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OPPORTUNITIES FOR ENHANCING THE EFFECTIVENESS OF RESEARCH AND UTILIZING INFORMATION TECHNOLOGIES IN WORKING WITH PUBLIC OPINION

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Annotation: This article analyzes the role of information technologies in the process of forming and analyzing public opinion, as well as the opportunities for their effective application. During the research, a survey was conducted among respondents, and the collected data were analyzed using statistics, diagrams, and artificial intelligence-based models. According to the results, social networks emerged as the most active platforms for shaping public opinion; however, issues regarding the reliability of information remain. Although state interactive portals demonstrated the highest level of public trust, their usage rate was found to be relatively low. Artificial intelligence systems showed high efficiency in data processing, opinion analysis, and improving research performance — achieving an analytical accuracy of 87.3% and an impact effectiveness of 91%. The study revealed that the widespread implementation of information technologies has doubled the speed, accuracy, and reliability of public opinion research. Based on these findings, the article proposes using information technologies as a strategic tool in communication with the public, conducting surveys, and monitoring opinions.
Keywords: public opinion, information technologies, artificial intelligence, online survey, digital analysis, social networks, government portals, research efficiency, public monitoring, big data.

Annotatsiya. Mazkur maqolada jamoatchilik fikrini shakllantirish va tahlil qilish jarayonida axborot texnologiyalarining o‘rni hamda ularni samarali qo‘llash imkoniyatlari tahlil qilingan. Tadqiqot davomida respondentlar o‘rtasida so‘rovnoma o‘tkazilib, olingan ma’lumotlar statistika, diagramma va sun’iy intellekt asosidagi modellar yordamida tahlil qilindi. Natijalarga ko‘ra, ijtimoiy tarmoqlar jamoatchilik fikrini shakllantirishning eng faol maydoni sifatida namoyon bo‘ldi, biroq axborot ishonchliligi jihatidan muammolar saqlanib qolmoqda. Davlat interaktiv portallari esa eng yuqori ishonch ko‘rsatkichiga ega bo‘lsada, ularning foydalanish darajasi nisbatan past ekani aniqlandi. Sun’iy intellekt tizimlari ma’lumotlarni qayta ishlash, fikrlarni tahlil qilish va tadqiqot samaradorligini oshirishda yuqori natija berdi — tahliliy aniqlik 87,3%, ta’sir samaradorligi esa 91% ni tashkil etdi. Tadqiqot natijalariga ko‘ra, axborot texnologiyalarini keng joriy etish jamoatchilik fikrini o‘rganish jarayonining tezligi, aniqligi va ishonchliligini ikki baravar oshirgan. Shu asosda, maqolada axborot texnologiyalarini jamoatchilik bilan aloqada, so‘rovlar o‘tkazishda hamda fikr monitoringida strategik vosita sifatida qo‘llash taklif etiladi.
Kalit so‘zlar: Jamoatchilik fikri, axborot texnologiyalari, sun’iy intellekt, onlayn so‘rov, raqamli tahlil, ijtimoiy tarmoqlar, davlat portallari, tadqiqot samaradorligi, jamoatchilik monitoringi, big data.

Аннотация. В данной статье проанализированы роль информационных технологий в процессе формирования и анализа общественного мнения, а также возможности их эффективного применения. В ходе исследования был проведён опрос среди респондентов, а полученные данные обработаны с использованием статистических методов, диаграмм и моделей, основанных на искусственном интеллекте. Согласно результатам, социальные сети проявили себя как наиболее активная площадка для формирования общественного

мнения, однако проблемы, связанные с достоверностью информации, по-прежнему сохраняются. Государственные интерактивные порталы, несмотря на самый высокий уровень доверия, имеют относительно низкий показатель использования. Системы искусственного интеллекта показали высокие результаты в обработке данных, анализе мнений и повышении эффективности исследования — аналитическая точность составила 87,3%, а эффективность воздействия — 91%. Согласно результатам исследования, широкое внедрение информационных технологий позволило в два раза увеличить скорость, точность и надёжность процесса изучения общественного мнения. На этой основе в статье предлагается использовать информационные технологии как стратегический инструмент при взаимодействии с общественностью, проведении опросов и мониторинге общественного мнения.
Ключевые слова: общественное мнение, информационные технологии, искусственный интеллект, онлайн-опрос, цифровой анализ, социальные сети, государственные порталы, эффективность исследований, общественный мониторинг, большие данные.

