

Impact of digitalisation on the performance of NGOs: Findings from Bulgaria

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Abstract: *It is already a fact that society is facing a digital transformation. All realms are more dependent on technology than ever before, which is readily apparent in daily tasks such as socialization, communication, governance, learning, work, and research. Technology has left its mark on most socio-human activities. The environment in which NGOs operate is restructuring, and there is a need for NGOs to adapt to these digital realities, especially in terms of working with stakeholders.*

Digital transformation involves long-term efforts to realign how an organisation operates and improve performance by integrating technology into all aspects of an NGO's operations. At its core is digitalisation, which, despite its impact, has not yet received sufficient attention in theory and practice. This issue remains understudied in Bulgaria, providing a field for research.

A team of researchers from the University of National and World Economy (UNWE) in Sofia, Bulgaria, is working on the research project "Digital Competitiveness of the Socio-Economic System of Bulgaria" (Research Grant №6/2024, funded by the UNWE Research Programme). A questionnaire tailored to Bulgarian NGOs was developed to assess digitalisation's impact on performance and identify best practices. Digital volunteering deserves special attention, enabling broader participation and greater influence. Also called virtual or online volunteering, it involves using technology via the internet to contribute to NGOs. Many organisations are adapting to this new wave of engagement.

Based on the developed framework, the study evaluates the direction and strength of digitalisation's impact. The methodology identifies specific NGO performance features and good practices. The research examines whether digital technologies mobilize and engage young volunteers. The findings highlight successful NGO strategies and the challenges they face.

The article discusses concrete examples and outlines recommendations for implementing digital technologies in NGO activities.

Keywords: *Digitalisation, Digital Transformation, NGOs Bulgaria, Virtual Volunteering, Youth Engagement*

Introduction

Digital transformation has been a key driver of modernization across various sectors in Bulgaria. While much of the focus has been on government, education, and business, non-governmental organisations (NGOs) have also been significantly influenced by digitalisation. This research explores how digitalisation impacts the performance of NGOs in Bulgaria, examining opportunities, challenges, and outcomes.

Digital transformation is the profound and accelerating change of activities, processes, competencies and models to exploit the opportunities of digital technologies and their impact on NGOs in a strategic and prioritised way. Represents a series of long-term efforts to realign the way an organisation operates and continuously improve its performance by integrating technology to encompass all aspects of an NGO's operations. At the heart of digital transformation is digitalisation, and while it is happening and having an impact on the work of NGOs, it has not yet received enough attention in theory and practice. This issue is still understudied in Bulgaria and provides field

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for research. All of the above brings out the main objective of this paper - to analyse and evaluate the impact of digital technologies and digitalisation in NGOs.

Despite its growing importance, digitalisation in the NGO sector remains underexplored in academic literature, particularly in the context of Eastern and Southeastern Europe. In Bulgaria, this topic is still insufficiently studied, with limited empirical data on the extent, nature, and effects of digital transformation among NGOs. Moreover, while many organisations have embraced digital tools, the degree of integration, the challenges they face, and the strategic value derived from digitalisation vary widely depending on factors such as size, scope, field of activity, and organisational culture.

This study addresses this research gap by presenting empirical findings from a national survey of Bulgarian NGOs, conducted as part of a broader research project on the digital competitiveness of Bulgaria's socio-economic system. A special emphasis is placed on the role of digital volunteers—a growing phenomenon that expands the capacity of NGOs and enables more inclusive participation in civil society. Digital volunteering is not only a form of human resource mobilisation, but also a vector for innovation, skill transfer, and digital maturity within organisations.

The main objective of this paper is to analyse and evaluate the impact of digital technologies on the performance of NGOs in Bulgaria. Specifically, the study aims to: (1) assess the level of digital integration in NGO operations; (2) identify key challenges and barriers to digitalisation; (3) explore the added value of digital volunteers; and (4) formulate evidence-based recommendations for enhancing digital readiness in the NGO sector.

To achieve this, the paper is structured as follows: the next section presents a review of relevant literature on NGO digitalisation and digital volunteering. This is followed by a description of the methodology, including the design of the national survey. The fourth section outlines the key empirical findings, including patterns of technology use, skill levels, and organisational outcomes. The discussion section interprets these results in relation to existing theories and offers strategic implications. Finally, the paper concludes with practical recommendations and suggestions for future research.

Literature Review

Digitalisation in the nonprofit sector has established itself as a strategic tool for organisational transformation, increasing efficiency and sustainable development. According to Cordery et al. (2023), digital transformation encompasses not just the use of technology, but a comprehensive rethinking of work processes, stakeholder relationship management, and commitment to the organisation's mission. This view is complemented by McKinsey & Company (2021), which emphasizes that technology can multiply the effect of NGOs, especially when integrated strategically and accompanied by built-in digital competencies.

In the context of post-socialist societies, the study by Skokova et al. (2021) outlines a number of barriers to the digital transformation of NGOs – lack of resources, limited access to training, as well as a deficit of culture and leadership in the field of digitalisation. These challenges are also particularly relevant in Bulgaria, where, despite the progress of the state policy in the field of digitalisation (Bulgaria – Digital Transformation 2020-2030), the non-profit sector remains marginal in the strategic documents and is developing at a heterogeneous pace.

One of the most visible manifestations of digital transformation in the NGO sector is the rise of digital volunteering, a flexible, remote form of engagement that allows organisations to involve experts and activists around the world. The United Nations Volunteers (2022) and Volunteering Australia (2021) reports highlight that digital

volunteers are particularly valuable in areas such as digital marketing, content development, data management and online training. Kamerāde et al. (2024) also emphasize the role of digital volunteers in overcoming barriers to the inclusion of people with disabilities in civic life, pointing out both the potential of these technologies for inclusion and the need for adapted infrastructure and support.

The regional experience also offers valuable lessons. Thewes, Sept and Richter (2024) analyze the "digital volunteer gap" in rural Germany and show that digitalisation can exacerbate inequalities if it is not accompanied by adequate support and access to technology. On the other hand, Alarnous et al. (2021) show how digital volunteering can be used for early intervention in behavioral problems among students, demonstrating the effectiveness of digital models in educational environments. A similar potential is revealed in DigIN Report II (Ochoa-Dąderska et al., 2023), which presents transnational practices for integrating digital learning and volunteering as mechanisms for social inclusion and skills acquisition.

The link between the use of digital channels and civic engagement is also the focus of modern research. According to Irum et al. (2025), social networks such as Facebook, Twitter and Instagram can become a powerful tool for political activism and mobilization of volunteers, especially when combined with high levels of digital literacy and a sense of efficiency. This confirms the need not only for technological access, but also for strategic skills and critical thinking in the digital environment.

The national context of Bulgaria presents an ambivalent picture. On the one hand, as Bower (2023) and Bogdanova & Parashkevova-Velikova (2024) show, there is a strategic understanding of the importance of digitalisation in the country. On the other hand, its actual application in the civil sector remains fragmented and often depends on individual initiatives, projects and partnerships. This is why a study such as this one is needed, which not only fills an empirical gap in the Bulgarian academic landscape, but also offers concrete data and guidelines for the strategic development of the sector through digital solutions. In this context, digital volunteering stands out as a driving force not only for operational capacity expansion, but also as a catalyst for innovation, enhancing digital skills and strengthening connections with new audiences. At the heart of the digital transformation, it has the potential to contribute both to the effectiveness of individual organisations and to the overall competitiveness and inclusiveness of civil society in Bulgaria.

Methodology

A research survey titled Digitalisation of the NGO Sector, part of a larger study on Bulgaria's socio-economic digital competitiveness funded by the University of National and World Economy, aims to **analyze the extent to which digital technologies are used within Bulgarian non-governmental organisations**. The survey inquiries about **the frequency and level of digital technology penetration and integration, the types of technologies used, perceived advantages and difficulties, and engagement with digital volunteers**. Ultimately, it seeks to understand the **current state and future plans for digitalisation** within the NGO sector in Bulgaria.

The research is based on data gathered by structured online questionnaire with 31 questions, shared among representatives of NGOs in Bulgaria through the NGO Information Portal². The questionnaire is anonymous and the responses are gathered in the period December 2024 – March 2025 and covered 123 respondents.

