

<https://doi.org/10.7251/SSH2601005U>

UDC: 004.738.5:[613.2:796/799

Original scientific paper

Originalni naučni rad

# DIGITAL STRATEGIES OF SPORTS ORGANIZATIONS AND YOUTH ENGAGEMENT IN THE FUNCTION OF DEVELOPING HEALTHY LIFESTYLE HABITS: SECONDARY DATA ANALYSIS

# DIGITALNE STRATEGIJE SPORTSKIH ORGANIZACIJA I ANGAŽMAN MLADIH U FUNKCIJI RAZVOJA ZDRAVIH ŽIVOTNIH NAVIKA: ANALIZA SEKUNDARNIH PODATAKA

NINA UREMOVIĆ, MIRJANA LANDIKA, VANJA SREDOJEVIĆ

Pan-European University Apeiron, Banja Luka, Bosnia and Herzegovina

Panevropski univerzitet Apeiron, Banja Luka, Bosna i Hercegovina

**Correspondence:**

Nina Uremović

Pan-European University Apeiron, Banja Luka, Bosnia and Herzegovina

nina.d.uremovic@apeiron-edu.eu

**Korespondencija:**

Nina Uremović

Panevropski univerzitet Apeiron, Banja Luka, Bosna i Hercegovina

nina.d.uremovic@apeiron-edu.eu

**Abstract:** This paper analyzes how modern digital marketing strategies of sports organizations – including social-first content, video formats, real-time communication and multi-channel distribution models – affect youth engagement and the promotion of healthy lifestyle habits. The research is based on contemporary theoretical approaches to physical education and youth sports and examines how digital content can motivate young generations to be more actively involved in sports and recreational activities and to develop positive patterns of health-related behavior.

The empirical part of the paper is based on the analysis of secondary data sources and the application of statistical methods, including descriptive statistics, correlation tests and multiple linear regression. The results show that the model explains approximately 30% of the variance in youth engagement rate (ER). The social-first content variable has a statistically significant effect ( $p < 0.01$ ), while video content and real-time formats show positive, but statistically insignificant coefficients. Data-driven approaches recorded an effect close to the significance level ( $p \approx 0.055$ ). Correlation analysis indicates moderate positive relationships between ER and the share of video content ( $r = 0.365$ ) and real-time format ( $r = 0.178$ ).

Despite the limitations of a small and partially standardized sample, the findings show a positive trend in encouraging youth engagement through modern digital formats. The contribution of the paper is reflected in connecting digital marketing with modern concepts of physical education and youth health, and in pointing out the potential of digital strategies to contribute to the promotion of sports behavior and active lifestyle.

**Keywords:** Digital marketing, management of sports organizations, healthy lifestyle habits

**Jel classification:** M31, M10, I12, L83

## INTRODUCTION

Digitalization has brought significant changes to the way sports organizations communicate with the general

**Sažetak:** Ovaj rad analizira na koji način savremene digitalne marketinške strategije sportskih organizacija – uključujući social-first sadržaj, video formate, real-time komunikaciju i multikanalne modele distribucije – utiču na angažman mladih i promociju zdravih životnih navika. Istraživanje se zasniva na savremenim teorijskim pristupima fizičkom vaspitanju i sportu mladih i ispituje kako digitalni sadržaji mogu motivisati mlade generacije da se aktivnije uključuju u sportske i rekreativne aktivnosti te da razvijaju pozitivne obrasce ponašanja povezane sa zdravljem.

Empirijski dio rada zasniva se na analizi sekundarnih izvora podataka i primjeni statističkih metoda, uključujući deskriptivnu statistiku, korelacione testove i višestruku linearnu regresiju. Rezultati pokazuju da model objašnjava približno 30% varijanse engagement rate-a mladih (ER). Varijabla social-first sadržaja ostvaruje statistički značajan efekat ( $p < 0.01$ ), dok video sadržaji i real-time formati pokazuju pozitivne, ali statistički neznačajne koeficijente. Data-driven pristupi bilježe efekat blizu nivoa značajnosti ( $p \approx 0.055$ ). Korelaciona analiza ukazuje na umjerene pozitivne veze između ER-a i udjela video sadržaja ( $r = 0.365$ ) te real-time formata ( $r = 0.178$ ). Uprkos ograničenjima malog i djelimično standardizovanog uzorka, nalazi pokazuju pozitivan trend u podsticanju angažmana mladih kroz savremene digitalne formate. Doprinos rada ogleda se u povezivanju digitalnog marketinga sa savremenim konceptima fizičkog vaspitanja i zdravlja mladih te u ukazivanju na potencijal digitalnih strategija da doprinesu promociji sportskog ponašanja i aktivnog načina života.

**Gljučne reči:** PANAS, Digitalni marketing, menadžment sportskih organizacija, zdrave životne navike

**Jel klasifikacija:** M31, M10, I12, L83

## UVOD

Digitalizacija je donijela značajne promjene u načinu na koji sportske organizacije komuniciraju sa širom

public, especially young people. The upward trend in the use of digital devices and the participation of young people in social networks, streaming platforms and dedicated applications has led to digital engagement becoming one of the key indicators of the success of sports organizations. In this framework, all interest groups have an important role, especially young people with whom clubs can communicate through various digital channels.

The subject of this scientific paper is the strategic directions of marketing and ways of communicating with young people in order to acquire healthy habits through sports activities.

The purpose of the research is to analyze in detail the application of modern digital strategies and to examine their impact on the engagement of young people in the sports environment.

The aim of the research is to offer a systematic overview of secondary data, identify key trends in digital sports marketing among young people and determine how digital content influences their decision to engage in sports activities in order to acquire healthy lifestyle habits. Compared to traditional approaches to sports marketing, the paper seeks to verify the reliability of the hypotheses and theoretically explain the effects of different digital tactics on the behavior of young people.

The research problem stems from the fact that, despite the increasing use of digital strategies in sports marketing, there is still a lack of enough empirical research to confirm precisely which digital tactics contribute to increasing the engagement of young people in sports activities.

The paper presents one main and one auxiliary hypothesis, which examine the impact of advanced digital strategies on youth engagement.

The empirical part of the paper is based on the analysis of secondary data sources and the application of statistical methods including descriptive analysis, correlation tests and regression models. To process the data and perform statistical calculations, Microsoft Excel is used.

## LITERATURE REVIEW

Contemporary literature confirms that the digital transformation of sport affects young people to become one of the most active target groups on digital platforms. According to Mahmoud (2024), digital marketing in sports increasingly relies on data-driven analyses that allow for a more accurate understanding of the behavior of digital audiences (Mahmoud, 2024). Deloitte Digital (2025) highlights that organizations that implement social-first strategies achieve greater engagement growth, with young people most likely to respond to dynamic, short, and visu-

javnosti, a posebno sa mladim ljudima. Trend rasta korišćenja digitalnih uređaja i učešća mladih ljudi na društvenim mrežama, streaming platformama i namjenskim aplikacijama doveo je do toga da digitalni angažman postane jedan od ključnih pokazatelja uspješnosti sportskih organizacija. U tom okviru, značajnu ulogu imaju sve interesne grupe, a posebno mladi ljudi sa kojima klubovi mogu komunicirati kroz različite digitalne kanale.

Predmet istraživanja ovog naučnog rada je strateški pravci marketinga i načina komunikacije sa mladim ljudima radi sticanja zdravih navika kroz sportske aktivnosti.

Svrha istraživanja jeste da detaljno analizira primjena savremenih digitalnih strategija i da se ispita njihov uticaj na angažman mladih u sportskom okruženju.

Cilj istraživanja je da ponudi sistemski pregled sekundarnih podataka, identifikuje ključne trendove u digitalnom sportskom marketingu među mladima i utvrdi na koji način digitalni sadržaji utiču na njihovu odluku da se uključe u sportske aktivnosti radi sticanja zdravih životnih navika. U poređenju sa tradicionalnim pristupima sportskom marketingu, rad nastoji da provjeri pouzdanost postavljenih hipoteza i teorijski objasni efekte različitih digitalnih taktika na ponašanje mladih.

Istraživački problem proističe iz činjenice da, uprkos sve većoj primjeni digitalnih strategija u sportskom marketingu, i dalje nedostaje dovoljno empirijskih istraživanja koje precizno potvrđuju koje digitalne taktike doprinose povećavaju angažman mladih ljudi u sportskim aktivnostima.

Rad predstavlja jednu glavnu i jednu pomoćnu hipotezu, koje ispituju uticaj naprednih digitalnih strategija na angažman mladih.

Empirijski dio rada zasnovan je na analizi sekundarnih izvora podataka i primjeni statističkih metoda uključujući deskriptivnu analizu, korelacione testove i regresione modele. Za obradu podataka i izvođenje statističkih izračuna korišćen je Microsoft Excel.

## PREGLED LITERATURE

Savremena literatura potvrđuje da digitalna transformacija sporta utiče na to da mladi postanu jedna od najaktivnijih ciljnih grupa na digitalnim platformama. Prema Mahmoudu (2024), digitalni marketing u sportu sve više počiva na data-driven analizama koje omogućavaju preciznije razumijevanje ponašanja digitalne publike (Mahmoud, 2024). Deloitte Digital (2025) naglašava da organizacije koje primjenjuju social-first strategije ostvaruju veći rast angažmana, pri čemu mladi najčešće reaguju na dinamičan, kratki i vizuelno snažan sadržaj

ally powerful content (Digital., 2025). These findings confirm the specific impact of digital formats on Generation Z, which predominantly consumes sports content through mobile apps and social networks.

