

Transparency of Information on Voluntary Pension Funds in the Digital Environment of the Green Economy

Abstract: *The rapid development of digital technologies and the growing demand for sustainable financial solutions are shaping a new framework for voluntary pension funds (VPFs), both in Serbia and worldwide. Within the green economy, these funds are gaining importance as potential investment channels in environmentally sustainable projects, contributing to the long-term stability of the pension system and to ecological transition. At the same time, digitalization is a key factor in ensuring the accessibility and transparency of information on fund operations, as well as in communication with potential beneficiaries. This paper analyzes the position of VPFs at the intersection of digital transformation and the principles of the green economy, with special emphasis on the accessibility, transparency, and comprehensibility of the information provided to the public. It also presents a survey conducted in Serbia, which highlights challenges in the perception and understanding of digitally available data on voluntary retirement savings.*

Keywords: *voluntary pension funds, sustainable development, digital environment, transparency*

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INTRODUCTION

Voluntary pension funds (VPFs) in Serbia and abroad represent an important segment of the financial system, enabling citizens to secure additional income for retirement through long-term savings. In the context of an ageing population and the growing challenges to the sustainability of public pension systems, the significance of VPFs is becoming increasingly pronounced. Contemporary trends in digitalization allow funds to make their services and information more accessible and transparent through online platforms, which is a prerequisite for effective communication with users in the digital environment. At the same time, the concept of the green economy affects all sectors, including pension funds, which are increasingly integrating the principles of sustainable investment into their strategies, thereby contributing to ecological transition and responsible financial operations.

However, although information about VPFs is digitally available, the issue of its transparency remains open. Insufficiently clear or user-friendly information may undermine trust and reduce citizens' motivation to participate in voluntary retirement savings. This raises a research problem: to what extent is digital information on VPFs transparent to users?

The aim of this paper is to provide an overview of the transparency of information on voluntary pension funds in the digital environment, with special emphasis on the role of the green economy and digitalization in the communication between funds and the public. Accordingly, the paper seeks to address the following research questions:

1. To what extent is digitally available information on VPFs in Serbia transparent to the average user?
2. How does the concept of the green economy influence the way VPFs present and communicate information?
3. What are the main challenges in the digital communication of voluntary pension funds with the public in terms of transparency?
4. How do users perceive digital information on VPFs, and what factors shape their perception and trust?

By addressing these questions, the paper aims to provide an in-depth insight into the quality of communication by voluntary pension funds and to identify opportunities for its improvement in line with the requirements of the digital age and the principles of the green economy.

RESEARCH METHODS

The research was conducted in two stages.

The first stage involved an analysis of the digital platforms and official websites of VPFs in Serbia. This qualitative review aimed to assess the structure, content, and linguistic

accessibility of the information provided, as well as the visual presentation and ease of website navigation.

The second stage comprised empirical research based on a survey of 100 respondents from Serbia, representing different demographic groups. The survey was designed to evaluate users' perceptions of the transparency of digital information provided by voluntary pension funds. The collected data were statistically processed in order to identify key challenges and to propose recommendations for improving communication between the funds and their beneficiaries.

THEORETICAL FRAMEWORK

Voluntary pension funds represent one of the pillars of pension protection systems in many modern economies. Unlike compulsory state pension insurance, which constitutes the first pillar of the pension system, voluntary pension funds belong to the so-called third pillar and operate on the principle of individual and voluntary long-term savings for old age (27).

The main function of these funds is to enable individuals, through long-term investment, to accumulate resources that will provide additional income after retirement. VPFs are particularly important in the context of demographic ageing and the shrinking share of the working population, both of which call into question the sustainability of traditional pension systems (22). In this regard, they contribute to financial security in old age and encourage the development of the domestic capital market (14).

In many countries, voluntary pension funds are regulated by a specific legal framework that ensures investment security, information transparency, and fiscal incentives for participation. In Serbia, the Law on Voluntary Pension Funds and Pension Plans was adopted in 2005, and the activities of the funds are supervised by the National Bank of Serbia (19).

Amid contemporary global challenges such as climate change, environmental degradation, and the imperative of sustainable development, investments through voluntary pension funds are increasingly acquiring an ecological dimension. Pension funds are significant institutional investors that can influence investment flows, thereby supporting or discouraging specific sectors of the economy (10). For this reason, investment in "green" projects, renewable energy sources, and sustainable infrastructure is increasingly becoming a central topic in fund management. Furthermore, the digitalization of fund operations—through online platforms and electronic communication—contributes to reducing material consumption and carbon dioxide emissions, thereby aligning practice with the principles of the green economy (9).

The introduction of environmental, social, and governance (ESG) criteria into the investment strategies of pension funds enables them not only to secure stable returns for their members, but also to actively support the transition to a green economy (19). In

Serbia, this field is still under development, but there is potential for integrating sustainable policies into the work of VPFs by aligning with European regulations and green agendas (25). However, the implementation of ESG standards in Serbia faces several obstacles, including underdeveloped reporting models and the absence of clearly defined procedures and educational support. There is also the risk of compliance remaining at a merely declarative level, without substantive changes in practice (4). Green bonds, an important financial instrument for channeling capital into environmentally sustainable projects—including renewable energy, clean energy production, and climate-resilient infrastructure—are increasingly challenging to implement, yet crucial for raising environmental awareness. As significant institutional investors, voluntary pension funds should embrace green bonds as an investment instrument aligned with the principles of the green economy, enabling their members to contribute to the financing of sustainable development goals while pursuing stable and long-term returns. However, challenges such as the lack of standardization and the limited transparency of information in the green bond market constrain their broader application in the practice of voluntary pension funds.

In this way, VPFs can become an important financing mechanism for green initiatives, thereby not only securing the future of their members but also contributing to the future of the planet. Dašić and Anufrijević (12) emphasize that information and communication technologies play a key role in achieving a balance between social development and environmental protection.

In the context of voluntary pension funds, these technologies have the potential to transform the planning and decision-making processes related to green finance. Digitalization facilitates greater transparency of information, improved monitoring of ESG metrics, and enhanced assessment of the sustainability impacts of investments. This means that pension funds do not participate passively in the market but can actively support the transition to a green economy and circular business models. The development of the green economy relies heavily on the use of innovative financial instruments that foster circular models and contribute to resource efficiency (13). The widespread application of digital technologies in Industry 4.0 and the circular economy enables the creation of environmentally friendly development models that can synergistically influence investment strategies.

Thus, digital transformation constitutes a critical framework for the development of green finance and for integrating sustainable investment strategies into institutional investors such as VPFs. Anufrijević and colleagues highlight green bonds as a key tool through which capital can be redirected towards sustainable and environmentally responsible projects. The authors analyze the motives of investors, the role of regulatory institutions, and the impact this financial instrument has on the sustainability strategies of organizations (3).

One of the earliest studies on voluntary pension funds in Serbia (6) pointed out that financial problems and demographic factors necessitated the development of voluntary pension insurance as a response to the shortcomings of the public system. This research

emphasized the importance of reforms aimed at reducing the deficit and harmonizing with Serbia's social policy frameworks. Likewise, Anufriev (7) noted that the adoption of the Law on Voluntary Pension Funds and Pension Plans raised a number of questions in the public, especially regarding how Serbian citizens would respond to this new form of savings. A central issue was whether a large number of employees would have access to sufficiently clear and reliable information about the potential risks and benefits of voluntary pension funds. The author also stressed that funds in less developed financial markets, such as Serbia, face specific challenges in achieving stable returns. Nevertheless, one of the key principles of these funds is fiduciary responsibility towards beneficiaries, meaning that the interests of fund members must remain the top priority in managing their assets.

Currently, the structure of Serbia's pension system has been showing signs of instability for years, with the ratio of employees to pensioners approaching a critical point, which underscores the urgent need for reforms (5). This weakness of the public pension system has created expectations of a stronger turn toward voluntary pension funds.

More recent research indicates that participation in voluntary pension funds is largely influenced by the level of financial literacy among the population and by the extent to which people understand long-term financial products (15). Insufficient information, along with a limited perception of risks and benefits, can hinder the broader adoption of this type of savings. For this reason, contemporary literature highlights the importance of transparent communication, the clear and simple presentation of information, and the availability of digital channels for informing potential users (11). In this regard, the role of the online environment is becoming increasingly significant in the process of informing, decision-making, and managing voluntary retirement savings.

Radoković (23) similarly notes—fifteen years later—that voluntary pension funds in Serbia have recorded steady growth since 2006, when they were first introduced, but have continued to face challenges such as low membership rates and limited public awareness of the importance of this form of savings.

ANALYSIS OF THE DIGITAL AVAILABILITY OF VPF INFORMATION

In today's digital environment, the availability and transparency of information are essential prerequisites for making informed financial decisions. This is particularly important in the field of voluntary pension insurance, where potential beneficiaries are confronted with complex financial terminology, investment strategies, and regulatory requirements.

Digital accessibility does not merely imply the presence of information on the internet, but also its technical, linguistic, and cognitive transparency (27). Information must be presented in a way that is understandable to the average user—using plain language, supported by visual elements (graphs, infographics), and supplemented with interactive tools such as retirement savings simulators.