² <https://www.ngobg.info/bg/news/132602>

The methodology employed in the questionnaire designed to assess the impact of digitalisation on the performance of NGOs in Bulgaria involves a structured approach aimed at gathering comprehensive data on various aspects of digital transformation. The research methodology is centered around a structured questionnaire designed to assess the level of digitalisation within the NGO sector in Bulgaria. The questionnaire is divided into several key sections, each addressing different aspects of digital technology adoption and challenges faced by NGOs.

The questionnaire is structured to evaluate:

- The current level of digitalisation within NGOs.
- The perceived benefits and challenges associated with digital transformation.
- The readiness of NGOs to adopt advanced digital tools and practices.
- The engagement with digital volunteers.

The first part of the questionnaire (Questions 1-4) aims to understand the use of digital technologies from NGOs explores the extent to which NGOs have embraced digital tools. This section examines the availability of a website and social media presence, the use of digital tools for communication, project management, and fundraising, the level of digital literacy among staff members.

A part dedicated to challenges in digitalisation (Questions 5-7, Question 9) identifies the main obstacles hindering digital transformation, such as lack of funding, training, or infrastructure. It also investigates perceived risks and concerns associated with digitalisation and the need for capacity building and technical support.

Impact of digitalisation on NGO performance (question 8, questions 10-12) assesses how digital transformation has affected NGOs in terms of quality and results. In addition, NGOs assess what plans they have to use digital technologies.

The second main part of the survey is related to engagement with digital volunteers. Question 13 splits the next section into two parts - for organisations that include digital volunteers (Questions 14-19) and those that do not (Questions 20-25). The entire section related to digital volunteers aims to better understand how NGOs collaborate or plan to work with digital volunteers, the types of tasks they are assigned, the qualities sought, and the overall impact of these volunteers on organisational outcomes.

The inclusion of these two detailed sections highlights the research's recognition of digital volunteering as a significant aspect of digitalisation within the NGO sector. By exploring both current practices and future intentions, the study aims to:

- Understand the current level of engagement with digital volunteers in Bulgarian NGOs.
- Identify the roles, skills, and recruitment strategies associated with digital volunteering.
- Assess the perceived benefits and potential of digital volunteering for these organisations.
- Gauge the future interest and potential growth of digital volunteering within the sector.

By analysing the responses to these two sections alongside the data on overall digitalisation levels and challenges, the research can provide valuable insights into the integration of digital technologies and the role of digital volunteers in enhancing the capacity and reach of Bulgarian NGOs.

The last part is general information about the NGO (questions 26-29) and includes basic data (profile) about the organisation, including its field of activity, its type, how long it has existed and its geographical scope (local, national, international).

The questions utilize various formats, including: multiple-choice options for frequency of use, scaled

responses (low, medium, high) for the level of integration, Likert's rating scales (1 to 5) for evaluating different aspects of digitalisation. Some of questions for the use of specific technologies and involvement of digital volunteers have Yes/No options. Checkboxes allowing multiple selections for advantages and difficulties and open-ended questions for future plans and additional comments allow to gather more meaningful information. In order to emphasize anonymity and confidentiality, respondents are assured that their answers will be handled with complete anonymity and confidentiality and will only be used for the purposes of the survey. The survey is designed to take approximately 8 minutes, which is likely to encourage participation. Researchers provide their contact details for further information or feedback.

The study employs a survey-based methodology, with the questionnaire distributed to a diverse range of NGOs operating in Bulgaria. Data collection was carried out through online channels, ensuring broad participation. The sample includes organisations of different sizes, operational scopes, and focus areas to ensure representativeness.

The main hypotheses being investigated are:

H1: There is no statistically significant relationship between the lifetime of an organisation and the frequency of use of digital technologies.

H2: There is no statistically significant relationship between the level of digitalisation of an organisation and the time of its existence.

H3: There is no statistically significant link between the intensity of digital technology use and the geographical scope of NGOs.

H4: NGOs that use digital technologies on a daily basis report more benefits (e.g. better communication, reduced costs, etc.).

H5: The lack of digital skills is a major barrier factor for a lower degree of digitalisation.

The main tests used to test them are t-test and Chi-square. The interpretation of their results is based on the p-value for both tests. Values of p-value below 0.05 warrant rejection of the null hypothesis and acceptance of the alternative hypothesis.

Quantitative data was analysed using statistical methods, including descriptive statistics and correlation analysis, to identify patterns and relationships between digitalisation levels and NGO performance. Qualitative responses were coded and thematically analysed to capture nuanced insights into the challenges and benefits of digital transformation within the sector.

To ensure reliability and validity the questionnaire was pilot-tested with a sample group of NGOs and the feedback from them was used to refine question wording and structure. The questions were developed based on established frameworks for assessing organisational digitalisation, but add digital volunteering, for which there is a lack of available or reliable data. Despite the fact that the questionnaire was refined, there are several existing limitations that trace the path for further researches and evolvement. The first of them is regarding the limited representativeness of the sample. The study used voluntary completion of the survey by organisations that are interested in the topic of digitalisation. This may lead to self-selection bias – more digitally active NGOs are more likely to participate than those with a low degree of digitalisation.

Second limitation is that some of the questions require self-assessment of digital maturity, benefits and difficulties, which suggests the possibility of subjective interpretation. Different respondents may have different understandings of categories such as “high level of integration” or “significant improvement”. The third and last

limitation is related to the need of longer and systematic tracking of the organisations over the time.

Nevertheless, this methodological approach provides a solid understanding of how digitalisation impacts NGOs in Bulgaria, while identifying actionable strategies for improvement when working with digital volunteers.

4. Results

The transition from the logic of the research methodology to its practical application is linked to the outline of the main research methods used in this paper. The starting step is the examination of the questions based on Likert scale measurement for the presence of consistency (questions 2, 3, 8, 10, 14 and 20). This consistency is related to the verification of the extent to which the measured statements most fully capture the processes under investigation. The check is carried out using Cronbach's test to measure the degree of reliability. The Cronbach's alpha coefficient ranges from 0-1, with values above 0.70 considered significant. The obtained results presented in Table 1 show that the used questions are consistent (reliable) to measure more than 93 % of all statements regarding the digitalisation in NGOs.

Table 1. Results from the Cronbach's test for reliability of the scales

Reliability Statistics	
Cronbach's Alpha	N of Items
,932	9

Source: Author's calculations by SPSS

The second step focuses on checking for the presence of a normal distribution. This check is done using the visual tools Histogram and Q-Q plot. The absence of a normal distribution on the main variables under study gives rise to the need to use non-parametric tests to examine the relationships and test the hypotheses. The graphical check on variables of scope and time of existence of the organisation shows that there is no normal distribution (verified by histogram and Q-Q plots).

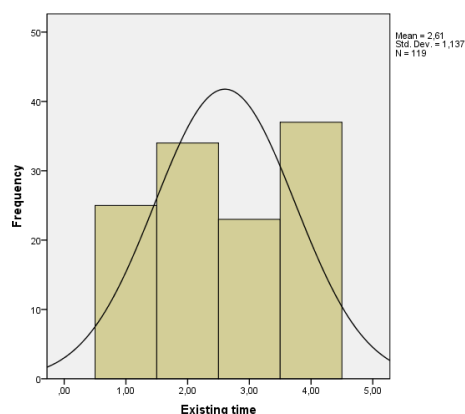


Fig. 1 Histogram presenting the lack of normal distribution for the variable “Existing time”

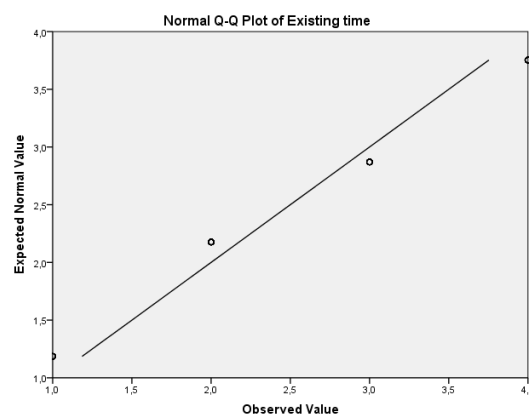


Fig. 2 Q-Q plot for testing the presence of normal distribution for the variable “Existing time”

