

#### 4. CILJEVI I METODE ISTRAŽIVANJA

Glavni cilj istraživanja predstavljalo je ispitivanje stavova i skepticizma te njihov utjecaj na namjeru kupovine zelenih proizvoda kod kasnih adolescenata. Temeljem dosadašnjih istraživanja, očekuje se da će sklonost adolescentica prema kupovini zelenih proizvoda biti veća od sklonosti adolescenata te da će rezultati potvrditi dosadašnja istraživanja u kojima se ističe da potrošači brinu za okoliš, ali brigu ne pretaču u kupovinu zelenih proizvoda [Lee, 2008]. Suprotno dosadašnjim istraživanjima, pretpostavlja se da potrošači neće biti spremni izdvojiti veća novčana sredstva za kupovinu zelenih proizvoda te da se rezultati dosadašnjih istraživanja, u tom slučaju, neće ponoviti. U skladu s prikupljenim sekundarnim podacima i pregledom literature vezanim uz ovo područje, navedenom u prethodnom dijelu rada, formulirana su četiri glavna istraživačka pitanja:

1. Utvrditi u kojoj mjeri su kasni adolescenti u Gradu Zagrebu osviješteni u pogledu ekoloških problema te u kojoj mjeri doista kupuju zelene proizvode?
2. Utvrditi postoji li jaz između deklarirane namjere kupnje zelenih proizvoda i stvarne kupnje na maloprodajnom mjestu?
3. Utvrditi postoje li statistički značajne razlike vezane uz nezavisne varijable poput spola, stupnja obrazovanja i radnog statusa?
4. Utvrditi koje su najčešće zelene marke/proizvodi koje ispitanici kupuju?

Osim sociodemografskih pitanja, ispitivala se ekološka zabrinutost i znanje o ekologiji, doživljena ozbiljnost problema vezanih uz okoliš, odgovorno ponašanje prema okolišu, osobne vrijednosti, doživljena učinkovitost ekološkog ponašanja i društveni utjecaj te kupnja i skepticizam prema kupovini zelenih proizvoda.

Za potrebe istraživanja provedeno je jednokratno, opisno (kvantitativno) istraživanje, a kao instrument za provedbu korišten je visokostrukturirani anketni upitnik u elektronskom obliku. Upitnik se sastojao od nekoliko skupina pitanja. Tvrdnje vezane uz poznavanje ekoloških izazova i problema, ekoloških aktivnosti, ispitanika, skepticizma prema ekološkim proizvodima, odgovornom ekološkom ponašanju i kupnji sačinjavale su 38 pitanja s ponuđenom 5 stupanjskom Likertovom skalom. Istraživanjem je obuhvaćen prigodan uzorak od 282 osobe iz Grada Zagreba koje spadaju u skupinu starijih adolescenata (18 do 24 godine starosti) [Pierson, 2023], a upitnik se distribuirao putem e-mail adresa i uz pomoć društvenih mreža autora. Podaci su u prvom valu prikupljeni tijekom lipnja 2023. godine te u drugom valu tijekom listopada 2023. godine. Istraživanja autora Syadzwina [2021], Chi [2021] i Lee [2008] poslužila su kao podloga za razvijanje ovog upitnika, a odgovore je bilo moguće stupnjevat i Likertovom, intervalnom ljestvicom od 5 stupnjeva čime su ispitanici pokazali u kojoj mjeri smatraju da se navedene tvrdnje odnose na njih, zatim standardnim zatvorenim pitanjima s

ponuđenim odgovorima te jednog pitanja otvorenog tipa vezanog uz konkretne vrste ili marke (brendove) zelenih proizvoda koje učestalo kupuju.

## 5. REZULTATI ISTRAŽIVANJA

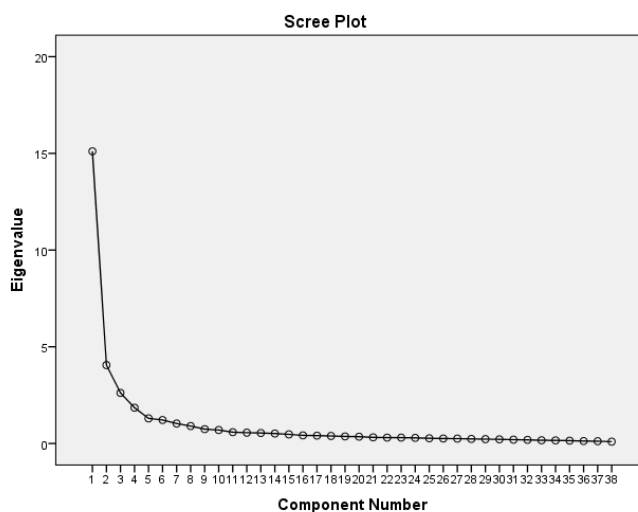
Uzorak se sastojao od 282 kasna adolescenta (18-24 godine starosti) s područja grada Zagreba. Od toga se 179 ispitanika (64,6%) izjasnilo kao žene, 98 (35,4%) kao muškarci dok ih se petero (1,8%) odbilo izjasniti. Većinom se radi o studentima (73,5%) što implicira da je većina ispitanika kao završen stupanj obrazovanja navela srednju školu (86,2%) što je posljedica odabrane, vrlo uske dobne skupine (segmenta) te namjerne prigodne vrste uzorka.

Tablica 1. Deskripcija nezavisnih varijabli uzorka

		N	%	Kumulativni %
Spol	muški	98	34.8	35.4
	ženski	179	63.5	100.0
	Total	277	98.2	
	nedostaje	5	1.8	
Ukupno		282	100.0	
Status	Učenik	63	22.3	22.3
	Student	207	73.4	95.7
	Zaposlen	12	4.3	100.0
	Ukupno	282	100.0	
Obrazovanje	Završena osnovna škola	16	5.7	5.7
	Završena srednja škola	243	86.2	91.8
	Završena viša škola ili fakultet	22	7.8	99.6
	Završen magisterij	1	.4	100.0
	Ukupno	282	100.0	

Kako bi se izvršila redukcija broja varijabli napravljena je faktorska analiza u koju je bilo uključeno 38 čestica (tvrdnji vezanih uz znanje o ekologiji, zelenim proizvodima, ekološkom ponašanju, skepticizmu, namjeri kupnje, zelenim aktivnostima, ponašanju i slično).

Prikaz 1. Grafički prikaz rasporeda pojedinih komponenti (varijabli) u odnosu na stupanj objašnjenja ukupne varijance



Scree Plot pokazuje da nakon četvrtog faktora, svaki sljedeći objašnjava sve manji dio varijance te je analizom izlučeno četiri faktora koji zajedno objašnjavaju ukupno 62,17% varijance. Faktori su ekstrahirani metodom analize glavnih komponentata (PCA) uz Varimax rotaciju. Pritom faktor 1 *Ekološko ponašanje i aktivnosti* objašnjava 39,8% varijance, faktor 2 *Znanje o ekološkim problemima* objašnjava 10,7% varijance, faktor 3 *Povjerenje u ekološke proizvode* 6,9%, a faktor 4 *Skepticizam* prema ekološkim pitanjima i ekološkim proizvodima objašnjava 4,9% varijance kako je navedeno u tablici koja slijedi.

Tablica 2. Rezultati faktorske analize

Component	Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1 – Ekološko ponašanje i aktivnosti	15.106	39.754	39.754	9.233	24.298	24.298
2 – Znanje o ekološkim problemima	4.054	10.668	50.421	7.030	18.500	42.798
3 – Povjerenje u ekološke proizvode	2.616	6.885	57.306	4.008	10.548	53.346
4 – Skepticizam	1.850	4.867	62.174	3.355	8.828	62.174

Ispitanici smatraju kako imaju relativno visoko znanje o ekološkim problemima s kojima se svijet i oni osobno suočavaju. S druge strane, razina povjerenja u ekološke proizvode te njihovo vlastito ekološko ponašanje i aktivnosti bitno zaostaju za razinom njihove subjektivne procjene poznavanja problematike, kako je vidljivo u tablici koja slijedi.

Tablica 3. Srednje vrijednosti izlučenih faktora

Faktor	N	Mean	Std. Dev.
Znanje o ekološkim problemima	282	3.60	0.55435
Povjerenje u ekološke proizvode	282	2.79	0.55754
Ekološko ponašanje i aktivnosti	282	2.76	0.56607
Skepticizam	282	2.25	0.45083

Pritom faktor *Znanje o ekološkim problemima* ima najveću srednju vrijednost  $M=3,60$ , slijedi *Povjerenje u ekološke proizvode* ( $M=2,79$ ), *Ekološko ponašanje i aktivnosti* ( $M=2,76$ ) te razina *Skepticizma* ( $M=2,25$ ). Međutim, tvrdnje (6 čestica) vezane uz skepticizam moguće je podijeliti u dvije skupine: skepticizam prema globalnim ili općenitim problemima ekologije koji je vrlo nizak ( $M=1,81$ ) te skepticizam prema vlastitim aktivnostima koji je mnogo viši ( $M=2,70$ ). Drugim riječima, ispitanici prepoznaju, svjesni su i zabrinuti brojnim ekološkim problemima (nisu skeptični u pogledu njihova postojanja i magnitude), ali su na osobnoj razini vrlo skeptični da će njihovo djelovanje, aktivnosti i ponašanje utjecati na smanjenje globalnih ekoloških problema s kojima se kao društvo suočavamo. Ovakvi rezultati, nažalost, upućuju na slabu educiranost mladih u pogledu potrebnih aktivnosti za smanjenje ekoloških problema. Nadalje, nazire se neizbrisivo naslijeđe socijalističkog mentaliteta, gdje se uvijek traži zaštita države ili „neke više strukture“ koja će poduzeti odgovarajuću akciju pritom zanemarujući individualnu odgovornost svih nas kao pojedinaca. Dakle, radi se o pasivnom ponašanje gdje se iščekuje da netko drugi riješi zajednički društveni problem.

Napravljena je korelacijska analiza kako bi se ispitali odnosi i povezanost između pojedinih varijabli. Rezultati pokazuju kako je *Povjerenje u ekološke proizvode* u umjerenj pozitivnoj statistički značajnoj linearnoj korelaciji s *Ekološkim ponašanjem i aktivnošću* kasnih adolescenata u Gradu Zagrebu ( $r=0,622$ ,  $p<0,01$ ). Faktor *Znanje o ekološkim problemima* u umjerenj je statistički značajnoj pozitivnoj korelaciji s *Ekološkim ponašanjem i aktivnostima* ( $r=0,645$ ,  $p<0,01$ ) te je *Ekološko ponašanje i aktivnosti* u statistički značajnoj pozitivnoj

korelaciji s količinom kupljenih zelenih proizvoda ( $r=0,435$ ,  $p<0,01$ ). Iz tablice s korelacijama u prilogu 1 vidljiva je statistički značajna pozitivna povezanost između znanja o ekologiji, ekološkog ponašanja i povjerenja u ekološke proizvode. Navedeno se očituje i u pozitivnoj linearnoj povezanosti s količinom kupljenih zelenih proizvoda. Najsnažnije je, kao što je očekivano, povezan faktor *Ekološko ponašanje i aktivnosti* s količinom kupljenih zelenih proizvoda ( $r=0,436$ ,  $p<0,01$ ), dok ostali faktori slijede ovaj trend, ali s nešto slabijim korelacijskim koeficijentima. Prilikom korelacije nezavisnih varijabli ispitanika (spol, stupanj obrazovanja i radni status) s izlučenim faktorima, samo varijabla spol pokazuje statistički značajne slabe linearne korelacije sa *Znanjem o ekologiji* ( $r=0,308$ ,  $p<0,01$ ), *Ekološkim ponašanjem i aktivnostima* ( $r=0,210$ ,  $p<0,01$ ) i *Povjerenjem u ekološke proizvode* ( $r=0,152$ ,  $p<0,05$ ) te slabu statistički značajnu korelaciju s faktorom *Skepticizam* ( $r= -0,194$ ,  $p<0,01$ ). Podaci pokazuju kako žene ostvaruju „bolje rezultate“; imaju veće znanje o ekološkoj problematici, više povjerenje u ekološke proizvode, izraženije ekološko ponašanje te nižu razinu skepticizma u odnosu na muške ispitanike. Nisu utvrđene statistički značajne linearne povezanosti između varijable *Spol* i količine kupljenih zelenih proizvoda. Također, nisu utvrđene statistički značajne linearne povezanosti između faktora i varijabli *Stupanj obrazovanja* i *Radni status* s ostalim odrednicama ekološkog ponašanja. Ovo se može objasniti time što predmet istraživanja pa tako i uzorak, sačinjava vrlo dobro (18-24 god.), edukativno (većinom se još obrazuju) te radno (većinom studenti) homogena grupa pa nema većih varijacija u uzorku.

Tablica 4. Korelacija između varijable „Spol“ i varijabli povezanih s ekološkim ponašanjem, znanjem, skepticizmom i kupnjom zelenih proizvoda

Spol	Skepticizam	Ekološko ponašanje i aktivnosti	Znanje o ekologiji	Povjerenje u ekološke proizvode	Kupnja zelenih proizvoda
Pearson Correlation	-.194**	.210**	.308**	.152*	0.017
Sig. (2-tailed)	0.001	0.000	0.000	0.011	0.773
N	277	277	277	277	277

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Također, t-test za jednakost srednjih vrijednosti ukazuje na statistički značajnu razliku u stavovima prema *Skepticizmu* prema ekologiji i zelenim proizvodima između muškaraca i žena ( $t=3,286$ ,  $p=0,001$ ). Nadalje, t-test ukazuje na statistički značajnu razliku u *Ekološkom ponašanju i aktivnostima* između muškaraca i žena ( $t=-3,568$ ,  $p=0,000$ ), *Znanju o ekologiji* ( $t=-5,368$ ,  $p=0,000$ ) te *Povjerenju u ekološke proizvode* ( $t=-2,550$ ,  $p=0,011$ ) kako je vidljivo u tablici 5. Rezultati t-testa potvrđuju postojanje statistički značajne razlike između muškaraca i žena u stavovima prema sva četiri faktora povezana s ekološkim ponašanjem, znanjem, povjerenjem i skepticizmom vezanim uz namjeru kupnje zelenih proizvoda.