Research indicates that the existence of well-designed and informative websites, mobile applications, and online tools is positively correlated with individuals' willingness to initiate voluntary retirement savings (8). Conversely, low levels of digital literacy, as well as limited capacity for the critical understanding of financial data, remain barriers, particularly among older or less educated groups (15).

Moreover, fund management institutions must adhere to standards of information transparency and customer orientation in digital communication. In this regard, recommendations issued by organizations such as the OECD—aimed at strengthening financial literacy and digital inclusion—provide an important framework for improving practices in the dissemination of financial information (21).

In Serbia, the market for voluntary pension funds has been developing since 2006, when the first licensed funds began operating. Although the regulatory framework and fiscal incentives are in place, citizens' participation in this form of savings remains relatively low. One of the reasons identified is the lack of sufficient public awareness and the low visibility of funds in the digital space (24).

An analysis of the websites of leading voluntary pension fund management companies in Serbia shows significant progress in terms of technical accessibility: information is available on official websites, pension calculators are offered, regulations and business reports are published, and contact details are provided. However, linguistic and conceptual transparency remains insufficient. Information is frequently presented in technical jargon, without adequate explanation of terms, and with minimal visual support (18).

A 2023 survey conducted on a sample of young employees in Serbia revealed that most respondents lacked a clear understanding of what voluntary pension funds are, how they operate, or what steps are required to open an account—despite the formal availability of such information online (17). These findings illustrate the existence of an “*information paradox*”—the mere presence of data does not equate to effective communication. The role of regulators, such as the National Bank of Serbia, is therefore crucial in encouraging greater transparency of information and improving the standardization of communication practices. In this respect, recommendations for enhancing the web presence of voluntary pension funds include: the use of plain language, compliance with digital accessibility standards (WCAG), and the inclusion of interactive tools, educational videos, and frequently asked questions (FAQs). Such measures would significantly improve the transparency and comprehensibility of information for users.

Analysis of VPF Websites in Serbia

The analysis conducted by Anufriev (2025) concludes that voluntary pension funds in Serbia have generally adopted the basic principles of digital accessibility and information transparency. Nevertheless, differences remain in the level and manner of communication with potential and existing members. Funds that have integrated FAQ sections, regularly publish and explain NAV data, and provide easily accessible prospectuses are

clearly at the forefront in terms of efficiency and openness of communication. By contrast, deficiencies in the visibility or organization of certain elements—as observed in Raiffeisen Future and DDOR Garant—may represent barriers to users’ decision-making regarding fund membership. Improving website navigation, centralizing documents, and clearly defining terms relevant to users are directions for further enhancement.

To gain a deeper understanding of how VPFs in Serbia communicate with potential and existing clients in the digital environment, a desk analysis of the official websites of leading funds was conducted. The evaluation, carried out in July 2025, included six voluntary pension funds operating in the Serbian market: Danube, Generali Basic, Generali Index, Raiffeisen Future, DDOR Garant Equilibrio, and DDOR Garant. The evaluation criteria were based on predefined indicators of digital accessibility and transparency of content, such as language adaptability, navigation structure, mobile optimization, availability of interactive tools, use of infographics, FAQ sections, data transparency, and technical accessibility in accordance with WCAG standards. The assessment was conducted qualitatively using the categories *Yes*, *Partially*, and *No*. The results are presented in Table 1.

Table 1. Criteria for the Analysis of VPF Websites in Serbia

Fund	Danube	Generali Basic	Generali Index	Raiffeisen Future	DDOR Garant Equilibrio	DDOR Garant
Comprehensibility	Partly	Partly	Partly	Partly	Partly	Partly
Explanation of key terms	No	Yes	Yes	Partly	No	Partly
Navigation & site structure	Clear	Clear	Clear	Clear	Clear	Clear
Mobile optimization	Yes	Yes	Yes	Yes	Yes	Yes
Interactive tools	No	Yes	Yes	Partly	No	Partly
Visual support	No	Yes	Yes	Partly	No	No
FAQ section	No	Yes	Yes	Partly	No	No
Regulatory transparency	Yes	Yes	Yes	Yes	Yes	Yes
Contacts & Support	Yes	Yes	Yes	Yes	Partly	Partly
Content up-to-date	Yes	Yes	Yes	Yes	Yes	Yes
WCAG accessibility	No	Partly	Partly	No	No	No

Source: Author’s work

The analysis shows that all the monitored funds maintain technically functional websites with basic information about their operations and transparently published financial statements. Most websites are mobile-optimized and structurally clear. However, notable shortcomings persist with regard to linguistic transparency of information, the use of visual aids, and the availability of interactive tools to facilitate user understanding and retirement planning. Only a limited number of funds provide explanations of technical terms, FAQ sections, or calculators, and none fully comply with WCAG digital accessibility standards. It should be emphasized that this is a qualitative assessment based on the researcher’s subjective evaluation, without the formal participation of end users

(e.g., through usability testing). Furthermore, some content may only be available after registration, which was not taken into account in this public desk analysis. Finally, the evaluation criteria were not weighted, meaning that all aspects carry equal weight in the tabular presentation.

Critical Analysis of the Transparency of Digital Communications of VPFs

To critically examine the transparency and availability of digital communications of voluntary pension funds, a survey was conducted on a sample of 100 respondents. The main focus of the research was to identify the ways in which citizens obtain information about VPFs, their perception of the transparency of language used on official websites, and the level of trust in these sources. Special attention was devoted to assessing public awareness of rights, obligations, and investment risks, as well as the willingness to invest if the information were more transparent and user-friendly.

The survey included ten questions covering knowledge, habits, level of understanding, and trust in the digital communication channels of VPFs, with the aim of identifying the main weaknesses in current practices of communication with potential members. The key results of the survey, which form the basis for further analysis and recommendations, are presented below.

One of the most important aspects of analyzing voluntary pension fund communication is to explore the impact of basic information on user behavior. To examine the potential relationship between awareness of VPFs and active participation in these funds, a cross-tabulation was created using data on whether respondents had heard of VPFs and whether they were currently making contributions. This analysis provides insight into whether awareness alone leads to participation, or whether additional barriers influence financial decision-making.

Table 2. Relationship between awareness of VPFs and contributions to VPFs

Awareness of VPFs	Contributes to VPF: YES	Contributes to VPF: NO	Total
YES	70	18	88
NO	0	12	12
Total	70	30	100

Source: Author's work

The table indicates a clear and expected relationship between awareness of voluntary pension funds and participation in them. Out of a total of 100 respondents:

- 88 respondents had heard of VPFs, of which 70 (79.5%) make contributions, while 18 (20.5%) do not.
- 12 respondents had not heard of VPFs, and none of them make contributions.

The results demonstrate that knowledge of voluntary pension funds is a prerequisite for participation. Unsurprisingly, none of the respondents who contribute to VPFs are unaware of their existence. However, although most of those familiar with VPFs participate,

about one-fifth of respondents who know about them still do not contribute. This suggests that while raising awareness is crucial for increasing participation in voluntary retirement savings, awareness alone is not sufficient. Additional motivational factors or the removal of other barriers are necessary to encourage broader engagement. To further explore this relationship, the expected frequencies were calculated and are shown in Table 3.

Table 3. Expected frequencies of the connection between awareness and contributions

Awareness of VPFs	Contributes: YES (E)	Contributes: NO (E)
YES	61,6	26,4
NO	8,4	3,6

Source: Author’s work

Using the formula for the chi-squared test, the following value was obtained:

$$X^2 = \sum \frac{(O - E)^2}{E}$$

$$X^2 = 31.82$$

The results of the statistical analysis show a significant association between awareness of voluntary pension funds (VPFs) and participation in them. Among respondents who had heard of VPFs, there was a significantly higher number of those who actively contributed to the fund (70 out of 88), compared to those who had not heard of VPFs, among whom there were no contributions (0 out of 12). The chi-squared test confirms that this difference is statistically significant ($\chi^2(1) = 31.82, p < 0.001$). These findings indicate that awareness of voluntary pension funds is an important factor influencing the decision to participate in the voluntary retirement system.

To further examine the impact of trust in information sources on respondents’ financial behavior, the relationship between trust in websites providing information on voluntary pension funds and participation in this type of savings was analyzed. Trust in websites was categorized into three levels—*high, medium, and low/no trust*—to obtain a clearer picture of the correlation between these two variables. This analysis aimed to determine whether differences in trust in digital resources shape different VPF investment behaviors, which is crucial for developing effective communication strategies and raising awareness of the importance of voluntary retirement savings.

The results in Table 4 show a clear relationship between the level of trust in websites providing information on voluntary pension funds and the decision to contribute to these funds. Respondents who express a high level of trust in websites are more likely to contribute to VPFs compared to those with a medium or low level of trust. For example, among those with high confidence in websites, a significantly larger percentage of respondents actively participate in the voluntary retirement system. Conversely, among respondents who report little or no trust in websites, participation in VPFs is significantly lower. These findings suggest that trust in digital sources of information is a potentially important

prerequisite for making financial decisions that require long-term commitment and understanding. A lack of trust in both official and unofficial online sources can present an obstacle to deciding to invest in a VPF, which constitutes a significant challenge in the context of digital communication between financial institutions and citizens.