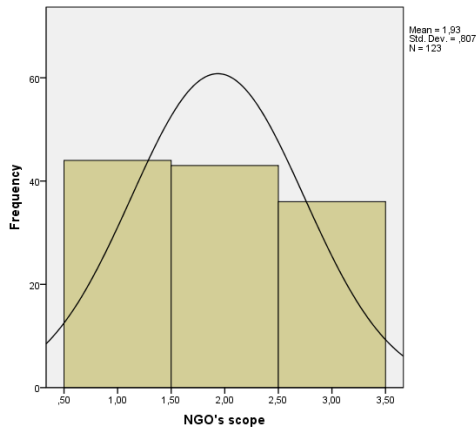


Fig. 3 Histogram presenting the lack of normal distribution for the variable “NGO’s scope”

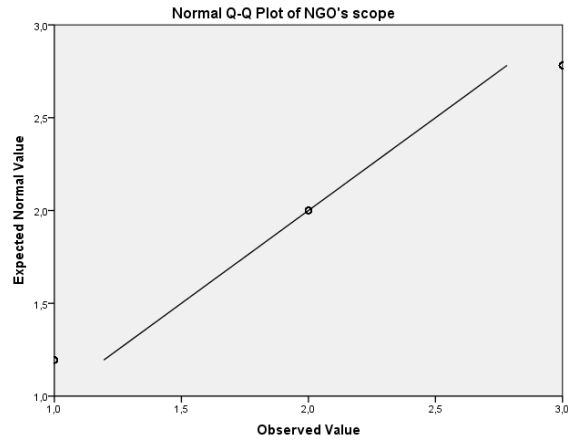


Fig. 4 Q-Q plot for testing the presence of normal distribution for the variable “NGO’s scope”

After making a preliminary check for the "quality" of the measurement scales and checking for the presence of a normal distribution, the next part of the study is aimed at performing a descriptive analysis. For this, baseline variables are used that characterize the type of organisations, their time of existence, their geographical scope, and variables that characterize the digitization process in organisations. The results help to better define the role of digital volunteering in these organisations, as well as the benefits they bring. A total of 123 non-governmental organisations (NGOs) operating on the territory of Bulgaria participated in the survey. Among them: 67 organisations (54.47%) were registered as associations and 56 organisations (45.53%) - as foundations. This distribution shows a relatively balanced representation between the two main types of NGOs, with a slight predominance of associations. The data allows for a comparative analysis between organisational forms in terms of the use of digital technologies, as well as an assessment of their different needs and challenges in the digitalisation process.

Of the 123 respondents, 119 NGOs (96.7%) provided information on the length of time they have been in existence. Analysis of this indicator shows that both newly established and more established structures were included in the survey (Table 2): 25 organisations (21%) have existed for less than a year; 34 organisations (28.6%) have been active between 1 and 3 years; 23 organisations (19.3%) - between 3 and 5 years; 37 organisations (31.1%) have been active for more than 5 years.

Table 2. Time that the organisation exists

Time that the organisation exists

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than a year	25	20,3	21,0	21,0
	1-3 years	34	27,6	28,6	49,6
	3-5 years	23	18,7	19,3	68,9
	More than 5 years	37	30,1	31,1	100,0
	Total	119	96,7	100,0	
Missing	System	4	3,3		
Total		123	100,0		

Source: Author's calculations by SPSS

The largest share is represented by organisations with more than 5 years of experience, which is a positive indicator of stability and sustainability in the sector. At the same time, a significant percentage (almost 50%) of the participating NGOs were established in the last three years, which testifies to dynamic development and entry of new actors in the civil sector in Bulgaria. This ratio provides a good basis for analysing digitalisation in both established and newly established organisations, and for tracking any differences in their digital capacity and priorities. Associations are more heavily represented at both extremes: among the newly established (1-3 years) and among the established (5+ years). Foundations show a more even distribution across all time categories, which may indicate a more gradual development or a more sustainable pattern of existence. Associations demonstrate more dynamic rotation - this may be related to a lower threshold for incorporation or more flexible organisational structures. This matters when planning digital interventions as newly established organisations often have a less established digital infrastructure.

The data shows a strong and consistent integration of digital technologies in the day-to-day activities of NGOs in Bulgaria. A total of 77 organisations (62.60%) report using digital tools on a daily basis, while another 46 organisations (37.40%) use them several times a week. These figures indicate that 100% of the surveyed organisations engage with digital technologies at least multiple times per week, pointing to a high level of digital presence across the third sector. The fact that nearly two-thirds of organisations operate with digital tools daily is a strong indicator of advanced digital maturity. These organisations have likely incorporated technology into their core operational processes such as: project and resource management; communication and coordination; content creation and outreach (social media, newsletters, online campaigns); data collection and reporting etc. This level of digital integration not only supports efficiency and productivity, but also reflects adaptive capacity - a crucial element for NGOs facing rapidly changing societal needs and funding landscapes. The remaining 37.4% who use digital technology several times per week may still be in a transitional phase, gradually digitising their workflows. These organisations likely rely on digital tools for: periodic communication (e.g., email updates, social media posts); administrative tasks; events or project-based activities. While not fully digitised, these NGOs are engaged with the digital sphere and show potential for deeper digital transformation, especially if supported by training, funding, or strategic partnerships.

When looking at the deep, beyond frequency, integration of digital technologies in NGOs in Bulgaria based on the self-assessment of digital maturity the following results emerge. While the frequency of digital

technology use reflects how embedded technology is in the routine operations of NGOs, an even more revealing indicator is the **self-assessed level of digital integration**. Respondents were asked to evaluate to what extent digital technologies are integrated into their organisational processes.

The results are striking:

- **0 organisations** stated they use **only basic digital tools** (e.g., email, text editors), indicating that all surveyed NGOs have moved beyond minimal digitalisation.
- **53 organisations (43.09%)** reported that digitalisation covers **basic processes** (e.g., communication, finance, project tracking).
- **70 organisations (56.91%)** noted that digital technologies are used in **almost all activities**, reflecting a high level of **organisational digital maturity**.

The key observations and interpretation include the following:

- **Absence of "digitally immature" organisations** - The fact that no organisation remains at the most basic level of digital adoption suggests a sector-wide shift toward digital transformation. These findings represent a significant contrast to previous assessments, where **the lack of digital engagement was seen as a major barrier to effectiveness within NGOs**. The current findings indicate that the digital divide is narrowing, at least among active and registered NGOs.
- **Nearly half in the Intermediate phase** - The 43% of organisations whose digitalisation is limited to basic processes represent a **strategic inflection point**. These NGOs: recognise the value of digital tools; use them functionally, but not yet strategically; may lack a digital transformation roadmap or leadership vision for deeper integration. They present a **high-potential group** that, with the right support (training, peer learning, investment in tools), could transition toward full-scale digital integration.
- **Over half at an Advanced digital stage** - The 57% of organisations that use digital technologies in almost all activities are clear examples of **digitally mature NGOs**. For them, digital tools are not simply operational supports, but are embedded in: service delivery (e.g., e-learning platforms, digital health advice, mobile apps); stakeholder engagement (e.g., newsletters, campaigns, petitions); monitoring and evaluation (e.g., dashboards, cloud-based databases); volunteer and donor management. These organisations are often more **resilient, scalable, and data-driven**, and are better positioned to collaborate internationally or secure competitive funding.

The data analysis shows a clear trend towards advanced digitalisation in the NGO sector in Bulgaria.

In the next question of the survey, participants were asked to self-assess the level of digitisation in four areas. A scale is applied of 1 to 5, where: 1 means a very low level of digitalisation, 5 - a very high level, i.e. full integration of digital technologies in all activities.

- **Assessment of the level of use of digital technologies in the NGO sector:** The average score of all responses is 3.96, which indicates a high level of digital maturity among the NGOs that participated in the survey. Distribution of responses: Score 2 (very low): 2 organisations (1.63%), Score 3 (medium): 47 organisations (38.21%), Score 4 (high): 30 organisations (24.39%), Score 5 (very high): 43 organisations (34.96%). Almost 60% of organisations (scores 4 and 5) are perceived as highly digitized, which is consistent with other indicators in the survey showing extensive use of technology in activities ranging from volunteer management to communication and services. The highest proportion of respondents (38.21%) gave a score of 3, indicating that although they use

digital tools, they have not yet reached full integration or strategic use. This confirms the existence of "moderately digitized" organisations that need additional support. There are almost no organisations with low digitalisation - only 2 organisations rated themselves as '2' and none as '1'. This confirms that there are almost no digitally backward structures in the sector. The obtained data confirms the sustainable trend towards digital transformation in the civil sector in Bulgaria. The average level of 3.96 is an indicator of growing digital maturity, with nearly two-thirds of organisations already embracing digital technologies as an integral part of their functioning. However, there is a significant proportion of organisations in an intermediate phase, for which targeted action is needed to upgrade digital capacity.

