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PRACTICAL APPLICATIONS OF ARTIFICIAL INTELLIGENCE IN NONPROFIT MARKETING COMMUNICATIONS

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Abstract. *The article focuses on analyzing the role of artificial intelligence in automating donor communications and managing volunteers within the nonprofit sector. The aim of the article is to identify the potential for developing donor and volunteer communications through the use of artificial intelligence. The study employed general scientific methods of cognition: analysis, synthesis, induction, deduction, comparison, generalization, and modeling. The findings show that artificial intelligence is increasingly being implemented in donor communication processes, going beyond the automation of routine tasks. It is concluded that AI algorithms contribute to the creation of personalized content tailored to the specific characteristics of different donor segments. The study reveals that this significantly enhances the effectiveness of fundraising campaigns and strengthens trust in organizations through timely, emotionally relevant, and meaningful communication with donors. It is demonstrated that identifying donor behavior patterns based on historical data analysis enables the development of predictive models, which help adapt communication strategies in real time, mitigate donor attrition risks, and increase donor engagement. In the area of volunteer management, the study explores the capacity of AI to optimize the processes of recruitment, coordination, and support of volunteers. It is shown that artificial intelligence ensures precise segmentation of the volunteer base, allowing for consideration of individual characteristics of candidates. Emphasis is placed on personalized volunteer motivation and the use of automated communication channels for effective interaction. As a result, the quality of volunteer experience improves, resource allocation becomes more efficient, and organizational sustainability in nonprofit structures is reinforced. The practical value of this research lies in the development and justification of an authorial methodology for integrating AI tools into nonprofit communication systems. The study presents strategic approaches, algorithms, and practical methods for enhancing communication with donors and volunteers. These approaches offer structured pathways for optimizing resource management and improving engagement outcomes. The proposed methodology serves as a foundation for further refinement of AI-driven practices in the public and nonprofit sectors.*

Keywords: *artificial intelligence, donor communications, volunteers, fundraising, nonprofit sector.*

Introduction

Artificial intelligence (AI) is rapidly transforming the landscape of modern marketing, becoming a key tool for optimizing communication, analyzing data, and personalizing engagement with target audiences. According to recent forecasts, the global market for AI applications in marketing could reach $217.33 billion by 2034 [1]. This figure reflects not only the scale of AI integration into marketing strategies but also highlights its role as a driving force of digital transformation. As of 2025, the

AI marketing market is valued at $47.32 billion, with a projected compound annual growth rate (CAGR) of 36.6% [8].

Although the commercial sector shows the fastest pace of AI adoption, nonprofit organizations are also increasingly integrating these technologies into their communication and operational processes. The nonprofit sector comprises organizations that operate without profit motives and focus on socially beneficial goals, such as healthcare, education, environmental protection, social support, and community development. Within these organizations, donors, volunteers, and target communities play a vital role, and effectively managing interactions with them is crucial for achieving strategic objectives.

Given limited resources, nonprofit organizations are actively seeking innovative solutions to optimize their activities. In this context, AI technologies offer the ability to automate routine tasks, improve donor engagement, enhance volunteer communication, and develop personalized information campaigns. The use of machine learning algorithms, natural language processing (NLP), and predictive analytics enables not only greater audience engagement but also more efficient resource management, which underscores the relevance of the current study.

Literature Review

The issue of using AI in the nonprofit sector, particularly for automating donor communication and managing volunteers, is scarcely addressed in academic literature. This highlights the novelty of the topic, which holds significant scientific value by offering deeper insights into the adoption of innovative technologies by socially oriented organizations. To better understand the core principles of AI-driven marketing communication, the works of authors such as S. Bormane, E. Blaus [3], K. Gayaparsad, N. Ramlutchman [4], L. Hammarström, E. Gustafsson [5], M. Kubovics [6], A. Lyndyuk, I. Havrylyuk, Y. Tomashevskii, R. Khirivskyi, M. Kohut [7], D. Şenyapar, H. Nurgül [9], and E.N. Yoldaş, A. Aycı [10] were analyzed. The study also draws on expert analytical insights presented in publications from modern online resources, including Digital Marketing Institute [1], SurveyMonkey [2], and SEO.com [8], which highlight current trends in AI use in marketing. Despite the availability of numerous

general studies on AI in marketing communication, there is a notable lack of systematized knowledge specifically focused on nonprofit organizations. Therefore, in this study, the information was analyzed, grouped, systematized, and presented within the context of the chosen topic.