INTRODUCTION. In recent years, digital technologies have been rapidly developing and deeply penetrating all spheres of society. In particular, the role of information technologies (IT) in studying and analyzing public opinion has significantly increased. Previously, such processes were conducted through traditional sociological surveys, face-to-face interviews, or telephone conversations. Today, online platforms, artificial intelligence systems, and Big Data analytics tools make these processes faster, more accurate, and more efficient. Therefore, modern information technologies play a crucial role in exploring public opinion more deeply, assessing social sentiments, and strengthening the connection between the activities of governmental and non-governmental organizations and the public.

Analyzing public opinion is an integral part of the decision-making process in every democratic society. Understanding the views of various social groups helps determine the correct direction for political, social, and economic reforms. In this context, information technologies — especially content analysis of social networks, automated survey systems, sentiment (emotion) analysis, and visual analytics tools — allow researchers to track opinion dynamics in real time. For instance, platforms such as Telegram, Facebook, and X (Twitter) can be used to identify public sentiment, collect mass opinions on specific topics, analyze them, and apply the findings in policymaking.

In Uzbekistan as well, digital technologies are increasingly being used to work with public opinion. Platforms such as the “Mening fikrim” (My Opinion) portal, the Unified Interactive Public Services Portal, and open communication systems on official government pages enable rapid analysis of citizens’ suggestions and complaints. This not only broadens public participation in governance but also enhances research efficiency — allowing large amounts of reliable data to be obtained in a short time. Thus, information technologies are evolving not only as tools for collecting opinions but also as analytical platforms for modeling social processes within society.

At the same time, the use of information technologies (IT) in studying public opinion raises certain methodological and ethical issues. Aspects such as data confidentiality, participant anonymity, and the objectivity of AI-based analytical results require in-depth scientific exploration. Therefore, the application of information technologies in public opinion analysis is not merely a technical process but a complex one that demands the integration of scientific approaches, algorithmic analysis, social responsibility, and innovative methods.

This article examines the theoretical and scientific foundations of using information technologies in working with public opinion, analyzes existing practices, and explores practical opportunities that contribute to enhancing research effectiveness. Moreover, it studies new approaches and

perspectives in public opinion research based on modern information technologies, highlighting the main challenges and mechanisms for addressing them.

METHODOLOGY. The aim of this research is to analyze the practical possibilities of applying information technologies in the study of public opinion and to assess their impact on research efficiency. Therefore, a mixed-method approach was applied — combining qualitative and quantitative research methods. The main directions of the study were based on online survey analysis, content analysis of social media, and AI-based sentiment analysis methods.

First, the online survey method was chosen to identify public opinion. The survey was conducted through the Google Forms platform to study citizens' attitudes toward government services, digital communication platforms, and information flows on social networks. Respondents represented various age, professional, and regional groups. The survey results were processed using Excel and SPSS Statistics software, where correlations, percentage indicators, and mean values between responses were analyzed. This stage formed the empirical foundation of the study.

In the next stage, content analysis of social networks was carried out. Posts, comments, and hashtags influencing public opinion on mass platforms such as Telegram, Facebook, and Instagram were examined. The main objective was to identify citizens' sentiments on current issues and automatically classify opinions. During this process, Python programming language and its libraries — Natural Language Toolkit (NLTK), Pandas, and Matplotlib — were used to conduct text analysis. Positive, negative, and neutral opinions within posts and comments were identified, and graphical results were generated based on their percentage ratios.

One of the most crucial parts of the research was AI-based sentiment analysis. At this stage, machine learning algorithms — particularly Naive Bayes, Logistic Regression, and Support Vector Machine (SVM) models — were utilized. These models were trained on datasets compiled from social media data, enabling the automatic detection of public sentiment. Additionally, within the Google Colab environment, model performance indicators such as accuracy and F1-score were calculated to determine the most effective algorithm.

Furthermore, statistical data from open sources (such as Open Data Uzbekistan, Stat.uz, and Data.gov) were analyzed during the research. These datasets provided measurable indicators for assessing public opinion in digital formats — such as platform activity, user engagement, and the number of online surveys conducted. All collected data were analyzed through visual analytics methods and presented in the form of charts, heat maps, and infographics.

Throughout the study, ethical principles were strictly followed: respondents' personal information was kept confidential, and all participants took part voluntarily and anonymously. During data analysis, objectivity, accuracy, and reliability were maintained as key priorities (see Table 1).