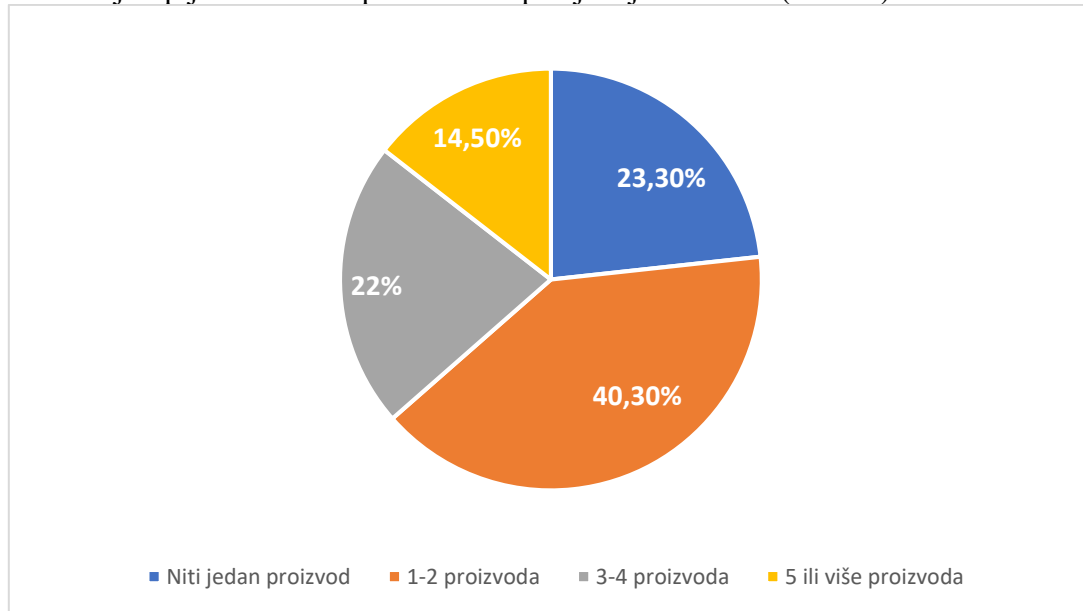
Tablica 5. Rezultat t-testa varijabli povezanih s ekološkim ponašanjem, znanjem, i skepticizmom u odnosu na grupiranu varijablu Spol

		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Skepticizam	Equal variances assumed	3.286	275	.001	.18370	.05590
	Equal variances not assumed	3.209	186.355	.002	.18370	.05724
Ekološko ponašanje i aktivnosti	Equal variances assumed	-3.568	275	.000	-.24824	.06957
	Equal variances not assumed	-3.612	206.914	.000	-.24824	.06872
Znanje o ekologiji	Equal variances assumed	-5.368	275	.000	-.35244	.06566
	Equal variances not assumed	-5.292	191.601	.000	-.35244	.06659

Povjerenje u ekološke proizvode	Equal variances assumed	-2.550	275	.011	-.17653	.06922
	Equal variances not assumed	-2.424	172.359	.016	-.17653	.07283

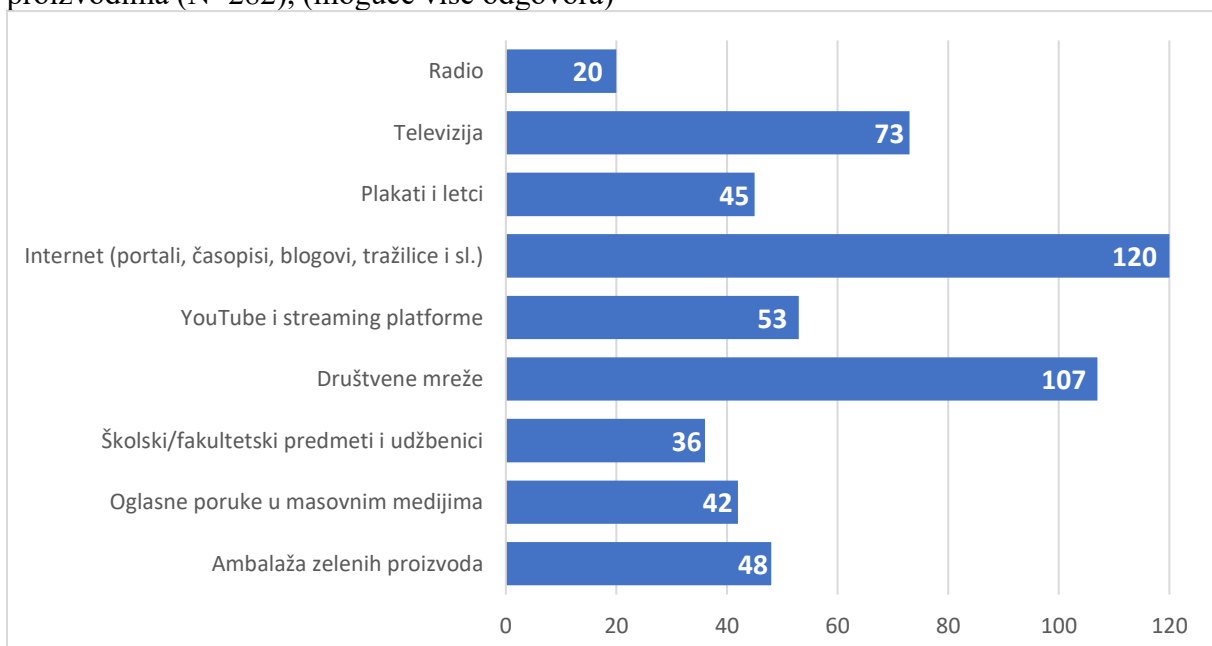
Količina kupljenih zelenih proizvoda u posljednjih 30 dana prikazana je na prikazu 2. Većina ispitanika (40,3%) tvrdi da su kupili 1-2 proizvoda, a nezanimarivih 23,3% nisu kupili niti jedan. Najmanje ispitanika (14,5%) kupilo je 5 i više zelenih proizvoda. Prosječno su ispitanici kupili 2,16 zelenih proizvoda u mjesec dana.

Prikaz 2. Broj kupljenih zelenih proizvoda u posljednjih 30 dana (N=282)



O ekologiji i zelenim proizvodima ispitanici se najčešće informiraju putem interneta, a slijede društvene mreže i televizija. Najmanji utjecaj imaju radio te školski predmeti i udžbenici kako je vidljivo na prikazu 3.

Prikaz 3. Korištenje komunikacijskih kanala za educiranje i informiranje o ekologiji i zelenim proizvodima (N=282), (moguće više odgovora)





Vezano uz otvoreno pitanje o tome koje zelene proizvode učestalo kupuju, 118 ispitanika (41,8%) uopće ne navode zelene proizvode koje su kupili, ili se ne mogu sjetiti, ne žele odgovoriti ili iz neznanja navode proizvode koji nisu zeleni i slično. Od tog broja, 45 osoba su muški ispitanici (45,9% od ukupnog broja muškaraca u uzorku) i 72 su ženska ispitanika (40,2% od ukupnog broja žena). Ovo je značajno veći udjel u odnosu na samo 23% ispitanika koji su se u prethodnom pitanju deklarirali kako ne kupuju zelene proizvode (Grafikon 2). Primjetan je značajan jaz između namjere kupnje i deklarirane kupnje od stvarne kupnje kad je potrebno navesti konkretan kupljeni zeleni proizvod ili marku. Preostali ispitanici uglavnom navode prehrambene proizvode poput voća, povrća, čajeva, meda i sličnih (kategorije koje su oduvijek zeleni proizvodi jer su prehrambeni proizvodi biljnog porijekla i time biorazgradivi) te papirnatih i recikliranih vrećica, papirnatih slamki, tanjura i sličnog (kategorije koje su kupci prisiljeni kupovati je nemaju izbora zbog toga što su plastični ekvivalenti izbačeni iz prodaje pa se ne radi o svjesnom izboru). Od prodavaonica najčešće su spominjane Bio&Bio (3,5%) i DM (2,9%), a od brandova Alverde (3,2%) koji se prodaje u DM-u. Navedeno pokazuje da kupci nisu previše svjesni pri izboru zelenih proizvoda te da postoji značajan jaz između zabrinutosti za ekologiju, namjere kupnje i stvarne kupnje te korištenja zelenih proizvoda kod kasnih adolescenata u Gradu Zagrebu. S obzirom da se radi o većinom visoko-školskoj populaciji koja nema vlastite dohotke od rada te žive s roditeljima koji uglavnom obavljaju kupnju za kućanstvo, relativno skromna kupnja zelenih proizvoda nije potpuno iznenađenje.

## 6. ZAKLJUČAK

Rezultati provedenog istraživanja o ekološkom znanju i ponašanju kasnih adolescenata u Gradu Zagrebu vezano uz kupnju zelenih proizvoda pokazala su neke, u većoj mjeri, očekivane, ali zanimljive rezultate i odgovore vezane uz četiri postavljena istraživačka pitanja;

1. Utvrđeno je kako su kasni adolescenti u Gradu Zagrebu umjereno osviješteni u pogledu ekoloških problema (*Znanje o ekologiji*,  $M=3,60$ ), *Povjerenje u ekološke proizvode* im je još nešto manje ( $M=2,79$ ), a najniža je odrednica *Ekološko ponašanje i aktivnosti* ( $M=2,76$ ). Dakle postoji relativno dobro razvijena svjesnost o globalnim ekološkim problemima, ali je razina vlastitih aktivnosti i ponašanja dosta niska. U prosjeku ovaj demografski segment potrošača kupuje samo 2,16 zelenih proizvoda mjesečno. Zabrinjavajuće je da čak 23,3% njih u posljednjih mjesec dana nije kupilo niti jedan zeleni proizvod.
2. Rezultati istraživanja ukazuju na značajan jaz između svjesnosti o ekološkim problemima i poduzimanja konkretnih akcija, odnosno kupnje zelenih proizvoda. S tvrdnjom u anketnom upitniku *Želim kupovati ekološki prihvatljive proizvode zbog brige za okoliš* nije se složilo 21,9% ispitanika, na pitanje koliko su zelenih proizvoda kupili u posljednjih mjesec dana nešto više ispitanika, 23,3% odabralo je opciju „niti jedan“ što je kvantitativno u skladu s prethodnom tvrdnjom. Međutim, na kontrolno pitanje da navedu zelene proizvode i marke koje kupuju čak njih 41,8% nije moglo navesti konkretan proizvod. Ukoliko se izbace svakodnevni prehrambeni proizvodi poput voća i povrća koji su po svojoj definiciji biorazgradivi i zeleni te papirnata galanterija poput papirnatih vrećica i slamki za koju u trgovinama gotovo više ne postoji plastična alternativa, ispada da samo oko 20-ak posto ispitanika doista kupuje zelene marke proizvoda. Jaz između brige za okoliš i namjere kupnje zelenih proizvoda te stvarne kupnje zelenih proizvoda je izrazito velik u ovoj dobnoj skupini.
3. Utvrđeno je postojanje statistički značajnih razlika po svim istraživanim ekološkim dimenzijama u odnosu na spol ispitanika pa tako žene posjeduju više znanja o ekološkim pitanjima, imaju veće povjerenje u ekološke proizvode, češće se ekološki ponašaju te su

manje skeptične prema zelenim proizvodima od muških ispitanika. Međutim, kod kupnje zelenih proizvoda nema statistički značajnih razlika između spolova. Također, nisu utvrđene statistički značajne razlike vezane uz radni status i stupanj obrazovanja zbog toga što se radi o vrlo uskom i homogenom segmentu gdje većina ispitanika ima isti radni status i stupanj obrazovanja jer se radi o uskoj dobnoj skupini.

4. Vezano uz konkretnu kupnju zelenih proizvoda/maraka zabrinjavajuće je što većina ispitanika smatra kupnju voća i povrća te korištenje papirnatih vrećica najvišim dometom vlastitog zelenog ponašanja. Najčešća prodajna mjesta koja ispitanici spominju vezano uz kupnju zelenih proizvoda su trgovine Bio&Bio (3,5%) i DM (2,9%) te marke koje se tamo prodaju od kojih je najčešća DM-ova marka prirodne kozmetike Alverde (3,2%). Pojedinačno se još spominju i Lush, Nutrigold, Olival, Jessa, DM bio proizvodi, Biobaza, GardenGoods, Patagonia i Bee natural što predstavlja vrlo ograničeno poznavanje i korištenje zelenih maraka.

Glavna ograničenja istraživanja proizlaze iz vrste uzorka (prigodni), relativno malog broja prikupljenih odgovora te uskog geografskog obuhvata. Iako rezultati stoga nisu reprezentativni, oni su svakako indikativni i u znatnoj mjeri odgovaraju stavovima ovog segmenta mladih potrošača. U širem kontekstu, rezultate istraživanja potrebno je razumjeti i kroz prizmu glavnih obilježja usko definiranog segmenta kasnih adolescenata gdje je njihova kupnja zelenih proizvoda ograničena činjenicom da se još obrazuju te uglavnom nemaju stalne prihode od vlastitog rada. Dominantna većina živi ih kod roditelja koji obavljaju kupnju te donose svakodnevne odluke o kupnji za cijelo kućanstvo. Usprkos tome, radi se o izuzetno značajnom segmentu koji uskoro ulazi na tržište rada te će u budućnosti početi znatno više trošiti. Stoga zabrinjava relativno visoka razina skepticizma povezana sa zelenim proizvodima jer ona predstavlja indikator budućeg odnosa prema njihovoj kupnji. Zato je potrebno informirati i educirati adolescente, dok se još nalaze u procesu srednjoškolskog i visokoškolskog obrazovanja, o ekološkoj problematici, ali isto tako i o aktivnostima koje oni sami mogu poduzeti kako bi sudjelovali u zaštiti okoliša i doprinijeli smanjenju zagađenja. Drugim riječima, obrazovne institucije trebale bi, između ostaloga, podići znanje i svjesnost o ekološkim problemima te oblikovati preferencije i stvoriti „primarnu potražnju“ za zelenim proizvodima. Nakon toga je odgovornost na poduzećima i njihovim marketinškim odjelima da utječu svojim marketinškim aktivnostima na selektivnu potražnju oblikujući odgovarajuću ponudu vrijednosti putem vlastitih zelenih proizvoda i maraka.

U cilju produblivanja i unaprijeđena znanja o temi potrebno je provesti daljnja istraživanja. Osim proširenja i boljeg koncipiranja uzorka, glavne preporuke uključuju provođenje istraživanja vezanih uz dublju analizu čimbenika koji utječu na skepticizam, a zatim i provođenje usporedne analize između kasnih adolescenata i drugih dobnih skupina kako bi se utvrdilo postoje li značajne razlike u stavovima i skepticizmu prema zelenim proizvodima što bi pomoglo u razumijevanju kako se stavovi mijenjaju zavisno o dobi i iskustvu. Eksperimentalnim studijama koje bi uključivale intervencije poput edukativnih kampanja, radionica ili promotivnih akcija zelenih proizvoda moglo bi se istražiti koliko takve aktivnosti mogu smanjiti skepticizam i povećati kupnju zelenih proizvoda među adolescentima. Nadalje, korisno bi bilo istražiti percepciju troškova zelenih proizvoda i kako ona utječe na namjeru kupnje. Ovakvo istraživanje moglo bi uključivati analizu utjecaja cijena, percepcije vrijednosti za novac te ekonomske koristi zelenih proizvoda. U konačnici važno je provesti i longitudinalna istraživanja kako bi se pratilo kako se stavovi i skepticizam adolescenata prema zelenim proizvodima mijenjaju tijekom vremena kako bi se bolje razumjeli dugoročni trendovi i učinci različitih intervencija.