Recent literature increasingly emphasizes the need to integrate marketing management, digital technologies and social responsibility of sports organizations in the process of communicating with young people. The authors point out that digital strategies in sport are not only a promotional tool, but also a mechanism for shaping the attitudes, values and behavior patterns of young users. A special focus is placed on the role of interactive and visual formats in stimulating emotional connection with sports content, which contributes to a higher level of online engagement. However, most of the existing research remains at the conceptual and descriptive level, without a deeper statistical check of the causal relationships between specific digital tactics and youth behavior. The lack of quantitative analyses is particularly pronounced in the academic literature, compared to industry reports that offer operational but methodologically limited insights. Therefore, there is a need for empirical testing of the effects of modern digital strategies on youth engagement in the sports context.

The University of Kansas (2024) indicates that real-time posts, behindthescenes formats, and highlights contribute to strengthening young people's sense of belonging to the online community, which confirms the importance of interactive digital formats. (Kansas, 2024) However, although the available literature describes the growth of the application of digital technologies in sports marketing, most papers still offer predominantly descriptive insights, while quantitative research on the direct impact of digital strategies on youth engagement is limited. This opens up a research gap between industry reports, which offer actionable insights, and academic papers, which rarely provide empirical analyses of these effects. This deficiency is the basis for the formulation of hypotheses in the paper, especially those related to the impact of video content, real-time communication and socialfirst approach on the digital engagement of young people. Therefore, a review of the literature indicates that there is a theoretical and practical basis for researching digital strategies, but also the need for additional empirical checks of their effects.

### THEORETICAL FRAMEWORK OF THE TOPIC

The definition and implementation of marketing strategies in the era of digital technologies has radically changed in all spheres of business activities. Traditional communication channels, which as a rule had a one-way character towards the user/consumer, have experienced a transformative

(Digital., 2025). Ovi nalazi potvrđuju specifičan uticaj digitalnih formata na generaciju Z, koja sportske sadržaje dominantno konzumira putem mobilnih aplikacija i društvenih mreža.

University of Kansas (2024) ukazuje da real-time objave, behind-the-scenes formati i istaknuti momenti doprinose jačanju osjećaja pripadnosti online zajednici kod mladih, što potvrđuje značaj interaktivnih digitalnih formata. (Kansas, 2024) Međutim, iako dostupna literatura opisuje rast primjene digitalnih tehnologija u sportskom marketingu, većina radova i dalje nudi pretežno deskriptivne uvide, dok su kvantitativna istraživanja o direktnom uticaju digitalnih strategija na angažman mladih ograničena. Time se otvara istraživački jaz između industrijskih izvještaja, koji nude primjenjive uvide, i akademskih radova, koji rijetko pružaju empirijske analize ovih efekata. Ovaj nedostatak predstavlja osnov za formulaciju hipoteza u radu, posebno onih koje se odnose na uticaj video sadržaja, real-time komunikacije i social-first pristupa na digitalni angažman mladih. Stoga pregled literature ukazuje da postoji teorijska i praktična osnova za istraživanje digitalnih strategija, ali i potreba za dodatnim empiričkim provjerama njihovih efekata.

### TEORETSKI OKVIR TEME

Definisanje i implementacija marketing strategija u eri digitalnih tehnologija radikalno je izmjenjena u svim sferama poslovnih aktivnosti. Tradicionalni komunikacioni kanali koji su po pravilu imali jednosmjerni karakter ka korisniku/potrošaču proživjeli su transformativni proces podržan digitalnim tehnologijama i dobili karakter aktivne dvosmjerne komunikacije. Samim tim, svjedočimo da povratne informacije, podaci i analize kojima danas raspoložu kreatori marketing strategija daju bolju percepciju, a sami tim i novi pristup u kreiranju i kombinovanju preciznijih taktika i alata u definisanju iste. „Razvoj sportskog tržišta uslovio je prelazak sa tradicionalne promocije na savremene oblike marketinga, u kojima digitalna komunikacija i upravljanje odnosima sa publikom imaju centralnu ulogu.“ (Raković & Dašić, 2018)

Navedeno je primjenjivo na svaki poslovni subjekt uključujući i sportske organizacije. Digitalni marketing sportskih organizacija koristi sve prednosti digitalnih tehnologija od društvenih mreža od vještačke inteligencije u cilju kreiranja što kvalitetnije strategije izgradnje fan baze i održavanja angažmana publike. Uloga digitalnih tehnologija u sportu je od posebnog značaja jer uloga publike i njihov angažman vodjen naglašenom emocijom i osjećajem pripadnosti drugačiji od ostalih

process supported by digital technologies and have acquired the character of active two-way communication. Therefore, we are witnessing that the feedback, data and analysis that the creators of marketing strategies have at their disposal today give a better perception, and the team itself a new approach to creating and combining more precise tactics and tools in defining it. "The development of the sports market has conditioned the transition from traditional promotion to modern forms of marketing, in which digital communication and audience relationship management play a central role." (Raković & Dašić, 2018)

This is applicable to any business entity, including sports organizations. Digital marketing of sports organizations uses all the advantages of digital technologies, social networks, artificial intelligence in order to create the best possible strategy, build a fan base and maintain audience engagement. The role of digital technologies in sports is of particular importance because the role of the audience and their engagement driven by emotion and sense of belonging are different from other consumers of other services or products. That is why social networks are becoming a crucial tool for creating, implementing and analyzing decisions made by the management and marketing team of a sports organization.

Social networks enable valid measurability of audience engagement through their reactions, shares, i.e. enable unhindered two-way communication, and thus become the main source of data necessary for the optimization of digital marketing aligned with the business goals of management. The close business connection between sponsors, brands and sports organizations further enhances the importance of effective management of digital channels and audience engagement, as they are today a benchmark in the valuation of a sports organization. Thus, the digital era imposes new strategies that, according to Uremović, imply that "deciding on the promotional mix in sports requires a special approach that combines emotions, accurate timing, digital technologies and strategic partnerships with business entities." (Uremović, Landika, & Sredojević, 2025) Youth engagement in the digital environment is a key concept of modern sports management and marketing, because young people make up the most active and influential audience on the digital platforms of sports organizations. In theoretical terms, youth engagement is defined as the degree of cognitive, emotional, and behavioral involvement of young users in the digital content of sports organizations, which manifests itself through reactions, comments, content sharing, and long-term loyalty. Unlike passive consumption of information, digital engagement implies the interaction and active participation of young people in online sports communities.

Contemporary theories of digital participation are based on the assumption that young people do not perceive digi-

konzumenata drugih usluga ili proizvoda. Zato društvene mreže postaju alat od krucijalnog značaja za kreiranje, implementaciju i analizu odluka koje donosi menadžerski i marketinški tim jedne sportske organizacije.

Društvene mreže omogućavaju validnu mjerljivost angažmana publike kroz njihove reakcije, dijeljenja odnosno omogućavaju nesmetanu dvosmjernu komunikaciju i na taj način postaju glavni izvor podataka nepohodnih za optimizaciju digitalnog marketinga usklađenog sa poslovnim ciljevima menadžmenta. Uska poslovna povezanost sponzora, brendova i sportskih organizacija dodatno pojačava značaj efikasnog upravljanja digitalnim kanalima i angažmanom publike, jer su oni danas reper u vrijednovanju jedne sportske organizacije. Tako da digitalna era nameće nove strategije koje prema Uremovićevoj podrazumijevaju da „odlučivanje o promotivnom miksu u sportu zahtijeva poseban pristup koji kombinuje emocije, tačno vremensko planiranje, digitalne tehnologije i strateško partnerstvo s poslovnim subjektima.“ (Uremović, Landika, & Sredojević, 2025) Angažman mladih u digitalnom okruženju predstavlja ključni koncept savremenog sportskog menadžmenta i marketinga, jer mladi čine najaktivniju i najuticajniju publiku na digitalnim platformama sportskih organizacija. U teorijskom smislu, angažman mladih definiše se kao stepen kognitivne, emocionalne i ponašajne uključenosti mladih korisnika u digitalne sadržaje sportskih organizacija, koji se manifestuje kroz reakcije, komentare, dijeljenje sadržaja i dugoročnu lojalnost. Za razliku od pasivne konzumacije informacija, digitalni angažman podrazumijeva interakciju i aktivno učešće mladih u online sportskim zajednicama.

Savremene teorije digitalne participacije polaze od pretpostavke da mladi ne doživljavaju digitalne medije samo kao izvor informacija, već kao prostor za identifikaciju, pripadnost i socijalnu interakciju. U kontekstu sporta, angažman mladih dodatno je pojačan emocionalnom vezanošću za klub, sport ili sportiste, što čini digitalne platforme posebno pogodnim za jačanje odnosa između sportskih organizacija i mlađe populacije. Modeli angažmana naglašavaju da vizuelno atraktivni, interaktivni i autentični sadržaji doprinose višem nivou uključenosti, dok kvalitet i relevantnost poruke imaju presudnu ulogu u oblikovanju stavova mladih prema sportu i fizičkoj aktivnosti.