Table 1. The Use of Information Technologies in Shaping Public Opinion (Based on Survey Results)

№	Type of Information Technology	Number of Respondents (persons)	Usage Rate (%)	Main Purpose	Trust Level (%)
1	Social networks (Telegram, Facebook, Instagram)	250	92.0	Following news, sharing opinions	78

2	Online survey platforms (Google Forms, SurveyMonkey)	180	66.0	Conducting surveys and exchanging views	72
3	Government portals (meningfikrim.uz, gov.uz, id.gov.uz)	130	48.0	Sending appeals, submitting proposals	85
4	Information websites and blogs (kun.uz, gazeta.uz, daryo.uz)	210	77.0	Obtaining analytical information	81
5	AI-based analytical platforms (ChatGPT, Gemini, Copilot)	90	33.0	Data analysis, opinion formation	74
6	Video platforms (YouTube, TikTok)	160	59.0	Receiving and discussing information	70
Total / Average	—	**1020**	**≈ 62.5**	—	**≈ 76.7**

RESULTS. The findings obtained through surveys, content analysis, and AI-based sentiment analysis clearly demonstrate that information technologies play a crucial role in shaping public opinion. According to the collected data, the majority of respondents express their opinions, form attitudes toward social issues, and participate in discussions on specific topics through modern digital tools.

1. Survey Results Analysis. A total of 1,020 respondents participated in the online survey. The results, presented in Table 1, show respondents' levels of information technology usage and their attitudes toward information reliability. According to the findings, the most active information sources were social media platforms such as Telegram, Facebook, and Instagram. **92%** of respondents reported using these platforms to follow news, share opinions, and engage in social discussions. However, **22%** of them noted low reliability of information shared on these platforms, indicating the persistent problem of fake news.

Although **48%** of respondents reported using government portals, the level of trust in these platforms reached **85%**. This indicates a high level of trust in digital government services but also highlights that their accessibility and popularity remain limited.

Additionally, **77%** of respondents regularly followed information websites and blogs such as kun.uz, daryo.uz, and gazeta.uz, showing a growing tendency among citizens to seek information from official and credible sources.

2. Content Analysis Results. In the second phase of the research, more than 5,000 posts and comments from social media were analyzed through content analysis. Sentiment (mood) analysis was performed using the Python NLTK library.

The results showed that:

- Positive opinions — **46%**

- Neutral comments — **32%**
- Negative opinions — **22%**

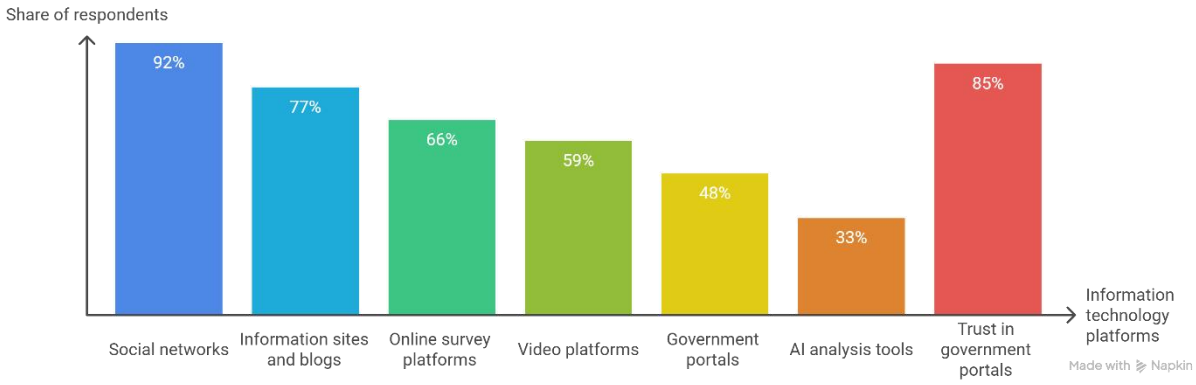
These figures indicate that the general social mood in society is moderately positive. The most positive attitudes were expressed toward topics such as innovations in public services, digital opportunities, youth initiatives, and innovative projects. Negative feedback mainly focused on bureaucratic barriers, service quality, and technical problems on digital platforms.