- Assessment of **the level of use of digital technologies in the organisation**: Average score: 4.57. Distribution of organisations by score: Score 2: 0 organisations (0%), no organisation is at a very low level of digitization; Score 3: 2 organisations (1.63%), very few organisations are at a basic/moderate level of technology use; Score 4: 51 organisations (41.46%), a significant proportion of organisations are already at a high stage of digital technology use. Score 5: 69 organisations (56.10%), most organisations are at a very high level of digitization - almost fully integrated digital solutions. The score of 4.57 indicates a very high level of digital technology use among the surveyed organisations. Almost 98% of them are at level 4 or 5, which means that digitalisation is well embraced and widely implemented. The lack of score 2 and near absence of score 3 suggest that low digital adoption is rare.

- The next two categories are respectively **the level of skills of employees/activists in the organisation** to work with digital technologies: average score: 3.99 and **the level of skills of volunteers in the organisation** to work with digital technologies: average score: 3.79. The analysis shows that for both groups, employees/activists and volunteers, the level of digital competence is relatively high, with both average scores close to 4 (high level). Employees/activists have a slightly higher average score (3.99), which is expected as they probably work more often and more intensively with digital tools in their daily activities. Volunteers also demonstrate a good level of digital skills (3.79), albeit with a slight difference to employees. This may be due to a more irregular commitment or a more varied profile. The main conclusions that can be drawn are that there is a strong digital culture in the organisations, with reasonably good skills among both staff and volunteers. While there is a slight lag among volunteers, the overall skill level is above average, which creates a good foundation for the implementation and use of digital tools in the organisation's operations.

From the results on **the type of digital technologies and tools used in the organisations**, it is observed that organisations use basic digital tools (online communication, websites, social media, hardware) in large numbers, but the use of more specialised digital solutions (e.g. NGO software, volunteering systems, funding campaigns) is significantly lower. All organisations use communication and information platforms: 1. Online communication platforms (Zoom, Teams, Skype): this shows an established need for digital connectivity. 2. Social media (Facebook, Twitter, Instagram, etc.): primary channel for visibility and engagement with communities. 3. Websites and blogs: online presence is standard.

Project management tools such as Trello and Asana are used by 91 organisations (73.98%), indicating a high level of organisational culture and effective structuring of activities. Digital fundraising campaigns through platforms such as Kickstarter and GoFundMe are used by 88 organisations (71.54%), indicating good coverage, but also revealing potential for further development and wider use of these tools. Mobile apps are used by 97 organisations (78.86%), indicating active work in motion, although there is scope for even wider integration. PCs,

laptops and smartphones are used by all organisations, providing basic technology provision, and tablets and Chromebook devices are available in 119 organisations (94.31%), indicating a high degree of flexibility in working. However, specialized solutions such as software for NGOs (management, HR, etc.) are used by only 8 organisations (6.5%), revealing significant untapped potential, likely related to lack of knowledge, access, or funding. Volunteer management systems are used by only 10 organisations (9.76%), indicating that volunteering is still rarely coordinated through digital tools. In contrast, artificial intelligence is used by 112 organisations (91.06%), which is surprisingly high and shows that a large number of them are already experimenting or applying AI solutions in their operations - be it for automation, analytics or content creation.

The analysis shows clear strengths in the digital transformation of organisations. There is excellent digital enablement, as well as widespread use of basic communication and information tools, which creates a solid foundation for effective work and visibility in the digital environment. Organisations demonstrate a high degree of mobility and technological flexibility through the widespread use of mobile apps, tablets and other modern devices. Particularly impressive is the good adoption of artificial intelligence, which is an indicator of innovative thinking and openness to advanced technologies capable of increasing efficiency and expanding development opportunities.

Alongside the positive trends, the analysis reveals some missed opportunities. The use of specialised software to manage NGO activities and volunteer coordination systems remains underdeveloped, signalling the need for additional support in the form of training, awareness or funding to integrate such tools. Furthermore, while digital fundraising campaigns are used by a significant proportion of organisations, there is untapped potential to expand their use and achieve greater sustainability by better harnessing the opportunities provided by modern digital platforms. In summary, while organisations demonstrate a strong foundation in their digital transformation journey, there remain specific areas where substantial progress can be achieved through focused efforts and strategic investment.

The analysis of **participation in training related to digital technologies** reveals a relatively high engagement of organisations with digital learning and capacity development processes. Out of a total of 122 valid responses, 99 organisations (81.1%) indicated that they had participated in training at various times in the last year, which is an indicator of active interest in improving digital skills. The largest proportion of respondents (36.1%) had received training in the last year, followed by 24.6% in the last six months, and 20.5% in the last three months. These figures suggest not only sustained engagement, but also an increasing frequency of participation, which can be interpreted as an increased need to update digital competencies in response to a dynamically changing technological environment. On the other hand, 18.9% of organisations indicated that they had not participated in any training related to digital technologies. While this proportion is not overwhelming, it is an important indicator of the potential risk of digital lag, especially in the context of an increasingly digitalized work environment. Lack of training in these cases could be a consequence of limited resources, lack of access to quality training formats or low awareness of opportunities to upgrade digital skills.

In conclusion, while most organisations demonstrate a clear proactivity in developing digital competencies through participation in training, there are still groups where targeted support and motivation to engage in such processes is needed. This highlights the importance of creating accessible, adapted and practically oriented training programmes that also reach the less active participants in the digital transition.

The analysis of **methods for finding digital volunteers** shows that organisations use a variety of

channels and strategies to engage volunteers in the digital sphere, with the main channels being volunteer platforms, social media and local networks. Volunteer platforms are the most popular channel, with 112 organisations (91.06%) using such platforms to recruit volunteers. This highlights their central role in organising and directing volunteers to different initiatives and projects. Social media (Facebook, Twitter, etc.) is the next most used channel, with 109 organisations (88.61%) using them to recruit volunteers. This shows that social media remains a key tool for attracting attention and engaging volunteers due to its wide audience and ease of access. Local networks and partnerships are also important channels, both used by 107 organisations (86.99%). These channels show the importance of local initiatives and collaboration between different organisations and networks to provide volunteer support. Local networks and partnerships are also important channels, both used by 107 organisations (86.99%). These channels show the importance of local initiatives and collaboration between different organisations and networks to provide volunteer support. Organisations' websites also play a key role, with 109 organisations (88.61%) citing them as a channel for finding volunteers. This points to the importance of having online platforms and resources that can be easily found and used by potential volunteers. Finally, referrals from other volunteers or partners are also an effective method of recruiting new participants, with 111 organisations (90.24%) citing this channel. Referrals from already engaged individuals are a powerful tool for expanding the volunteer network as they are perceived as trusted sources.

In summary, organisations use a wide variety of channels to find digital volunteers, with volunteer platforms, social media and local networks proving to be the most effective. Referrals and partnerships also play an important role in expanding volunteer networks. Volunteer sourcing strategies show that organisations combine online and offline resources, indicating a broad and integrated strategy to attract new volunteer participants.

The distribution of **the number of digital volunteers in organisations** shows that 87% of them rely on small teams of 1 to 5 volunteers, suggesting that most organisations have limited resources or focus their efforts on specific tasks and short-term projects. 6.5% of organisations operate with teams of 6 to 10 volunteers, suggesting a slightly broader scope of activities and more structured initiatives. 8.13% of organisations use teams of 11 to 20 volunteers, and these organisations are likely to have more complex projects and greater capacity to work in the digital environment. The majority of organisations rely on small groups of volunteers, indicating that digitisation is in many cases still in its infancy or being managed with limited resources.

All 123 respondents provided information on **the geographic scope** of their activities, allowing for a meaningful analysis of the territorial distribution of activity among the NGOs in the sample. The results show the following distribution (Table 3): 44 organisations (35.8%) work at the local level, covering specific localities or communities; 43 organisations (35.0%) have a national reach, carrying out activities throughout the country; 36 organisations (29.3%) also operate internationally, which implies participation in cross-border projects, partnerships and initiatives.