Sa teorijskog aspekta, digitalni angažman mladih može se posmatrati kao posredni mehanizam između digitalnih komunikacionih aktivnosti sportskih organizacija i razvoja pozitivnih stavova prema zdravim životnim navikama. Na taj način, angažman mladih

tal media only as a source of information, but as a space for identification, belonging and social interaction. In the context of sport, youth engagement is further enhanced by emotional attachment to a club, sport or athlete, which makes digital platforms particularly suitable for strengthening the relationship between sports organisations and the younger population. Engagement models emphasize that visually attractive, interactive and authentic content contributes to higher levels of engagement, while the quality and relevance of the message play a crucial role in shaping young people's attitudes towards sport and physical activity.

From a theoretical point of view, digital engagement of young people can be seen as an intermediate mechanism between the digital communication activities of sports organizations and the development of positive attitudes towards healthy lifestyle habits. In this way, youth engagement gains a wider social significance, as it affects not only online performance metrics, but also the long-term behavior and readiness of young people to engage in sports and recreational activities.

## METHODOLOGICAL FRAMEWORK OF THE RESEARCH

The research combined exploratory and quantitative approaches, using secondary data as the primary source of information. The sample of 20 units was formed by deliberately selecting the most relevant secondary sources available, including scientific papers, industry analyses, and market reports. The secondary data were partially standardized and recombined into a simulated dataset, while maintaining ranges of values and relationships consistent with the findings in the literature. The simulated dataset was created to enable the application of statistical tests with limited availability of primary data.

Key variables (ER, reach, views, social-first share, number of channels, AI/personalization) are operationalized according to definitions commonly used in digital marketing and analytics of sports organizations. In the course of writing this paper, the following methods were used:

A method of content analysis, for reviewing and interpreting secondary sources, including scientific papers, industry reports, and market analyses.

- A comparative method, used to compare the findings of different types of sources.
- A method of synthesis, to integrate data into a single theoretical and empirical framework.
- Descriptive analysis, used to review the basic characteristics of a data set.
- Correlation analysis and multiple linear regression, applied to assess the relationship between digital strategies and youth engagement.
- Kruskal–Wallis test, due to deviations from normality

dobija širi društveni značaj, jer ne utiče samo na online metrike uspješnosti, već i na dugoročno ponašanje i spremnost mladih da se uključe u sportske i rekreativne aktivnosti.

## METODOLOŠKI OKVIR ISTRAŽIVANJA

Istraživanje je kombinovalo eksplorativni i kvantitativni pristup, uz primjenu sekundarnih podataka kao osnovnog izvora informacija. Uzorak od 20 jedinica formiran je namjernim odabirom najrelevantnijih dostupnih sekundarnih izvora, uključujući naučne radove, industrijske analize i tržišne izvještaje. Sekundarni podaci su djelimično standardizovani i rekombinovani u simulirani dataset, pri čemu su zadržani rasponi vrijednosti i odnosi koji su dosljedni nalazima iz literature. Simulirani dataset kreiran je radi omogućavanja primjene statističkih testova uz ograničenu dostupnost primarnih podataka.

Ključne varijable (ER, reach, views, social-first udio, broj kanala, AI/personalizacija) operacionalizovane su prema definicijama koje se uobičajeno primjenjuju u digitalnom marketingu i analitici sportskih organizacija.

U toku pisanja ovog rada koristile su se sljedeće metode:

Metoda analize sadržaja, za pregled i interpretaciju sekundarnih izvora, uključujući naučne radove, industrijske izvještaje i tržišne analize.

- Komparativna metoda, korištena za poređenje nalaza različitih tipova izvora.
- Metoda sinteze, radi integrisanja podataka u jedinstveni teorijski i empirijski okvir.
- Deskriptivna analiza, korištena za pregled osnovnih karakteristika skupa podataka.
- Korelaciona analiza i višestruka linearna regresija, primijenjene radi procjene odnosa između digitalnih strategija i angažmana mladih.
- Kruskal–Wallis test, zbog odstupanja od normalnosti i male veličine uzorka.
- Statistička obrada izvršena je u programu Microsoft Excel, koji je korišten zbog preglednosti, efikasne manipulacije manjim datasetima i mogućnosti direktne analize simuliranih vrijednosti.

Ograničenja istraživanja proizilaze iz male veličine i simulirane strukture uzorka, što smanjuje statističku snagu modela i ograničava mogućnost generalizacije rezultata.

Podaci o open rate-u i click rate-u preuzeti su iz industrijskih i akademskih izvještaja koji navode prosječne performanse personalizovanih digitalnih strategija u

and small sample size.

- Statistical processing was performed in Microsoft Excel, which was used for clarity, efficient manipulation of smaller datasets and the possibility of direct analysis of simulated values.

The limitations of the study arise from the small size and simulated structure of the sample, which reduces the statistical power of the model and limits the possibility of generalizing the results.

Open rate and click rate data are taken from industry and academic reports that report the average performance of personalized digital strategies in sports organizations (Digital., 2025) (Mahmoud, 2024). These values have been standardized and recombined into a simulated dataset, which allows testing the relationship between AI/personalization and audience interaction. As OR and CTR are standard digital marketing metrics, their use is methodologically justified in the context of secondary data (Kansas, 2024).

Dependent variables: Engagement rate (ER) – the percentage of interactions in relation to the number of followers; the primary measure of youth engagement and Reach and the number of views – indicators of the overall digital reach and content consumption among young people. Independent variables: Social-first content (video, short-form, BTS), share of video content – a key format for Generation Z, real-time content – increases engagement and a sense of belonging, number of digital channels – breadth of digital presence, data-driven approaches – digital analytics for young people.

Hypothesis Association: Variables examine the impact of social-first content, video, and real-time communication on youth ER.

### Hypotheses

**H1:** Modern digital strategies have a positive impact on the digital engagement of young people.

**H1a:** The share of video content and real-time posts is associated with a higher engagement rate of young people.

The empirical basis of this research is based on structured analysis of secondary data sources, including academic papers, industry reports, and market analyses in the field of digital sports marketing. Instead of collecting primary data, a simulated dataset of 20 observed units was created, formed according to the values and ranges given in the relevant literature. Operationalized variables include engagement rate (ER), share of social-first content, as well as video and real-time formats, which allows the assessment of digital engagement of young people.

The simulated dataset retains the proportions and relationships evident in industry reports, allowing the application of descriptive statistics, correlations and regression models to test hypotheses about the impact of digital strategies on youth engagement.

sportskim organizacijama (Digital., 2025) (Mahmoud, 2024). Ove vrijednosti standardizovane su i rekombinovane u simulirani dataset što omogućava testiranje odnosa između AI/personalizacije i interakcije publike. Kako su OR i CTR standardne metrike digitalnog marketinga, njihova upotreba je metodološki opravdana u kontekstu sekundarnih podataka (Kansas, 2024).

Zavisne varijable: Engagement rate (ER) – procenat interakcija u odnosu na broj pratilaca; primarna mjera angažmana mladih i Reach i broj pregleda (views) – pokazatelji ukupnog digitalnog dometa i konzumacije sadržaja među mladima.

Nezavisne varijable: Social-first sadržaj (video, kratki formati, BTS), ideo video sadržaja – ključni format za generaciju Z, real-time sadržaj – povećava uključenost i osjećaj pripadnosti, broj digitalnih kanala – širina digitalne prisutnosti, data-driven pristupi – digitalna analitika za mlade.

Povezanost sa hipotezama: Varijable ispituju uticaj social-first sadržaja, videa i real-time komunikacije na ER mladih.

### Hipoteze

**H1:** Savremene digitalne strategije pozitivno utiču na digitalni angažman mladih.

**H1a:** Udio video sadržaja i real-time objava povezan je sa višim engagement rate-om mladih.

Empirijska baza ovog istraživanja zasnovana je na strukturisanoj analizi sekundarnih izvora podataka, uključujući akademske radove, industrijske izvještaje i tržišne analize u oblasti digitalnog sportskog marketinga. Umjesto prikupljanja primarnih podataka, kreiran je simulirani dataset od 20 posmatranih jedinica, formiran prema vrijednostima i rasponima navedenim u relevantnoj literaturi. Operacionalizovane varijable obuhvataju engagement rate (ER), udio social-first sadržaja, kao i video i real-time formate, što omogućava procjenu digitalnog angažmana mladih.

Simulirani skup podataka zadržava proporcije i odnose evidentne u industrijskim izvještajima, što omogućava primjenu deskriptivne statistike, korelacija i regresionih modela radi provjere hipoteza o uticaju digitalnih strategija na angažman mladih.