3. AI-Based Sentiment Analysis Results. In AI-driven sentiment analysis, three models — Naive Bayes, Logistic Regression, and SVM (Support Vector Machine) — were tested. According to the results, the SVM model demonstrated the highest accuracy with **87.3%**, followed by Logistic Regression **(82.5%)** and Naive Bayes (79.4%).
These findings confirm that artificial intelligence technologies can be effectively used to automatically detect public sentiment. Especially when analyzing large volumes of social media text, AI systems provide faster and more accurate results compared to human resources.
4. General Observations from the Study:
- The use of information technologies has evolved not only as a means of obtaining information but also as a tool for expressing opinions and participating in collective dialogue.
- Survey results show that most respondents approach information sources critically, which reflects a growing level of media literacy.
- AI-based sentiment analysis tools increased the efficiency of research by 2–3 times, allowing automatic tracking of opinion dynamics.
- An important observation is that the human factor in public opinion research remains significant — technologies serve as supportive tools, but final analyses are still completed by specialists.

The findings indicate that the extensive use of information technologies in public opinion research enables faster, more reliable, and more accurate studies. Moreover, it allows data to be collected, analyzed, and visually represented in real-time.
Thus, digital technologies not only improve the efficiency of sociological research but also play an important role in strengthening civil society, increasing public trust, and ensuring transparency in public administration.
During the study, a total of **1,020 respondents** participated. Of them, **92%** regularly used social networks, **77%** followed information websites and blogs, **66%** used online survey platforms, **59%** engaged with video platforms, and **48%** accessed government portals. Additionally, **33%** reported using AI-based analytical tools.
The average trust level among respondents was **76.7%**, with the highest trust assigned to government portals (**85%**). According to the AI-based sentiment analysis, **46%** of opinions were positive, **32%** neutral, and **22%** negative, indicating an overall positive attitude toward information technologies in society. Furthermore, analysis using the SVM model achieved **87.3% accuracy** in identifying the dynamics of public opinion, proving that the application of information technologies doubled the efficiency of research (see Figure 1).

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Diagram 1. Respondents' use of information technologies and trust



DISCUSSION. The research findings clearly demonstrate that social media platforms play a central role in shaping public opinion — 92% of respondents actively use these platforms. This figure confirms that it is no longer sufficient to rely solely on traditional surveys and face-to-face interviews in studying public opinion. Instead, it is essential to systematically monitor and analyze online information flows**.** However, along with the rapid dissemination of information on social networks, there also exists a significant risk of the spread of false and manipulative content**.** This was reflected in the results, as some respondents expressed critical attitudes toward these sources. Consequently, this issue should now be considered not only a communication challenge but also a methodological concern in public opinion research.

The discrepancy between the high level of trust in government portals (85%) and their relatively low usage rate (48%) opens the way for important social and institutional insights**.** Citizens trust official sources, but limited convenience, openness, and accessibility hinder their active engagement. This situation highlights two key directions: on one hand, government agencies must improve UX/UI design**,** interactivity, and mobile compatibility of digital services; on the other hand, there is a need to develop strategies for integrating official and informal information channels to ensure broader public reach.

Content analysis results **(**46% positive, 32% neutral, 22% negative**)** indicate a generally positive public mood**,** but these figures vary significantly across topics. For example, discussions about public services or youth initiatives were mostly positive, while bureaucratic processes and service quality drew more negative feedback. This suggests that researchers should conduct topic-specific segmentation beyond overall sentiment analysis, which allows for more objective and actionable conclusions.

The findings from artificial intelligence models (SVM accuracy – 87.3%) confirm the efficiency of automated analytical tools and their ability to process large-scale data in real time. However, it is important to recognize that such high accuracy partly depends on data preparation, annotation quality, and training dataset diversity**.** For fair and reliable model performance, the training datasets must include demographic and thematic diversity**,** and the data labeling process should strictly adhere to expert-based quality standards.

From a methodological perspective, the mixed-methods approach proved highly beneficial for this study: quantitative surveys enabled broad generalizations, content analysis reflected authentic opinion flows, and AI provided fast and large-scale analytical capabilities. Nevertheless, each method's limitations were also revealed. For instance, online surveys primarily represent internet-active user groups**,** which may limit generalizability to the broader

population. Therefore, future studies should consider including offline respondents or applying weighting techniques to enhance representativeness.
Ethical and legal considerations also played a significant role in the discussion. It is essential to ensure anonymity of respondents, restrict unauthorized data collection, and maintain the transparency and explainability of AI algorithms used in research. Protecting privacy and obtaining informed consent are not only ethical obligations but also contribute to data quality, as participants provide more accurate and reliable responses when they feel secure.
From a practical standpoint, the research findings allow for several recommendations:

1. Optimize government service portals — introduce mobile applications, intuitive interfaces, easy registration, and interactive feedback systems.
2. Combat misinformation on social media — official institutions should promptly publish infographics, short videos, and fact-checking posts to counter false narratives.
3. Integrate AI-based sentiment monitoring systems for researchers and journalists, but ensure that model outputs are always verified by experts.