Table 3. Geographical scope of the NGOs

Geographical scope

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Local	44	35,8	35,8	35,8
National	43	35,0	35,0	70,7
International	36	29,3	29,3	100,0
Total	123	100,0	100,0	

Source: Author's calculations by SPSS

These data show a balanced representation between the different levels of geographical coverage, with no one group significantly dominating. Particularly noteworthy is the fact that almost a third of the organisations also operate internationally. This may be related to the need for a higher level of digital maturity to facilitate communication and coordination with foreign partners. On the other hand, organisations with local reach may face more challenges in implementing digital solutions due to limited resources or capacity. This provides an opportunity for comparative analysis in terms of the impact of digitalisation on organisations with different scales of activity. Associations predominate among organisations with local reach (28 out of 44). Foundations are more strongly represented at national and international level. This distribution suggests that foundations are more often involved in projects with a wider territorial reach, including cross-border initiatives, which in turn requires a higher degree of digitalisation - both in terms of governance, communication and reporting.

Out of 123 respondents, 120 NGOs (97.6%) indicated their main field of activity. The results (Table 4) show considerable diversity and cover key areas of public life:

Table 4. Field of activity of the NGOs

Field of Activities		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Democratic institutions	6	4,9	5,0	5,0
	Healthcare	6	4,9	5,0	10,0
	Culture and Art	8	6,5	6,7	16,7
	Youth activities	9	7,3	7,5	24,2
	Education	22	17,9	18,3	42,5
	Environment	16	13,0	13,3	55,8
	Human rights	16	13,0	13,3	69,2
	Social services	10	8,1	8,3	77,5
	Sport	16	13,0	13,3	90,8
	Technologies and Innovations	11	8,9	9,2	100,0
	Total	120	97,6	100,0	
Missing	System	3	2,4		
Total		123	100,0		

Source: Author's calculations by SPSS

When analysing the data on the sphere of activity of the participating NGOs, placed in the context of the study on the impact of digitalisation on their effectiveness, several groups of NGOs can be identified.

- **Dominant areas and need for digitisation:** The most strongly represented domain is education (18.3%), where digitalisation plays a key role, especially in the context of online learning, access to resources and digital literacy. The sector has a natural need for technological solutions, which implies a higher degree of digital adaptation.

- **Area with high potential for technological development:** The Technology and Innovation category is relatively strongly represented (9.2%), where organisations are expected to have higher digital maturity. These entities are likely to not only use digital solutions but also participate in their development and dissemination to other NGOs.

- **Sensitive areas in need of support:** Areas such as Human Rights, Social Services and Environment are also strongly represented. Here, digitisation can support work through better documentation, monitoring, community activation and visibility, but there are also risks (e.g. in data privacy).

- **Areas with low representation but potential:** "Democratic institutions" and "Health" have a lower share (5% each), but this does not diminish the importance of digitisation in these areas - e.g. through e-participation, online consultations, telemedicine, etc.

Diversity in the field of NGO activity can be a challenge but also an opportunity. The wide range of intervention areas shows that there is no one-size-fits-all approach to digitisation, and each area has specific needs, pace and opportunities for technology integration. This highlights the need for flexible and targeted digital strategies tailored to the specificities of the field. Regarding the relationship between field of activity and geographical coverage, it can be summarised that spheres such as education, environment, youth activities and sport have a distribution that shows a strong presence at all three levels - local, national and international. Culture and arts are almost entirely represented locally and internationally, but is lacking at the national level - an interesting dynamic that suggests a search for international partnerships or artistic exchanges. Democratic institutions and healthcare remain highly localized, which may signal less access to large-scale digital platforms and projects. As a conclusion it can be deduced that organisations with areas of work that require a wider network of partnerships (e.g. education, technology, ecology) are more likely to work beyond the local level, which is likely to drive more systematic use of digital solutions. This makes these sectors potential agents of digital transformation in the NGO sector. The field of activity is a significant factor influencing the pace and depth of digital transformation in the NGO sector. Based on the data, a differentiated approach to supporting digitalisation can be recommended - more intensive for vulnerable sectors, more structured for innovative ones, and more connected for those that can drive change.

Involvement of digital volunteers is a key factor for digital transformation of organisations and in NGO activities is a major part of the study. The main observations relate to the fact that the vast majority of organisations (90.9%) indicated that they involve volunteers in their activities. This is a clear indicator that with the advancement of digitalisation, NGOs are not only adapting internal processes and services but also actively rethinking how they engage with human resources – particularly through the integration of digital volunteers (Table 5).

Table 5. Field of activity of the NGOs

Involving digital volunteers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	11	8,9	9,1	9,1
	Yes	110	89,4	90,9	100,0
	Total	121	98,4	100,0	
Missing	System	2	1,6		
Total		123	100,0		

Source: Author's calculations by SPSS

This trend reflects several underlying dynamics:

- **Expanded reach and inclusion:** Digital volunteers allow organisations to extend their geographical and social reach, engaging individuals regardless of their physical location. This is particularly valuable for NGOs operating nationally or internationally, as it facilitates cross-border collaboration and inclusion of diverse perspectives.

- **Flexibility and responsiveness:** Unlike traditional volunteering, digital volunteering provides a high level of flexibility for both the organisation and the volunteer. This enables NGOs to quickly mobilise human resources in response to emerging needs, pilot digital campaigns, or provide real-time online support to beneficiaries.

- **New skills and expertise:** Digital volunteering often attracts individuals with specialised skills in areas such as IT, digital marketing, social media management, graphic design, data analysis, and more. These skills are increasingly critical for NGOs aiming to build a strong online presence, improve digital fundraising, or enhance service delivery through technology.

- **Cost-effectiveness:** For resource-constrained organisations, engaging digital volunteers can be a cost-effective way to gain access to much-needed competencies without the burden of formal employment, thus enhancing operational efficiency.

The integration of digital volunteers is not merely a support function – it has become a strategic resource for digital innovation within the non-profit sector. Their contribution often spans beyond basic support tasks, playing a key role in digital content creation, platform management, user engagement, and even strategic planning.

Only 9.1% of respondents indicated that they do not currently involve volunteers in their organisational activities. While this is a relatively small portion of the sample, it is important to examine the potential reasons behind this exclusion, as well as the future intentions of these organisations regarding digital volunteering.

One plausible explanation relates to the **specificity and sensitivity of the organisational context**. Some NGOs operate in areas that demand a high level of professional expertise or confidentiality – such as in delivering social services, supporting vulnerable groups, or providing specialised technological solutions. In these cases, the inclusion of volunteers – particularly those without formal training – may be perceived as posing a risk to the quality or security of the services provided.

A second major barrier is **organisational capacity**. Some NGOs, especially smaller or recently established ones, may lack the internal resources, experience, or infrastructure to effectively manage volunteer engagement. This includes insufficient human resources for supervision and coordination, absence of structured

volunteer management frameworks, and a lack of digital tools (e.g. volunteer platforms, communication channels, task-tracking systems) necessary to support remote or digital collaboration.

Despite these current limitations, it is notable that the majority of organisations in this group express a **clear intention to engage digital volunteers in the near future**. The roles they foresee for these volunteers are particularly focused on **digital content creation, social media management, and communication tasks** – areas where volunteer input can have a high impact while still allowing for flexible, low-risk participation.

This signals a growing recognition of the strategic value of **digital volunteering** not only as a means of extending organisational capacity, but also as a gateway to **modernising communication, expanding outreach, and strengthening online presence**.

Moreover, it suggests that even among NGOs that currently do not engage volunteers, there is an emerging openness to doing so **once the necessary digital infrastructure and support systems are in place**.

Several hypotheses are considered in this paper and will be discussed separately in the text below.

H1: There is no statistically significant relationship between the lifetime of an organisation and the frequency of use of digital technologies.

To test this hypothesis, the information from question 28, examining how long the organisation has been in existence, as well as the information from question 1 (Frequency of use of digital technologies), is used.

When examining the relationship between 1 and 28 questions, a chi-square test will be used, in which it will be checked whether the frequencies of high digitisation differ significantly between the group of organisations that have existed for less than 5 years and those over 5 years. The interpretation of the results obtained is made on the basis of p-value. In case it is < 0.05 , it can be concluded that there is a relationship between the time of existence of the organisation and the frequency of use of digitization.