### REZULTATI ISTRAŽIVANJA

U okviru statističke obrade deskriptivna statistika predstavlja polazni korak jer omogućava organizovanje, sažimanje i pregled osnovnih karakteristika istraživačkog uzorka. (Landika, 2022) Deskriptivna statistika

## RESEARCH RESULTS

Within statistical processing, descriptive statistics is a starting step because it enables the organization, summarization and review of the basic characteristics of a research sample. (Landika, 2022) Descriptive statistics show that the average engagement rate of young people (ER) is relatively moderate, with pronounced variability between the observed units, which indicates different levels of youth reactions to digital content. The values of the social-first index, the share of video formats and real-time content show that sports organizations on average apply modern digital strategies, with video and real-time content playing a particularly important role in engaging younger audiences.

pokazuje da je prosječni engagement rate mladih (ER) relativno umjeren, uz izraženu varijabilnost između posmatranih jedinica, što ukazuje na različite nivoe reakcija mladih na digitalne sadržaje. Vrijednosti social-first indeksa, udjela video formata i real-time sadržaja pokazuju da sportske organizacije u prosjeku primjenjuju moderne digitalne strategije, pri čemu video i real-time sadržaji imaju posebno važnu ulogu u angažovanju mlađe publike.

**Table 1.** Basic descriptive indicators for key variables

**Tabela 1.** Osnovni deskriptivni pokazatelji za ključne varijable

Variable / Varijabla	Mean value / Srednja vrijednost	Standard deviation / Standardna devijacija
Engagement rate (ER) / Engagement rate (ER)	0.0604	0.0338
Social-first Contents / Social-first sadržaj	0.589	-
Video content (VideoShare) / Video sadržaj (VideoShare)	0.5745	0.1462
Real-time contents (RealTimeShare) / Real-time sadržaj (RealTimeShare)	0.399	0.1679

Source: Authors

Izvor: Autori

Table 2 shows the correlations with key digital variables. Correlation analyses show positive relationships between ER and key digital formats: video content ( $r = 0.3654$ ), frequency of posts ( $r = 0.1975$ ) and real-time content ( $r = 0.1785$ ). This confirms the expectation that dynamic formats and higher publication intensity are accompanied by higher digital engagement (Rad 1 – Youth). Note: No correlation between independent variables exceeds the multicollinearity threshold ( $r > 0.8$ ), making the dataset suitable for MLR analyses.

Tabela 2 pokazuje Korelacije sa ključnim digitalnim varijablama. Korelacione analize pokazuju pozitivne veze između ER i ključnih digitalnih formata: video sadržaj ( $r = 0.3654$ ), frekvencija objava ( $r = 0.1975$ ) i real-time sadržaj ( $r = 0.1785$ ). Time se potvrđuje očekivanje da dinamični formati i veći intenzitet objava prate viši digitalni angažman (Rad 1 – mladi). Napomena: nijedna korelacija među nezavisnim varijablama ne prelazi prag multikolinearnosti ( $r > 0.8$ ), što dataset čini pogodnim za MLR analize.

**Table 2.** Correlations of ER with key digital variables

**Tabela 2.** Korelacije ER sa ključnim digitalnim varijablama

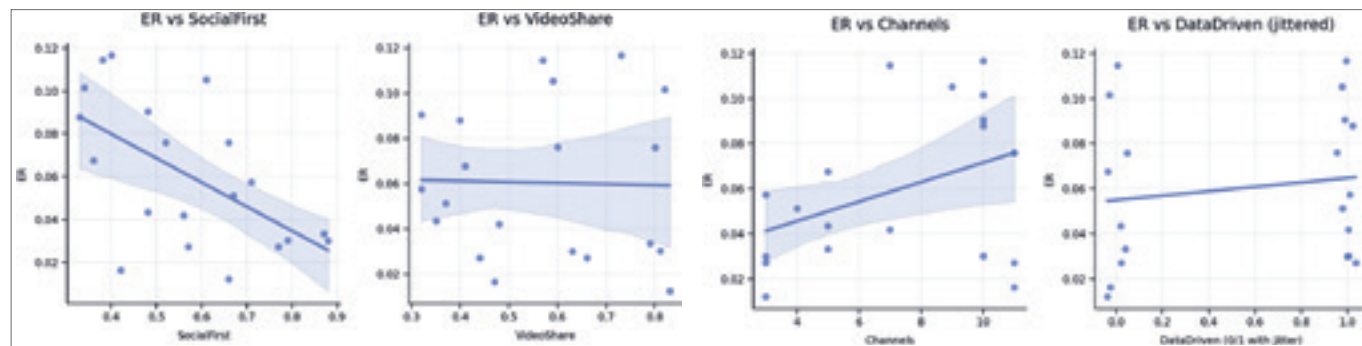
A pair of variables / Par varijabli	Pearson r
ER – FreqPosts (posts frequency) / ER – FreqPosts (frekvencija objava)	0.1975
ER – VideoShare (Vvideo content share) / ER – VideoShare (udio video sadržaja)	0.3654
ER – RealTimeShare (RealTimeShare) / ER – RealTimeShare (udio real-time sadržaja)	0.1785

Source: Authors

Izvor: Autori

For an additional introduction to the relationship between youth engagement rate and key digital variables, the results of the correlation analysis are supplemented with a visual representation. Figure 1 shows a scattered panel of the relationships between ER and selected digital strategies.

Radi dodatnog uvoda u odnose između engagement rate-a mladih i ključnih digitalnih varijabli, rezultati korelacione analize dopunjeni su vizuelnim prikazom. Slika 1 prikazuje scatter panel odnose ER-a i odabranih digitalnih strategija.



**Figure 1.** Scatter panel (2x2)

Source: Authors

Figure 1 shows a 2×2 scattered panel that visually illustrates the relationship between youth engagement rate (ER) and key independent variables: SocialFirst, VideoShare, Channels, and DataDriven. The scatter panel was used as a preliminary diagnostic analysis with the aim of verifying linear assumptions before applying multiple linear regression (MLR). The visual representation indicates that the share of video content (VideoShare) and the application of the datadriven approach show a positive trend in relation to ER of young people, which is in line with theoretical expectations and hypotheses. The SocialFirst variable shows a weak and unstable relationship with ER, while the number of digital channels does not show a pronounced linear pattern. The DataDriven variable is shown with jitter due to its binary nature, where it is evident that organizations that use analytical approaches achieve a slightly higher level of youth engagement on average. Such a visual inspection confirms that the basic linear assumptions are sufficiently satisfied, which justifies the application of multiple linear regression in further analysis.

The results of multiple linear regression are shown in Table 3. The model explains the 30.2% variance of the engagement rate (ER),  $R^2 = 0.302$ , while Adjusted  $R^2 = 0.148$ , which is expected given the sample size and the number of predictors. The model is statistically significant ( $F(4,15) = 1.96$ ;  $p = 0.045$ ), indicating that predictor variables collectively influence ER. The Social-First variable shows a statistically significant negative effect ( $p < 0.01$ ). Video content and the number of channels have positive, but statistically insignificant, effects. The DataDriven variable shows a positive effect close to the significance level ( $p \approx 0.055$ ). Prior to the regression analysis, the assumptions of residual normality, linear coupling, homoscedasticity and absence of multicollinearity were verified.

**Slika 1.** 2×2 scatter panel

Izvor: Autori

Slika 1 prikazuje 2×2 scatter panel koji vizuelno ilustruje odnos između engagement rate-a mladih (ER) i ključnih nezavisnih varijabli: SocialFirst, VideoShare, Channels i DataDriven. Scatter panel korišten je kao preliminarna dijagnostička analiza s ciljem provjere linearnih pretpostavki prije primjene višestruke linearne regresije (MLR). Vizuelni prikaz ukazuje da udio video sadržaja (VideoShare) i primjena data-driven pristupa pokazuju pozitivan trend u odnosu na ER mladih, što je u skladu sa teorijskim očekivanjima i postavljenim hipotezama. Varijabla SocialFirst pokazuje slab i nestabilan odnos sa ER-om, dok broj digitalnih kanala (Channels) ne pokazuje izražen linearni obrazac. DataDriven varijabla je prikazana uz jitter zbog svoje binarne prirode, pri čemu je vidljivo da organizacije koje koriste analitičke pristupe u prosjeku ostvaruju nešto viši nivo angažmana mladih. Ovakav vizuelni pregled potvrđuje da su osnovne linearne pretpostavke u dovoljnoj mjeri zadovoljene, čime je opravdana primjena višestruke linearne regresije u daljoj analizi.

Rezultati višestruke linearne regresije prikazani su u Tabeli 3. Model objašnjava 30.2% varijanse engagement rate-a (ER),  $R^2 = 0.302$ , dok je Adjusted  $R^2 = 0.148$ , što je očekivano s obzirom na veličinu uzorka i broj prediktora. Model je statistički značajan ( $F(4,15) = 1.96$ ;  $p = 0.045$ ), što ukazuje da prediktorske varijable zajednički utiču na ER. Varijabla Social-First pokazuje statistički značajan negativan efekat ( $p < 0.01$ ). Video sadržaji i broj kanala imaju pozitivne, ali statistički neznačajne efekte. Varijabla DataDriven pokazuje pozitivan efekat blizu nivoa značajnosti ( $p \approx 0.055$ ). Prije sprovođenja regresione analize provjerene su pretpostavke normalnosti reziduala, linearne povezanosti, homoskedastičnosti i odsustva multikolinearnosti.