Table 4. Trust in websites providing information on VPFs

Level of trust	Contributes: YES	Contributes: NO	Total
High	51	1	52
Medium	28	17	45
Low/No Trust	3	0	3
Total	82	18	100

Source: Author's work

To better understand the relationship between trust in digital sources of information and citizens' financial behavior, the percentages of VPF contributions were calculated in relation to different levels of trust in websites providing such information. Table 5 provides an overview of the proportion of respondents who contribute to VPFs within each trust category—high, medium, and low/no trust. This allows for the identification of behavioral trends according to levels of perceived reliability of digital sources, and for the assessment of how much trust in online information influences decisions regarding long-term financial planning.

Table 5. Contribution rates by level of trust

Level of trust	% Contribution
High	98,1
Medium	62,2
Low/No Trust	100

Source: Author's work

The results presented in the previous table confirm a clear correlation between the level of trust in websites and participation in voluntary pension funds. The highest percentage of contributions to VPFs was recorded among respondents who expressed a high level of trust in the information available online—participation in this group was significantly above average. By contrast, among those with a medium or low level of trust, participation was noticeably lower, with the lowest share of contributors found among respondents who reported little or no trust in websites. These findings suggest that trust in digital sources of information is a crucial prerequisite for active participation in long-term financial security systems such as VPFs. A high level of trust may reflect a better understanding of the information presented, as well as confidence in the transparency and relevance of online content. Conversely, a lack of trust may indicate limited financial literacy, insufficient digital inclusion, or negative prior experiences with financial institutions or platforms.

Overall, the results support the view that improving digital communication—particularly the comprehensibility, transparency, and credibility of VPF information—can directly contribute to greater participation in these forms of long-term savings. From a public policy

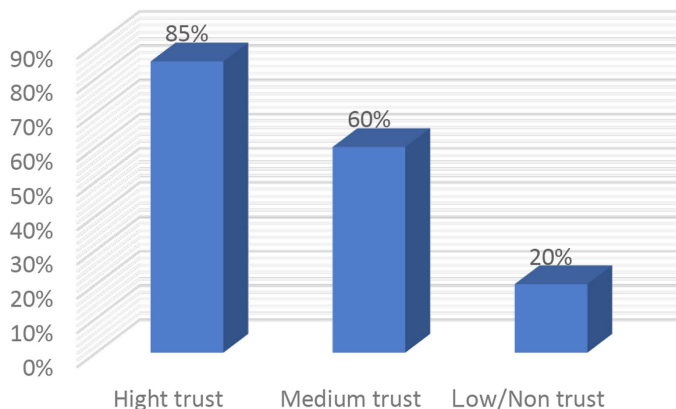
perspective, this points to the need for educational campaigns and initiatives that promote digital financial literacy as a foundation for responsible financial planning.

As part of the broader analysis of how information on voluntary pension funds is perceived in the digital environment, a correlation analysis was applied to examine the relationships among four scalar (numerical) measures reported by respondents:

- Comprehensibility of information
- Ease of finding information
- Trust in websites
- Self-information (self-awareness)

These dimensions are important indicators of digital financial literacy and are directly linked to how individuals approach financial decision-making in an online environment. The Pearson correlation coefficient (r) was used to measure the strength and direction of the linear relationship between these variables.

Figure 1. Percentage of contributions to VPFs by level of trust in websites



Source: Author's work

Table 6. Correlation analysis of dimensions of digital financial literacy

	Comprehensibility	Ease of finding	Trust	Self-information
Comprehensibility	1.0	0.72	0.68	0.50
Ease of finding	0.72	1.00	0.65	0.55
Trust	0.68	0.65	1.00	0.49
Self-information	0.50	0.55	0.49	1.00

Source: Author's work

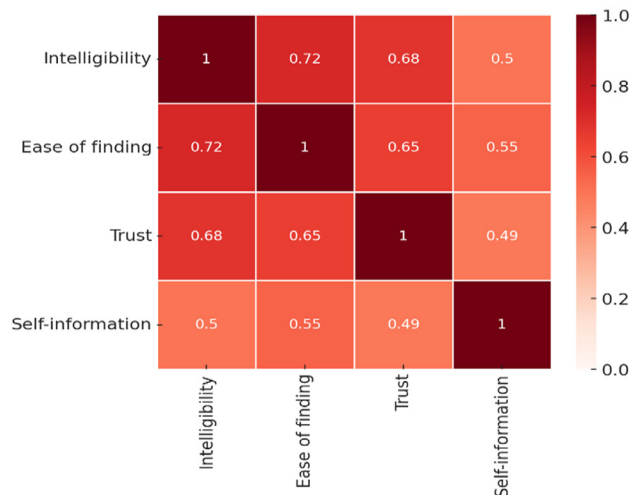
Based on the correlation analysis of respondents' scalar scores, the following values of the Pearson correlation coefficient (r) were obtained. All relationships are positive, indicating that as one variable increases, the other tends to increase as well.

Table 7. Interpretation of correlation analysis (Pearson's coefficient)

Variable	r	Interpretation
Comprehensibility – Ease of finding	0.72	Strong positive correlation – the more comprehensible the information, the easier it is to find
Comprehensibility – Trust	0.68	Strong positive correlation – comprehensible content increases trust in websites
Comprehensibility – Self-information	0.50	Moderate positive correlation – those who find the content comprehensible are more likely to seek information themselves
Ease of finding – Trust	0.65	Strong positive correlation – easier access to information is associated with greater trust
Ease of finding – Self-information	0.55	Moderate positive correlation – easily accessible information encourages self-initiative
Trust – Self-information	0.49	Moderate positive correlation – higher trust is associated with greater activity in information-seeking

Source: Author's work

The correlation matrix is also presented in Figure 2.

Figure 2. Correlation matrix – VPF factors


Source: Author's work

To better understand the factors that influence citizens' willingness to invest in voluntary pension funds if more information were available, a logistic regression analysis was applied. The dependent variable in this model was the response to the question: "Would you invest if you had more information?" (binary outcome: Yes/No). The independent variables were respondents' assessments of:

- Comprehensibility of the content
- Ease of finding information
- Trust in websites providing VPF data
- Self-information (self-initiative in seeking information)

The aim of the analysis was to determine which of these factors significantly affect the likelihood that an individual would be willing to invest in a VPF if better information were available. Logistic regression makes it possible to estimate the individual effect of each variable while controlling for the influence of others, as well as to assess the statistical significance of these relationships.

Table 8. Logistic regression results: factors influencing willingness to invest in VPFs if better information were available

Variable	B coefficient	p- value	Interpretation
Comprehensibility	0.85	0.002	Greater comprehensibility – greater willingness to invest
Ease of finding	0.30	0.120	Not statistically significant
Trust in websites	0.92	0.001	Strong positive impact
Self-information	0.25	1.180	Not statistically significant

Source: Author's work

DISCUSSION

The results of the analysis indicate a strong correlation between citizens' awareness of voluntary pension funds and their financial behavior, i.e., participation in the voluntary pension system. The key finding is that none of the respondents unfamiliar with VPFs participate in them, while a significant majority of those who are familiar do make contributions. Although knowledge of the term *VPF* alone does not guarantee active participation, it is nevertheless a necessary prerequisite for investment decisions. In this context, effective communication and public awareness campaigns about VPFs can directly influence the number of participants.

Furthermore, the analysis revealed a strong link between trust in digital resources (websites) and the decision to contribute to VPFs. Respondents who expressed a high level of trust in online information about funds were far more likely to invest, while participation was negligible among those with little or no trust. These findings support the assumption that confidence in the information channel is one of the main determinants of long-term financial decision-making. Consequently, strategies aimed at strengthening the credibility and transparency of official websites may significantly increase participation in voluntary pension schemes.

Correlation analysis further illuminated the relationships among different aspects of digital communication. A strong positive correlation was found between content

comprehensibility and ease of finding information ($r = 0.72$), as well as between comprehensibility and trust in websites ($r = 0.68$). This indicates that clarity, structure, and accessibility of information are not only important for understanding but also crucial in building trust. Moderate positive correlations with self-information also confirmed that better user experiences with information foster more proactive and self-driven initiatives.

Finally, logistic regression analysis provided insight into the factors influencing citizens' willingness to invest if more information were available. Statistically significant predictors were content comprehensibility ($p = 0.002$) and trust in websites ($p = 0.001$), which once again underscores the importance of presenting data in a clear, logical, and credible way. By contrast, ease of finding information and self-information were not statistically significant in the model, suggesting that while these aspects are important, they are not sufficient on their own to motivate investment in the absence of trust and comprehensible content.

Overall, the results suggest that improving digital communication—through clearer, more accessible, and more credible content—can positively influence citizens' participation in voluntary pension funds. This is particularly relevant in the context of pension system reforms and financial literacy development. Educational campaigns, user-friendly fund websites, and building trust in digital communication channels represent key steps toward strengthening citizens' long-term financial security.