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## Prilog 1: Korelacijska matrica za odabrane varijable istraživanja

		Koliko ste zelenih proizvoda kupili u posljednjih 30 dana?	Spol	Skepticizam	Ekološko ponašanje i aktivnosti	Poznavanje ekološke problematike	Povjerenje u ekološke proizvode
Koliko ste zelenih proizvoda kupili u posljednjih 30 dana?	Pearson Correlation	1	.017	-.044	.436**	.306**	.283**
	Sig. (2-tailed)		.773	.458	.000	.000	.000
	N	282	277	282	282	282	282
Spol	Pearson Correlation	.017	1	-.194**	.210**	.308**	.152*
	Sig. (2-tailed)	.773		.001	.000	.000	.011
	N	277	277	277	277	277	277
Skepticizam	Pearson Correlation	-.044	-.194**	1	.035	-.107	.087
	Sig. (2-tailed)	.458	.001		.555	.072	.144
	N	282	277	282	282	282	282
Ekološko ponašanje i aktivnosti	Pearson Correlation	.436**	.210**	.035	1	.645**	.622**
	Sig. (2-tailed)	.000	.000	.555		.000	.000
	N	282	277	282	282	282	282
Poznavanje ekološke problematike	Pearson Correlation	.306**	.308**	-.107	.645**	1	.477**
	Sig. (2-tailed)	.000	.000	.072	.000		.000
	N	282	277	282	282	282	282
Povjerenje u ekološke proizvode	Pearson Correlation	.283**	.152*	.087	.622**	.477**	1
	Sig. (2-tailed)	.000	.011	.144	.000	.000	
	N	282	277	282	282	282	282

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).



## COMPARISON OF ADVANTAGES AND DISADVANTAGES OF CHATBOTS IN MARKETING COMMUNICATION - USING THE METHOD OF SYSTEMATIC LITERATURE REVIEW

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### ABSTRACT

*Advances in digital marketing have brought significant changes in the way companies promote their products and services. Chatbots have become a valuable tool in digital marketing. The aim of this paper is to research the advantages and disadvantages of chatbot communication in the field of digital marketing. The research is directed towards the analysis of chatbots which should improve user experience, increase user engagement as well as identify challenges and limitations that may arise by using them. Databases are investigated by using the methodological approach of systematic literature review (SLR) Scopus and Web of Science. The conducted search analyses identified literature related to chatbot communication in digital marketing. SLR approach ensures objectivity, systematicity, and reliability in the collection of information and research results, which contributes to existing knowledge about the application of chatbots in digital marketing and provides guidelines for their optimal use to achieve marketing goals. The review of analysed and compared scientific achievements provides a systematic presentation as a fundamental starting point for any scientific discussion in this sense, and the initiation of a more comprehensive scientific research study. Since development of digital marketing communication is expected to go in this direction, systematic review and future research are important.*

**KEYWORDS:** chatbots, digital marketing, SLR, systematic literature review, marketing communication

## 1. INTRODUCTION

The modern era of technology has a tremendous impact on the society. With the creation of the ultimate virtual assistants, chatbots have become a popular entity in the conversational services [Gupta, et al., 2020.]. Chatbots are machine agents that serve as natural language user interfaces for data and service providers [Dale, 2016]. Chatbots can answer questions, provide information, solve problems, and even guide users through the shopping process. Chatbots give users the feeling of interacting with a real person but allow companies to collect data about users and their preferences. The current interest in chatbots is spurred by recent developments in artificial intelligence (AI) and machine learning [Brandtzaeg and Følstad, 2017].

### 1.2. BACKGROUND

Artificial intelligence, especially in the form of natural language processing chatbots, has significantly transformed digital marketing by automating customer interactions and providing personalized experiences [Dwivedi et al., 2023]. According to Todor [2016], digital marketing is defined as "the targeted, measurable, and interactive marketing of goods or services using digital technologies in order to reach and convert leads into customers and preserve them." The main objective is to promote brands, shape preference, and boost sales through several digital marketing techniques. As text-based conversational agents, chatbots allow users to interact via text messages and play a key role in service delivery in the digital marketing era. Their role is evolving to ensure a better connection with customers [ Li et al., 2023]. Chatbots, as part of self-service technologies, significantly change the way companies communicate with customers by enabling automatic and personalized responses through natural language. Although users often view chatbots with scepticism, studies explore how increasing perceptions of chatbots' warmth and competence can reduce this scepticism and increase users' trust in a company. It emphasizes the importance of properly designing chatbots, including gaze direction and degree of anthropomorphism, to achieve the best marketing results and improve user experiences [Pizzi et al., 2023]. The evolution of AI in marketing can be traced back to the increasing availability of huge data sets and the computing power needed to process them. As businesses face an overwhelming amount of consumer data generated through online interactions, AI has become critical to extracting meaningful insights and translating those insights into actionable strategies. From predictive analytics to automated content creation and personalized user experiences, AI is reshaping the very structure of marketing campaigns, from their conceptualization to execution and optimization [Kim & Lee, 2020]. Moreover, many companies are starting to replace customer service employees with digital chatbots. Researchers study consumer evaluations of services provided by chatbots, using real interactions between humans and chatbots in lab and field settings, highlighting the increasing integration of artificial intelligence in marketing [Castello et al., 2023]. Todor [2016] outlines the advantages and disadvantages of digital marketing, highlighting benefits such as cost efficiency, interactivity, and a global audience reach, as well as challenges such as copyright issues, lack of trust, and dependency on technology. In this paper, the context of digital marketing and the development of generative artificial intelligence is explored to investigate the advantages and disadvantages of chatbots which have an impact on the development of digital marketing.

### 1.3. RESEARCH OBJECTIVES

This study aims to explore and highlight the importance of chatbots, specifically their advantages and disadvantages in digital marketing. In order to understand the use of chatbots in digital marketing communication, the research aims to answer the following questions:



1. To what extent has the scientific observation of chatbot usage been approached so far?
2. Do existing studies equally present both the advantages and disadvantages?
3. What are the key advantages and disadvantages that have a direct impact on marketing communication, and the use of chatbots in marketing?

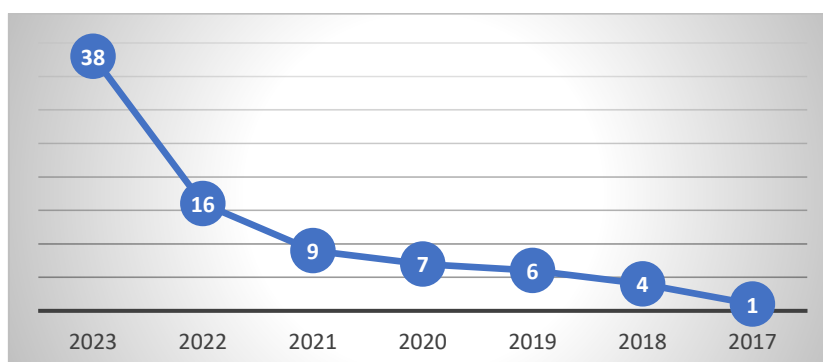
## 2. RESEARCH APPROACH

To investigate and review the latest developments in the field of chatbots related to digital marketing, and answer research questions, a substantial amount of literature was examined. Scopus and Web of Science (WoS) databases are investigated by using the methodological approach of systematic literature review [Snyder, 2019]. Scientific papers from the Scopus and Web of Science databases were used to gather information on the research topic, indicating significant interest among researchers in this area. According to the conducted research, the substantial role of chatbots in digital marketing is evident. The initial search using the keywords "chatbots" and "digital marketing" in Scopus and WoS databases yielded a total of 151 documents from 2017 to 2024. The next step of the search involved filtering documents by research area, focusing on Business, Management, and Accounting in the Scopus database, resulting in 45 documents. In the WoS database, the search was limited to the fields of Business and Management, leading to the identification of 38 documents. A comparison of documents revealed 8 matching titles between WoS and Scopus. Further refinement of the search criteria in both databases was conducted by restricting the results to documents with open access, resulting in a total of 25 accessible documents for further examination. Out of the 25 reviewed documents, 24 mention the advantages of chatbots, only one does not, while 21 documents list their disadvantages, indicating that 4 documents do not mention any.

## 3. FINDINGS

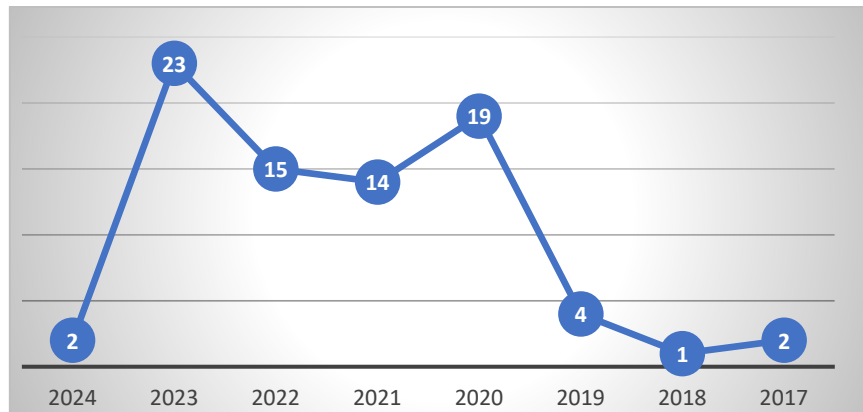
Searching the Scopus database using the approach TITLE-ABSTRACT-KEY ("chatbots") and TITLE-ABSTRACT-KEY ("digital marketing") yielded 81 scientific papers from 2017 to 2023, with searches conducted across all fields of the database (Figure 1). In the WoS database, searching the keywords "chatbots" and "digital marketing" resulted in 70 scientific papers from 2017 to 2024 across all fields (Figure 2). The total number of documents in the Scopus and WoS databases with the keywords "chatbots" and "digital marketing" resulted in 151 documents from 2017 to 2024.

Figure 1. Documents by year investigating Chatbots and Digital Marketing in the Scopus database (2017- February 2024)



Source: Authors' work: 2024

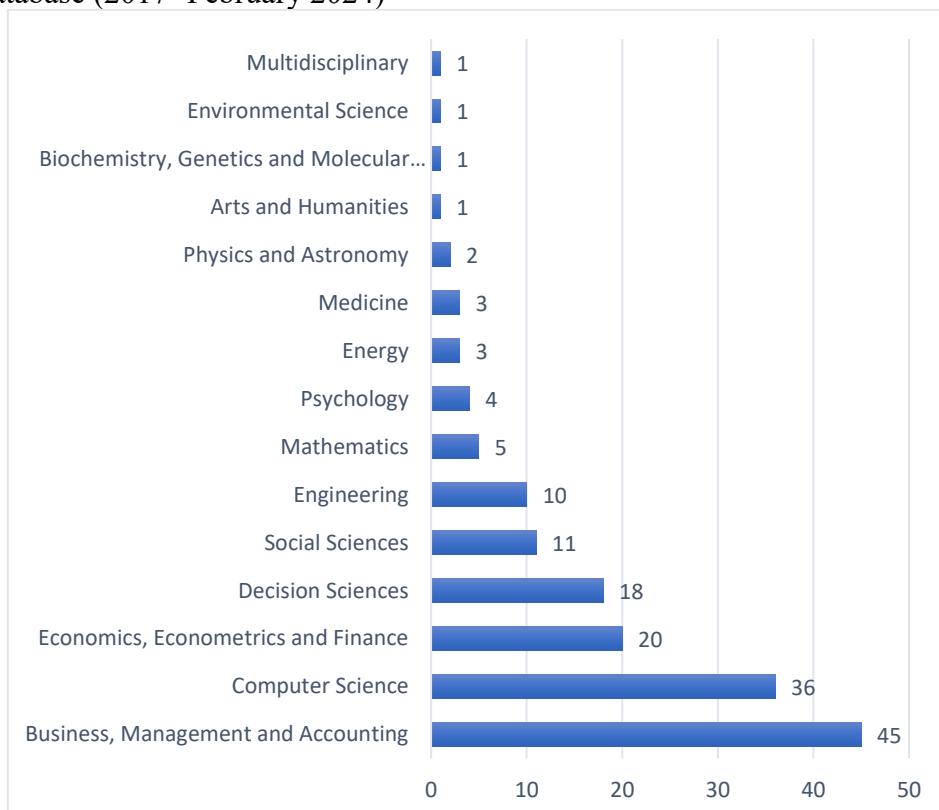
Figure 2. Documents by year investigating Chatbots and Digital Marketing in the WoS database (2017- February 2024)



Source: Authors' work: 2024

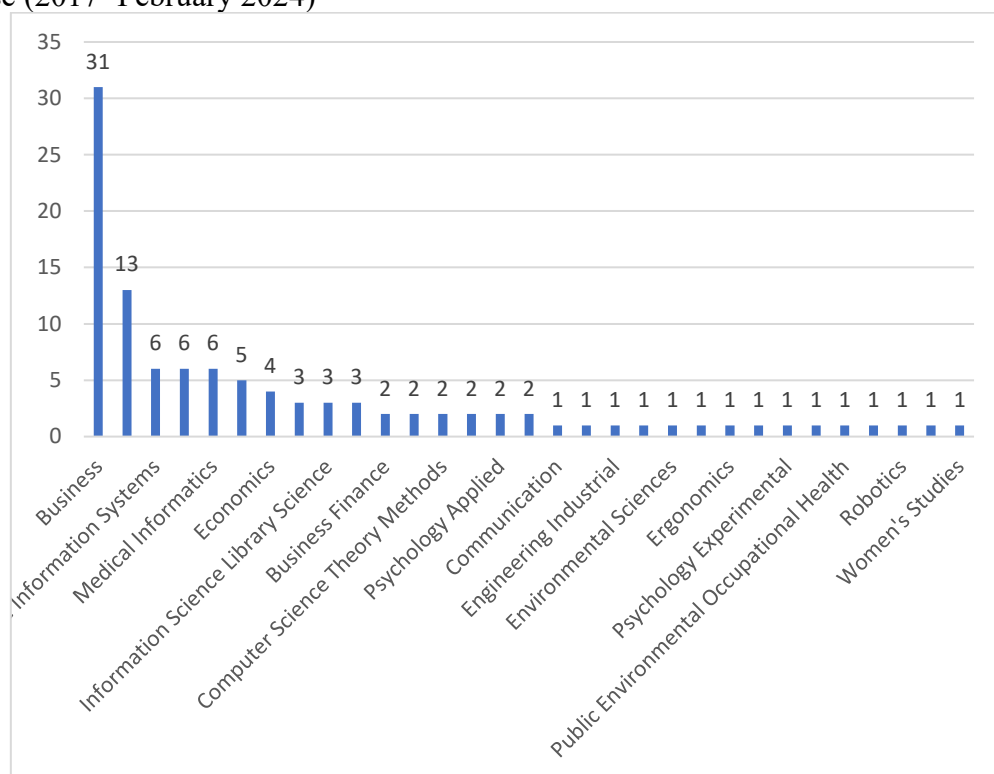
The research topic area/categories presents/present the period from 2017 to February 2024 and include various subject areas (Figure 3., Figure 4.). The number one subject area in Scopus data base is Business, Management and Accounting with 45 findings. In the WoS database top category is Business with 31 findings.