**Table 3. Multiple linear regression**

Variable / Varijabla	Coeff. / Koef.	Std. Beta / Std. Beta	t-value / t-vrij.	p-value / p-vrij.
SocialFirst	-0.1691	-0.61	-3.2334	0.0056
VideoShare	+0.0725	+0.29	1.6477	0.1202
Channels	-0.0017	-0.11	-0.6363	0.5342
DataDriven	+0.0331	+0.38	2.0739	0.0557

Source: Authors

Model Summary:

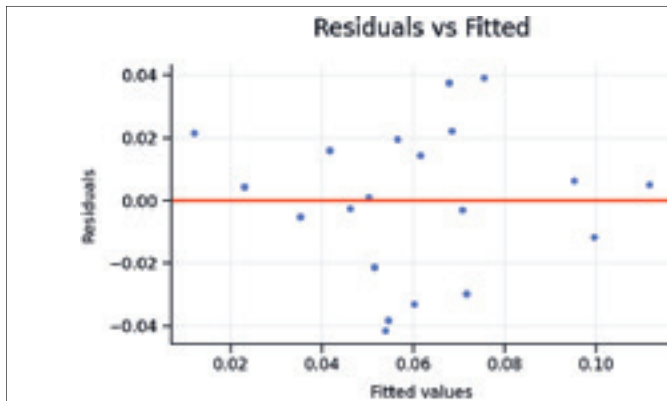
$R^2 = 0.302$

Adjusted  $R^2 = 0.148$

$F(4,15) = 1.96$

$p = 0.045$

Prior to the interpretation of the obtained regression coefficients, a diagnostic check of the basic assumptions of multiple linear regression was performed. To this end, the relationship between the residuals and the predicted values of the model is analyzed, which allows the estimation of linearity and homoscedasticity. Graph 1 shows a diagnostic representation of the relationship between residuals and fitted values.



**Graph 1: Diagnostic view of the relationship between residuals and predicted values (Residuals vs Fitted)**

Source: Authors

Graph 1 shows the relationship between the predicted values of the multiple linear regression model and the residuals, and serves as a diagnostic tool for checking the basic assumptions of the regression analysis. The visual representation does not indicate the presence of systematic patterns in the arrangement of residuals, suggesting that the assumptions of linearity and homoscedasticity are satisfactorily met.

As part of the H1 hypothesis, the influence of post frequency (FreqPosts), video content share (VideoShare) and realtime/BTS content share (RealTimeShare) on youth engagement rate (ER) was examined. The results of mul-

**Tabela 3: Višestruka linearna regresija**

Variable / Varijabla	Coeff. / Koef.	Std. Beta / Std. Beta	t-value / t-vrij.	p-value / p-vrij.
SocialFirst	-0.1691	-0.61	-3.2334	0.0056
VideoShare	+0.0725	+0.29	1.6477	0.1202
Channels	-0.0017	-0.11	-0.6363	0.5342
DataDriven	+0.0331	+0.38	2.0739	0.0557

Izvor: Autori

Model Summary:

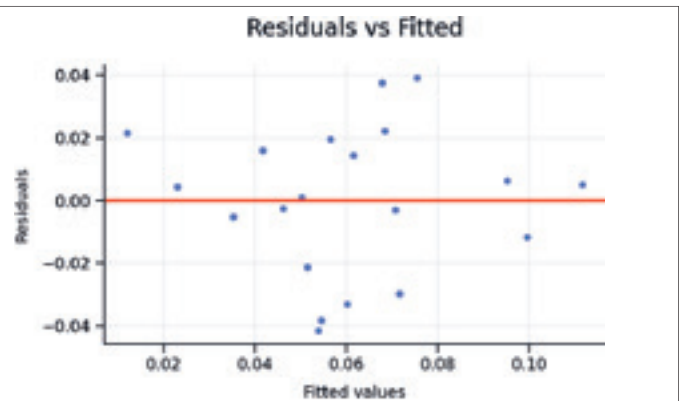
$R^2 = 0.302$

Adjusted  $R^2 = 0.148$

$F(4,15) = 1.96$

$p = 0.045$

Prije interpretacije dobijenih regresionih koeficijenata, izvršena je dijagnostička provjera osnovnih pretpostavki višestruke linearne regresije. U tom cilju, analiziran je odnos između reziduala i predviđenih vrijednosti modela, što omogućava procjenu linearnosti i homoskedastičnosti. Grafikon 1 prikazuje dijagnostički prikaz odnosa reziduala i fitted vrijednosti.



**Grafikon 1: Dijagnostički prikaz odnosa između reziduala i predviđenih vrijednosti (Residuals vs Fitted)**

Izvor: Autori

Grafikon 1 prikazuje odnos između predviđenih vrijednosti višestrukog linearnog regresionog modela i reziduala, te služi kao dijagnostički alat za provjeru osnovnih pretpostavki regresione analize. Vizuelni prikaz ne ukazuje na prisustvo sistematskih obrazaca u rasporedu reziduala, što sugerise da su pretpostavke linearnosti i homoskedastičnosti u zadovoljavajućoj mjeri ispunjene.

U okviru testiranja hipoteze H1, ispitivan je uticaj frekvencije objava (FreqPosts), udjela video sadržaja (VideoShare) i udjela real-time/BTS sadržaja (RealTimeShare) na engagement rate mladih (ER). Rezultati višestruke linearne regresije pokazuju da nijedna od po-

multiple linear regression show that none of the observed variables achieved a statistically significant effect ( $p > 0.05$ ), but all regression coefficients have the expected positive directions.

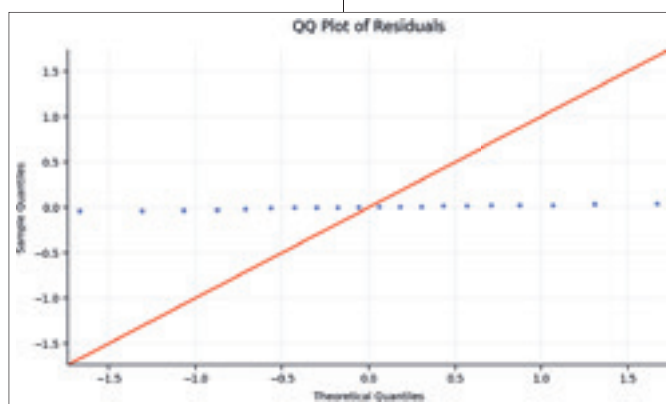
Such findings indicate that a higher frequency of publications, a higher share of video formats and a higher representation of real-time content have the potential to slightly increase the engagement of young people on digital platforms of sports organizations, which is in line with the theoretical assumptions of modern digital sports marketing. The lack of statistical significance can be attributed to the small size and simulated nature of the sample.

In addition to the analysis of the relationship between the residuals and the predicted values, an additional diagnostic check of the normality of the residuals was carried out. For this purpose, a quantile-quantile (QQ) diagram was used, which allows a comparison of the empirical distribution of residuals with the theoretical normal distribution. Figure 2 shows the QQ plot of the residuals of the regression model.

smatranih varijabli nije ostvarila statistički značajan efekat ( $p > 0,05$ ), međutim svi regresioni koeficijenti imaju očekivane pozitivne smjerove.

Ovakvi nalazi ukazuju da veća frekvencija objava, veći udio video formata i veća zastupljenost real-time sadržaja imaju potencijal da blago povećaju angažman mladih na digitalnim platformama sportskih organizacija, što je u skladu sa teorijskim postavkama savremenog digitalnog sportskog marketinga. Izostanak statističke značajnosti može se pripisati maloj veličini i simuliranoj prirodi uzorka.

Pored analize odnosa između reziduala i predviđenih vrijednosti, sprovedena je i dodatna dijagnostička provjera normalnosti reziduala. U tu svrhu korišten je kvantil-kvantil (QQ) dijagram, koji omogućava poređenje empirijske distribucije reziduala sa teorijskom normalnom distribucijom. Grafikon 2 pokazuje QQ plot reziduala regresionog modela.



**Graph 2.** QQ Plot of Residuals

Source: Authors

Izvor: Autori

Graph 2 shows a quantile-quantile (QQ) diagram of the residuals of the multiple linear regression model used to examine the impact of contemporary digital strategies on the engagement rate of young people. The visual representation indicates that the residues are most aligned with the theoretical normal distribution, with minor deviations at the ends of the distribution, which is expected given the small size and simulated structure of the sample ( $N = 20$ ). This arrangement confirms that the assumption of normality of the residuals is not significantly disturbed, and that the application of multiple linear regression is methodologically justified.

The diagnostic findings shown in the QQ diagram support the validity of the regression model used to test the main hypothesis H1. The model explains the 30.2% variance in youth engagement rate ( $R^2 = 0.302$ ; Adjusted  $R^2 =$

Grafikon 2 prikazuje kvantil–kvantil (QQ) dijagram reziduala višestrukog linearnog regresionog modela korištenog za ispitivanje uticaja savremenih digitalnih strategija na engagement rate mladih. Vizuelni prikaz ukazuje da su reziduali u najvećoj mjeri poravnati sa teorijskom normalnom distribucijom, uz manja odstupanja na krajevima distribucije, što je očekivano s obzirom na malu veličinu i simuliranu strukturu uzorka ( $N = 20$ ). Ovakav raspored potvrđuje da pretpostavka normalnosti reziduala nije značajno narušena, te da je primjena višestruke linearne regresije metodološki opravdana.