Purpose of the article

The aim of the article is to determine the potential for developing communication with donors and volunteers based on artificial intelligence. The ***following tasks*** will be completed in the course of the study: 1) identify the role of AI in donor management; 2) explore the features of detecting patterns in donor behavior; 3) assess the potential for optimizing volunteer activities through AI.

Research results

Marketing communications refer to a set of activities aimed at informing, persuading, motivating, and reminding consumers about products or services in order to shape a positive attitude toward a brand and encourage action [5]. They encompass both direct and indirect forms of interaction between an organization and its target audience, conveying value propositions through traditional advertising channels, direct response advertising, or point-of-sale communication [5].

In the nonprofit sector, marketing communications have their own specific characteristics. These are shaped by the nature of target audiences and the mission-driven focus of the organizations. Instead of commercial consumers, the subjects of communication include donors, volunteers, beneficiaries, and the general public. Communication with different stakeholders, partners, and communities is based on distinct goals and objectives. This study focuses specifically on marketing communications with donors and volunteers. Let us examine the particularities of interaction with these groups.

- Donor communications involve purposeful engagement with individuals or institutions that provide financial or material support. The main objectives of such communication are to build trust, strengthen emotional connection, and encourage recurring contributions and long-term partnerships. Donor communications include informing supporters about the organization’s needs and achievements, as well as

delivering personalized responses to each contribution through audience analytics, segmentation, and targeted appreciation.

- Volunteer communications, in turn, are centered on attracting, motivating, and retaining individuals who offer their services without compensation. This type of communication requires particular sensitivity to volunteers' values, motivations, and emotional states. Effective interaction involves timely updates on engagement opportunities, recognition of contributions, provision of feedback, and the fostering of community. Both types of communication – donor and volunteer – are integral components of a nonprofit organization's strategic communication.

The effectiveness of marketing communication in today's information environment is largely influenced by the level of digitalization in society. Increasing internet access and widespread use of digital devices have created new standards for how organizations interact with their audiences. Between 2018 and 2022, the global number of internet users grew by 43.2%, reflecting a strong global digital transformation [3]. In 2023, 91.4% of Latvia's population used the internet at least once a week, which is 20.2% higher than the same figure a decade earlier [3].

Of particular importance is the increasing use of digital technologies among older age groups. In 2023, 100% of people aged 16–24 were regular internet users, followed by 99.6% in the 25–34 age group, 98.7% for ages 35–44, 94.6% for 45–54, 86.6% for 55–64, and 68.7% among those aged 65–74 [3]. This trend underscores the significant potential of digital channels to reach a wide range of age groups, including potential donors and volunteers who are not limited to younger demographics.

However, despite the dominance of digital communication, an integrated approach to marketing interaction remains essential, one that also considers offline tools. The concept of integrated marketing communications involves combining various channels to comprehensively reach the target audience [3]. There is still a portion of the population that remains less active online or prefers traditional forms of communication, which is especially relevant for certain demographic or social groups.

The introduction of artificial intelligence into this field can significantly transform how organizations interact with donors and volunteers. AI can be effectively used for

collecting and analyzing data, identifying behavioral patterns, and crafting personalized messages tailored to the needs of specific audience segments [5]. This enables not only increased communication efficiency but also cost reduction and greater engagement of target groups [5].

In this context, automated personalization of communication, especially in donor and volunteer relations, becomes critically important. Personalized approaches based on user behavior analytics allow messages to be adapted to each individual's expectations and needs. This enhances emotional engagement, boosts motivation to participate in volunteer activities or provide financial support, and helps strengthen long-term ties between the nonprofit organization and its community.

The use of artificial intelligence in marketing communication not only automates content creation processes but also opens up possibilities for in-depth analysis of target audience behavior, including that of volunteers and donors. With capabilities such as forecasting, classification, recognition, natural language processing, and autonomous data handling, AI can identify recurring behavioral patterns, uncover hidden links between participant actions, and predict their future interaction with the organization [6].

AI operates through a multistage and multilayered process. The main stages of using AI in donor communications are systematized in Table 1.

The identification of behavioral patterns in donors using artificial intelligence is carried out by analyzing large volumes of historical data, including information on donation frequency and amount, responses to communication messages, event participation, and the dynamics of engagement with the organization. Machine learning algorithms detect recurring patterns that may indicate specific types of behavior – such as a tendency toward regular support, declining activity, or willingness to engage in new initiatives. These models are built by clustering donors based on similar characteristics, which makes it possible to construct predictive scenarios and identify the most effective communication channels and interaction formats. As a result, AI enables more accurate audience segmentation, helps prevent the loss of loyal donors, and supports the development of individualized engagement strategies.