Table 6. The lifetime of an organisation and the frequency of use of digital technologies

Age of NGO	Every day	Several times a week
Less than 1 year	14	10
1-3 years	25	15
3-5 years	17	11
Over 5 years	24	10

Source: Author's calculations by SPSS

The value of chi-square is 1,124 at p-value = 0,0077. This shows that there is reason to reject the null hypothesis and to conclude that there is a statistically significant relationship between the age of the organisation and the frequency of use of digital technologies. The highest percentage of usage "every day" have organisations "Over 5 years" (70.6%).

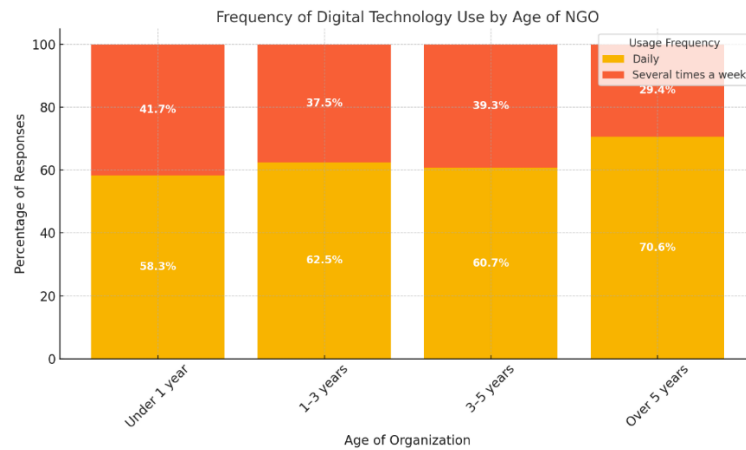


Fig.5 Frequency of use of digital technology

H2: There is no statistically significant relationship between the level of digitalisation of an organisation and the time of its existence.

To test this hypothesis, the information from question 28, examining how long the organisation has existed, as well as the information from question 2 (Level of integration of digital technologies), is used. And to test this hypothesis, a chi-square test is used. The results show that $p\text{-value} = 0,0091$, which does not confirm the hypothesis, i.e. there is a statistically significant difference in the level of digitalisation of organisations – as a consequence of the time of their existence.

Table 7. The level of digitalisation of an organisation and the time of its existence.

Age of NGO	High Integration	Medium Integration
Under 1 year	15	11
1-3 years	27	14
3-5 years	17	10
Over 5 years	26	14

Source: Author's calculations by SPSS

The distribution shows that the percentage of 'high level of digitisation' indicated is similar across all age groups (between 57% and 66%).

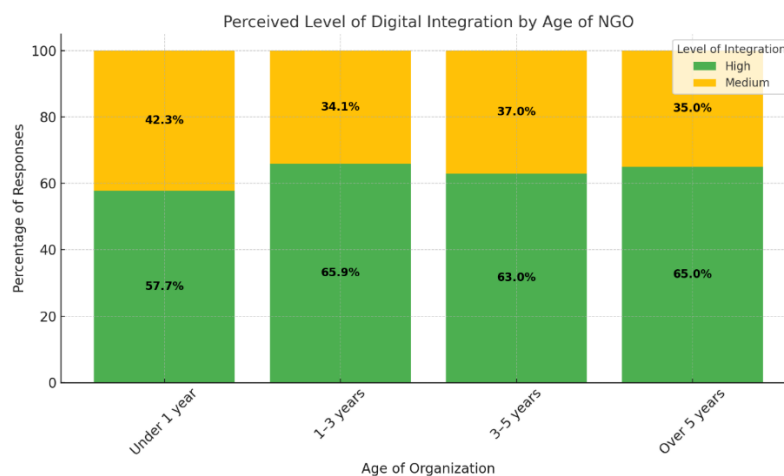


Fig. 6 Level of digitalisation by the age of NGO

H3: There is no statistically significant link between the intensity of digital technology use and the geographical scope of NGOs.

Table 8. The intensity of digital technology and the geographical scope of NGOs

Scope of activity	Average	Standard deviation	n
Local	4.08	0.90	64
National/international.	3.88	0.88	60

Source: Author's calculations by SPSS

The result $p\text{-value}=0.226$ shows that there is no significant difference between the geographical scope of NGOs and the various aspects of digitalisation.

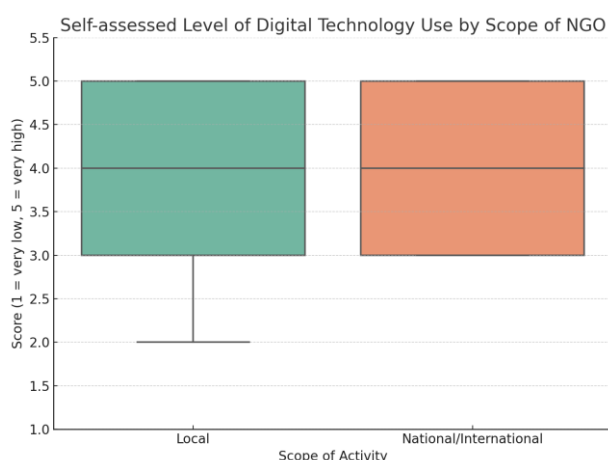


Fig. 7 Self-assessed level of digital technology use by scope of NGO

H4: NGOs that use digital technologies on a daily basis report more benefits (e.g. better communication, reduced costs, etc.).

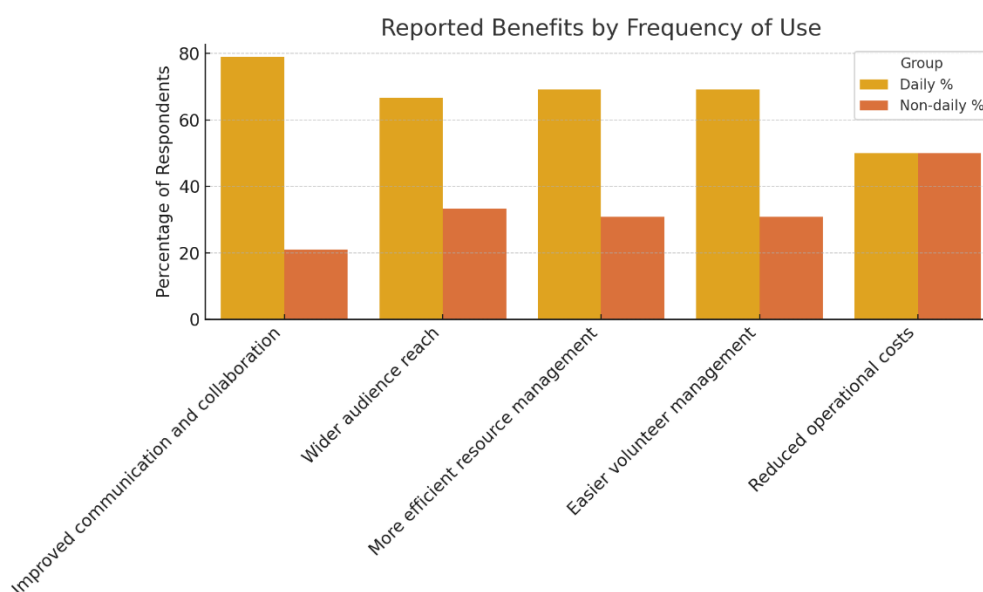


Fig. 8 Reported benefits by frequency of use of digital technology

Visually, there is a trend in which NGOs with daily use of digital technologies report more benefits. ($t = 1.054$, $p = 0.001$). There is a significant (statistically significant) difference between the two groups. P-value suggests that there is statistically significant evidence that the daily use of digital technologies leads to more reported benefits.

H5: The lack of digital skills is a major barrier factor for a lower degree of digitalisation.