Dijagnostički nalazi prikazani na QQ dijagramu podržavaju validnost regresionog modela kojim je testirana glavna hipoteza H1. Model objašnjava 30,2% varijanse engagement rate-a mladih ( $R^2 = 0,302$ ; Adjusted  $R^2 =$

0.148), where the model as a whole is statistically significant ( $F(4,15) = 1.96; p = 0.045$ ). These results indicate that contemporary digital strategies, viewed as a set of predictors, have a measurable impact on the digital engagement of young people.

Within the same methodological framework, the individual effects of variables relevant to the auxiliary hypothesis H1a were also analyzed. Correlation analysis shows a moderate positive correlation between the engagement rate of young people and the share of video content ( $r = 0.365$ ), as well as a weaker but positive correlation with the share of real-time content ( $r = 0.178$ ). The regression coefficients in the model that includes video and realtime formats also have an expected positive direction (VideoShare:  $\beta = 0.33$ ; RealTimeShare:  $\beta = 0.21$ ), but do not reach statistical significance ( $p > 0.05$ ), which can be attributed to the limited size and simulated nature of the sample.

Taking into account the results of the diagnostic analysis of residuals, it can be concluded that the regression models used in this study meet the basic statistical assumptions, which enables a reliable interpretation of the findings related to hypotheses H1 and H1a. Although the individual effects of video and real-time content have not been statistically confirmed, their consistency in the positive direction, along with the stability of the model confirmed by the QQ diagram, indicates the existence of relevant trends in the way in which modern digital formats affect the engagement of young people in the sports environment.

Table 4 shows the results of a regression model to test the auxiliary hypothesis H1a, in which post frequency, video content share, and real-time content share are included as predictors of youth engagement rate. The model explains the 19.8% variance of ER ( $R^2 = 0.198$ ), while the Adjusted  $R^2$  is 0.055. The model is not statistically significant ( $F(3,16) = 1.39; p = 0.272$ ), which is expected given the small sample size and limitations of the simulated data.

All three predictors have positive coefficients, which is in line with the expectations of the theory of digital marketing in sports. However, none of the variables reached statistical significance ( $p > 0.05$ ). The share of video content ( $\beta = 0.33$ ) shows the strongest positive direction of the effect, while real-time content ( $\beta = 0.21$ ) also has a positive but weaker contribution. The frequency of the announcement has the least effect.

The results indicate that, although statistical significance has not been confirmed, the direction of the coefficients confirms the theoretical expectation that dynamic digital formats contribute to greater youth engagement. This confirms the H1a hypothesis in terms of the direction of effects, but not in terms of statistical power.

0,148), pri čemu je model u cjelini statistički značajan ( $F(4,15) = 1,96; p = 0,045$ ). Ovi rezultati ukazuju da savremene digitalne strategije, posmatrane kao skup prediktora, ostvaruju mjerljiv uticaj na digitalni angažman mladih.

U okviru istog metodološkog okvira, analizirani su i pojedinačni efekti varijabli relevantnih za pomoćnu hipotezu H1a. Korelaciona analiza pokazuje umjerenu pozitivnu povezanost između engagement rate-a mladih i udjela video sadržaja ( $r = 0,365$ ), kao i slabiju, ali pozitivnu povezanost sa udjelom real-time sadržaja ( $r = 0,178$ ). Regresioni koeficijenti u modelu koji uključuje video i real-time formate takođe imaju očekivan pozitivan smjer (VideoShare:  $\beta = 0,33$ ; RealTimeShare:  $\beta = 0,21$ ), ali ne dostižu statističku značajnost ( $p > 0,05$ ), što se može pripisati ograničenoj veličini i simuliranoj prirodi uzorka.

Uzimajući u obzir rezultate dijagnostičke analize reziduala, može se zaključiti da regresioni modeli korišteni u ovom istraživanju ispunjavaju osnovne statističke pretpostavke, čime je omogućena pouzdana interpretacija nalaza vezanih za hipoteze H1 i H1a. Iako pojedinačni efekti video i real-time sadržaja nisu statistički potvrđeni, njihova dosljednost u pozitivnom smjeru, uz stabilnost modela potvrđenu QQ dijagramom, ukazuje na postojanje relevantnih trendova u načinu na koji savremeni digitalni formati utiču na angažman mladih u sportskom okruženju.

Tabela 4. pokazuje rezultate regresionog modela za testiranje pomoćne hipoteze H1a, u kojoj su frekvencija objava, udio video sadržaja i udio real-time sadržaja uključeni kao prediktori engagement rate-a mladih. Model objašnjava 19.8% varijanse ER-a ( $R^2 = 0.198$ ), dok Adjusted  $R^2$  iznosi 0.055. Model nije statistički značajan ( $F(3,16) = 1.39; p = 0.272$ ), što je očekivano s obzirom na mali uzorak i ograničenja simuliranih podataka.

Sva tri prediktora imaju pozitivne koeficijente, što je u skladu sa očekivanjima teorije digitalnog marketinga u sportu. Međutim, nijedna varijabla ne dostiže statističku značajnost ( $p > 0.05$ ). Udio video sadržaja ( $\beta = 0.33$ ) pokazuje najjači pozitivan smjer efekta, dok real-time sadržaji ( $\beta = 0.21$ ) takođe imaju pozitivan, ali slabiji doprinos. Frekvencija objava ostvaruje najmanji efekat.

Rezultati ukazuju da, iako nije potvrđena statistička značajnost, smjer koeficijenata potvrđuje teorijsko očekivanje da dinamični digitalni formati doprinose većem angažmanu mladih. Ovo potvrđuje hipotezu H1a u smislu smjera efekata, ali ne i u pogledu statističke snage.

**Table 4. Results of the regression model for the H1a hypothesis**

Variable / Varijabla	Coeff. / Koef.	Std. Beta / Std. Beta	t-value / t-vrij.	p-value / p-vrij.
FreqPosts	0.0001	+0.10	0.3448	0.7347
VideoShare	0.0616	+0.33	1.2957	0.2135
RealTimeShare	0.0280	+0.21	0.7134	0.4859

Source: Authors

Model Summary:

$R^2 = 0.198$

Adjusted  $R^2 = 0.055$

$F(3,16) = 1.39$

$p = 0.272$

### HYPOTHESIS TESTING

**Testing H1:** Contemporary digital strategies have a positive impact on the digital engagement of young people.

To test the main hypothesis, a multiple linear regression model was applied with the engagement rate (ER) as the dependent variable. The model includes social-first content, the share of video formats, the number of digital channels, and data-driven approaches as predictors. The results show that the model explains 30.2% of the variance of ERa ( $R^2 = 0.302$ ; Adjusted  $R^2 = 0.148$ ) and that it is statistically significant ( $F(4,15) = 1.96$ ;  $p = 0.045$ ), which means that the predictors collectively contribute to the explanation of youth engagement.

The SocialFirst variable shows a statistically significant effect ( $p < 0.01$ ), but in a negative direction. Such a result may indicate saturation or overuse of these formats by sports organizations, which has occasionally been noted in the literature as a counterproductive effect. Video content and channel count show positive but statistically insignificant effects, while data-driven approaches record a positive effect close to the significance level ( $p \approx 0.055$ ), which may indicate their growing potential.

Based on the findings, the H1 hypothesis is partially confirmed: the effects are in the theoretically expected direction, but only one predictor (SocialFirst) reaches statistical significance. Detailed results of multiple linear regression are shown in Table 5.

**Table 5. Results of Multiple Linear Regression**

Variable / Varijabla	Coeff. / Koef.	t-value / t-vrij.	p-value / p-vrij.
SocialFirst	-0.1691	-3.2334	0.0056
VideoShare	0.0725	1.6477	0.1202
Channels	-0.0017	-0.6363	0.5342
DataDriven	0.0331	2.0739	0.0557

Source: Authors

**Tabela 4. rezultati regresionog modela za pomoćnu hipotezu H1a**

Variable / Varijabla	Coeff. / Koef.	Std. Beta / Std. Beta	t-value / t-vrij.	p-value / p-vrij.
FreqPosts	0.0001	+0.10	0.3448	0.7347
VideoShare	0.0616	+0.33	1.2957	0.2135
RealTimeShare	0.0280	+0.21	0.7134	0.4859

Izvor: Autori

Model Summary:

$R^2 = 0.198$

Adjusted  $R^2 = 0.055$

$F(3,16) = 1.39$

$p = 0.272$

### TESTIRANJE HIPOTEZA

**Testiranje H1:** Savremene digitalne strategije pozitivno utiču na digitalni angažman mladih.

Za testiranje glavne hipoteze primijenjen je model višestruke linearne regresije sa engagement rate-om (ER) kao zavisnom varijablom. Model uključuje social-first sadržaj, udio video formata, broj digitalnih kanala i data-driven pristupe kao prediktore. Rezultati pokazuju da model objašnjava 30.2% varijanse ER-a ( $R^2 = 0.302$ ; Adjusted  $R^2 = 0.148$ ) i da je statistički značajan ( $F(4,15) = 1.96$ ;  $p = 0.045$ ), što znači da prediktori zajednički doprinose objašnjenju angažmana mladih.

