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RESEARCH ARTICLE

Digital Technology Adoption and Voter Participation: A Systematic Review of Uneven Effects

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Abstract: The rapid adoption of digital technology has transformed democratic processes, particularly in shaping electoral participation. However, existing studies report inconsistent and often contradictory findings regarding its impact, largely due to the assumption of uniform effects across different contexts. This study addresses this gap by systematically examining how digital technology produces uneven effects on voter participation. In this study, digital technology is defined as digitally networked tools that mediate political information and engagement, including social media platforms, digital campaigning infrastructures, and algorithm-driven communication systems. Voter participation is conceptualized primarily as electoral engagement, encompassing voter turnout, voting intention, and participation in election-related activities. This study employs a systematic literature review approach, analyzing empirical articles published between 2020 and 2025 from Scopus, JSTOR, and DOAJ databases. A structured protocol based on PRISMA guidelines was used to ensure transparency and rigor in the selection, extraction, and synthesis processes. The findings reveal that digital technology exerts diverse and context-dependent effects on voter participation. While it can enhance engagement through increased access to information and mobilization, it can also generate demobilizing outcomes through misinformation, polarization, and declining trust. These effects are not uniform but are shaped by the interaction of individual factors (e.g., age and digital literacy), technological characteristics (e.g., platform affordances and algorithmic curation), and contextual conditions (e.g., institutional trust and governance quality). This study contributes to digital democracy scholarship by advancing the concept of uneven effects as a central analytical framework for understanding how digital environments reshape electoral participation. It demonstrates that digital technology functions as a conditional force that can both expand and constrain democratic engagement, depending on how structural inequalities are mediated within digital ecosystems. Practically, these findings highlight the need for policies that reduce digital inequalities, strengthen digital literacy, and improve governance frameworks to support more inclusive electoral participation.

Keywords:

Digital Technology, Voter Participation, Uneven Effects, Digital Democracy, Social Media, E-Government, Political Engagement.

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1. Introduction

Digital transformation has become a major force reshaping modern democratic practices, including election conduct and citizens' political participation. Developments in digital technology, such as social media, online communication platforms, and e-governance systems, not only change how political information is produced and disseminated but also reshape patterns of public engagement in democratic processes (Porter & Tan, 2023; Schwanholz & Graham, 2018). In this context, democracy is shifting from a conventional representative model toward a more participatory and digitally networked form (digitally networked democracy), where citizens have broader access to engage in public discourse and political processes (Deseriis, 2021; Şahin, 2024). This study argues that the most critical manifestation of digitally networked democracy is found in electoral processes, particularly in shaping citizens' voting behavior. While digital technologies expand access to political information and participation, their influence on voter turnout and engagement remains uneven and deeply conditioned by structural inequalities.

A number of studies indicate that the adoption of digital technology has the potential to increase voter participation through expanded access to information, heightened political awareness, and easier mass mobilization (Asimakopoulos et al., 2025; Theocharis et al., 2023). Technologies such as social media also foster the emergence of connective democracy, where individuals can engage in political discourse in a more flexible and decentralized manner, as seen in the context of Myanmar, which demonstrates how social media has become a vital tool for political expression and citizen participation (Kim & Kim, 2025). In the context of developing countries like Indonesia, digital transformation has even contributed to increased political engagement among the younger generation through social media and digital platforms (Imawan, 2023; Saud & Margono, 2021). Meanwhile, in the context of countries with different political systems, such as Vietnam, the use of digital technology also shows potential in expanding forms of political participation, although it remains within the constraints of existing political structures (Karadjis, 2026). This phenomenon reinforces the argument that digital technology can serve as a catalyst for a more inclusive and participatory democracy across national contexts.

However, the literature also indicates that the impact of digital technology on voter participation is neither linear nor universal. Several studies reveal negative consequences, such as the spread of disinformation, political polarization, and a decline in the quality of public deliberation (Deseriis, 2021; Garnett & James, 2020). In some contexts, such as in India, the development of digital technology has been accompanied by a decline in the quality of democracy due to increased political control and institutional dysfunction (Tudor, 2013). Furthermore, the dynamics of the digital space dominated by algorithms and echo chambers have the potential to reinforce political fragmentation and limit exposure to diverse information. This situation highlights a paradox in digital democracy: the same technology can simultaneously expand participation and hinder its quality.