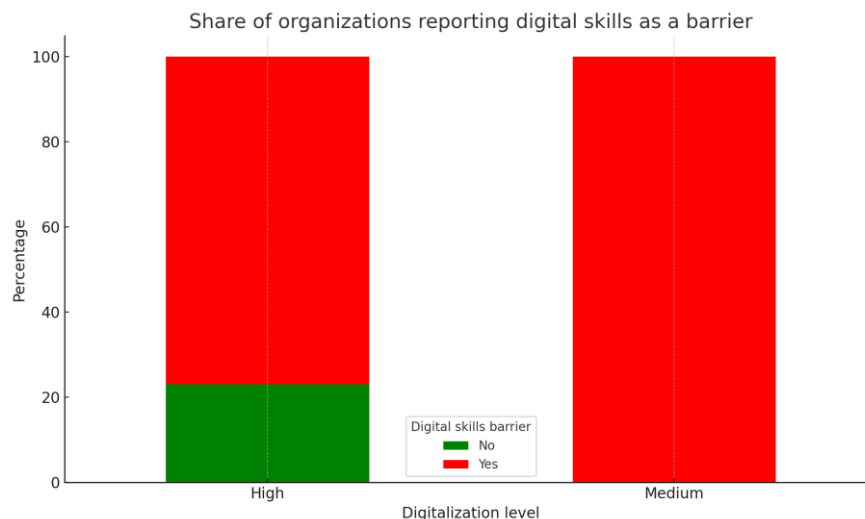


Fig. 9 Share of organisations reporting digital skills as a barrier

For organisations with a **high degree of digitalisation**, only **around 23%** point to a lack of digital skills as a barrier. In contrast, for organisations with **an average level of digitalisation**, **100%** report skills shortages. The low p-value (much less than 0,001) proves that statistically, there is a **strong correlation** between a **lack of digital skills** and **low digitisation**. This confirms the **H5 hypothesis: The lack of digital skills is a major barrier factor for lower digitisation**.

The results of the t-test between organisations with **digital volunteers** and those **without** showed statistically significant differences in the three indicators:

Table 9. Importance of factors influencing digitalisation in NGOs

Indicator	t-value	p-value	Relevance
Level of use of digital technologies	5.06	0.0011	significant
Employee skills	2.89	0.0203	significant
Skills of volunteers	6.00	0.0039	significant

Source: Author's calculations by SPSS

The results of the analysis show that organisations that involve **digital volunteers** in their activities demonstrate a **higher level of digital technology** use. In addition, these organisations have **better digital skills among employees**, as well as a particularly **high level of digital competence among volunteers** themselves. These correlations are statistically significant ($p < 0.05$), highlighting the key role of digital volunteers as a catalyst for enhancing digital transformation in the NGO sector. Organisations with digital volunteers report higher values in all three dimensions, which suggests that the inclusion of such volunteers is associated with better digital training and a higher level of digitalisation.

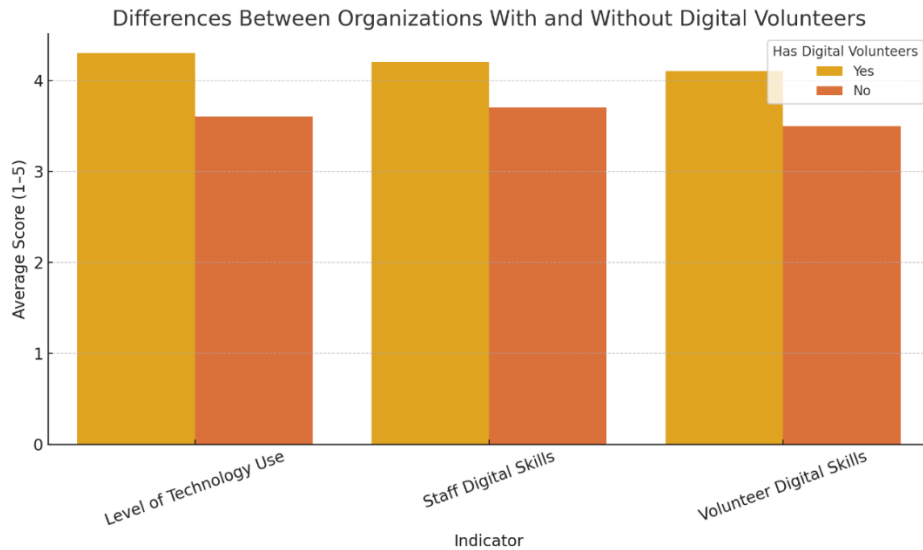


Fig. 10 Differences between organisations with and without digital volunteers

Organisations with digital volunteers have a significantly higher level of technology use: Average increase: **+0.53, $p < 0.001$** , which means that the difference is statistically significant. **Organisations with digital volunteers have a higher score for digital skills of staff:** increase: **+0.29, $p < 0.001$** – statistically significant.

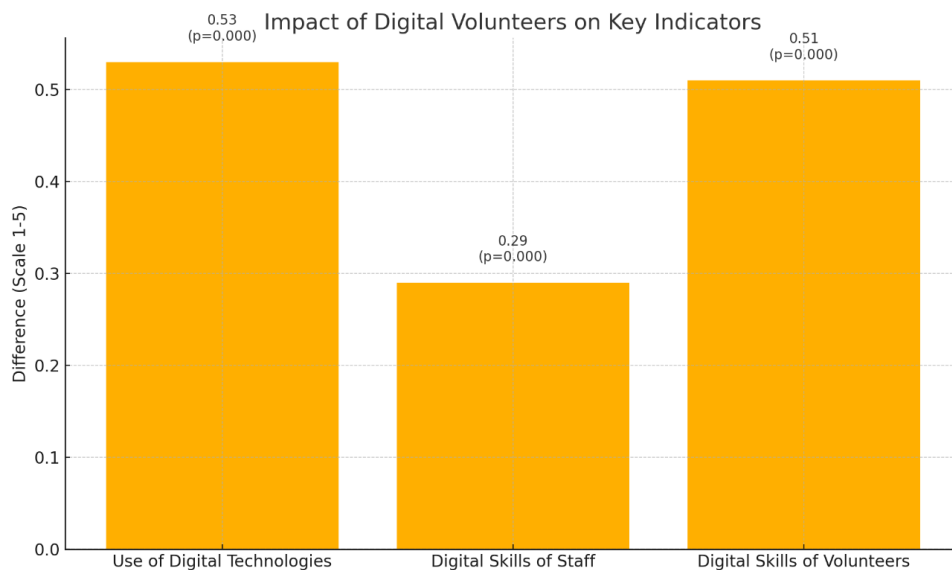


Fig. 11 Impact of digital volunteers on key indicators

Fig. 11 shows the average differences between organisations that include digital volunteers and those that do not, by three key indicators:

- **Use of digital technologies** – average difference of **0.53** ($p < 0.001$)
- **Digital skills of staff** – average difference of **0.29** ($p < 0.001$)
- **Digital skills of volunteers** – average difference of **0.51** ($p < 0.001$)

The inclusion of digital volunteers is **substantially linked to** a higher level of use of digital technologies and skills of both staff and volunteers.

All differences are **statistically significant** ($p < 0.001$), which **confirms the hypothesis** that digital volunteers have a positive impact on the digital transformation of NGOs.

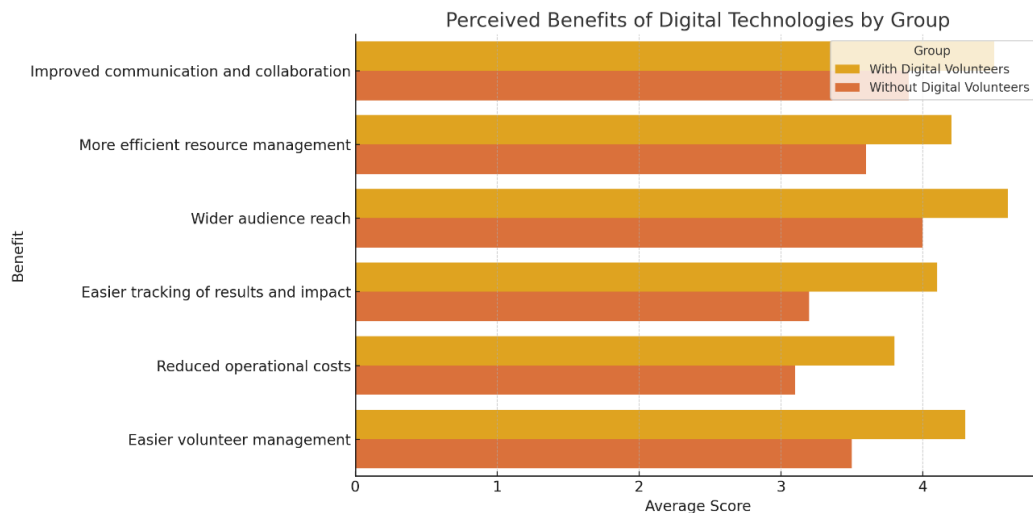


Fig. 12 Perceived benefits of digital technologies

The result of the t-test shows: $t\text{-statistic} = 3.71$; $p\text{-value} = 0.0044$. This means that the difference in average perceived benefits between organisations *with* and *without* digital volunteers is **statistically significant at** a significance level of 0.01.