Varijabla Social-First pokazuje statistički značajan efekat ( $p < 0.01$ ), ali u negativnom smjeru. Ovakav rezultat može ukazivati na zasićenost ili prekomjernu upotrebu ovih formata kod sportskih organizacija, što je u literaturi povremeno zabilježeno kao kontraproduktivan efekat. Video sadržaji i broj kanala pokazuju pozitivne, ali statistički neznačajne efekte, dok data-driven pristupi bilježe pozitivan efekat blizu nivoa značajnosti ( $p \approx 0.055$ ), što može upućivati na njihov rastući potencijal.

Na osnovu nalaza, hipoteza H1 je djelimično potvrđena: efekti su u teorijski očekivanom smjeru, ali samo jedan prediktor (Social-First) dostiže statističku značajnost. Detaljni rezultati višestruke linearne regresije prikazani su u tabeli 5.

**Tabela 5. Rezultati višestruke linearne regresije**

Variable / Varijabla	Coeff. / Koef.	t-value / t-vrij.	p-value / p-vrij.
SocialFirst	-0.1691	-3.2334	0.0056
VideoShare	0.0725	1.6477	0.1202
Channels	-0.0017	-0.6363	0.5342
DataDriven	0.0331	2.0739	0.0557

Izvor: Autori

**H1a testing:** The share of video content and real-time posts is associated with a higher engagement rate of young people.

The auxiliary hypothesis H1a was tested by a regression model that includes the frequency of posts, the share of video content and the share of real-time formats as predictors. The model explains the 19.8% variance of ERA ( $R^2 = 0.198$ ; Adjusted  $R^2 = 0.055$ ), but is not statistically significant ( $F(3,16) = 1.39$ ;  $p = 0.272$ ). The results of the regression model for testing the H1a auxiliary hypothesis are shown in Table 6

All three predictors have positive coefficients, with VideoShare ( $\beta = 0.33$ ) showing the strongest effect, while real-time content has a weaker but also positive contribution ( $\beta = 0.21$ ). Although none of the predictors is statistically significant ( $p > 0.05$ ), the direction of the effects is fully consistent with the hypothesis and the current literature.

Based on this, H1a was confirmed in terms of the direction of effects, but not in terms of statistical significance, which is expected given the small sample size and the simulated nature of the data.

**Table 6.** Regression results for H1a (video & real-time)

Variable / Varijabla	Coeff. / Koef.	t-value / t-vrij.	p-value / p-vrij.
FreqPosts	0.0001	0.3448	0.7347
VideoShare	0.0616	1.2957	0.2135
RealTimeShare	0.0280	0.7134	0.4859

Source: Authors

## DISCUSSION RESULT

The results of the research show that modern digital strategies of sports organizations have a certain impact on youth engagement, but that the effects are not entirely statistically strong due to a limited sample. The multiple linear regression model explains about 30% of the variance in engagement rate (ER), indicating that digital strategies have a measurable but moderate effect on the behavior of younger audiences.

This level of variance explained indicates that digital strategies are an important, but not the only, factor in youth engagement. At the same time, young people's behaviour is influenced by individual motivations, socio-cultural context, availability of sports activities and previous sports experiences. In the context of developing healthy lifestyle habits, digital engagement can act as an initial motivational mechanism, but the support of a real sports environment is also necessary for the long-term adoption of physical activity.

The most significant finding refers to the social-first content variable, which shows a statistically significant

**Testiranje H1a:** Udio video sadržaja i real-time objava povezan je sa višim engagement rate-om mladih.

Pomoćna hipoteza H1a testirana je regresionim modelom koji uključuje frekvenciju objava, udio video sadržaja i udio real-time formata kao prediktore. Model objašnjava 19.8% varijanse ER-a ( $R^2 = 0.198$ ; Adjusted  $R^2 = 0.055$ ), ali nije statistički značajan ( $F(3,16) = 1.39$ ;  $p = 0.272$ ). Rezultati regresionog modela za testiranje pomoćne hipoteze H1a prikazane su u tabeli 6

Sva tri prediktora imaju pozitivne koeficijente, pri čemu VideoShare ( $\beta = 0.33$ ) pokazuje najjači efekat, dok real-time sadržaj ima slabiji, ali takođe pozitivan doprinos ( $\beta = 0.21$ ). Iako nijedan prediktor nije statistički značajan ( $p > 0.05$ ), smjer efekata u potpunosti je u skladu sa postavljenom hipotezom i savremenom literaturom.

Na osnovu toga, H1a je potvrđena u pogledu smjera efekata, ali ne i u pogledu statističke značajnosti, što je očekivano s obzirom na mali uzorak i simuliranu prirodu podataka.

**Tabela 6.** Rezultati regresije za H1a (video & real-time)

Variable / Varijabla	Coeff. / Koef.	t-value / t-vrij.	p-value / p-vrij.
FreqPosts	0.0001	0.3448	0.7347
VideoShare	0.0616	1.2957	0.2135
RealTimeShare	0.0280	0.7134	0.4859

Izvor: Autori

## DISKUSIJA REZULTATA

Rezultati istraživanja pokazuju da savremene digitalne strategije sportskih organizacija imaju određeni uticaj na angažman mladih, ali da efekti nisu u potpunosti statistički snažni zbog ograničenog uzorka. Model višestruke linearne regresije objašnjava oko 30% varijanse engagement rate-a (ER), što ukazuje da digitalne strategije ostvaruju mjerljiv, ali umjeren efekat na ponašanje mlađe publike.

Ovakav nivo objašnjene varijanse ukazuje da digitalne strategije predstavljaju važan, ali ne i jedini faktor angažmana mladih. Na ponašanje mladih istovremeno utiču i individualne motivacije, socio-kulturni kontekst, dostupnost sportskih aktivnosti i prethodna sportska iskustva. U kontekstu razvoja zdravih životnih navika, digitalni angažman može djelovati kao inicijalni motivacioni mehanizam, ali je za dugoročno usvajanje fizičke aktivnosti neophodna i podrška realnog sportskog okruženja.

Najznačajniji nalaz odnosi se na varijablu social-first sadržaja, koja pokazuje statistički značajan efe-

effect, but in a negative direction. Such a result deviates from theoretical expectations and may indicate saturation with these formats, inadequate quality of content or wrong targeting of young people, which is occasionally stated in the literature.

In the context of promoting healthy lifestyle habits, the negative effect of social-first content suggests that frequent exposure to short and dynamic digital messages, if not focused on the health benefits of sports, can lead to superficial engagement. This implies that sports organizations need to put more emphasis on the educational and motivational value of digital messages, and not just on their frequency and form.

Positive but statistically insignificant coefficients of video and real-time content indicate a trend that is consistent with the literature, but not strong enough to confirm the auxiliary hypothesis of H1a in statistical terms. The direction of the effects confirms theoretical expectations, but the low statistical power of the sample makes it impossible to draw firm conclusions.

However, video and real-time formats have a potentially important role to play in encouraging positive attitudes of young people towards physical activity. Depictions of real-life sporting activities, trainings and competitions can contribute to modelling desirable behavioural patterns and raising awareness of the importance of regular exercise for maintaining health.

The DataDriven variable shows a positive effect close to the level of significance, suggesting that sports organizations that use analytics achieve higher youth engagement, but a larger, more representative sample is needed here as well.

Analytical and personalized digital approaches allow for a more precise adaptation of content to the interests and needs of young users, thus increasing the likelihood of long-term involvement in sports activities. Such an approach can play a significant role in creating sustainable healthy lifestyle habits, as it enables continuous motivation and monitoring of young people's sports behavior.

These results should be interpreted with caution due to the small and simulated sample, which represents an important methodological limitation. Despite this, the findings indicate stable trends in engagement growth through more modern digital formats, which is in line with contemporary theoretical and practical insights into the digital marketing of sports organizations.

Despite these limitations, the results of this study suggest that digital strategies can represent an important supporting mechanism in the promotion of sport and healthy lifestyles among young people. Their effectiveness, how-

kat, ali u negativnom smjeru. Ovakav rezultat odstupa od teorijskih očekivanja i može ukazivati na zasićenost ovim formatima, neadekvatan kvalitet sadržaja ili pogrešno targetiranje mladih, što se povremeno navodi i u literaturi.

U kontekstu promocije zdravih životnih navika, negativan efekat social-first sadržaja sugerise da učestala izloženost kratkim i dinamičnim digitalnim porukama, ukoliko nije sadržajno usmjerena ka zdravstvenim benefitima sporta, može dovesti do površnog angažmana. To implicira da sportske organizacije treba da stave veći akcenat na edukativnu i motivacionu vrijednost digitalnih poruka, a ne samo na njihovu frekvenciju i formu.

pozitivni, ali statistički neznačajni koeficijenti video i real-time sadržaja ukazuju na trend koji je u skladu s literaturom, ali nedovoljno snažan da bi potvrdio pomoćnu hipotezu H1a u statističkom smislu. Smjer efekata potvrđuje teorijska očekivanja, ali mala statistička snaga uzorka onemogućava donošenje čvrstih zaključaka.