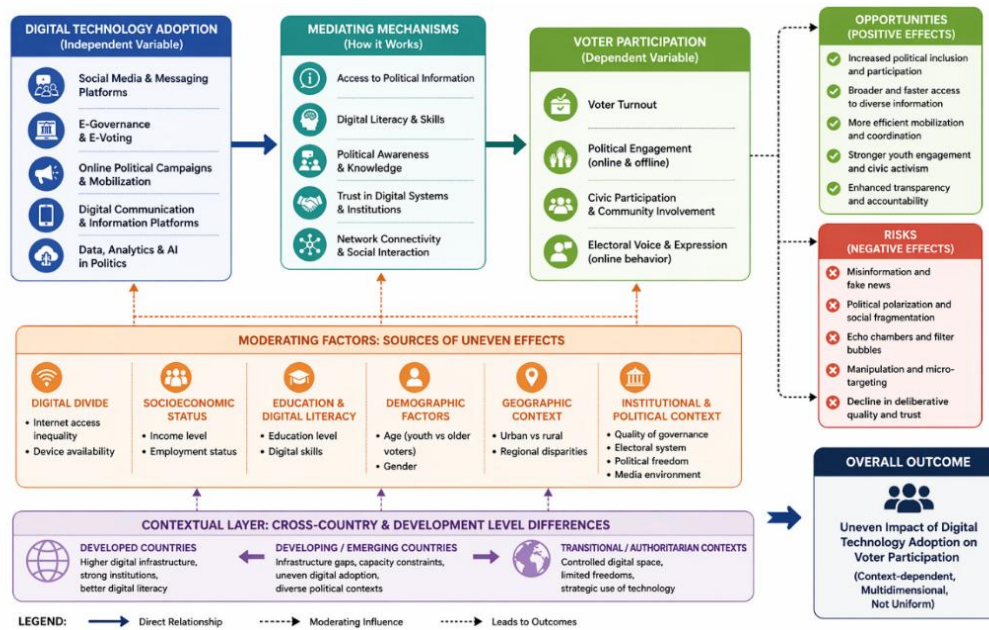
Furthermore, an issue gaining increasing attention is that the impact of digital technology on voter participation is uneven. Inequalities in access to technology, differences in digital literacy, and regional disparities (urban–rural) mean that not all segments of society benefit equally from digitalization (Haefner & Sternberg, 2020; Larsson, 2021). Cross-national studies indicate that while digitalization can enhance government effectiveness, its impact is highly dependent on each country's socio-economic context and institutional capacity (Wandaogo, 2022). In fact, in some cases, digitalization has actually widened the gap in political participation between regions and social groups (Fang & Liu, 2024; Huang & Zhang, 2025). This indicates that digital technology does not automatically lead to inclusive democracy but can create new inequalities in political participation.

These differing impacts are also evident in comparative analyses across nations. Countries with high levels of digitalization and technological infrastructure tend to optimize technology to enhance political participation, whereas developing nations still face challenges in access, digital literacy, and digital

governance (Stratu-Strelet et al., 2023). In the context of governance, digitalization also affects the effectiveness of government and the quality of public services, which ultimately impacts public trust and participation (Erkut, 2020; Umbach & Tkalec, 2022). Therefore, the relationship between digital technology and voter participation is not only complex but also contextual, shaped by various structural factors. Rather than functioning as a neutral enabler, digital technology often reproduces and amplifies pre-existing socio-economic inequalities. Unequal access to digital infrastructure, disparities in digital literacy, and variations in political trust shape who benefits from digital participation and who is excluded. As a result, electoral participation in the digital age reflects not only technological availability but also deeply embedded structural divides, leading to uneven patterns of voter engagement across different social groups.