CONCLUSION

The research highlights a strong link between digital communication and citizens' participation in voluntary pension funds in Serbia. The survey analysis demonstrated that access to information, comprehensibility of content, and trust in official digital sources play a central role in citizens' decisions to start or continue contributing to VPFs. Particularly important is the finding that without basic information, participation is virtually nonexistent—pointing to the crucial role of public information and the availability of high-quality resources.

Logistic regression further confirmed that comprehensibility and trust are the most significant factors influencing citizens' potential willingness to invest, should more reliable data become available. In this context, the study underscores the need to improve how information on VPFs is presented online—not only through simplified language but also through better visual organization, transparency, and credibility of sources.

Against the backdrop of the demographic and economic challenges facing Serbia's pension system, encouraging participation in voluntary funds through improved digital communication emerges as a sustainable mechanism for securing citizens' long-term financial stability. Therefore, policymakers, financial institutions, and fund managers should prioritize strengthening digital literacy and creating accessible, comprehensible, and trustworthy online resources on voluntary retirement savings.

While the findings provide valuable insights into the relationship between digital communication and participation in voluntary pension funds, several limitations of this study should be acknowledged. First, the research relied on a sample of 100 respondents, which restricts the generalizability of results to the wider population. The sample was also self-selected, likely including individuals with higher digital literacy and financial awareness, which may have biased the findings.

Second, the survey was conducted within a limited time frame and did not account for dynamic factors such as changing economic conditions, trust in institutions, or media exposure. Moreover, the data were obtained through self-assessment, which carries the risk of subjectivity and socially desirable responses.

With this in mind, future research should encompass larger and more representative samples of the population and apply mixed methods (quantitative and qualitative) to gain deeper insight into citizens' motivations, barriers, and attitudes toward voluntary retirement savings. It would also be useful to assess the long-term effects of educational campaigns and to experimentally test the impact of specific interventions—such as web-site design improvements—on enhancing comprehensibility and trust.

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Transparentnost informacija o dobrovoljnim penzionim fondovima u digitalnom okruženju zelene ekonomije

Apstrakt: *Ubrzan razvoj digitalnih tehnologija i rastuća potreba za održivim finansijskim rešenjima oblikuju novi okvir delovanja dobrovoljnih penzionih fondova (DPF), kako u Srbiji, tako i na globalnom nivou. U okviru zelene ekonomije, ovi fondovi sve više dobijaju na značaju kao mogući kanali ulaganja u ekološki održive projekte, doprinoseći dugoročnoj stabilnosti penzijskog sistema i ekološkoj tranziciji. Istovremeno, digitalizacija predstavlja ključni faktor u obezbeđivanju dostupnosti i transparentnosti informacija o radu fondova, ali i u komunikaciji sa potencijalnim korisnicima. U radu će biti analiziran položaj DPF na raskršću digitalne transformacije i principa zelene ekonomije, sa posebnim osvrtom na dostupnost, transparentnost i razumljivost informacija koje se pružaju javnosti. U radu se predstavlja i anketno istraživanje sprovedeno u Srbiji, koje ukazuje na izazove u percepciji i razumevanju digitalno dostupnih podataka o dobrovoljnoj penzionoj štednji.*

Ključne reči: *dobrovoljni penzioni fondovi, održivi razvoj, digitalno okruženje, transparentnost*

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UVOD

Dobrovoljni penzioni fondovi (DPF) u Srbiji i šire predstavljaju važan segment finansijskog sistema koji omogućava građanima da kroz dugoročnu štednju obezbede dodatna sredstva za period kada se penzionišu. U uslovima starenja stanovništva i sve izraženijih izazova održivosti javnih penzionih sistema, značaj DPF-a dodatno raste. Savremeni trendovi digitalizacije omogućavaju fondovima da svoje usluge i informacije čine dostupnim i transparentnim putem internet platformi, što je preduslov za efikasnu komunikaciju sa korisnicima u digitalnom okruženju. Istovremeno, koncept zelene ekonomije utiče na sve sektore, uključujući i penzione fondove, koji sve više integrišu principe održivog ulaganja u svoje strategije, čime doprinose ekološkoj tranziciji i odgovornom finansijskom poslovanju.

Međutim, iako su informacije o DPF digitalno dostupne, pitanje njihove transparentnosti ostaje otvoreno. Nedovoljno jasne i prilagođene informacije mogu uticati na smanjenje poverenja i smanjiti motivaciju građana da se uključe u dobrovoljnu penzionu štednju. Ovo postavlja istraživački problem u okviru kojeg je važno ispitati u kojoj meri su digitalne informacije o DPF transparentne korisnicima.

Cilj ovog rada je da pruži pregled transparentnosti informacija o dobrovoljnim penzionim fondovima u digitalnom okruženju, uz poseban osvrt na ulogu zelene ekonomije i digitalizacije u komunikaciji fondova sa javnosti. U tom cilju, rad nastoji da odgovori na sledeća istraživačka pitanja:

1. Koliko su digitalno dostupne informacije o DPF u Srbiji transparentne prosečnom korisniku?
2. Kako koncept zelene ekonomije utiče na način prezentovanja i komunikacije informacija od strane DPF?
3. Koji su glavni izazovi u digitalnoj komunikaciji dobrovoljnih penzionih fondova sa javnosti u kontekstu transparentnosti?
4. Kako korisnici percipiraju digitalne informacije o DPF i koji faktori utiču na njihovu percepciju i poverenje?

Ovim pristupom, rad nastoji da pruži temeljan uvid u kvalitet komunikacije dobrovoljnih penzionih fondova i da identifikuje mogućnosti za njeno unapređenje u skladu sa zahtevima digitalnog doba i principima zelene ekonomije.

METODE ISTRAŽIVANJA

Prvi deo istraživanja čini analizu digitalnih platformi i zvaničnih veb sajtova DPF u Srbiji. Ovaj kvalitativni pregled ima za cilj da oceni strukturu, sadržaj i jezičku pristupačnost pruženih informacija, kao i vizuelnu prezentaciju i lakoću navigacije kroz sajtove.

Drugi deo predstavlja empirijsko istraživanje sprovedeno anketiranjem uzorka od 100 ispitanika iz Srbije, koji predstavljaju različite demografske grupe. Anketni upitnik bio je usmeren na procenu percepcije korisnika o transparentnosti digitalnih informacija koje dobrovoljni penzioni fondovi pružaju. Prikupljeni podaci su statistički obrađeni kako bi se identifikovali ključni izazovi i preporuke za unapređenje komunikacije fondova sa korisnicima.

TEORIJSKI OKVIR

Dobrovoljni penzioni fondovi predstavljaju jedan od stubova sistema penzijske zaštite u mnogim savremenim ekonomijama. Za razliku od obaveznog državnog penzijskog osiguranja, koji čini prvi stub penzijskog sistema, dobrovoljni penzioni fondovi su deo tzv. trećeg stuba i funkcionišu po principu individualne i dobrovoljne štednje za starost (27).

Osnovna funkcija ovih fondova je da omoguće pojedincima da, kroz dugoročno ulaganje, akumuliraju sredstva koja će im obezbediti dodatne prihode nakon penzionisanja. DPF su posebno značajni u uslovima demografskog starenja i smanjenja udela radno aktivnog stanovništva, što dovodi u pitanje održivost tradicionalnih penzijskih sistema (22). U tom kontekstu, oni doprinose finansijskoj sigurnosti u starosti i podstiču razvoj domaćeg tržišta kapitala (14).

U mnogim zemljama, uključujući i Srbiju, dobrovoljni penzioni fondovi su regulisani posebnim zakonskim okvirom koji obezbeđuje sigurnost ulaganja, transparentnost informacija i fiskalne podsticaje za učešće. Zakon o dobrovoljnim penzionim fondovima i penzijskim planovima u Srbiji donet je 2005. godine, a nadzor nad radom fondova vrši Narodna banka Srbije (19).

U kontekstu savremenih globalnih izazova kao što su klimatske promene, degradacija životne sredine i potreba za održivim razvojem, investicije kroz dobrovoljne penzione fondove sve više dobijaju i ekološku dimenziju. Naime, penzioni fondovi predstavljaju značajne institucionalne investitore koji mogu uticati na pravce ulaganja i time podržati ili obeshrabriti određene sektore ekonomije (10). Upravo zbog toga, ulaganje u „zelené“ projekte, obnovljive izvore energije ili održivu infrastrukturu sve više postaje tema u upravljanju fondovima. Osim toga, digitalizacija poslovanja ovih fondova – kroz onlajn platforme i elektronsku komunikaciju – doprinosi smanjenju materijalne potrošnje i emisije ugljen-dioksida, što ih već svrstava u prakse u skladu sa principima zelene ekonomije (9).