Figure 3. Documents by subject area investigating Chatbots and Digital Marketing in the Scopus database (2017- February 2024)



Source: Authors' work: 2024

Figure 4. Documents by categories investigating Chatbots and Digital Marketing in the WoS database (2017- February 2024)



Source: Authors' work: 2024

According to the data from the initial search, which included all search categories, this subsequent search added a limitation to the field of Business, Management, and Accounting in the Scopus database, reducing the number of documents to 45, out of which 12 have open access. In the WoS database, the results were limited to the areas of Business and Management, where 38 documents were found, out of which 21 have open access. Comparing the documents, there were matches between WoS and Scopus where 8 titles appeared in both databases. This means there are 4 titles in Scopus that do not appear in WoS, and 13 titles in WoS that are not present in Scopus. The total number of documents with open access is 25 (8 matches + 4 in Scopus + 13 in WoS). The third step of the search, which is the main objective of this literature review, aimed to identify documents discussing the advantages and disadvantages of chatbots in digital marketing. This resulted in a smaller number of papers in the Scopus database, and a larger number in the WoS database. Following the initial results in the Scopus database, the addition of keywords "advantages" and "disadvantages" in all search categories yielded one article in the Computer and Social Sciences category, which was not relevant to the research focus of this study. In the WoS database, a search using the keywords "chatbots," "digital marketing," "advantages," and "disadvantages" across all fields resulted in 276 documents. When narrowed down to open access and searched within the Business and Management category, 23 documents were found. Adding the documents from the Scopus database, a total of 27 documents were obtained. Through systematic literature review, it was determined that two documents from the last search in the WoS database were not relevant to this research. For this study, covering the period from 2017 to February 2024, a total of 25 relevant documents from the WoS and Scopus databases were identified.

The table displays the titles of scientific papers found through the specified searches. It includes the database, title of the paper, year of publication, purpose (aim) of the paper, as well as the advantages and disadvantages of chatbots in digital marketing.

Table 1. The table displays database, title of the paper, year of publication, purpose (aim) of the paper, as well as the advantages and disadvantages of chatbots in digital marketing

ID	Author's name, year	The purpose (aim) of the paper	Advantages
	The name of the paper		Disadvantages
Web of Science base			
1	Kaczorowska-Spychalska, D. (2019)	The paper attempts to identify the influence of chatbots on marketing considering their role in Human-to-Machine interaction process.	- customize marketing for brands, boosting consumer engagement, cut support costs, speed up responses, provide personalized advice, enhancing user experience, aid digital transformation, adapting to consumer expectations
	How chatbots influence marketing		- limited knowledge frustrates users, narrow human-like skills, job replacement fears impact acceptance, ethical concerns in modelling consumer cognition
2	Mehta, R., Singh, H., Banerjee, A., Bozhuk, S., Kozlova, N. (2020)	The study presents the current trends of on-line purchasing and the key factors that affect the decision-making process.	- enhancing customer loyalty, facilitating payments, delivery, and online shopping support, personalizing the shopping experience, optimizing touchpoints for product and service promotion
	Comparative analysis of the consequences of changing purchasing models in the global digitalised economy		- consumers perceive chatbots and voice assistants as inferior to human interaction, despite younger individuals' trust in technology, there remains a need for human-like personalization, customer adaptation, and empathy
3	Hildebrand, C., Bergner, A. (2021)	The article explores the impact of Conversational Robo Advisors on trust, firm perception, and	- increased trust, positive perception, investor acceptance, engaged experience (users enjoy robot interactions)
	Conversational robo advisors as surrogates of trust: onboarding experience, firm		NO

	perception, and consumer financial decision-making	financial decision-making.	
4	Hnoievyi, V. H., & Koren, O. M. (2021)	The article deals with the current trends in communication aspects of company's relations with the customers.	- facilitate efficient communication, enhance customer satisfaction, automate processes, and personalize services
	Modern digital marketing trends and their influence on the marketing strategy formation		- may encounter communication limitations, require personalized adaptation, face integration complexity, and demand ongoing maintenance and updates
5	Abdulquadri, A., Mogaji, E., Kieu, T. A., Nguyen, N. P. (2021)	This study investigates how chatbots can aid financial inclusion in emerging markets by enhancing human capital, removing barriers to financial services, and promoting digital inclusion for economic stability.	- enhance user experience by offering round-the-clock banking services, promoting financial inclusion, ensuring efficient responses to user queries, and potentially expanding multilingual support
	Digital transformation in financial services provision: a Nigerian perspective to the adoption of chatbot		- demonstrate shortcomings in accountability, language diversity, security verification, and responsiveness to spontaneous queries
6	Crolic, C., Thomaz, F., Hadi, R., Stephen, A. T. (2021)	This research contributes to the nascent literature on chatbots in customer service and has managerial implications both for how chatbots should be designed and for context-related deployment considerations.	- efficiency, anthropomorphism, emotion management, and user expectation adjustment, highlighting the importance of careful design and emotional context consideration
	Blame the Bot: Anthropomorphism and Anger in Customer-Chatbot Interactions		- negative impact on angry users due to anthropomorphism, expectation violation, and potential influence on overall company perception, emphasizing the importance of careful design and emotional context consideration
7	Dawar, S., Panwar, S., Dhaka, S., Kudal, P. (2022)	This paper aims to understand the role of user experience,	- efficiency, availability, cost-effectiveness, standardization, streamlining communication

		performance expectancy, effort expectancy, and trust in customer chatbot use intentions from an Indian point of view.	processes and enhancing user experience
	Antecedents and role of trust in chatbot use intentions: an Indian perspective		- include algorithm reliability, user trust issues, process standardization challenges, and negative user experience impacting adoption intention
8	Jansom, A., Srisangkhajorn, T., Limarunothai, W. (2022)	This study examines how marketing strategies of chatbot e-service agents impact perceived communication credibility and satisfaction in apparel retailing of Thai customers.	- include 24/7 interaction, efficient issue resolution, provision of information on the latest trends, and enhanced communication credibility and customer satisfaction
	How chatbot e-services motivate communication credibility and lead to customer satisfaction: the perspective of Thai consumers in the apparel retailing context		- include the limited impact of interactive chatbots on communication credibility, the ineffectiveness of entertainment elements in enhancing customer satisfaction, and the potential unmet needs of Thai consumers in clothing retail, particularly regarding interaction and entertainment
9	Balan, C. (2023)	The aim of this review is to analyse high-quality business research literature on chatbots and voice assistants using the TCCM framework, and to outline a research agenda for future studies.	- include enhanced customer interaction, streamlined e-commerce processes, future growth predictions, and augmented customer support capabilities through AI
	Chatbots and Voice Assistants: Digital Transformers of the Company-Customer Interface-A Systematic Review of the Business Research Literature		- emotional exchange limitations, anthropomorphism challenges, interaction complexity, and privacy/security concerns highlight areas for further development and improvement in chatbot research and application
10	Haupt, M., Rozumowski, A., Freidank, J., Haas, A. (2023).	This study offers valuable insights for chatbot technology	NO

	<p>Seeking empathy or suggesting a solution? Effects of chatbot messages on service failure recovery</p>	<p>developers and marketers aiming to enhance both efficiently and cost-effectively the customer experience with digital conversational agents.</p>	<p>- include inadequate responses, user dissatisfaction upon failure messages, limited functionality in processing natural language, and the necessity for recovery strategies to mitigate negative user reactions and financial losses</p>
11	<p>Castelo, N., Boegershausen, J., Hildebrand, C., Henkel, A. P. (2023)</p>	<p>The article discusses the consumer perception of service bots and the firms that implement them.</p>	<p>- encompass cost reduction, profit increase, enhanced user experience, and potential sharing of savings, all contributing to improved service ratings and serving as motivation for their implementation in industries</p>
	<p>Understanding and Improving Consumer Reactions to Service Bots</p>		<p>- perceived corporate motivation results in decreased customer satisfaction, reluctance to recommend the company, and the potential for negative effects to be mitigated or reversed through shared economic benefits or superior chatbot service</p>
12	<p>Ltifi, M. (2023).</p>	<p>The article investigates the hedonic aspects of consumer trust in text chatbots.</p>	<p>- include their ability to enhance consumer trust through empathy and friendliness, ease of use, clear bot identity disclosure, and capability to manage complex tasks, collectively providing users with a positive experience and trust</p>
	<p>Trust in the chatbot: a semi-human relationship</p>		<p>- less dependable due to the perceived lack of empathy and personal connection, especially with complex tasks, identity disclosure and AI limitations further compound these issues</p>
13	<p>Schindler, D., Maiberger, T., Koschate-Fischer, N., Hoyer, W. D. (2023).</p>	<p>The study investigates how the mode of communication (speaking vs. writing) with</p>	<p>- offer users a choice between speech and text communication, impacting decision-making and satisfaction, particularly when aligned with product types, thus enhancing brand competitiveness.</p>

	How speaking versus writing to conversational agents shapes consumers' choice and choice satisfaction	conversational agents (such as chatbots or digital assistants) influences consumers' decision-making processes and satisfaction.	NO
Web of Science and Scopus base			
14	Jenneboer, L., Herrando, C., Constantinides, E. (2022).	The purpose of this study was to investigate the influence of chatbots on customer loyalty.	- encompass system reliability and availability 24/7, prompt responses with empathy, provision of accurate information, increased user satisfaction, trust, and loyalty
	The Impact of Chatbots on Customer Loyalty: A Systematic Literature Review		- privacy concerns, potential inaccuracies in information, reduced visibility of user complaints, and balancing service personalization with user privacy pose significant drawbacks of chatbots
15	Magno, F., Dossena, G. (2022)	This paper aims to explore whether customers' perceptions of the hedonic and utilitarian attributes of chatbots can impact their satisfaction, and subsequently, their relationships with brands.	- customer satisfaction enhancement (perception of hedonic and utilitarian attributes), brand relationship strengthening, information quality, and emotional experience
	The effects of chatbots' attributes on customer relationships with brands: PLS-SEM and importance-performance map analysis		- poor information quality, inadequate chatbot experience, bellow standard system quality can hinder user satisfaction and brand relationships
16	Lappeman, J., Marlie, S., Johnson, T., Poggenpoel, S. (2022)	The study explores consumer willingness to disclose personal information to banking chatbots.	- enhanced customer service, improved efficiency, personalized interactions, a competitive edge
	Trust and digital privacy: willingness to disclose personal		- data privacy concerns, reduced brand trust, the need to establish cognitive and emotional trust



	information to banking chatbot services		
17	Wei, RQ (Wei, Ruiqi); Vize, R (Vize, Roisin); Geiger, S (Geiger, Susi), (2022).	This study examines how boundary spanners and boundary interfaces interact to coordinate solution networks in digital platforms.	- automation, efficiency, customer support, and scalability
	Boundary resource interactions in solution networks		- interface limitations, reliance on human intermediaries, complexity in task handling, user constraints
18	Dwivedi, Y.K., Balakrishnan, J., Baabdullah, A.M., Das, R. (2023)	This paper explores how cognitive and peripheral cues affect the chatbot experience, mediated by perceptions of humanness.	- enhanced customer engagement, increased efficiency, personalized interactions, and improved brand perception
	Do chatbots establish "humanness" in the customer purchase journey? An investigation through explanatory sequential design		- include inadequate understanding of user requests, limited ability to address complex issues, lack of emotional intelligence, and potential privacy concerns for user data
19	Li, C-Y.; Fang, Y-H.; Chiang, Y-H. (2023)	This study provides empirical insights into the continued use of chatbot services from the perspective of chatbot affordance.	- enhanced customer service, improved efficiency, personalized interactions, and a competitive edge
	Can AI chatbots help retain customers? An integrative perspective using affordance theory and service-domain logic		- include limitations in deep personalization, the potential to create barriers to service switching, challenges in fostering dedicated customer relationships, and constraints in delivering value through user interaction and engagement
20	Pizzi, G., Vannucci, V., Mazzoli, V., Donvito, R. (2023)	The article investigates the interplay between two common features of the customer service	- include increased efficiency in handling customer inquiries, 24/7 availability, personalized interactions, and scalability to manage a large volume of user interactions

	I, chatbot! the impact of anthropomorphism and gaze direction on willingness to disclose personal information and behavioural intentions	chatbot experience: gaze direction and anthropomorphism	- include the potential to evoke scepticism among users, limited perception of warmth and competence, the influence of users' high levels of Theory of Mind, and inadequate chatbot design
21	Lee, KW (Lee, Kuo-Wei); Li, CY (Li, Chia-Ying), 2023.	The study investigates how chatbot affordances impact consumer behaviour.	- provide users with anytime, anywhere connectivity, facilitate information association, enhance visibility, and encourage interactivity
	It is not merely a chat: Transforming chatbot affordances into dual identification and loyalty		NO
Scopus base			
22	Gentsch, P. (2018).	The book provides valuable insights for business professionals who want to harness the power of artificial intelligence (AI) and algorithmics in their organizations.	- include communication automation, personalized responses, 24/7 availability, enhanced user experience, and scalability
	AI in Marketing, Sales and Service: How Marketers without a Data Science Degree can use AI, Big Data and Bots		- communication challenges, limited intelligence, potential errors, security concerns
23	Boiko, M., Bosovska, M., Vedmid, N., Melnychenko, S., Stopchenko, Y. (2022).	The article explores the impact of global digitalization on the tourism industry in Ukraine.	- increased efficiency, personalized communication, scalability of operations, and innovative approach
	Digitalization: Implementation in the tourism business of Ukraine		NO
24	Araújo, C., Gonçalves, R., Lopes da Costa, R., Dias, A., Pereira, L. (2022).	The article explores how AI impacts the fashion industry's	- personalized services, quick responses to user inquiries, continuous 24/7 support, and increased conversion rates

	Artificial intelligence in the digital customer journey	digital customer journey, focusing on consumer interactions with recommendation systems, chatbots, and virtual testers during online shopping.	- including issues with trust, personal interaction, complexity of queries, and privacy concerns
25	Nyagadza, B., Muposhi, A., Mazuruse, G., Makoni, T., Chuchu, T., Maziriri, E.T., Chare, A. (2022).	The article aims to explore factors driving customer willingness to use chatbots in Zimbabwe for e-banking customer service, an under-researched area.	- enhanced efficiency, improved user experience, fostering engagement, and technological innovation
	Prognosticating anthropomorphic chatbots' usage intention as an e-banking customer service gateway: cogitations from Zimbabwe		- including security vulnerabilities, lack of human-like qualities, automation concerns leading to job displacement fears, and privacy issues, may undermine user trust and adoption for e-banking services

Most of the papers examined presented theoretical frameworks or empirical research on the topic. The findings from the literature review indicate that contemporary digital technologies, including chatbots, have significant potential to revolutionize numerous facets of customer service and marketing practices. These technologies offer opportunities for businesses to enhance customer engagement, improve service efficiency, and personalize user experiences. However, despite the promising potential, several challenges and limitations were identified in the literature. These include concerns regarding chatbots' limited knowledge and capabilities, as well as issues related to privacy, security, and user trust.

Chatbots bring numerous advantages to modern business operations. They enable customized marketing for brands, foster consumer engagement, reduce support costs, and expedite responses. They also assist in digital transformation by adapting to consumer expectations, enhancing customer loyalty, and facilitating payments, delivery, and online shopping support. Through increased trust, positive perception, and engaging user experiences, chatbots improve communication, enhance customer satisfaction, automate processes, and personalize services. Simultaneously, by adjusting user expectations through efficiency, anthropomorphism, and emotion management, chatbots optimize communication processes and improve user experience. Additionally, by providing personalized services, quick responses to user inquiries, continuous 24/7 support, and increased conversion rates, chatbots enhance efficiency, improve user experience, foster engagement, and encourage technological innovation.