Table 1 - Stages of AI use in donor communications: from engagement to loyalty

№	Stage of donor interaction	Use of AI	Description
1	Attraction (initial engagement)	Content idea generation; content optimization	Creation of effective messages based on the analysis of current trends and audience interests.
2	First contact / conversion	Personalization; content creation	Customized messages for different donor segments based on demographics and previous interactions.
3	Onboarding	Automation of routine tasks; chatbots and virtual assistants	Welcome emails, responses to common questions, and program information via automated communication.
4	Behavior analysis	Identification of behavioral patterns; data analysis	Detection of recurring donation activity patterns (frequency, amount, response to campaigns).
5	Retention	Donor journey mapping; social media monitoring	Identifying key points where donors may drop out of communication; responding to dissatisfaction signals.
6	Engagement enhancement	Personalization; conducting research	Adapting content to donor motivations, studying expectations around transparency, reporting, and feedback.
7	Loyalty building	Communication automation; chatbots; content generation	Regular personalized updates, thank-you messages, invitations to join other programs.

Source: adapted from [2]

Table 2 – Features of identifying behavioral patterns in donors

№	Feature	Explanation
1	Historical data analysis	Information is collected on transactions, event participation, and responses to emails and campaigns.
2	Donor segmentation	Donors are grouped based on similar behavioral and interaction characteristics.
3	Use of clustering algorithms	Machine learning models (e.g., k-means) are applied to identify patterns.
4	Development of predictive models	Algorithms forecast future behavior (e.g., likelihood of the next donation).
5	Identification of “at-risk” and promising segments	Donors with high or low probability of continued engagement are identified.
6	Personalization of interaction strategies	Individual communication scenarios are developed based on behavioral patterns.

In the context of donor and volunteer communications, this means that AI can analyze large volumes of retrospective data – such as donation frequency, event participation, and responsiveness to communication campaigns – and use this data to build predictive models. These models allow not only for audience segmentation based

on engagement level, but also for determining the optimal timing for sending appeals, thank-you messages, or invitations to participate in volunteer initiatives [6]. As a result, AI serves as an analytical support tool that enhances the effectiveness of personalized interaction strategies.

Moreover, artificial intelligence can be viewed as a strategic partner for fundraisers, offering comprehensive support in managing all stages of the donor journey (as shown in Table 1). On one hand, AI automates the creation of communication content tailored to various target audience segments, ensuring relevance and stylistic consistency of messages [6]. On the other hand, it can evaluate the effectiveness of these messages in real time and, importantly, continuously optimize them based on current user response data [6]. This not only reduces time and resource costs but also enables data-driven decision-making rather than relying on intuition.

Volunteer resource management in the nonprofit sector is a critical function that directly influences the success of social programs. In this context, artificial intelligence (AI) functions not only as an automation tool but also as a strategic partner in the recruitment, motivation, and coordination of volunteers. Its capabilities include analyzing large data sets, identifying behavioral patterns, forecasting needs, and personalizing communication to foster long-term, sustainable relationships.

1. Volunteer recruitment. Modern systems based on machine learning can effectively identify suitable volunteer candidates by analyzing demographic data, participation history, social media activity, and behavioral signals. Tools such as Salesforce Einstein, Gong.io, or People.ai help detect and classify characteristics of potentially effective volunteers by segmenting them according to motivation level, availability, and compatibility with specific activities [10]. However, the success of recruitment depends directly on the quality of input data and the accuracy of defining target profiles. Poorly researched volunteer needs or incorrect assumptions can result in irrelevant recommendations. As noted in source [6], without thorough sociological analysis, AI may generate false patterns and propose flawed strategies, which is especially risky in the sensitive nonprofit environment.

2. Motivation is key in volunteer engagement, and AI can significantly improve its effectiveness by deeply analyzing individual preferences and behaviors. For example, just as AI-driven recommendations at Netflix increase customer loyalty by 60% through personalized suggestions [7], volunteer programs can use algorithms to create individualized engagement paths that consider participation history, emotional response to content, and communication activity levels. This personalization not only improves the user experience but also contributes to a productivity or revenue increase of approximately 20% for organizations [7]. Moreover, algorithms can detect subtle behavioral signals indicating stages of volunteer engagement or burnout [9]. This allows for timely adaptation of motivation strategies, the offering of new engagement opportunities, or the launch of individualized communication campaigns. Tools such as Drift or Automizy, for instance, automate personalized email campaigns that reflect not only the volunteer's profile but also the context of their participation [10].