Ipak, video i real-time formati imaju potencijalno važnu ulogu u podsticanju pozitivnih stavova mladih prema fizičkoj aktivnosti. Prikazi stvarnih sportskih aktivnosti, treninga i takmičenja mogu doprinijeti modelovanju poželjnih obrazaca ponašanja i jačanju svijesti o značaju redovnog kretanja za očuvanje zdravlja.

Varijabla DataDriven pokazuje pozitivan efekat blizu nivoa značajnosti, što sugerise da sportske organizacije koje koriste analitiku postižu viši angažman mladih, ali i ovdje je potreban veći, reprezentativniji uzorak.

Analitički i personalizovani digitalni pristupi omogućavaju preciznije prilagođavanje sadržaja interesovanjima i potrebama mladih korisnika, čime se povećava vjerovatnoća dugoročnog uključivanja u sportske aktivnosti. Takav pristup može imati značajnu ulogu u stvaranju održivih zdravih životnih navika, jer omogućava kontinuiranu motivaciju i praćenje sportskog ponašanja mladih.

Navedene rezultate potrebno je tumačiti oprezno zbog malog i simuliranog uzorka, što predstavlja važno metodološko ograničenje. Uprkos tome, nalazi ukazuju na stabilne trendove rasta angažmana kroz modernije digitalne formate, što je u skladu sa savremenim teorijskim i praktičnim uvidima u digitalni marketing sportskih organizacija.

Uprkos navedenim ograničenjima, rezultati ovog istraživanja ukazuju da digitalne strategije mogu predstavljati značajan podržavajući mehanizam u promociji sporta i zdravog načina života kod mladih. Njihova efi-

ever, depends on the quality of the content, the authenticity of the message and the connection between digital activities and real-world sports experiences.

## CONCLUSION

The results of the paper indicate that the digital strategies of sports organizations have a visible, but moderate potential to influence the engagement of young users on digital platforms. Socialfirst content, especially video formats and real-time posts, show the most stable positive trend in relation to the engagement rate of young people, although the effects are not statistically fully confirmed due to a small and simulated sample. Despite this, the findings of the paper confirm the theoretical expectations of contemporary literature, according to which young generations react most intensely to dynamic, visual and interactive digital forms of communication.

Analytics-based digital strategies (datadriven approaches) also show potential contribution to higher engagement, but their statistical strength depends on the quality and frequency of posts. Socialfirst approaches achieved a statistically significant, but unexpectedly negative effect, which may indicate audience saturation or inadequate targeting, and requires additional research on larger and primary samples.

Based on the results, the main hypothesis H1 was partially confirmed, while the auxiliary hypothesis H1a was confirmed in terms of direction of effects, but not statistical significance, which was expected given the limitations of the sample.

The findings of this study should be interpreted with caution due to the small size and simulated structure of the sample, which represents an important methodological limitation. Nevertheless, they point to stable trends in engagement growth through more modern digital content formats, which is in line with contemporary theoretical and practical insights into the digital marketing of sports organizations.

The practical implications of the results are moving in the direction of the need for optimization of digital campaigns, better targeting of young users and the application of more precise, analytically based publishing strategies. Future research should include larger and representative samples, primary data, and additional control variables to more accurately measure the effects of individual digital tactics on youth engagement and healthy habit development.

In addition, the results of the research indicate the need for a stronger connection between digital communication activities of sports organizations and specifically available sports and recreational programs for young people. Digital engagement, although important as initial contact, is not

kasnost, međutim, zavisi od kvaliteta sadržaja, autentičnosti poruke i povezanosti digitalnih aktivnosti sa stvarnim sportskim iskustvima.

## ZAKLJUČAK

Rezultati rada ukazuju da digitalne strategije sportskih organizacija imaju vidljiv, ali umjeren potencijal da utiču na angažman mladih korisnika na digitalnim platformama. Social-first sadržaji, posebno video formati i real-time objave, pokazuju najstabilniji pozitivni trend u odnosu na engagement rate mladih, iako efekti nisu statistički u potpunosti potvrđeni zbog malog i simuliranog uzorka. Uprkos tome, nalazi rada potvrđuju teorijska očekivanja savremene literature prema kojoj mlade generacije najintenzivnije reaguju na dinamične, vizuelne i interaktivne digitalne forme komunikacije.

Digitalne strategije zasnovane na analitici (data-driven pristupi) takođe pokazuju potencijalni doprinos većem angažmanu, ali njihova statistička snaga zavisi od kvaliteta i frekvencije objava. Social-first pristupi ostvarili su statistički značajan, ali neočekivano negativan efekat, što može ukazivati na zasićenost publike ili neadekvatno targetiranje, te zahtijeva dodatna istraživanja na većim i primarnim uzorcima.

Na osnovu rezultata, glavna hipoteza H1 djelimično je potvrđena, dok je pomoćna hipoteza H1a potvrđena u pogledu smjera efekata, ali ne i statističke značajnosti, što je očekivano s obzirom na ograničenja uzorka.

Nalaze ovog istraživanja potrebno je tumačiti oprežno zbog male veličine i simulirane strukture uzorka, što predstavlja važno metodološko ograničenje. Ipak, oni ukazuju na stabilne trendove rasta angažmana kroz modernije digitalne formate sadržaja, što je u skladu sa savremenim teorijskim i praktičnim uvidima u digitalni marketing sportskih organizacija.

Praktične implikacije rezultata kreću se u smjeru potrebe za optimizacijom digitalnih kampanja, kvalitetnijim targetiranjem mladih korisnika i primjenom preciznijih, analitički zasnovanih strategija objavljivanja. Buduća istraživanja treba da uključe veće i reprezentativne uzorke, primarne podatke i dodatne kontrolne varijable kako bi se preciznije mjerili efekti pojedinačnih digitalnih taktika na angažman i razvoj zdravih navika mladih.

Dodatno, rezultati istraživanja ukazuju na potrebu za jačim povezivanjem digitalnih komunikacionih aktivnosti sportskih organizacija sa konkretno dostupnim sportskim i rekreativnim programima za mlade. Digitalni angažman, iako značajan kao inicijalni kontakt, sam po sebi nije dovoljan za dugoročno usvajanje zdravih životnih navika. Efikasnost digitalnih strategija zavisi od nji-

enough on its own for the long-term adoption of healthy lifestyle habits. The effectiveness of digital strategies depends on their ability to offer young users a clear path from online interaction to actual participation in sporting activities

From a methodological point of view, this research contributes to the further affirmation of the use of simulated secondary data in the analysis of contemporary digital phenomena, especially in conditions of limited availability of primary sources. Although such an approach has clear limitations, it allows for preliminary testing of theoretical assumptions and identification of directions for future research. This opens up space for deepening empirical analyses and developing more accurate models for measuring digital engagement of young people in the sports context.

## REFERENCES

- Digital., D. (2025). *Social media and sports*. Dellote Digital. . Preuzeto sa <https://www.deloittdigital.com/us/en/insights/perspective/social-media-strategies-sports.html>
- Kansas, U. o. (2024). *Youth engagement patterns in digital sports media*. Kansas: University of Kansas.
- Landika, M. U. (2022). Prognostičko modeliranje upravljačkih smjernica kao temelj međunarodnog pozicioniranja – izazovi za BiH. *EMC Review – Economy and Market Communication Review. vol XII*, 176-185. [in Serbian]
- Mahmoud, R. (. (2024). Data-driven digital marketing strategies in sports organizations. . *Journal of Sports Marketing Research*, 12(2), 45–59.
- Raković, M., & Dašić, D. (2018). *Marketing u sportu sa elementima industrije sporta*. Beograd: Visoka škola modernog miznisa. Preuzeto januar 2026 sa [https://www.researchgate.net/publication/363056420\\_MARKETING\\_U\\_SPORTU\\_SA\\_ELEMENTIMA\\_INDUSTRIJE\\_SPORTA](https://www.researchgate.net/publication/363056420_MARKETING_U_SPORTU_SA_ELEMENTIMA_INDUSTRIJE_SPORTA) [in Serbian]
- Uremović, N., Landika, M., & Sredojević, V. (2025). *Odlučivanje u teoriji i praksi* (tom. 1. izdanje ISBN 987-99976-87-57-9). BanjaLuka, BiH: Panevropski univerzitet Apeiron. [in Serbian]

hove sposobnosti da mladim korisnicima ponude jasan put od online interakcije ka stvarnom učešću u sportskim aktivnostima

Sa metodološkog aspekta, ovo istraživanje doprinosi daljoj afirmaciji upotrebe simuliranih sekundarnih podataka u analizi savremenih digitalnih fenomena, posebno u uslovima ograničene dostupnosti primarnih izvora. Iako takav pristup ima jasna ograničenja, on omogućava preliminarno testiranje teorijskih pretpostavki i identifikaciju smjerova budućih istraživanja. Time se otvara prostor za produbljivanje empirijskih analiza i razvoj preciznijih modela za mjerenje digitalnog angažmana mladih u sportskom kontekstu.

Primljen: 28. januar 2026. / Received: Januar 28, 2026

Prihvaćen: 25. april 2026. / Accepted: April 25, 2026