In digital marketing, chatbots offer numerous benefits but also present several disadvantages that can affect their effectiveness. Users often experience frustration due to chatbots' limited

knowledge and narrow human-like skills. Moreover, concerns about job replacement and ethical considerations in modelling consumer behaviour can impact users' acceptance of chatbots. Despite advancements in technology, consumers still perceive chatbots as inferior to human interaction, highlighting the need for more human-like personalization, empathy, and adaptation. Communication limitations, integration complexity, and the need for ongoing maintenance and updates can hinder chatbots' performance in digital marketing campaigns. Additionally, chatbots may struggle with accountability, language diversity, and responsiveness to spontaneous queries, leading to user dissatisfaction. Negative experiences, such as anger resulting from anthropomorphism and violated expectations, can damage overall company perception, emphasizing the importance of careful design and emotional context consideration. Furthermore, issues such as algorithm reliability, user trust, and standardization challenges can impact users' adoption intention of chatbots. Emotional exchange limitations, privacy concerns, and security vulnerabilities also highlight areas for improvement in chatbot development and implementation. Inadequate responses and user dissatisfaction upon failure messages can lead to negative brand relationships and financial losses. Moreover, perceived corporate motivations and privacy concerns may decrease customer satisfaction and trust in chatbot services. Poor information quality and interface limitations can further hinder user satisfaction and brand relationships. Balancing service personalization with user privacy remains a significant challenge, along with the reliance on human intermediaries and complexity in task handling. Lastly, security vulnerabilities, lack of human-like qualities, and concerns about job displacement and privacy issues may undermine user trust and adoption of chatbots. These disadvantages underscore the importance of addressing limitations and enhancing the capabilities of chatbots to improve their effectiveness in digital marketing.

## **4. DISCUSSION**

The systematic literature review conducted in this study provides a comprehensive overview of the advantages and disadvantages of chatbots in digital marketing. The findings reveal several key insights into how chatbots are perceived and utilized in various sectors such as digital marketing, e-commerce, customer relationship management, retail, financial services, tourism, healthcare and medical services, the fashion industry, communication and media, and general business and management. The research indicates substantial scientific observation of chatbot usage in digital marketing, with a considerable number of studies conducted between 2017 and 2024.

### **4.1. EXTENT OF SCIENTIFIC OBSERVATIONS**

Regarding the first question, the systematic review identified 151 documents related to chatbots and digital marketing, with 45 documents in the Scopus database and 38 in the WoS database focusing on Business, Management, and Accounting. The analysis of the literature shows that existing studies provide a balanced view of both the advantages and disadvantages of chatbot usage. This extensive body of research underscores the growing interest in chatbots and their relevance in the marketing domain.

## **4.2 BALANCE OF ADVANTAGES AND DISADVANTAGES**

Out of the 25 documents reviewed, 24 mention the advantages of chatbots, while 21 documents list their disadvantages. This indicates that researchers are keenly aware of both the potential benefits and the challenges associated with chatbot technology, thus confirming the answer to the second research question.

## **4.3 KEY ADVANTAGES AND DISADVANTAGES**

The key advantages that have a direct impact on marketing communication and the use of chatbots in marketing are enhancing personalized communication, increasing user engagement, and loyalty. They allow for tailored interactions that meet individual user's needs, which is crucial for building strong customer relations. The 24/7 availability of chatbots ensures users receive immediate responses and support at any time, which significantly improves user experience and satisfaction. By automating customer support functions, chatbots help companies reduce operational costs. This efficiency allows businesses to allocate resources more effectively. Chatbots facilitate the collection of valuable data on user preferences and behaviour, which can be used to inform and improve marketing strategies and decision-making processes.

The most frequently mentioned disadvantages with chatbots are limited knowledge and capabilities to understand and respond to complex queries. This limitation can lead to user frustration and dissatisfaction. The lack of emotional intelligence and empathy in chatbots can negatively impact the user experience. Users may prefer human interaction for more nuanced and emotionally charged conversations. There are significant concerns regarding the privacy and security of the data collected by chatbots. Ensuring data protection and user privacy is a critical issue that needs to be addressed to maintain user trust. Integrating chatbots into existing systems can be technically challenging. It requires ongoing maintenance, updates, and sometimes significant changes to existing workflows.

The advantages and disadvantages of chatbots have a direct impact on marketing communication strategies. The ability to provide personalized and immediate communication can enhance user engagement and satisfaction, leading to stronger customer relationships and increased loyalty. However, the challenges related to chatbot capabilities, emotional intelligence, and data security must be carefully managed to prevent negative user experiences and maintain trust. Future research should focus on improving the capabilities of chatbots, particularly in understanding and processing complex queries. Enhancing the emotional intelligence of chatbots could also result in making interactions more satisfying for users. Additionally, addressing privacy and security concerns is crucial to ensure the feeling of safety when users share their information with chatbots. Further exploration into user perceptions and expectations of chatbots can provide valuable insights for developing more effective and user-friendly chatbot systems. While chatbots offer significant potential benefits for digital marketing, there are also considerable challenges that need to be addressed. By understanding and mitigating these disadvantages, businesses can better leverage chatbot technology to achieve their marketing goals and improve customer satisfaction.

## 5. CONCLUSION

Chatbots offer numerous advantages in digital marketing, including customized marketing, enhanced consumer engagement, reduced costs, and expedited responses. They contribute to digital transformation, build customer loyalty, and improve overall user experience. However, several disadvantages exist, such as limited knowledge, user frustration, and concerns about job replacement and privacy. These drawbacks (disadvantages) underscore the need for further research and development which would address limitations and enhance chatbots' effectiveness in digital marketing. For further research in this area, more efforts should be focused on improving chatbots' capabilities, addressing security vulnerabilities, and balancing personalization with user privacy concerns. Additionally, some other valuable areas for future research would be exploring users' perceptions and expectations of chatbots as well as investigating strategies to enhance trust and user satisfaction.

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## **A NEW FORCE IN THE DIGITAL ECONOMY: DIGITAL TWINS APPLICATIONS AND CHALLENGES**

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### **ABSTRACT**

*Digital twin technology is revolutionizing the digital economy by merging the physical and virtual worlds, making it an essential for digitizing industries. A digital twin (DT), a virtual replica of a physical object, system, or process, is anticipated to create an intelligent, predictive, and highly efficient economy. There is an increasing demand for novel developments in DT across a variety of industries, including manufacturing, construction, oil and gas, aerospace, energy, and healthcare. Certain stakeholders are already realizing that DTs not only enhance efficiency and reduce costs but also enable the creation of new service offerings. However, the adoption of DT brings along a number of challenges, including concerns about data privacy and security. DT has become a popular topic with increasing interest in academic journal articles and solution offers from the industrial sector. This study presents a literature overview of DT in the context of privacy and security issues to gain a better understanding of the key barriers that may impact the future adoption of DT technologies. The paper presents an analysis of articles published in Scopus, Web of Science, and IEEE Xplore databases between 2019 and 2024 that examine the privacy and security problems of DT.*

**KEYWORDS:** digital twin, digital economy, key challenges, privacy, security, The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

## 1. INTRODUCTION

Digital twin (DT) technology is revolutionizing the digital economy by seamlessly offering a virtual blueprint of physical processes throughout the entire business lifecycle, enhancing the efficiency and effectiveness of processes, products, and services [Singh et al., 2023]. DT is a virtual replica of physical objects, processes, and services. It simulates the physical counterpart, enabling enhanced predictive capabilities and operational efficiency throughout various digital economies [Pervez et al., 2023]. According to Martinescu [2023], there are three different types of DT: digital model, digital shadow, and digital twin, each serving distinct functions and purposes. A digital model represents a predictive model of a physical counterpart without live updates or data exchange. Digital shadows are virtual models updated with data from the physical model, while digital twins are virtual models that communicate bidirectionally with their physical counterparts.

The global DT market is growing at a compound annual growth rate (CAGR) of 38.2% and is expected to reach a value of \$26.07 billion by 2025 [Lee et al., 2020]. Market statistics indicate an increment of \$48.2 billion by 2026 [Böhm et al., 2021]. It plays an important role in the digital economy by providing virtual representations of physical assets, enabling real-time monitoring, predictive analysis, and simulations [Yi, 2023; Li et al., 2022; Clementson et al., 2021]. Although it was initially developed to improve manufacturing, DT has been expanded into various domains, from traffic lights to smart cities and agriculture to healthcare [Araújo et al., 2022; Pervez et al., 2023], all of which contribute to the digital economy. DT plays a significant role in predictive maintenance in manufacturing industry [Böhm et al., 2021]. This leads to cost reduction and process optimization by allowing designers and engineers to work on deep detail of the product via a virtual model before initiation of the physical product [Chen et al., 2023]. It not only reduces cost but also improves manufacturing productivity and efficiency, leading to enhancement in designing and manufacturing processes of physical products. However, the adaptation of DT is not without challenges.

According to Yi [2023], there are unique challenges of privacy risks, for which the author demonstrates secure ways to provide services. Afzal et al. [2023] stressed the need for reliable bi-directional communication in DT to establish data integrity, required for practical decision-making, and protection of privacy against cybersecurity threats with a strong focus on security and quality, ensuring integrity and reliability. Additionally, the need for privacy-preserving networks, security protocols, and governance frameworks is stressed to protect sensitive information and ensure compliance with data regulations [Yi, 2023].

The digital economy is growing rapidly via the use of new technologies that increase connection, facilitate automation, promote data analysis, and offer new commercial opportunities. In today's industrial scene, DT has emerged as a vital innovation, redefining the operational, strategic, and economic paradigms of enterprises across several industries. This technology, which generates a virtual reproduction of actual assets, processes, or systems, has the potential to dramatically improve efficiency, save operational costs, and open up new revenue sources. The purpose of this study is to provide a comprehensive literature review on the privacy and security challenges of DT technology, aiming to identify potential barriers to their future industry adoption. The main research questions (RQs) were:

- RQ1: What are the primary application domains of DT technology?
- RQ2: Which privacy and security challenges arise most frequently when using DT technology?

This study is unique in a literature review on a wider range of privacy and security challenges, taking into account both technical and non-technical issues. The work is structured as follows: Section 2 describes the methodology used; Section 3 presents the literature review on DT applications; Section 4 shows the main results; Section 5 discusses the main privacy and security challenges; and in Section 6, the paper is concluded.

## **2. METHODOLOGY FOR LITERATURE REVIEW**

PRISMA methodology was used to perform the literature review [Moher et al., 2009]. To identify relevant articles for the research area, a search string ("digital twin" OR "digital twins") AND ("privacy" OR "security") in the titles or abstract of the paper was utilized. A total of 438 articles were found, with 282 articles remaining after removing duplicates. All publications that dealt with privacy or security challenges in the context of DT were included; all other articles that primarily addressed subjects unrelated to the actual implementation and challenges of DT were removed. After implementing the inclusion and exclusion criteria, a total of 49 articles remained for further analysis. Only English-language articles released between 2019 and 2024 were considered. Furthermore, to better understand the concept and structure of the selected articles, keyword co-occurrence analysis was used to investigate the link between keywords in the literature. It illustrates how specific terms or keywords frequently appear together in text data, with nodes representing authors keywords identified in journal articles and linkages representing word co-occurrences [Radhakrishnan et al., 2017]. This analysis was performed using the bibliometrics library from the R tool, on 282 articles selected in the first step of the PRISMA approach.

## **3. DIGITAL TWIN APPLICATIONS**

DT has applications in various domains where they can serve as a factor that will create a competitive advantage. Despite significant investments in Industry 4.0, industry is not yet capable of fully utilizing the new technology [Mantravadi et al., 2023].

### **3.1. CONSTRUCTION**

In the construction, the main applications are related to smart cities development and surveillance of building projects [Waqar et al., 2023]. DTs are vital for urban planning, specifically for their visualization and simulation capabilities [Lei et al., 2023]. By incorporating the entire ecosystem in decision-making through open innovation and citizen engagement, these can produce co-innovations [D'Hauwers et al., 2021]. Weber-Lewerenz [2021] believes that DT in construction projects will have corporate digital responsibility built into them. The use of emerging technologies like blockchain and non-fungible token (NFT) standards could improve secure data sharing [Teisserenc & Sepasgozar, 2022].

### **3.2. INFRASTRUCTURE**

Other DT applications include facility and infrastructure management also essential for preserving safety and functionality, with smart infrastructure emerging alongside traditional infrastructure assets. They could be used in civil infrastructure systems for transportation, energy, water and waste applications such as demand forecasting, emergency planning, predictive maintenance, security resilience, and so on [Callcut et al., 2021]. For example, using

bridge digital twins' models can provide effective remote management such as bridge model updating, monitoring, operational and other maintenance purposes [Ye et al., 2022]. They can be used for asset management and as a way to improve maintenance practices, service delivery, and sustainability [Fialho et al., 2022].

### 3.3. MANUFACTURING

In the manufacturing industry, the digital twin can be used to facilitate new business creation [Timperi et al., 2023]. An interview study with eight manufacturing companies identified barriers and challenges for fully leveraging DT benefits [Wärmefjord et al., 2020]. The study revealed a significant gap between academia and industry, with challenges primarily observed in system and work process simulation, management issues, and education. This is supported by Neto et al. [2020], who claim that standardization, technological maturity, and integration, as well as lack of people's qualifications and resistance to change impede the use of DT.

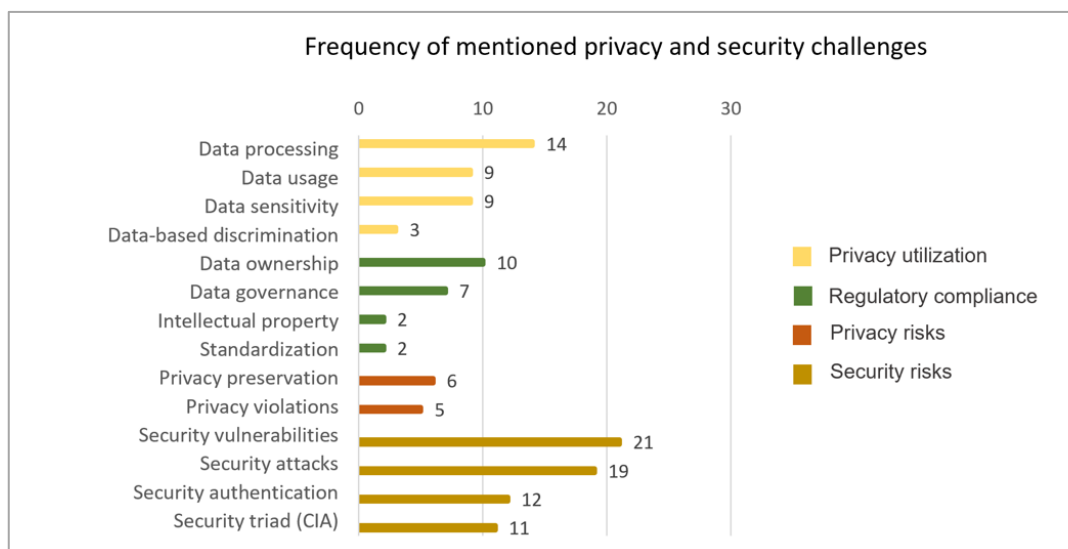
### 3.4. HEALTHCARE

In healthcare, DT could be an effective tool for short clinical trials and providing preventive healthcare to enable personalized medicine [De Maeyer and Markopoulos, 2021]. In his study, de Boer et al. [2022] explores the various ways in which DT can be integrated into people's lives, focusing on how potential users want to be treated and how this can be applied to the introduction of DT into care practice. Similarly, Popa et al. [2021] investigated the socio-ethical benefits and risks of DT in healthcare, focusing on the prominent risks triggered by their adoption and perceived stakeholders' benefits.