3. Coordinating a large number of volunteers requires precise planning, resource distribution, and constant communication. In this area, AI enables the development of adaptive systems for managing volunteer networks. Chatbots (such as Chatfuel or Conversica), in particular, serve as primary communicators, maintaining ongoing contact, answering questions, and sending automated reminders and updates [10]. Tools like Tableau AI and Microsoft Copilot provide real-time visualization of volunteer data, allowing coordinators to identify regional or temporal imbalances, forecast workload, and adjust recruitment strategies based on analytical models [10]. As demonstrated by Amazon's logistics practices, such forecasting can reduce resource shortages by 30% [7], suggesting that similar algorithms can be effectively applied to the allocation of volunteer efforts.

Alongside its advantages, the implementation of AI in volunteer management presents important ethical and social dilemmas. There is a risk of algorithmic bias, where systems trained on non-representative data may exclude certain participant categories or create distorted interaction models. Data privacy is also a critical issue, particularly when dealing with volunteers' personal information [7].

In this context, it is essential to ensure algorithmic transparency, involve ethical

consultants in system development, and maintain human oversight in strategic decision-making. As noted in [4], the optimal model is a collaboration between AI and HI (human intelligence), where AI plays a complementary role – supporting rather than replacing the human element.

The integration of artificial intelligence (AI) into nonprofit marketing communications significantly enhances the effectiveness of interactions with donors and volunteers through message personalization, behavioral forecasting, channel optimization, and automation of routine processes. By employing machine learning algorithms, natural language processing, and analytical modeling, organizations can gain a deeper understanding of audience needs and establish sustainable, long-term engagement. The following table systematizes the primary communication objectives, relevant AI algorithms, applied methods, and optimization strategies in the context of donor and volunteer engagement.

Table 3 – Systematization of AI Algorithms and Methods for Optimizing Communications with Donors and Volunteers

Communication Objective	Algorithms, Methods, and Optimization Strategies
Audience segmentation	Application of clustering algorithms (k-means, DBSCAN) to group individuals by behavioral characteristics; ensures accurate targeting and increased message relevance.
Personalization of communication content	Use of natural language processing (NLP) and recommendation systems to generate individualized messages; considers motivational factors and stylistic adaptation to recipient preferences.
Forecasting donor/volunteer behavior	Construction of predictive models using regression analysis and Random Forest; evaluates probability of future actions (e.g., donations, participation), enabling timely appeals or invitations.
Automation of routine communication	Implementation of chatbots and virtual assistants for automated responses, messaging, and notifications; reduces staff workload and improves responsiveness.
Supporting volunteer motivation	Behavioral analytics to assess engagement, emotional tone, and activity; development of personalized engagement pathways and early intervention to prevent burnout.
Monitoring campaign effectiveness	Utilization of real-time analytics tools (e.g., Tableau AI); A/B testing of messages; content adaptation based on behavioral feedback.
Identifying at-risk segments	Application of anomaly detection algorithms to identify donors or volunteers with declining activity; enables preventive and retention strategies.
Collecting and analyzing feedback	Use of sentiment analysis to assess emotional tone of responses; facilitates improvement in tone, frequency, and content of communication in line with audience expectations.

The practical implementation of AI in nonprofit marketing communications demonstrates significant potential for improving engagement with donors and volunteers. The systematic use of machine learning algorithms, content personalization, behavior prediction, and automation enables the development of flexible and adaptive communication strategies. These strategies foster trust, improve retention, reduce operational costs, and contribute to the overall resilience and sustainability of nonprofit organizations in a digital environment.

Conclusions

Artificial intelligence plays an increasingly important role in the development of donor communications, supporting not only the automation of routine processes but also strategic management functions. Its use enables the creation of personalized content tailored to the characteristics of specific donor segments, enhances the effectiveness of fundraising campaigns, and builds trust through timely, relevant, and emotionally resonant communication.

The identification of behavioral patterns is a key area of AI application in donor communications. Algorithms are capable of analyzing historical data on contributions, campaign responses, and event participation, which allows for building predictive models and identifying opportunities for growth or risks of donor loss. This opens the door to flexible adjustments in interaction strategy and increased engagement.

AI-based volunteer network management enables the optimization of key aspects—from candidate recruitment to action coordination. AI ensures accurate segmentation of volunteers, personalized motivation, and prompt support through automated communication channels. As a result, resource allocation becomes more efficient, the interaction experience improves, and organizational sustainability is strengthened.

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