Uvođenje ekoloških, društvenih i upravljačkih kriterijuma (ESG – Environmental, Social, Governance) u strategije investiranja penzijskih fondova omogućava da ovi fondovi ne samo osiguraju stabilan prinos za svoje članove, već i da podrže tranziciju ka zelenoj ekonomiji (19). U Srbiji je ovo područje još uvek u razvoju, ali postoji potencijal za integraciju održivih politika u rad DPF kroz usklađivanje sa evropskim regulativama i zelenim agendama (25). Međutim, implementaciju ESG standarda u Srbiji usporavaju brojne slabosti – izveštajnih modela, kao i odsustvo jasno definisanih procedura

i obrazovne podrške. Pored toga, pretnju predstavlja mogućnost da se usklađivanje sa evropskim propisima zadrži na deklarativnom nivou, bez suštinske promene prakse (4). Ulaganje u zelene obveznice koje predstavljaju važan finansijski instrument za usmeravanje kapitala ka ekološki održivim projektima, uključujući obnovljive izvore energije, čistu proizvodnju i infrastrukturu prilagođenu klimatskim promenama postaje veoma izazovno i utiče na buđenje ekološke svesti. Dobrovoljni penzioni fondovi, kao značajni institucionalni investitori, treba da se osmele da sve više koriste zelene obveznice kao sredstvo za ulaganje koje je u skladu sa principima zelene ekonomije, omogućavajući svojim članovima da učestvuju u finansiranju održivih razvojnih ciljeva uz potencijal za stabilan i dugoročan prinos (1). Ipak, izazovi poput nedostatka standardizacije i transparentnosti informacija tržišta zelenih obveznica ograničavaju njihovu širu primenu u praksi dobrovoljnih penzionih fondova.

Na ovaj način, DPF mogu postati važan mehanizam finansiranja zelenih inicijativa, čime ne samo da obezbeđuju budućnost svojih članova, već doprinose i budućnosti planete. Dašić i Anufrijević (12) ističu da informaciono-komunikacione tehnologije igraju ključnu ulogu u postizanju ravnoteže između društvenog razvoja i zaštite životne sredine.

U kontekstu dobrovoljnih penzionih fondova, ove tehnologije mogu transformisati način na koji se planira i donosi odluka o ulogama u zelene finansije. Digitalizacija omogućava bolju transparentnost informacija, praćenje ESG (ekoloških, društvenih i upravljačkih) metrika i procenu uticaja ulaganja na održivost. To znači da penzioni fondovi ne samo da pasivno učestvuju na tržištu, već mogu aktivno podržati tranziciju ka zelenoj ekonomiji i cirkularnim modelima rada. Razvoj zelene ekonomije u velikoj meri oslanja se na primenu inovativnih finansijskih instrumenata koji služe kao podrška cirkularnim modelima i doprinose efikasnosti u korišćenju resursa (13). Oni takođe naglašavaju da masovna primena digitalnih tehnologija u industriji 4.0 i cirkularnoj ekonomiji omogućava stvaranje ekološki prihvatljivih modela razvoja koji sinergetski mogu da utiču na investicione strategije.

Na ovaj način, kako navode autori, digitalna transformacija predstavlja kritični okvir za razvoj zelenog finansiranja i integraciju strategija održivog ulaganja u institucionalne investitore kao što su DPF. Anufrijević i saradnici postavljaju zelene obveznice kao ključni instrument kroz koji kapital može biti preusmeren ka održivim i ekološkim projektima. Autori analiziraju motive investitora, mehanizme institucije regulacije i efekte koje ovaj finansijski instrument ima na strategije održivosti organizacija (3).

Među prvim sprovedenim istraživanjima o dobrovoljnim penzionim fondovima u Srbiji (6) istaknuto je da su finansijski problemi i demografski faktori doveli do potrebe za razvojem dobrovoljnog penzijskog osiguranja kao odgovor na nedostatke javnog sistema. U ovom istraživanju naglašen je značaj reforme koja ima za cilj smanjenje deficita i usaglašavanje sa okvirima socijalne politike u Srbiji. Takođe, prema Anufrijeviću (7), uvođenje Zakona o dobrovoljnim penzionim fondovima i penzijskim planovima otvorilo je brojna pitanja u javnosti, naročito u pogledu toga kako će građani u Srbiji reagovati na ovaj novi oblik štednje. Postavlja se pitanje da li će veliki broj zaposlenih imati pristup dovoljno jasnim i pouzdanim

informacijama o potencijalnim rizicima i prednostima koje dobrovoljni penzioni fondovi nose. Autorka takođe ističe da su fondovi na manje razvijenim finansijskim tržištima, kao što je srpsko, izloženi specifičnim izazovima u pogledu ostvarivanja stabilnih prinosa. Ipak, jedan od ključnih principa funkcionisanja ovih fondova je poverenička odgovornost prema korisnicima, što znači da su interesi članova fonda prioritet u procesu upravljanja njihovim sredstvima. Kada govorimo o sadašnjosti, struktura srpskog penzijskog sistema godinama pokazuje znakove nestabilnosti, pri čemu je odnos zaposlenih i pensionera blizak kritičnoj tački, što upućuje na potrebu za reformama (5). Upravo u ovoj slabosti javnog penzionog sistema za očekivati je bilo veće okretanje ka dobrovoljnim penzionim fondovima.

Nešto mlađa istraživanja pokazuju da je učešće u dobrovoljnim penzionim fondovima u značajnoj meri uslovljeno nivoom finansijske pismenosti stanovništva i stepenom razumevanja dugoročnih finansijskih proizvoda (15). Nedovoljna informisanost, kao i niska percepcija rizika i koristi, mogu biti prepreke široj zastupljenosti ove vrste štednje. Upravo iz tog razloga se u savremenoj literaturi naglašava značaj transparentne komunikacije, jednostavnog prikazivanja informacija, kao i dostupnosti digitalnih kanala za informisanje potencijalnih korisnika (11). U tom smislu, uloga onlajn okruženja postaje sve važnija u procesu informisanja, odlučivanja i upravljanja dobrovoljnom penzijskom štednjom.

Radojković (23), petnaest godina nakon, takođe smatra da su dobrovoljni penzioni fondovi u Srbiji od 2006. godine, kada su započeli sa radom, pokazali stabilan rast, ali i da su se u velikoj meri suočili sa izazovima kao što su niska stopa učlanjenja i ograničena svest javnosti o značaju ovog vida štednje.

ANALIZA DIGITALNE DOSTUPNOSTI INFORMACIJA O DPF

U savremenom digitalnom okruženju, dostupnost i transparentnost informacija predstavljaju ključne preduslove za donošenje informisanih finansijskih odluka. To je posebno važno u oblasti dobrovoljnog penzijskog osiguranja, gde se potencijalni korisnici susreću sa složenim finansijskim terminima, investicionim strategijama i regulatornim uslovima.

Digitalna dostupnost ne podrazumeva samo prisustvo informacija na internetu, već i njihovu tehničku, lingvističku i kognitivnu transparentnost informacija (27). Informacije moraju biti predstavljene na način koji je razumljiv prosečnom korisniku, uz korišćenje jednostavnog jezika, vizuelne podrške (grafikona, infografika), kao i mogućnosti interaktivne simulacije penzijske štednje.

Istraživanja pokazuju da je postojanje dobro dizajniranih i informativnih veb-stranica, mobilnih aplikacija i onlajn alata pozitivno povezano sa spremnošću pojedinaca da započnu dobrovoljnu penzijsku štednju (8). Sa druge strane, nizak nivo digitalne pismenosti, kao i ograničeni kapaciteti za kritičko razumevanje finansijskih podataka, i dalje predstavljaju barijeru, naročito među starijim ili manje obrazovanim grupama (15).

Pored toga, institucije koje upravljaju fondovima moraju se pridržavati standarda transparentnosti informacija i korisničke orijentisanosti u digitalnoj komunikaciji. U

tom kontekstu, preporuke kao što su one koje izdaje OECD za jačanje finansijske pismenosti i digitalne inkluzije predstavljaju značajan okvir za unapređenje praksi u oblasti informisanja građana (21).

U Srbiji, tržište dobrovoljnih penzionih fondova je u razvoju od 2006. godine, kada su počeli da funkcionišu prvi licencirani fondovi. Iako su regulatorni okviri i fiskalni podsticaji uspostavljeni, učešće građana u ovom vidu štednje je i dalje relativno nisko. Jedan od identifikovanih razloga je nedovoljna informisanost građana i niska vidljivost fondova u digitalnom prostoru (24).

Analizom veb-sajtova vodećih društava za upravljanje dobrovoljnim penzionim fondovima u Srbiji može se uočiti značajan napredak u pogledu tehničke dostupnosti — informacije su dostupne na zvaničnim sajtovima, postoje kalkulatori penzija, objavljeni su pravilnici, izveštaji o poslovanju i kontakt informacije. Međutim, uočava se nedostatak u jezičkoj i konceptualnoj transparentnosti informacija: informacije su često prezentovane stručnim žargonom, bez objašnjenja termina i uz minimalnu vizuelnu podršku (18).