## 4. RESULTS

This study examined 49 articles in which challenges can roughly be divided into technical and non-technical challenges. Figure 1 depicts the frequency of identified privacy and security challenges, divided into four categories: (1) privacy utilization, (2) regulatory compliance, (3) privacy risks, and (4) security risks.

Figure 1. Frequency of mentioned privacy and security challenges

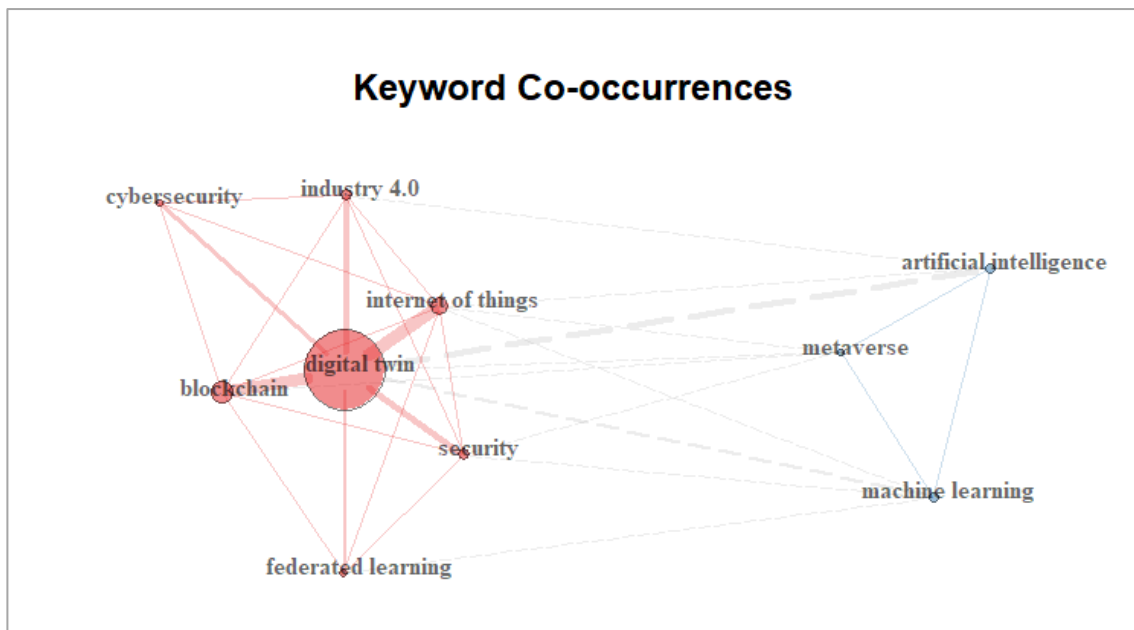


Source: Authors

Figure 1 illustrates the prevalence of security risks, including those related to system vulnerabilities, attacks, authentication, and overall threats to the data confidentiality, integrity, or availability. Next are those related to the utilization of privacy (privacy risk), such as how private and sensitive information are handled and shared. Regulatory compliance-related challenges like data governance, ownership, intellectual property, and standardization are almost equally represented. When everything is taken into account, the challenges resulting from the real violation of privacy in specific attack or data breach scenarios are not that concerning.

Figure 2 depicts the co-occurrence analysis of terms performed in the R tool on 282 articles found in the IEEE Xplore, WoS and Scopus databases. With the help of keyword co-occurrence analysis, it was possible to see which terms are most often mentioned together in the literature.

Figure 2. Keyword co-occurrence network in the R tool



Source: Authors

In Figure 2, keywords are displayed using circles, while different colors indicate keyword clusters, and frequency of occurrence is indicated by the size of the circle. The two primary clusters are: digital twin and artificial intelligence. It is visible that many articles mention digital twin in the context of artificial intelligence, metaverse and machine learning. There is a strong connection between digital twin and related concepts such as the internet of things, Industry 4.0 and blockchain, although it is worth noting that terms like security and cybersecurity appears alongside these terms. This confirms the previous analysis, which found that security concerns are common when dealing with digital twin topics.

## 5. DISCUSSION

Our systematic review of the literature revealed four main privacy and security challenges associated with digital twins. It served as a follow up to previous literature reviews [Yao et al., 2023; Lei et al., 2023; Asad et al., 2023]. As stated, this emerging technology needs to address

challenges around the entire digital twin life cycle and their integration into current frameworks. One of the key challenges were **security risks**, most frequently mentioned in the total number of examined articles. They were mostly related to cybersecurity, such as system vulnerabilities and network communication problems, which can lead to data breaches and cyberattacks. Previous research confirms that data breaches have become a significant challenge for organizations [Seh et al., 2020; Wheatley et al., 2016], as they compromise the confidentiality, integrity, and availability of data, known as the security triad [Umran et al., 2022]. The majority of identified security triad issues pertain to data confidentiality and integrity, while data availability was less concerning. This category also encompassed issues related to security authentication, such as identity management, access control, and unauthorized access. A multi-user system could be a solution for protecting data from clouds by allowing owners to control access to specific data subsets [Hörandner and Prünster, 2021]. Authentication mechanisms could help maintain confidentiality in digital communication, including medical records and other operations [Qian et al., 2022].

The second category of challenges falls under the **privacy utilization category**, which includes data processing, data usage, data sensitivity and data-based discrimination. Data usage referred to general use of personal data, while data processing included the collection, storage, and data sharing. The paper highlights that most cyberattacks are linked to the process of collecting and handling large amounts of data [Bruynseels et al., 2018]. For this reason, Tao et al. [2019] suggested implementation of security and privacy tools that can achieve overall data protection. Data sensitivity included issues around control over sensitive data [Hörandner and Prünster, 2021], collection and dissemination [Qian et al., 2022], as well as confidentiality protection [Araújo et al., 2022]. It was observed various categories that need to be protected like sensitive project and asset data [Omran et al., 2023], manufacturing data [Timperi et al., 2023], critical physical objects and systems information [Hemdan et al., 2023] and confidential patient data [Turab and Jamil, 2023]. Data-based discrimination is revealed as one of the challenges, explained as people's tendency to identify patterns in data can lead to prejudice [Bruynseels et al., 2018]. For example, it can cause patients to be diagnosed as ineligible for surgery or insurance [Popa et al., 2021]. It can widen socio-economic gaps by not being accessible in countries with lack of access to research facilities, leading to inequality and injustice [Popa et al., 2021; Winter and Chico, 2023]. The issue of uneven access is in previous research recognized as a significant obstacle that hinders the participation of stakeholders [Lei et al., 2023].

The third, **regulatory compliance** category, included: (1) data ownership, (2) governance, (3) regulatory frameworks, (4) intellectual property, and (5) standardization challenges. Our review revealed the most problems with data ownership and governance arise from poor regulatory frameworks and a lack of standards. As indicated by Kwon and Johnson [2013], fear of potential data breaches motivates organizations to comply with regulatory requirements. It is important to achieve regulatory compliance with data privacy guidelines [Cali et al., 2023]. As digital twin development includes frameworks related to specific industries, devices and artificial intelligence, compliance with each of these regulations should be achieved [Cellina et al., 2023].

Finally, the fourth category of **privacy risks** received little attention. It dealt with privacy preservation and data anonymity, while mentioning various forms of privacy violations such as personal information attacks, privacy breaches, data leaks, and misuses of private data. As wireless data transfer may contain content that can jeopardize owners' privacy, it requires the creation of secure data sharing channel [Son et al., 2022]. Private data must also be protected, as vehicle DT data, including position and transmission conditions, is vulnerable to attack when

transmitted to the cloud [Yang et al., 2022]. Detailed product information can facilitate production management, but at the same time it makes it easier for attackers to learn confidential business know-how [Holmes et al., 2021].

## 6. CONCLUSION

This study tackled the current state of DT implementation and the challenges that industries are facing, with a particular emphasis on privacy and security. Findings showed that DT are implemented in various domains such as construction, infrastructure, manufacturing and healthcare, which was related to the first research question (RQ1). In response to the second research question (RQ2), this study identified 4 main categories of privacy and security challenges: (1) privacy utilization, (2) regulatory compliance, (3) privacy risks, and (4) security risks. The key technical challenges were cybersecurity and attacks, as well as authentication problems caused by system vulnerabilities.

Security risks are identified as one of the major challenges that prevents successful DT implementation. Other reasons included some non-technical aspects that were primarily related to privacy challenges, such as the use of private and sensitive data, legislation, and fair data distribution. The results indicate that establishment of an appropriate security infrastructure could solve a number of non-technical challenges and reduce the possibility of privacy and security risks. Furthermore, recommendations for further research should be aimed at creating a common regulatory environment for the development of a digital twin technology. In particular, the challenges identified in this study can be used as variables or constructs that can be addressed in developing a digital twin framework. One of the limitations of this research is that focus was only on privacy and security challenges, while there are a number of other challenges that prevent its successful implementation. Some of the open questions relate to what challenges arise in certain phases of the digital twin's life cycle, so that they can be focused on during each development phase.

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## ULOGA VELIKIH PODATAKA PRI DIGITALNOJ TRANSFORMACIJI USMJERENOJ NA KORISNIKA

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### SAŽETAK

*Promjenjivi zahtjevi korisnika potiču organizacije na prilagodbu uobičajenih načina poslovanja stoga značaj digitalne transformacije postaje sve veći. Digitalna transformacija obuhvaća sljedeće odrednice - stratešku orijentaciju, usmjerenost na korisnika, tehničku, tehnološku i procesnu infrastrukturu, jačanje talenata, sposobnosti i kapaciteta te kulturu inovacija i organizacijsku predanost. Ista se temelji na inovativnoj primjeni digitalnih tehnologija koje omogućuju efikasno upravljanje korisničkim zahtjevima iz čega se javlja potreba za poboljšanjem proizvoda, usluga, procesa i / ili poslovnih modela organizacija.*

*Korisničkim aktivnostima putem digitalnih tehnologija kao što su digitalne platforme, društvene mreže, mobilni uređaji i mnogi drugi, generiraju se veliki skupovi podataka. Spomenuti podaci omogućuju bolje razumijevanje korisničkih potreba, a posljedično i primjerenu i pravovremenu reakciju organizacija, usklađenu sa zahtjevima korisnika. Adekvatno upravljanje prikupljenim korisničkim podacima može doprinijeti ubrzanoj digitalnoj transformaciji i poboljšanju konkurentnosti organizacija na sve dinamičnijem i izazovnijem tržištu.*

*Ovo istraživanje stavlja naglasak na prikupljanje, korištenje i upravljanje velikim podacima od strane organizacija kako bi iste poboljšale korisničko iskustvo i lakše se prilagodile korisničkim zahtjevima. Budući da je usmjerenost na korisnika jedna od temeljnih odrednica digitalne transformacije, istraživanje pruža upravljačke implikacije za digitalnu transformaciju vođenu velikim podacima, a s ciljem usmjeravanja organizacijskih aktivnosti ka korisniku.*

**KLJUČNE RIJEČI:** digitalna transformacija, odrednice digitalne transformacije, usmjerenost na korisnika, veliki podaci

# THE ROLE OF BIG DATA IN USER ORIENTED DIGITAL TRANSFORMATION

## ABSTRACT

*The changing demands of users encourage organizations to adapt their usual ways of doing business, thus increasing the significance of digital transformation. Digital transformation includes the following determinants: strategy orientation, customer centricity, technical, technological (ICT) and process infrastructure, talent, capability and capacity strengthening, as well as innovation culture and organizational commitment. It is based on the innovative application of digital technologies that enable efficient management of user requirements, leading to the need to improve products, services, processes, and/or business models of organizations.*

*User activities through digital technologies such as digital platforms, social networks, mobile devices, and many others generate large sets of data. This data enables a better understanding of user needs and, consequently, an appropriate and timely reaction from organizations, aligned with user requirements. Adequate management of collected user data can contribute to accelerated digital transformation and improvement of organizational competitiveness in an increasingly dynamic and challenging market.*

*This research emphasizes the collection, use, and management of big data by organizations in order to improve the user experience and adapt more easily to user demands. Since customer centricity is one of the fundamental determinants of digital transformation, the research provides management implications for digital transformation driven by big data, with the aim of directing organizational activities towards the user.*

**KEYWORDS:** digital transformation, digital transformation determinants, customer centricity, big data

## 1. UVOD

Digitalna transformacija iz temelja je promijenila očekivanja i ponašanje korisnika, a istovremeno stavlja golemi pritisak na tradicionalne organizacije i oblike poslovanja. Ona mijenja način na koji organizacije koriste digitalne tehnologije s ciljem kreiranja poslovnog modela koji će stvoriti što veću krajnju vrijednost za korisnike [Tomičić Furjan et al., 2023], [Kutnjak et al., 2019], [Verhoef et al., 2021], [Frank et al., 2019], a posljedično i za samu organizaciju. Korisnici aktivno primjenjuju različite kanale komunikacije kako bi stupili u kontakt s organizacijama ili pak drugim korisnicima, ostvarujući pri komunikaciji širok spektar (digitalnih) dodirnih točaka [Verhoef et al., 2021] duž čitavog korisničkog putovanja [Matarazzo et al., 2021], [Zaki, 2019], [Wang i Wang, 2020].

Ponašanje korisnika oblikuje se u skladu s utjecajem različitih digitalnih tehnologija kao što su umjetna inteligencija, blockchain, internet stvari, robotika, veliki podaci, računalstvo u oblaku, proširena stvarnost, virtualna stvarnost i druge [Verhoef et al., 2021], [Frank et al., 2019], [Aheleroff et al., 2020], [Culot et al., 2020], [Tijan et al., 2021]. Široki prodor

spomenutih tehnologija jasno signalizira potrebu da organizacije transformiraju svoje poslovanje [Matarazzo et al., 2021], odnosno da zamijene svoje tradicionalno orijentirane poslovne modele digitalnim [Zaki, 2019] i fleksibilnijim modelima [Dabrowska et al., 2022]. U digitalnom se svijetu generiraju veliki podaci koji nude ogromne mogućnosti za reviziju trenutnih poslovnih modela [Pappas et al., 2018], [Trittin-Ulbrich et al., 2021]. Kako tehnologije mogu pružiti dodatnu vrijednost korisnicima prilikom isporuke proizvoda ili usluga [Frank et al., 2019], posebnu je pažnju potrebno usmjeriti ka njihovoj integraciji u poslovne procese, osobito one koji su direktno vezani uz korisnike. Integracija i prilagodba procesa temelji se na prikupljenim korisničkim podacima koji će utvrditi nove potrebe istih ili pak potrebu za adaptacijom proizvoda ili usluga [Frank et al., 2019]. To će utjecati na poboljšanje interakcije organizacije i korisnika te posljedično na unapređenje dvostrane komunikacije i razmjenu vrijednosti [Matarazzo et al., 2021], [Culot et al., 2020], [Ardito et al., 2019].