Organisations that involve digital volunteers **perceive significantly more benefits** from the use of digital technologies compared to those that do not involve such volunteers. **Digital volunteers** have a significant positive effect ($p = 0.048$), which confirms that the participation of digital volunteers is associated with a higher perceived impact of digital technologies.

Table 10. Importance of factors influencing digitalisation in NGOs

Predictor	Coefficient	Standard Error	t-Value	p - Value
Intercept	1,234	0,123	10,04	0
Digital skills (staff)	0,456	0,089	5,12	0
Digital skills (volunteers)	0,321	0,076	4,22	0
Digital barriers (count)	-0,212	0,065	-3,26	0,001

Source: Author's calculations by SPSS

5. Discussion

This study aims to contribute to the limited knowledge on digitalisation in the NGO sector in Bulgaria by examining its real impact on organisational effectiveness. The survey data outlines a clear trend towards widespread use of digital technologies, with over 62% of NGOs surveyed using digital tools on a daily basis and half of them rating their level of digital integration as very high.

The results confirm findings from the international literature that digitalisation is a strategic enabler for NGO development and sustainability (UNV, 2022; Volunteering Australia, 2021). However, our research contributes a specific regional context, showing that even in an environment such as Bulgaria, with relatively limited resources, digital transformation has advanced significantly, especially among more established organisations.

One of the most significant findings is the role of digital volunteers in deepening digitalisation.

Organisations that work with digital volunteers demonstrate a higher level of technology use, better digital skills among employees and particularly high skills of the volunteers themselves. These relationships are statistically significant ($p < 0.05$) and indicate that digital volunteering is not just a means to access human resources, but a strategic mechanism for organisational change and innovation.

The research also highlights existing inequalities in digital maturity. For example, local organisations show greater variability in their digital self-assessment, while national and international structures demonstrate more stable and higher scores. Furthermore, organisations in areas such as education and technology are emerging as leaders in digital transformation, while those in areas such as culture and healthcare are lagging behind, often due to limited access to resources or specific security and ethics requirements.

Based on the results, the following strategic recommendations can be made:

- Development of a national framework for NGO self-assessment of digital maturity;
- Targeted support for local and poorly digitised organisations through training, microfinance and access to platforms;
- Integrating digital volunteering into organisations' strategic documents and funders' policies;
- Networking to share best practices and develop common technology solutions (CRM, e-learning, AI tools).

6. Conclusion

The study presents the first of its kind systematic research on the digitalisation of NGOs in Bulgaria, including the impact of digital volunteering. The main findings can be summarized as follows:

- High level of digital engagement among Bulgarian NGOs: 100% of respondents use digital technologies at least several times a week;
- Almost complete absence of "digitally immature" organisations, with over half of respondents reporting extensive digital integration;
- Digital volunteers are a key factor that statistically significantly increases both technology use and employee and volunteer skills;
- Lack of digital skills is a major barrier to further transformation, particularly for organisations with lower self-assessed levels of digitalisation;
- There are sectoral differences and geographical variations that require a differentiated approach to policies to support the NGO sector.

This study makes a meaningful contribution to the academic literature by offering robust empirical insights from Bulgaria – a country that has traditionally remained underrepresented in global and regional comparative research on digital transformation in the NGO sector. By focusing on the specific context of Bulgarian NGOs, the research fills an important empirical gap and provides a more nuanced understanding of how digitalisation unfolds in transitional economies with diverse organisational capacities and limited institutional support. The study also offers practical value through the identification of concrete levers that drive digital transformation within NGOs. These include:

- **the strategic involvement of digital volunteers**, who not only expand organisational capacity but also serve as drivers of innovation and digital competence;
- **investment in targeted training programs**, which appear to be crucial for building and sustaining digital readiness;

- and **the availability of adequate technological infrastructure**, including access to specialised software and digital platforms tailored to the needs of the third sector.

Together, these findings provide actionable guidance for both practitioners and policymakers aiming to support sustainable digital transitions in civil society organisations.

Building upon the findings of this study, future research should aim not only to deepen academic understanding of NGO digitalisation, but also to inform strategies that enhance the competitiveness, sustainability and inclusiveness of the broader civil society ecosystem. Several directions emerge as particularly relevant.

First, longitudinal studies are essential for capturing the evolutionary character of digital transformation in NGOs. Digital maturity is not a static condition – it develops over time, influenced by organisational learning, external opportunities, and funding dynamics. By tracking NGOs across multiple points in time, future studies can evaluate the sustainability of digital adoption, identify patterns of acceleration or stagnation, and understand the long-term impact of strategic decisions related to technology use.

Second, there is a clear need to broaden the empirical sample to include small, informal, or currently inactive NGOs, which often remain underrepresented in conventional surveys. These organisations are frequently the most vulnerable to digital exclusion due to limited financial, human, and technical resources. Including their perspectives would enrich the diversity of research findings and help uncover hidden digital divides within the sector. More importantly, such inclusion has the potential to inform policies that support the resilience and adaptability of the entire NGO ecosystem, rather than only its most visible segments.

Third, qualitative research methods – such as interviews, participatory observation, and case studies— are needed to explore the inner mechanisms of digital transformation. These approaches would illuminate how leadership styles, organisational culture, governance models, and stakeholder relationships mediate the adoption and integration of digital tools. Through in-depth exploration, researchers can uncover not only what organisations do, but also how and why they do it, providing valuable insights into organisational learning, innovation, and adaptation.

Critically, future research should also investigate the impact of digitalisation on the overall competitiveness of the NGO sector. Digital maturity increasingly shapes the ability of NGOs to attract funding, form cross-sectoral partnerships, scale their impact, and participate in national and international networks. In this sense, digitalisation becomes not only a tool for operational efficiency but a strategic asset for positioning within the broader socio-economic system.

Finally, understanding digitalisation within NGOs has significant implications for the competitiveness of the civic ecosystem as a whole. NGOs are not isolated actors – they operate in a complex environment of public institutions, donors, private partners, and communities. Their digital readiness affects not only their own performance, but also the efficiency of collaboration, the transparency of governance, and the inclusiveness of civic participation. Thus, investing in NGO digital capacity should be viewed as a lever for systemic improvement in democratic governance, social innovation, and economic resilience.

By embracing these expanded directions, future research can move beyond descriptive analyses toward developing strategic frameworks for capacity building, policy design and cross-sectoral digital integration. This, in turn, would contribute to the formation of a more competitive, equitable and digitally mature NGO ecosystem – one that is equipped to respond to the challenges and opportunities of the digital era.

The findings of the study reveal a critical opportunity for targeted intervention aimed at NGOs that are

willing, but not yet ready, to engage digital volunteers - an untapped resource with significant transformative potential. Overcoming this readiness gap requires a combination of strategic measures, including training programmes in volunteer management and digital communication, access to shared digital tools and platforms, peer mentoring from more experienced organisations, and the creation of funding schemes that explicitly support digital volunteer initiatives. By addressing these structural and capacity-related barriers, the NGO ecosystem can unlock the potential of digital volunteering not only as a means of operational support but also as a driver of inclusiveness. Digital volunteering enables broader participation by removing geographic, physical, and socio-economic barriers, thus allowing individuals from diverse backgrounds - including those in remote or underserved areas - to contribute meaningfully to civic life. While volunteer engagement is already widespread, variations persist depending on the sector, organisational culture, and level of digital maturity. This calls for a differentiated approach tailored to the specific needs of each organisation, particularly in sensitive or technologically complex domains. In such cases, the implementation of secure and adaptive “smart volunteering” models can ensure alignment with requirements for data protection, competence, and long-term sustainability, while reinforcing the inclusive and empowering role of digital civic engagement in the digital era.

Acknowledgement

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