Istraživanje iz 2023. godine, sprovedeno na uzorku mladih zaposlenih u Srbiji, pokazuje da većina ispitanika nema jasnu predstavu o tome šta su dobrovoljni penzioni fondovi, kako funkcionišu, niti koji su koraci za otvaranje naloga, uprkos tome što su informacije formalno dostupne na internetu (17). Ovi podaci ukazuju na postojanje “informacionog paradoksa” — prisustvo podataka ne znači i njihovu efikasnu komunikaciju. Uloga regulatora, poput Narodne banke Srbije, važna je u podsticanju transparentnosti informacija i unapređenju standardizacije načina komunikacije informacija. U tom smislu, preporuke za unapređenje veb-prisutnosti uključuju: upotrebu laičkog jezika, primenu standarda digitalne pristupačnosti (WCAG), kao i uključivanje interaktivnih alata, edukativnih videa i čestih pitanja (FAQ), u cilju bolje transparentnosti informacija sistema od strane korisnika.

Analiza Web sajtova DPF u Srbij

Analiza koju je Anufrijević (2025) izvršila dovela je do zaključka da su dobrovoljni penzioni fondovi u Srbiji generalno usvojili osnovne principe digitalne dostupnosti i transparentnosti informacija. Ipak, postoje određene razlike u nivou i načinu komunikacije sa potencijalnim i postojećim članovima. Fondovi koji imaju integrisane FAQ sekcije, redovno objavljene i objašnjene NAV podatke, kao i lako dostupne prospekte, svakako prednjače u efikasnosti i otvorenosti komunikacije. Nedostaci u vidljivosti ili strukturi pojedinih elemenata, kao što je slučaj kod Raiffeisen Future i DDOR Garant, mogu predstavljati barijeru za odluku o pristupanju fondu. Unapređenje navigacije, centralizacija dokumenata i jasnije definisanje pojmova od značaja za korisnike predstavljaju pravce za dalje unapređenje.

U cilju boljeg razumevanja načina na koji DPF u Srbiji komuniciraju sa potencijalnim i postojećim klijentima u digitalnom okruženju, sprovedena je desk-analiza zvaničnih veb-sajtova vodećih fondova. Evaluacija je izvršena tokom jula 2025. godine i obuhvatila je šest dobrovoljnih penzionih fondova koji posluju na tržištu Srbije: Dunav, Generali Basic,

Generali Index, Raiffeisen Future, DDOR Garant Ekvilibrio i DDOR Garant. Kriterijumi evaluacije zasnovani su na prethodno definisanim indikatorima digitalne dostupnosti i transparentnosti informacija sadržaja, kao što su jezička prilagođenost, navigaciona struktura, mobilna optimizacija, postojanje interaktivnih alata, infografika, FAQ sekcije, transparentnost podataka i tehnička pristupačnost u skladu sa WCAG standardima. Ocenjivanje je sprovedeno kvalitativno, primenom kategorija: Da, Delimično i Ne, a rezultati su predstavljeni u sledećoj tabeli.

Tabela 1 – Kriterijumi za analizu Web sajtova DPF u Srbiji

Naziv fonda	Dunav	Generali B.	Generali I	Raiffeisen F	DDOR G Ekvilibio	DDOR G
Jezička razumljivost	Delimično	Delimično	Delimično	Delimično	Delimično	Delimično
Objašnjenje ključnih termina	Ne	Da	Da	delimično	Ne	delimično
Navigacija i struktura sajta	jasna	jasna	jasna	jasna	jasna	jasna
Mobilna optimizacija	Da	Da	Da	Da	Da	Da
Interaktivni alata	Ne	Da	Da	delimično	Ne	delimično
Vizuelna podrška	Ne	Da	Da	delimično	Ne	Ne
FAQ sekcija	Ne	Da	Da	delimično	Ne	Ne
Regulatorna transparentnost	Da	Da	Da	Da	Da	Da
Kontakti i podrška	Da	Da	Da	Da	delimično	delimično
Ažuriranost sadržaja	Da	Da	Da	Da	Da	Da
WCAG pristupačnost	Ne	delimično	delimično	Ne	Ne	Ne

Izvor: Izrada autora

Analiza pokazuje da svi posmatrani fondovi imaju tehnički funkcionalne veb-sajtove, sa osnovnim informacijama o radu i transparentno objavljenim finansijskim izveštajima. Većina sajtova je mobilno optimizovana i strukturalno jasna. Međutim, uočeni su značajni nedostaci u pogledu jezičke transparentnosti informacija, vizuelne podrške, kao i prisustva interaktivnih alata koji bi korisnicima olakšali razumevanje i planiranje penzijske štednje. Samo nekoliko fondova nudi objašnjenje stručnih termina, FAQ sekcije ili kalkulatora, a primenu WCAG standarda digitalne dostupnosti nijedan sajt u potpunosti ne ispunjava. Ova analiza ima nekoliko ograničenja. Pre svega, reč je o kvalitativnoj proceni zasnovanoj na subjektivnom uvidu istraživača, bez formalnog učešća krajnjih korisnika (npr. kroz testiranje upotrebljivosti). Takođe, neki sadržaji mogu biti dostupni tek nakon registracije, što nije uzeto u obzir u okviru ove javne desk-analize. Uz to, kriterijumi nisu bili ponderisani, pa svi aspekti imaju jednaku težinu u tabelarnom prikazu.

Kritička analiza transparentnosti digitalnih komunikacija dpf

U cilju kritičke analize transparentnosti informacija i dostupnosti digitalnih komunikacija dobrovoljnih penzionih fondova (DPF), sprovedena je anketa na uzorku od 100

ispitanika. Osnovni fokus istraživanja bio je na identifikovanju načina na koji građani dolaze do informacija o DPF-ovima, njihovoj percepciji transparentnosti informacija jezika koji se koristi na zvaničnim veb-sajtovima, kao i na proceni poverenja u te izvore. Posebna pažnja posvećena je proceni informisanosti javnosti o pravima, obavezama i rizicima ulaganja, kao i spremnosti na ulaganje ukoliko bi informacije bile transparentnije i prilagođenije korisnicima.

Anketa je obuhvatila deset pitanja koja su obuhvatila saznanja, navike, nivo razumevanja i poverenje u digitalne kanale komunikacije DPF-ova, uz mogućnost identifikovanja glavnih slabosti u postojećoj praksi komunikacije sa potencijalnim članovima. U nastavku se prikazuju ključni rezultati ankete koji predstavljaju osnovu za dalju analizu i formulisanje preporuka.

Jedan od ključnih aspekata u analizi komunikacije dobrovoljnih penzionih fondova jeste ispitivanje uticaja osnovne informisanosti na ponašanje korisnika. Da bi se sagledala potencijalna povezanost između svesti o postojanju DPF-ova i aktivnog učešća u tim fondovima, napravljena je kros-tabela sa podacima o tome da li su ispitanici ikada čuli za DPF i da li trenutno uplaćuju sredstva. Ova analiza omogućava uvid u to da li samo poznavanje pojma dovodi do praktičnog angažovanja ili postoje dodatne barijere koje utiču na donošenje finansijskih odluka.

Tabela 2 – Veza između toga da li je neko čuo za DPF i toga da li uplaćuje u DPF

Čuo za DPF	Uplaćuje u DPF: DA	Uplaćuje u DPF: NE	Ukupno
DA	70	18	88
NE	0	12	12
UKUPNO	70	30	100

Izvor: Izrada autora

Tabela pokazuje jasnu i očekivanu vezu između poznavanja dobrovoljnih penzionih fondova i učešća u njihovom finansiranju. Od ukupno 100 ispitanika:

- 88 osoba je čula za DPF, od kojih 70 (79,5%) uplaćuje u DPF, a 18 (20,5%) nije uplaćivalo.
- 12 osoba nije čula za DPF i nijedna od njih nije uplaćivala u DPF.

Dobijeni rezultati pokazuju da je poznavanje dobrovoljnih penzionih fondova preduslov za uplatu u njih. Ništa iznenađujuće, ispitanike koji nisu ni čuli za DPF nema među onima koji uplaćuju. Sa druge strane, mada većina koji znaju za DPF uplaćuje, postoji i oko petina ispitanika koji, iako su upoznati sa ovom opcijom, nisu započeli uplatu. Analiza ukazuje da bi informisanje javnosti i povećanje svesti o dobrovoljnim penzionim fondovima moglo biti ključno za povećanje broja učesnika u sistemu dobrovoljnog penzionisanja. Ipak, sam informativni nivo nije dovoljan uslov za svakog da počne sa uplatama, što može ukazivati na potrebu dalje motivacije ili uklanjanja drugih prepreka. Izračunavanje očekivanih frekvencija ove veze prikazano je u Tabeli 3.

Tabela 3- Frekvencija veze

Čuo za DPF	Uplaćuje DA (E)	Uplaćuje NE (E)
DA	61,6	26,4
NE	8,4	3,6

Izvor: Izrada autora

Korišćenjem formule za Hi- kvadrat test, dobijena je sledeća vrednost:

$$X^2 = \sum \frac{(O - E)^2}{E}$$

$$X^2 = 31.82$$

Rezultati statističke analize pokazuju značajnu asocijaciju između poznavanja dobrovoljnih penzionih fondova (DPF) i učešća u njima. Primećeno je da je među ispitanicima koji su čuli za DPF, značajno veći broj onih koji aktivno uplaćuju u fond (70 od 88), u poređenju sa onima koji nisu upoznati sa DPF, među kojima nije bilo uplata (0 od 12). Hi-kvadrat test potvrđuje da je ova razlika statistički značajna ($\chi^2(1) = 31.82$, $p < 0.001$). Ovi nalazi ukazuju na to da informisanost o dobrovoljnim penzionim fondovima predstavlja bitan faktor koji utiče na odluku o učešću u sistemu dobrovoljnog penzionisanja.