Veliki podaci posljednjih su godina privukli enormnu pozornost organizacija koje u njima nastoje istražiti specifične vrijednosti sa svrhom utjecaja na različite segmente korisnika [Pappas et al., 2018], [Hrustek et al., 2021]. Veliki podaci predstavljaju informacijsku imovinu koju karakterizira veliki obujam, raznolikost, brzina i istinitost [Sharma et al., 2022], pri čemu je ista generirana i dostupna u ekosustavima digitalnih medija te zahtijeva posebne metode transformacije u vrijednost [Fernandez-Rovira et al., 2021]. Podaci različitih vrsta – strukturirani (relacijske baze podataka), polustrukturirani (JSON, XML datoteke) i nestrukturirani (slike, video i audio datoteke) [Sharma et al., 2022] smatraju se velikim podacima, a generiraju se iz različitih tipova izvora – dnevnih transakcija korisnika, objavama na društvenim mrežama [Zaki, 2019], aktivnošću na mobilnim uređajima [Pappas et al., 2018], kućanskim uređajima [Aheleroff et al., 2020], elektroničkim web mjestima [Wang i Wang, 2020], itd. Veliki podaci zahtijevaju posebne vještine prikupljanja i analize da bi se iz njih selektirale relevantne informacije [Khan et al., 2021]. Kako alati za obradu podataka dobivaju na značaju, isti će promijeniti načine i postupke donošenja odluka, utjecat će na upravljačke mehanizme organizacija, formulirat će konkurentske strategije te će formirati nove načine stvaranja vrijednosti za korisnike [Manita et al., 2020], [Pappas et al., 2018], [White, 2012].

Značaj velikih podataka istaknut je i u stručnoj literaturi. Iz izvješća *Statista* [Petroc, 2024] vidljiv je nagli porast voditelja podataka diljem svijeta koji smatraju da njihove matične organizacije pokreću inovacije povezane s podacima, dok je iz nalaza *Accenture Technology Vision* vidljivo da 95% rukovoditelja prepoznaje potrebu za novim podatkovnim arhitekturama i strategijama [Accenture, 2023]. *Statista* izvješćuje da je 2023. godine 60% od 116 anketiranih organizacija navelo kako iskorištavaju podatke za poticanje inovacija. *International Data Corporation* predviđa da će europsko tržište softvera za analizu podataka, u periodu od 2023. do 2027. godine, ostvariti ukupnu godišnju stopu rasta od 19,80% [International Data Corporation, 2024] i vrijednost od 686,08 milijardi dolara do 2032. godine [PixelPlex, 2024]. Nadalje, predviđa se da će se proizvodnja podataka do 2027. godine povećati za 150 puta (uspoređujući podatke iz 2022. godine), što će rezultirati s 11,5 milijuna novih „podatkovnih“ radnih mjesta [PixelPlex, 2024]. S druge strane, *Gartner* predviđa da će se inicijative usmjerene upravljanju podacima u organizacijama do 2027. godine smanjiti za 80% [Gartner, 2024], dok istraživanja *MIT Sloan* spominju trenutno veliko tehnološko „uzbuđenje“ u organizacijama, koje do 2024. godine još nije postiglo pravu vrijednost [Davenport i Bean, 2024].

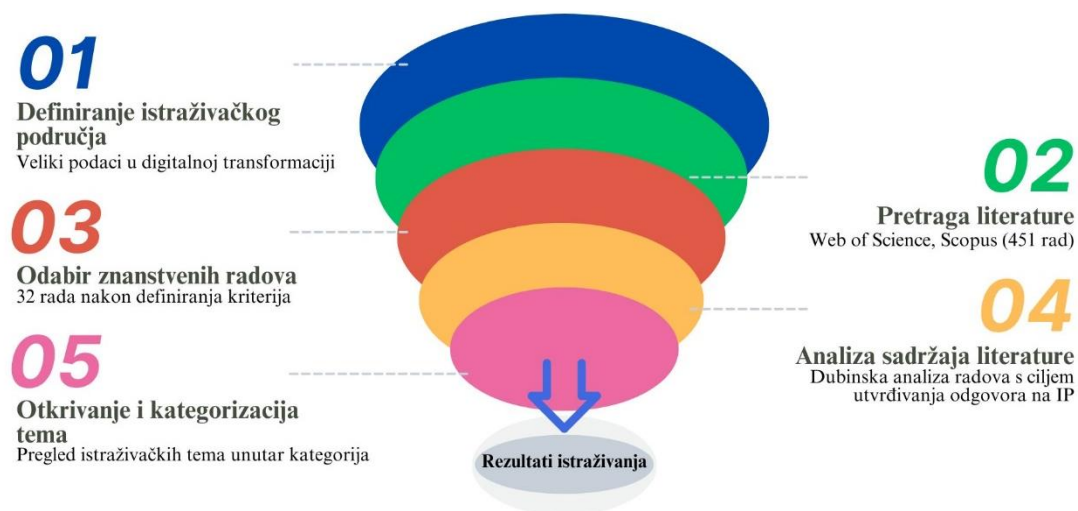
Kako bi ovaj rad pružio upravljačke smjernice za digitalnu transformaciju vođenu velikim podacima, potrebno je istražiti znanstvenu literaturu koja će pomoći u razumijevanju tematike. U skladu s navedenim, cilj ovog rada je utvrditi kako organizacije prikupljaju, koriste i upravljaju velikim podacima [Wang i Wang, 2020] s ciljem poboljšanja korisničkog iskustva i

prilagodbe korisničkim zahtjevima. S obzirom na značaj transformacije, u radu je postavljeno sljedeće istraživačko pitanje (IP): *Koja je uloga velikih podataka pri digitalnoj transformaciji usmjerenoj na korisnika, ako se podaci sagledaju s aspekta prikupljanja, korištenja i upravljanja?* Ovaj rad doprinosi postojećim raspravama o digitalnoj transformaciji usmjerenoj korisnicima i potpomognutoj velikim podacima. Rad je strukturiran kako slijedi. Nakon uvodnog dijela, istaknuta je korištena metodologija. Slijedi prikaz rezultata, dok su diskusija, istraživačka ograničenja i zaključni komentari navedeni na koncu rada.

## 2. METODOLOGIJA

S namjerom utvrđivanja odgovora na istraživačko pitanje i postizanja istraživačkog cilja, bilo je potrebno sagledati znanstvenu literaturu u eminentnim bazama (prikaz 1). Kreiran je istraživački upit "*digital transformation*" AND ("*customer\**" OR "*consumer\**") AND ("*big data*" OR "*data management*"), a rezultati istog razmatrani su u Web of Science i Scopus bazi. Uz definiranje upita, za pretragu su zadani sljedeći parametri i ograničenja. Naslov, sažetak i ključne riječi korištene su kao krucijalni elementi pretrage, pri čemu su radovi razvrstani prema najvećoj citiranosti. U vrijeme pretrage, početkom ožujka 2024. godine, Web of Science je rezultirao sa 188 radova, dok je broj radova u Scopusu, iznosio 263. S obzirom na kriterij citiranosti u obje baze, u analizu su uključeni samo radovi čija je citiranost iznosila više od 40 citata, što je u Web of Science bazi iznosilo 26, a u Scopusu 19 inicijalnih radova za dubinsku analizu. Kako je pregledom radova utvrđeno 13 preklapanja, u konačnici je izvršena dubinska analiza 32 znanstvena rada. Prema autorima [Wang i Wang, 2020], rezultati dubinske analize raspodijeljeni su tematski u kategorije prikupljanja, korištenja i upravljanja velikim podacima.

Prikaz 1. Istraživačka metodologija



Izvor: Samostalna izrada

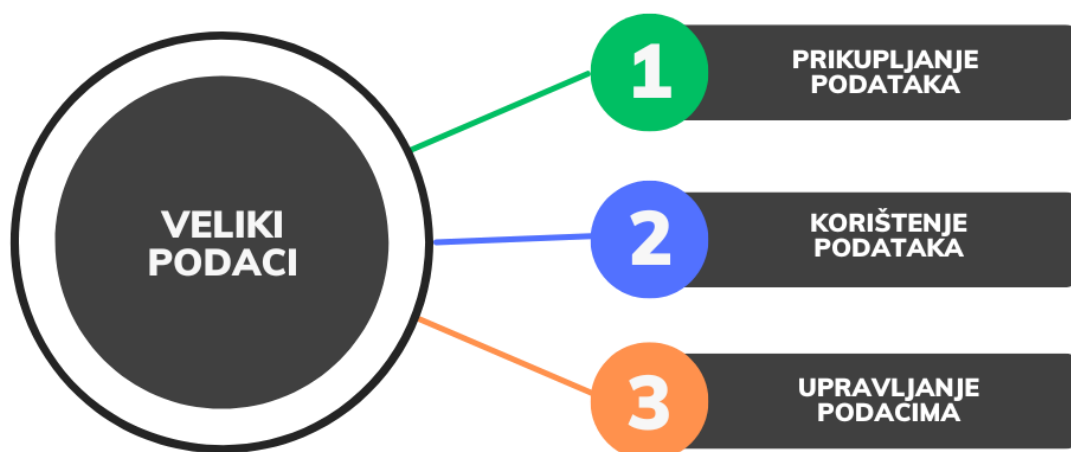
## 3. ULOGA VELIKIH PODATAKA PRI FOKUSU NA KORISNIKA

Različiti tokovi podataka generiraju se iz raznovrsnih izvora [Pappas et al., 2018], a organizacije nastoje ostvariti benefite njihovim prikupljanjem [Dimitrov, 2016]. S aspekta digitalne transformacije, podaci o korisnicima ključan su resurs organizacija koji će omogućiti njihov pravilan smjer razvoja i napretka. Slijedom navedenog, korisnička analitika na bazi velikih

podataka može se smatrati jedinim od ključnih elemenata konkurentnosti organizacija [Matarazzo et al., 2021], [Pappas et al., 2018], [Culot et al., 2020], [Tijan et al., 2021].

Iz tog je razloga važno prikupljanje podataka, analiza istih s ciljem donošenja adekvatnih strateških odluka [Aheleroff et al., 2020], [Manita et al., 2020], [Khan et al., 2021], ali i pravilno upravljanje, odnosno rukovanje podacima. Teme unutar aktivnosti prikupljanja, korištenja i upravljanja velikim podacima [Wang i Wang, 2020] (prikaz 2) identificirane su, kategorizirane i opisane u nastavku ovog znanstvenog rada. Dodatno, kreirana je hijerarhijska karta (prikaz 3) učestalosti pojavljivanja pojedinih tema unutar spomenutih triju kategorija. Prikaz može biti korišten za (i) identificiranje ključnih benefita koje organizacije mogu ostvariti pri digitalnoj transformaciji vođenoj velikim podacima te za (ii) prepoznavanje područja na koja je potrebno usmjeriti posebnu pažnju s ciljem zadržavanja organizacijskog fokusa, odnosno potpune usmjerenosti podatkovnih aktivnosti na korisnika.

Prikaz 2. Kategorizacija aktivnosti vezanih uz velike podatke



Izvor: Samostalna izrada prema [Wang i Wang, 2020]

### 3.1. PRIKUPLJANJE VELIKIH PODATAKA

Budući da su veliki podaci svojevrsni „nusprodukt“ svih digitalnih tehnologija, važno je da organizacije usavršavaju interne *vještine* i *sposobnosti prikupljanja* istih [Verhoef et al., 2021], [Frank et al., 2019], [Pappas et al., 2018], [Aheleroff et al., 2020], [Khan et al., 2021], [Santos et al., 2021], [Wang i Wang, 2020]. Unatoč jednostavnosti prikupljanja i širokoj dostupnosti, organizacije se suočavaju s razvojem adekvatnih vještina prikupljanja velikih podataka. Prema podacima iz 2018. godine [Accenture, 2018], 79% rukovoditelja navodi da se njihovi najkritičniji organizacijski sustavi i strategije oslanjaju na velike podatke, međutim, pri prikupljanju podataka javlja se problematika provjere *pouzdanosti* istih [El Hilali et al., 2020], [Verhoef et al., 2021]. U kontekstu istraživačke teme, valja napomenuti da se podaci proizašli iz društvenih medija posebno ističu kao oni čiju je pouzdanost potrebno provjeriti netom prije korištenja.

Postupak prikupljanja podataka otežan je u slučaju nepovjerenja između organizacija i korisnika. Iz tog je razloga potrebno izgraditi stabilan odnos s korisnicima, što će utjecati na *povjerenje* pri dijeljenju podataka koji će biti obostrano korisni [Frank et al., 2019]. Povjerenje je posebno istaknuto u pojedinim industrijama, a nerijedak je slučaj da *korisnici samostalno dijele i pohranjuju* svoje podatke u bazama organizacija [Dimitrov, 2016]. Da bi se iz podataka generirali korisni podaci, važna je njihova *normalizacija* u konzistentnu strukturu te kreiranje

adekvatnog *formatata* podataka [Dimitrov, 2016], [Matarazzo et al., 2021], [Llopis-Albert et al., 2021], [Aheleroff et al., 2020], [Manita et al., 2020], [Ballestar et al., 2019], [Wang i Wang, 2020], [Alzahrani et al., 2021]. Uobičajeno, adekvatnost formata podataka ovisi o specifičnim potrebama organizacija i svrsi njihova korištenja, a isti je važan iz aspekta jednostavnosti korištenja podataka, generiranja znanja iz podataka i uštede prostora.

### 3.2. KORIŠTENJE VELIKIH PODATAKA

Za efikasno korištenje prikupljenih velikih podataka nužno je posjedovati zaposlenike s jakim *digitalnim i analitičkim vještinama* te *vještinama vizualizacije podataka*, koji će iz velikih podataka stvarati vrijednost, kako za korisnike tako i za same organizacije [Verhoef et al., 2021], [Frank et al., 2019], [Dimitrov, 2016], [Matarazzo et al., 2021], [Dabrowska et al., 2022], [Khan et al., 2021], [Santos et al., 2021], [Nuccio i Guerzoni, 2019], [White, 2012], [Wang i Wang, 2020]. Nakon prikupljanja, podaci o korisnicima mogu biti iskorišteni u svrhu *personalizacije* proizvoda i usluga koje organizacija nudi korisnicima [Verhoef et al., 2021], [Matarazzo et al., 2021], [Llopis-Albert et al., 2021], [Aheleroff et al., 2020], [Zaki, 2019], [Trittin-Ulbrich et al., 2021], [Dabrowska et al., 2022], [Ardito et al., 2019]. Podaci mogu biti korišteni dvostrano. Prvo, kako bi se *prepoznale stvarne potrebe korisnika* [Frank et al., 2019], [Paritala et al., 2017], [Busulwa et al., 2022], [Ballestar et al., 2019] i drugo, kako bi se prema korisnicima kreirala *ciljana oglašavanja* [Zaki, 2019], [Dabrowska et al., 2022].