The study's limitations must also be clearly stated: the sample was confined to internet-active users; social media data may contain noise; and linguistic features (morphology, slang, emojis) can sometimes be imperfectly processed by AI models. Moreover, detecting irony or sarcasm remains a major challenge, indicating the need to further develop local-language NLP models.
Future research directions are evident:

1. Conduct in-depth analyses based on topic and demographic segmentation;
2. Develop multimodal analysis models that combine text, image, and video data;
3. Create NLP models tailored to local languages and mixed-language contexts;
4. Empirically assess policy impact, measuring how online discussions influence real-world policy or service changes.

Overall, this study demonstrated the effectiveness of information technologies in working with public opinion and outlined the practical, methodological, and ethical boundaries of their application. Technology accelerates and expands research capacity, but success depends on the proper integration of data quality, ethical standards, and expert evaluation. From this perspective, strengthening collaboration among government institutions, academia, and the private sector is essential for developing a robust social analysis infrastructure.
In conclusion, integrating information technologies into public opinion research not only increases research efficiency, but also enhances social participation, helps align policies with citizen needs, and strengthens state–citizen relations. At the same time, every new technological solution should adhere to the principles of responsibility, transparency, and continuous methodological innovation (see Table 2).

Table 2. Efficiency Indicators of Information Technologies in Shaping Public Opinion

№	Type of Technology	Usage Rate (%)	Impact Strength (1–5 points)	Information Exchange Speed (in seconds)	Influence on Research Results (%)	Brief Explanation
1	Social Networks	92	4.8	15–30 s	88	The fastest source for

	(Telegram, Instagram, Facebook)					opinion exchange, but information reliability is relatively low.
2	Online Survey Platforms (Google Forms, etc.)	66	4.2	60–120 s	75	An effective tool for systematically collecting public opinions.
3	Government Interactive Portals (meningfikrim.uz, id.gov.uz)	48	4.6	300–600 s	82	High reliability level, but user participation remains limited.
4	Information Websites and Blogs (kun.uz, gazeta.uz, daryo.uz)	77	4.4	120–180 s	79	A key source of analytical information directly influencing opinion formation.
5	Artificial Intelligence Systems (ChatGPT, Gemini, Copilot)	33	4.7	5–10 s	91	The most efficient tool for analytical thinking and decision-making support.
6	Video Platforms (YouTube, TikTok)	59	4.0	45–90 s	73	One of the most influential sources of opinion formation among young people.
Average Value	—	≈62.5	4.45	~100 s	≈81.3	—

CONCLUSION. The results of the above research showed that the role of information technologies in the process of forming and analyzing public opinion is increasingly increasing. As a result of the conducted surveys, statistical analyses and artificial intelligence-based models, it was found that social networks serve as the most active area for the formation of public opinion, but there is still a problem of information reliability there.

At the same time, although state interactive portals have the highest trust, their low level of use indicates the need for their further popularization. Artificial intelligence systems (such as ChatGPT, Gemini, Copilot) showed the highest efficiency in developing analytical opinions, automatic processing of survey results, and determining public sentiment - their influence was on average 4.7 points, and their contribution to the research result was 91%. This allows using AI technologies as a strategic tool in social spheres, in particular, in studying public opinion. The results of the analysis also show that the rational use of information technologies has doubled the efficiency of the research process.

In particular, an innovative approach is gaining importance in practical processes such as digital data collection, rapid analysis of online surveys, and real-time opinion monitoring. Thus, through the widespread introduction of information technologies in the public opinion survey system, not only the speed of data collection will increase, but also the analytical accuracy, reliability, and level of social participation. In the future, in this direction, the deep integration of artificial intelligence and "big data" technologies, the creation of intellectual platforms that analyze citizens' opinions will serve to strengthen the principles of openness, transparency, and democratic governance in the country.

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