U cilju ispitivanja uticaja poverenja u informacione izvore na finansijsko ponašanje ispitanika, analizirana je veza između nivoa poverenja u sajtove koji pružaju informacije o dobrovoljnim penzionim fondovima i učešća u ovom vidu štednje. Poverenje u sajtove kategorizovano je u tri nivoa: visoko, srednje i nisko (uključujući i potpuni nedostatak poverenja), kako bi se dobio jasniji uvid u korelaciju između ovih dveju promenljivih. Ova analiza ima za cilj da identifikuje da li razlike u poverenju u digitalne izvore informišu različite navike ulaganja u DPF, što može biti ključno za razvoj efektivnih komunikacionih strategija i podizanje svesti o značaju dobrovoljnog penzionisanja.

Tabela 4 – Poverenje u sajtove

Opis poverenja	Uplaćuje : DA	Uplaćuje: NE	Ukupno
Visoko	51	1	52
Srednje	28	17	45
Nisko/bez poverenja	3	0	3
Ukupno	82	18	100

Izvor: Izrada autora

Rezultati Tabele 4 pokazuju da postoji jasna veza između nivoa poverenja u sajtove koji pružaju informacije o dobrovoljnim penzionim fondovima i odluke o uplati u te fondove. Ispitanici koji izražavaju visok nivo poverenja u sajtove češće uplaćuju u DPF u poređenju sa onima koji imaju srednji ili nizak nivo poverenja. Na primer, među onima

koji imaju visoko poverenje, znatno veći procenat ispitanika aktivno učestvuje u sistemu dobrovoljnog penzionisanja, dok je među ispitanicima koji navode da nemaju poverenje u sajtove, učešće u DPF znatno niže. Ovi rezultati ukazuju da je poverenje u digitalne izvore informacija potencijalno važan preduslov za donošenje finansijskih odluka koje zahtevaju dugoročnu posvećenost i razumevanje. Nedostatak poverenja u zvanične i nezvanične onlajn izvore može biti prepreka u donošenju odluke o ulaganju u DPF, što predstavlja značajan izazov u kontekstu digitalne komunikacije finansijskih institucija sa građanima.

Kako bi se sagledalo razumevanje odnosa između poverenja u digitalne izvore informacija i finansijskog ponašanja građana, izračunati su procenti uplate u dobrovoljne penzione fondove (DPF) u odnosu na različite nivoe poverenja u sajtove koji pružaju takve informacije. Ova tabela pruža pregled udela ispitanika koji uplaćuju u DPF u okviru svake kategorije poverenja – visoko, srednje i nisko/bez poverenja. Na taj način, moguće je pratiti trendove u ponašanju ispitanika u skladu sa njihovim stavom prema pouzdanosti digitalnih izvora i proceniti koliko poverenje u dostupne onlajn informacije utiče na donošenje odluka o dugoročnom finansijskom planiranju.

Tabela 5 – Procenat uplate po nivou poverenja

Poverenje	% Uplate
Visoko	98,1
Srednje	62,2
Nisko / bez	100

Izvor: Izrada autora

Rezultati prethodne tabele pokazuju da postoji jasna povezanost između nivoa poverenja u sajtove i učešća u dobrovoljnim penzionim fondovima. Najveći procenat uplata u DPF evidentiran je među ispitanicima koji iskazuju visok nivo poverenja u informacije dostupne na internet sajtovima – u ovoj grupi, učešće u fondu je značajno iznad proseka. Nasuprot tome, među onima koji imaju srednji ili nizak nivo poverenja, učešće je osetno manje, pri čemu je kod osoba koje izjavljuju da nemaju poverenja u sajtove udeo ulagača najniži. Ovi nalazi ukazuju na to da poverenje u digitalne izvore informacija predstavlja važan preduslov za aktivno učešće u sistemima dugoročne finansijske sigurnosti, kao što su DPF. Visok nivo poverenja može biti odraz boljeg razumevanja predstavljenih informacija, kao i uverenja u transparentnost i relevantnost onlajn sadržaja. Sa druge strane, nedostatak poverenja može ukazivati na nisku finansijsku pismenost, ograničenu digitalnu uključenost ili negativna prethodna iskustva korisnika sa institucijama ili platformama.

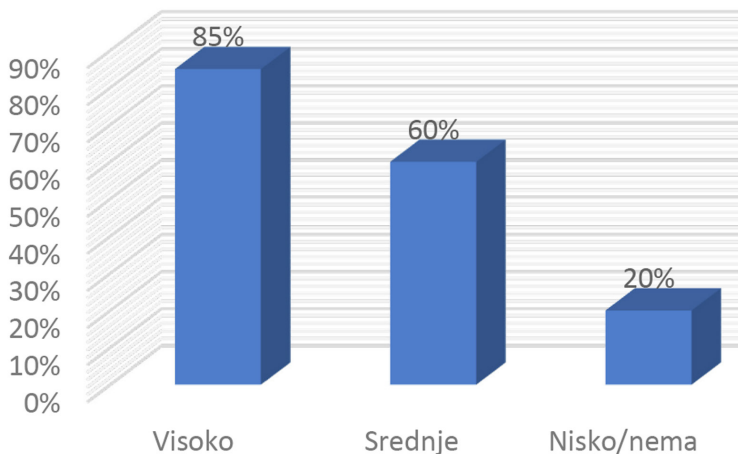
Ovi rezultati podržavaju stav da unaređenje digitalne komunikacije, kao i povećanje razumljivosti, transparentnosti i kredibiliteta informacija o DPF, može direktno uticati na veće učešće građana u ovakvim oblicima dugoročne štednje. U kontekstu javne politike, ovo sugerise potrebu za edukativnim kampanjama i podršku razvoju digitalne finansijske pismenosti kao redissolve za odgovorno finansijsko planiranje.

U okviru analize odnosa između različitih aspekata percepcije informacija o dobrovoljnim penzionim fondovima (DPF) u digitalnom okruženju, primenjena je korelaciona analiza kako bi se ispitala povezanost između četiri skalarne (numeričke) ocene koje su ispitanici dali:

- Razumljivost informacija
- Lakoća pronalaženja informacija
- Poverenje u sajtove
- Samoinformisanost (inicijativnost u traženju informacija)

Analizirane dimenzije čine važne pokazatelje digitalne finansijske pismenosti i povezane su sa načinom na koji pojedinci pristupaju donošenju finansijskih odluka u onlajn okruženju. Izvršen je obračun Koeficijenta korelacije r (Pirsonov koeficijent) koji predstavlja meru jačine i pravca linearne povezanosti između dve promenljive.

Grafik 1: Procenat uplate u DPF prema nivou poverenja u sajtove



Izvor: Izrada autora

Tabela 6 – Korelaciona analiza

	Razumljivost	Lakoća pronalaženja	Poverenje	Samoinformisanost
Razumljivost	1.0	0.72	0.68	0.50
Lakoća pronalaženja	0.72	1.00	0.65	0.55
Poverenje	0.68	0.65	1.00	0.49
Samoinformisanost	0.50	0.55	0.49	1.00

Izvor: Izrada autora

Na osnovu korelacione analize odnosa između skalarnih ocena ispitanika, dobijene su sledeće vrednosti Pirsonovog koeficijenta korelacije (r). Svi odnosi su pozitivni, što ukazuje da se sa porastom jedne promenljive povećava i vrednost druge.

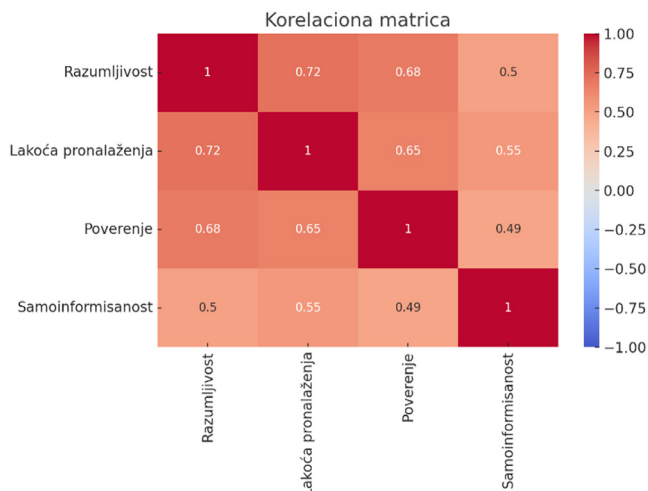
Tabela 7 – Interpretacija korelacione analize – Pirsonovog koeficijenta

Promenljive	r	Interpretacija
Razumljivost – lakoća pronalaženja	0.72	Jaka pozitivna korelacija – što je informacija razumljivija, to je lakše pronaći
Razumljivost – Poverenje	0.68	Jaka pozitivna korelacija – razumljiv sadržaj povećava poverenje u sajtove
Razumljivost – Samoinformisanost	0.50	Umerena pozitivna korelacija – oni koji smatraju sadržaj razumljivim, češće se sami informišu
Lakoća pronalaženja – Poverenje	0.65	Jaka pozitivna korelacija – lakše pronalaženje informacija povezano je sa većim poverenjem
Lakoća pronalaženja – Samoinformisanost	0.55	Umerena pozitivna korelacija – lako dostupne informacije podstiču samoinicijativu
Poverenje – Samoinformisanost	0.49	Umerena pozitivna korelacija – viši nivo poverenja povezan je sa većom aktivnošću u traženju informacija

Izvor: Izrada autora

Korelaciona matrica prikazana je i na slici 1.