Although research on digital technology and political participation has grown rapidly, most studies still focus on the general impacts of technology without systematically examining how these impacts vary across contexts. Previous systematic reviews have primarily highlighted political participation in general (McDonnell, 2020), public engagement in digital governance (Chege et al., 2026), or the transformation of online participation (Ruess et al., 2023), but have not specifically integrated the dimension of inequality (uneven effects) in the context of elections. Thus, there is a significant research gap in understanding how and why digital technologies produce different impacts on voter participation. Based on this, this study aims to conduct a systematic literature review to analyze the influence of digital technology adoption on voter participation, with a specific focus on variations in uneven effects. This study is guided by two main research questions. First, what typologies of impacts does digital technology have on voter participation in electoral contexts. Second, what structural, technological, and institutional factors explain the uneven effects of digital technology on voter participation.

Figure 1. Conceptual Framework of Digital Technology Adoption and Voter Participation: Uneven Effects



Source: Processed by the author, 2026

Despite the growing body of literature on digital democracy, a critical gap remains in understanding how digital technology produces *uneven effects* on electoral participation. Existing studies often focus on whether digital tools increase or decrease participation, yet they tend to assume relatively uniform impacts across populations. What remains insufficiently explored is how these effects vary systematically across different socio-economic groups, technological environments, and institutional contexts. This study advances the debate by positioning uneven effects not merely as an empirical observation but as an analytical lens for

explaining why digital technology simultaneously mobilizes some voters while marginalizing others. In doing so, this review moves beyond binary assessments and contributes to a more differentiated understanding of digital democracy. The primary contribution of this study lies in its comprehensive synthesis of the relationship between digital technology and voter participation, emphasizing the dimension of inequality that has received insufficient attention in the literature. Unlike previous studies, which tend to be descriptive or partial, this research offers an integrative approach that combines an analysis of opportunities, risks, and structural factors influencing the distribution of digital technology's impact. Thus, this research is expected to provide theoretical contributions to the development of digital democracy studies as well as practical implications for policy formulation aimed at fostering more inclusive, equitable, and sustainable political participation (Figure 1).

The conceptual framework presented in Figure 1 distinguishes between core causal mechanisms and conditioning factors to clarify the structure of analysis. Digital technology adoption serves as the primary independent variable, influencing voter participation through several mediating mechanisms, including information exposure, political engagement, and mobilization. Uneven effects emerge through the interaction of three categories of conditioning factors. First, *individual factors* (e.g., digital literacy, age, and socio-economic status) shape users' capacity to access and process political information. Second, *technological characteristics* (e.g., platform design, algorithmic filtering, and interactivity) determine how information is distributed and amplified. Third, *contextual conditions* (e.g., institutional trust, regulatory frameworks, and political environment) influence how digital engagement translates into electoral behavior. In this framework, these factors do not operate independently but interact dynamically, functioning as moderators that shape both the direction and magnitude of digital technology's impact. This structure allows the model to explain why similar technologies can produce divergent participation outcomes across different contexts.

2. Methods

This study employs a systematic literature review as its primary design to comprehensively analyze the relationship between digital technology use and voter participation. A Systematic Literature Review is a systematic, transparent, and replicable research method aimed at identifying, evaluating, and synthesizing relevant research findings in a structured manner (Lame, 2019; Xiao & Watson, 2019). Compared with conventional literature reviews, the Systematic Literature Review offers a higher level of methodological rigor because it employs explicit procedures for searching, selecting, and analyzing studies, thereby minimizing research bias (Snyder, 2019). The selection of the Systematic Literature Review method in this study is based on the growing body of literature on digital technology and political participation, which presents diverse and often contradictory findings. In this context, the Systematic Literature Review serves as an appropriate approach to integrate scattered empirical findings while identifying patterns, research gaps, and directions for future studies (Linnenluecke et al., 2020; Torres-Carrión et al., 2018). Furthermore, this approach allows for the integration of multidisciplinary perspectives, which is crucial for understanding the complex interplay among technological, social, and political factors that influence voter participation.

This study employs a systematic literature review protocol to ensure consistency, transparency, and replicability throughout the review process. This protocol serves as an operational guide that directs each stage of the research, from the formulation of research questions to the synthesis of findings, thereby minimizing bias and enhancing the quality of the analysis (Snyder, 2019; Xiao & Watson, 2019). The development of the protocol in this study began with establishing a clear research focus: the relationship between digital technology use and voter participation, with an emphasis on uneven effects. Subsequently, the protocol includes formulating research questions, developing literature search strategies, and determining inclusion and exclusion criteria for screening relevant studies. This approach aligns with the principles of systematic reviews, which emphasize explicit and well-documented processes (Linares-Espinós et al., 2018). Additionally, this research protocol outlines the data extraction procedures and synthesis techniques used in

analyzing the literature. The data extraction process was conducted systematically by identifying key information from each study, such as the research context, methods used, and main findings related to the research variables. This stage is crucial to ensure that the collected data is consistent and comparable across studies (Linnenluecke et al., 2020; Torres-Carrión et al., 2018).