Nadalje, pravilna podatkovna analitika može rezultirati *optimizacijom resursa* [Ku et al., 2020], [Alzahrani et al., 2021], slijedom *dinamičke promjene cijena proizvoda i usluga* [Verhoef et al., 2021], [Matarazzo et al., 2021], [Santos et al., 2021]. Navedeno će poboljšati *prediktivnu analitiku* [Aheleroff et al., 2020], [Zekic-Susac et al., 2021], [Ku et al., 2020], [Ballestar et al., 2019] i *točnost predviđanja budućih interakcija s korisnicima* [Frank et al., 2019], [Manita et al., 2020], [Trittin-Ulbrich et al., 2021], [Fernandez-Rovira et al., 2021], [Westermeier, 2020], [Ardito et al., 2019], [Nuccio i Guerzoni, 2019], [Wang i Wang, 2020], [Biahmou et al., 2016], [Alzahrani et al., 2021]. Ako se predviđanje sagleda iz aspekta medicine, veliki podaci mogu se koristiti za *praćenje napredovanja bolesti, uspjeha liječenja* i slično [Dimitrov, 2016]. S druge strane, veliki se podaci u revizorskoj industriji mogu koristiti u svrhu *automatskog ispravljanja podataka* [Manita et al., 2020]. Takva automatika doprinijet će *povećanoj brzini* obavljanja postupka revizije.

Pravilna analiza prikupljenih podataka omogućit će organizacijama da *što bolje razumiju percepciju stvarne vrijednosti korisnika*, a na bazi analize njihova ponašanja za vrijeme i nakon konzumacije proizvoda ili usluga [Frank et al., 2019], [Pappas et al., 2018]. Uz spomenuto, analizom velikih podataka mogu se utvrditi *nove korisničke potrebe* što će utjecati na *prilagodbu proizvoda ili usluga* [Frank et al., 2019]. Organizacije bi si algoritmima za analizu podataka trebale omogućiti *kontinuirano ažuriranje internih bilješki*, odnosno *automatsku modifikaciju* podataka sukladno novostečenom znanju o korisnicima [Dimitrov, 2016], [Thanh Ha, 2022], [Santos et al., 2021]. Takvo znanje nadalje može biti iskorišteno za *automatsko obavješćavanje korisnika u realnom vremenu* [Aheleroff et al., 2020], [Tijan et al., 2021], [El Hilali et al., 2020], [Lee et al., 2021], [Ballestar et al., 2019], [Alzahrani et al., 2021].

Analizom velikih podataka mogu se *identificirati novi distribucijski kanali* [Matarazzo et al., 2021] koji su u trenutnoj formi nezastupljeni način komunikacije organizacije s korisnicima [Llopis-Albert et al., 2021]. *Sprječavanje i upravljanje rizicima* dodatne su koristi analize prikupljenih podataka [Dimitrov, 2016], [Aheleroff et al., 2020], [Zaki, 2019], [Manita et al., 2020], [El Hilali et al., 2020], [Wang i Wang, 2020], [Alzahrani et al., 2021]. *Dijeljenje*



**podataka** na razini **lanca vrijednosti** rezultirat će rastom učinkovitosti i inovacijama, što će posljedično utjecati na rast vrijednosti korisnika [Culot et al., 2020], [Tijan et al., 2021], [Khan et al., 2021], [Santos et al., 2021], [Wang i Wang, 2020], [Biahmou et al., 2016]. Sve prethodno navedeno dovodi do **dubljih odnosa s korisnicima**, odnosno do njihove dugoročne **lojalnosti** [Matarazzo et al., 2021], [Pappas et al., 2018], [Zaki, 2019], [Fernandez-Rovira et al., 2021], [Ardito et al., 2019].

### 3.3. UPRAVLJANJE VELIKIM PODACIMA

Uz aktivnosti prikupljanja i korištenja velikih podataka, važno je naglasiti i aktivnosti koje se odnose na upravljanje istima. Autori navode da bi organizacije trebale oformiti radne skupine koje će posjedovati **vještine upravljanja podacima** [Verhoef et al., 2021], [Trittin-Ulbrich et al., 2021], [Wang i Wang, 2020]. Pri tom je važno naglasiti **sigurnost prikupljenih podataka** [Frank et al., 2019], [Culot et al., 2020], [Manita et al., 2020], [Paritala et al., 2017], [Al-Ruithe et al., 2018], [Alzahrani et al., 2021], koja je posebno istaknuta u industrijama kao što je zdravstvo [Dimitrov, 2016] ili transport [Tijan et al., 2021].

Uz sigurnu manipulaciju, neophodno je poštovati i **etička načela** u svim fazama obrade podataka [Frank et al., 2019], [Dimitrov, 2016], [Fernandez-Rovira et al., 2021]. Ona se primjerice odnose na poštivanje privatnosti korisnika, zaštitu korisničkog intelektualnog vlasništva, traženje suglasnosti od strane korisnika za dijeljenje podataka i na mnoga druga. Kako prikupljeni veliki podaci mogu sadržavati informacije koje narušavaju privatnost korisnika, važno je da organizacije implementiraju sigurnosne protokole koji će osigurati poštivanje privatnosti [Dimitrov, 2016], [Pappas et al., 2018], [Dabrowska et al., 2022], [Paritala et al., 2017], [Biahmou et al., 2016], [Al-Ruithe et al., 2018], ali i svih ostalih segmenata i normi etičkih načela.

S aspekta **privatnosti**, autori [Herschel i Miori, 2017] spominju problematiku uklanjanja identiteta pojedinaca u velikim podacima, ako se unutar organizacije ne primjenjuju pravila i protokoli za korištenje anonimiziranih podatkovnih datoteka. Ističu [Herschel i Miori, 2017] da privatnost i identitet korisnika može biti ugrožen ukoliko se jedan skup podataka neprimjereno kombinira s drugom odvojenom, bazom podataka. Nadalje, **zaštita intelektualnog vlasništva** [Dimitrov, 2016], [Culot et al., 2020], [Tijan et al., 2021], [Dabrowska et al., 2022], [Paritala et al., 2017], [Al-Ruithe et al., 2018] jedan je od izazova kojeg navode autori pri upravljanju velikim podacima. Autorska prava, različiti patenti, povjerljive informacije u vidu poslovnih tajni, ekskluzivnost podataka, samo su neki od elemenata koji mogu biti povrijeđeni prilikom nepravilnog upravljanja velikim podacima. Ako se sagleda **zaštita prava pojedinaca** [Pappas et al., 2018], [Al-Ruithe et al., 2018] važno je naglasiti da se podaci prikupljeni od strane korisnika ne smiju primjenjivati i dijeliti bez znanja, pristanka ili razumijevanja korisnika, a organizacije ne smiju biti te koje će povrijediti privatnost i pravo na sigurno upravljanje i distribuciju podataka. Ukoliko organizacija postupa suprotno, takvo što predstavlja povredu privatnosti u kontekstu prava pojedinca [Al-Ruithe et al., 2018].

Prikaz 3. Aktivnosti prikupljanja, korištenja i upravljanja velikim podacima

■Prikupljanje velikih podataka ■Korištenje velikih podataka ■Upravljanje velikim podacima						
unaprijeđena prediktivna analitika /14/	personalizacija proizvoda i usluga /8/		sprječavanje rizika /7/		obavješćavanje korisnika u realnom vremenu /6/	
	dijeljenje podataka u lancu vrijednosti /6/	dublji odnosi s korisnicima, lojalnost /5/		prepoznavanje stvarnih potreba korisnika /4/		
		automatska modifikacija podataka /3/	ciljana oglašavanja /2/	identifikacija novih distribucijskih kanala /2/		praćenje /1/
				automatsko ispravljanje /1/	prilagodba proizvoda, usluga /1/	
adekvatne digitalne i analitičke vještine /10/	optimizacija organizacijskih resursa /5/	vještine vizualizacije podataka /2/	shvaćanje vrijednosti korisnika /2/	utvrđivanje korisničkih potreba /1/	neprestano ažuriranje /1/	
sigurnost prikupljenih podataka /8/	zaštita intelektualnog vlasništva /6/		normalizacija i adekvatan format prikupljenih podataka /8/	adekvatne vještine prikupljanja podataka /7/		
	adekvatne vještine upravljanja podacima /3/			pouzdanost prikupljenih podataka /3/	povjerenje /1/	samostalno dijeljenje /1/
	poštivanje etičkih načela /3/	zaštita prava /2/				
privatnost korisnika /6/						

Izvor: Samostalna izrada

#### 4. DISKUSIJA I ISTRAŽIVAČKA OGRANIČENJA

Rezultati istraživanja sagledani su s aspekta uloge velikih podataka pri digitalnoj transformaciji usmjerenoj na korisnika. Pri tome, aktivnosti prikupljanja, korištenja i upravljanja definirane su kao zasebne kategorije, prema kojima su pregledom literature utvrđene teme o kojima autori raspravljaju u postojećim istraživanjima. Gledajući generalno, iz rezultata je vidljivo da autori najčešće u svojim znanstvenim radovima pažnju usmjeravaju na kategoriju korištenja velikih podataka (Tablica 1). Unutar spomenute kategorije javljaju se teme (njih ukupno 19) koje autori prepoznaju kao relevantne za transformaciju poslovanja, s fokusom na korisnika. Primjerice, unaprijeđena prediktivna analitika, potreba za unapređenjem digitalnih i analitičkih vještina, personalizacija proizvoda i usluga, samo su neke od tema koje autori spominju kao važnima pri korištenju velikih podataka s ciljem zadovoljena korisničkih potreba. Kako je korisnik u fokusu digitalne transformacije, prepoznato je da se prikupljeni podaci u organizacijama najčešće koriste za modifikaciju ponude i usluga, odnosno njihovog potpunog prilagođavanja korisniku, na što jasno ukazuju teme unutar spomenute kategorije (prikaz 3, Tablica 1). Nadalje, u kategoriji upravljanja velikim podacima ističu se sigurnost podataka, privatnost korisnika i zaštita intelektualnog vlasništva, kao neke od ukupno 6 prepoznatih tema. Budući da su sigurnost i privatnost česta tema današnjice, ključno je da organizacije osiguraju interne sigurnosne protokole upravljanja prikupljenim podacima kako se isti ne bi primjenjivali i dijelili bez prethodnog pristanka korisnika. Posljednja kategorija, ujedno i najmanje spominjana u literaturi (s ukupno 5 tema), odnosi se na aktivnosti prikupljanja podataka. Pri tome, autori najčešće spominju potrebu osiguranja adekvatnog formata podataka, potrebu za nadogradnjom vještina prikupljanja podataka i tematiku pouzdanosti prikupljenih podataka. Da bi organizacije otkrile znanje u prikupljenim podacima i osigurale vlastiti napredak, važno je usmjeriti napor u rast i razvoj zaposlenika te usmjeriti njihove vještine ka digitalnim.

Tablica 1. Glavni nalazi istraživanja

<i>Aktivnosti / kategorije</i>	<i>Teme unutar aktivnosti</i>	<i>Učestalost pojavljivanja</i>
Prikupljanje	<b>ukupno tema: 5</b>	
	normalizacija i adekvatan format prikupljenih podataka	8
	adekvatne vještine prikupljanja podataka	7
	pouzdanost prikupljenih podataka	3
Korištenje	<b>ukupno tema: 19</b>	
	unaprijeđena prediktivna analitika	14
	adekvatne digitalne i analitičke vještine	10
	personalizacija proizvoda i usluga	8
Upravljanje	<b>ukupno tema: 6</b>	
	sigurnost prikupljenih podataka	8
	privatnost korisnika	6
	zaštita intelektualnog vlasništva	6

Izvor: Samostalna izrada

Nekoliko je ograničenja koja se mogu prepoznati u ovom istraživanju. Prvo se odnosi na korištenu metodologiju, odnosno na definiranje kriterija selekcije radova (citiranost). Nadalje, istraživanje se fokusira samo na dvije znanstvene baze, što znači da je potencijalan skup radova drugih baza isključen iz obrade rezultata. Također, klasifikacija tema unutar triju kategorija

provedena je od strane jednog istraživača, što potencijalno može implicirati na subjektivnost rezultata.

## 5. ZAKLJUČNI KOMENTARI

U skladu s definiranim istraživačkim ciljem, ovim radom utvrđeno je kako organizacije prikupljaju, koriste i upravljaju velikim podacima s ciljem poboljšanja korisničkog iskustva i prilagodbe korisničkim zahtjevima. Aktivnosti (kategorije) prikupljanja, korištenja i upravljanja, analizirane su s aspekta pojavnosti tema unutar istih. Samim time, u radu je prepoznato nekoliko tema na koje autori usmjeravaju svoja znanstvena istraživanja. Nadalje, prepoznata je enormna uloga velikih podataka pri digitalnoj transformaciji usmjerenoj na korisnika, čime je utvrđen odgovor na prethodno postavljeno istraživačko pitanje.

Rezultati istraživanja mogu biti korišteni od strane rukovoditelja organizacija i to na način da aktivnosti vezane uz velike podatke usmjere na teme prepoznate unutar ovog rada, čime su pružene upravljačke implikacije za digitalnu transformaciju vođenu velikim podacima. Može se zaključiti kako je aktivnosti prikupljanja, korištenja i upravljanja potrebno razmatrati s posebnom pažnjom te da je za svaku neophodno pripremiti prikladne akcije. Na taj način, organizacije mogu potencijalno generirati dvostranu vrijednost pri korištenju velikih podataka – korisničku i organizacijsku.

Da je područje vrijedno istraživanja pokazuje aktualnost teme i generirani rezultati. S obzirom na prethodno utvrđena istraživačka ograničenja, buduća istraživanja mogu biti usmjerena na umanj enje spomenutih te na poduzimanje akcija koje će doprinijeti obogaćivanju znanja u području primjene velikih podataka u digitalnoj transformaciji koja će biti u potpunosti usmjerena na korisnike.

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CRODMA is a free trade association, which brings together, includes and connects individuals and legal entities engaged in direct and interactive marketing, with the aim of promoting more efficient and more effective management in all areas of Republic of Croatia using the principles, ethics, concepts, knowledge, skills, tools and techniques of direct and interactive marketing. The Association is active in professional and organizational sense independently and in line with the Statute.

## **MISSION**

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CRODMA's mission is to support the development and status of direct and interactive marketing as a business strategy.

The mission will be achieved by supporting: development of a legislative framework that will enable prosperity of activities of direct and interactive marketing and market equality of CRODMA members, promotion of activities of direct and interactive marketing to the public (political, economic and general) as a successful business strategy in the prevailing market conditions and education of members and communication of achievements so that the direct and interactive marketing would be properly considered in the domestic and international, primarily European market.

## **VISION**

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To become a factor in the development and acceptance of the marketing philosophy as the dominant philosophy of business in Croatia.

CRODMA is focused on the popularization and development of direct and interactive marketing with its members' influence, contacts and activities related to the presentation of ideas and success of direct and interactive marketing for the business, political and general public.