Slika 1 – Korelaciona matrica – DPF Faktori



Izvor: Izrada autora

U cilju boljeg razumevanja faktora koji utiču na spremnost građana da ulože u dobrovoljne penzije fondove ukoliko bi imali više informacija, primenjena je logistička regresiona analiza. Zavisna promenljiva u ovom modelu je odgovor na pitanje „Da li biste

uložili ukoliko biste imali više informacija?“ (dvojna kategorija: Da/Ne), dok su nezavisne promjenljive ocene ispitanika o:

- razumljivosti sadržaja,
- lakoći pronalaženja informacija,
- poverenju u sajtove koji sadrže podatke o DPF-ovima,
- samoinformisanosti.

Cilj analize je bio da se ispita u kojoj meri i koje od ovih karakteristika utiču na verovatnoću da bi osoba bila spremna da investira u DPF ukoliko bi imala bolji uvid u relevantne informacije. Rezultati logističke regresije omogućavaju procenu pojedinačnog uticaja svake promjenljive, uz kontrolu uticaja ostalih, i daju uvid u statističku značajnost tih odnosa.

Tabela 8 - Rezultati logističke regresije: Faktori koji utiču na spremnost za ulaganje u DPF ukoliko bi postojale bolje informacije

Promenljiva	B koeficijent	p- vrednost	Interpretacija
Razumljivost	0.85	0.002	Veća razumljivost -veća verovatnoća
Lakoća pronalaženja	0.30	0.120	Nije statistički značajna
Poverenje u sajtove	0.92	0.001	Snažan pozitivan uticaj
Samoinformisanost	0.25	1.180	Nije značajno

Izvor: Izrada autora

DISKUSIJA

Rezultati sprovedene analize ukazuju na snažnu povezanost između nivoa informisanosti građana o dobrovoljnim penzionim fondovima i njihovog finansijskog ponašanja, odnosno učešća u sistemu dobrovoljne penzije. Ključni nalaz predstavlja činjenica da nijedan ispitanik koji nije čuo za DPF ne učestvuje u njihovom finansiranju, dok je značajna većina onih koji su upoznati sa ovom institucijom uključena u uplate. Iako samo poznavanje pojma DPF ne garantuje aktivno učešće, ono se pokazuje kao neophodan preduslov za donošenje odluke o ulaganju. U tom kontekstu, efikasna komunikacija i podizanje javne svesti o DPF-ovima mogu imati direktan uticaj na povećanje broja učesnika.

Dalje, analiza je pokazala i snažnu vezu između poverenja u digitalne izvore (sajtove) i odluke o učešću u DPF-ovima. Ispitanici koji imaju visoko poverenje u onlajn informacije o fondovima u daleko većem broju uplaćuju sredstva, dok je kod onih sa niskim ili odsustvom poverenja uplata praktično zanemarljiva. Ovi nalazi podržavaju pretpostavku da je poverenje u informacioni kanal jedan od glavnih faktora u donošenju dugoročnih finansijskih odluka. Prema tome, strategije koje imaju za cilj poboljšanje kredibiliteta i transparentnosti zvaničnih sajtova mogu značajno uticati na povećanje učešća u dobrovoljnoj penzijskoj šemi.

Korelaciona analiza je dodatno osvetlila veze između različitih aspekata digitalne komunikacije. Utvrđeno je da postoji snažna pozitivna korelacija između razumljivosti sadržaja i lakoće pronalaženja informacija ($r=0.72$), kao i između razumljivosti i poverenja u sajtove ($r=0.68$). Ovo ukazuje na to da su jasnoća, struktura i dostupnost informacija ne samo važni za razumevanje, već i ključni u građenju poverenja. Umerene pozitivne korelacije sa samoinformisanošću takođe potvrđuju da bolje iskustvo sa informacijama povećava inicijativu korisnika da se samostalno informišu i angažuju.

Na kraju, logistička regresiona analiza omogućila je uvid u faktore koji utiču na spremnost građana da započnu ulaganje ukoliko bi imali više informacija. Značajnu prediktivnu vrednost imaju razumljivost sadržaja ($p=0.002$) i poverenje u sajtove ($p=0.001$), što još jednom podvlači važnost obrade i predstavljanja podataka na način koji je korisniku jasan, logičan i verodostojan. S druge strane, lakoća pronalaženja i samoinformisanost nisu se pokazale kao statistički značajne u modelu, što može ukazivati da, iako su važne, same po sebi nisu dovoljne da motivišu akciju u odsustvu poverenja i razumljivog sadržaja.

U celini, rezultati ove analize sugerišu da se unapređenjem digitalne komunikacije — kroz jasniji, pristupačniji i kredibilniji sadržaj — može pozitivno uticati na učešće građana u dobrovoljnim penzionim fondovima. Ovo je naročito važno u kontekstu strateškog planiranja penzijskih sistema i razvoja finansijske pismenosti. Kreiranje edukativnih kampanja, poboljšanje korisničkog iskustva na veb-sajtovima fondova i izgradnja poverenja u digitalne kanale komunikacije predstavljaju ključne korake ka povećanju dugoročne finansijske sigurnosti građana.

ZAKLJUČAK

Istraživanje je ukazalo na snažnu vezu između digitalne komunikacije i učešća građana u sistemu dobrovoljnih penzionih fondova u Srbiji. Kroz analizu ankete pokazano je da informisanost, razumljivost sadržaja i poverenje u zvanične digitalne izvore imaju ključnu ulogu u odluci građana da započnu ili nastave sa ulaganjem u DPF-ove. Posebno je značajan nalaz da bez osnovne informisanosti ne postoji praktično nikakva verovatnoća za učešće u sistemu, što ukazuje na važnost javnog informisanja i dostupnosti kvalitetnih informacija.

Logistička regresija dodatno potvrđuje da upravo razumljivost i poverenje predstavljaju najvažnije faktore koji utiču na potencijalnu spremnost građana da ulože, ukoliko bi imali više pouzdanih podataka. U tom kontekstu, rad ukazuje na potrebu za unapređenjem načina na koji se informacije o DPF-ovima predstavljaju u onlajn okruženju – kako kroz pojednostavljenje jezika, tako i kroz vizuelnu organizaciju, transparentnost i kredibilitet izvora.

U svetlu demografskih i ekonomskih izazova sa kojima se suočava penzioni sistem Srbije, podsticanje učešća u dobrovoljnim fondovima kroz poboljšanje digitalne komunikacije predstavlja održiv mehanizam za dugoročnu finansijsku sigurnost građana. Stoga se preporučuje donosiocima odluka, finansijskim institucijama i fondovima da posvete

posebnu pažnju jačanju digitalne pismenosti i kreiranju dostupnih, razumljivih i pouzdanih onlajn resursa o dobrovoljnoj penzijskoj štednji.

Iako dobijeni rezultati pružaju vredne uvide u vezu između digitalne komunikacije i učešća u dobrovoljnim penzionim fondovima, potrebno je istaći nekoliko ograničenja ovog istraživanja. Pre svega, istraživanje se oslanjalo na uzorak od 100 ispitanika, što ograničava mogućnost generalizacije rezultata na celokupnu populaciju. Uzorak je takođe samoselektovan i verovatno uključuje osobe sa većim stepenom digitalne pismenosti i interesovanja za finansijske teme, što može uticati na pristrasnost rezultata.

Drugo, istraživanje je sprovedeno u ograničenom vremenskom okviru i nije obuhvatilo dinamičke faktore kao što su promena ekonomskih prilika, poverenje u institucije ili medijska ekspozicija. Podaci su dobijeni preko samoevaluacije, što nosi rizik od subjektivnosti i socijalno poželjnih odgovora.

Imajući u vidu navedeno, buduća istraživanja trebalo bi da obuhvate veći i reprezentativniji uzorak stanovništva, kao i da primene mešovite metode (kvantitativne i kvalitativne) radi dubljeg razumevanja motiva, barijera i stavova građana prema dobrovoljnoj penziji. Takođe bi bilo korisno ispitati dugoročne efekte edukativnih kampanja, kao i testirati efekte konkretnih intervencija u dizajnu sajtova fondova na povećanje razumljivosti i poverenja.

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