In the synthesis stage, this study adopted a thematic and conceptual approach to integrate findings from various studies. This approach allows for the identification of patterns, relationships, and variations in the impact of digital technology on voter participation, including factors that cause uneven effects. The use of conceptual synthesis also supports the development of a more comprehensive analytical framework for understanding the phenomenon under study (Brunton et al., 2020; Schreiber & Cramer, 2024). Thus, the protocol used in this study not only ensures that the research process is conducted systematically and structurally but also provides a strong methodological foundation for producing a valid and reliable literature synthesis that contributes to the advancement of digital democracy research (Figure 2).

Figure 2. Systematic Review Protocol



Source: Processed by the author, 2026

This study employs a systematic, structured literature search strategy to identify studies relevant to digital technology use and voter participation. The search strategy was designed to ensure comprehensive literature coverage while maintaining the relevance of the search results through a combination of Boolean-logic keywords (Linnenluecke et al., 2020; Xiao & Watson, 2019). This approach allows for the integration of various terms used across interdisciplinary literature, thereby minimizing the risk of overlooking relevant studies (Torres-Carrión et al., 2018). The literature search was conducted across three primary databases: Scopus, JSTOR, and DOAJ, selected for their multidisciplinary scope and credibility in providing reputable scholarly articles. These three databases represent a broad range of literature sources, including both internationally reputable journals and open-access publications, thereby supporting a comprehensive literature identification process. The search strategy in this study employed a combination of keywords focused on three main concepts: digital technology, voter participation, and the electoral context.

These keyword combinations were structured using the Boolean operators “AND” and “OR” to both broaden and narrow the search results. Table 1 presents the mapping of concepts and keywords used in the search strategy. Table 2 presents the use of Boolean operators in each database. This search strategy ensures that the literature retrieved is not only relevant to the research variables but also encompasses the various

perspectives and contexts necessary for a comprehensive analysis of the relationship between digital technology and voter participation, including variations in *uneven effects*.

Table 1. Boolean Structure

Component	Keywords	Function
Variable X (Digital Technology)	"digital technology", "social media", "e-voting"	Identifying forms of digital technology adoption
Variable Y (Voter Turnout)	"voter participation", "voter turnout"	Measuring public political engagement
Context	"election"	Focusing on the electoral context
Boolean Operators	AND, OR	Connecting and expanding the search

Source: Processed by the author, 2026

Table 2. Database Search Strategies

Database	Search Strategy
Scopus	TITLE-ABS-KEY ("digital technology" OR "social media" OR "e-voting") AND ("voter participation" OR "voter turnout") AND ("election")
JSTOR	("digital technology" OR "social media" OR "e-voting") AND ("voter participation" OR "voter turnout") AND ("election")
DOAJ	("digital technology" OR "social media" OR "e-voting") AND ("voter participation" OR "voter turnout") AND ("election")

Source: Processed by the author, 2026

Establishing inclusion and exclusion criteria is a crucial step in a systematic literature review to ensure that the selected studies are relevant, high-quality, and aligned with the research objectives. These criteria are explicitly designed to screen the literature based on temporal aspects, publication type, study characteristics, and substantive relevance to the topic under investigation (Snyder, 2019; Xiao & Watson, 2019). Thus, the literature selection process can be conducted consistently and transparently, while minimizing bias in study selection (Linnenluecke et al., 2020). In detail, the inclusion and exclusion criteria used in this study are presented in Table 3. These criteria are designed to yield a set of studies that are not only thematically relevant but also possess sufficient methodological quality for further analysis. With clear boundaries, this study ensures that the literature selection process is conducted systematically and is replicable, thereby supporting the validity and credibility of the systematic literature review results.

Table 3. Inclusion and Exclusion Criteria

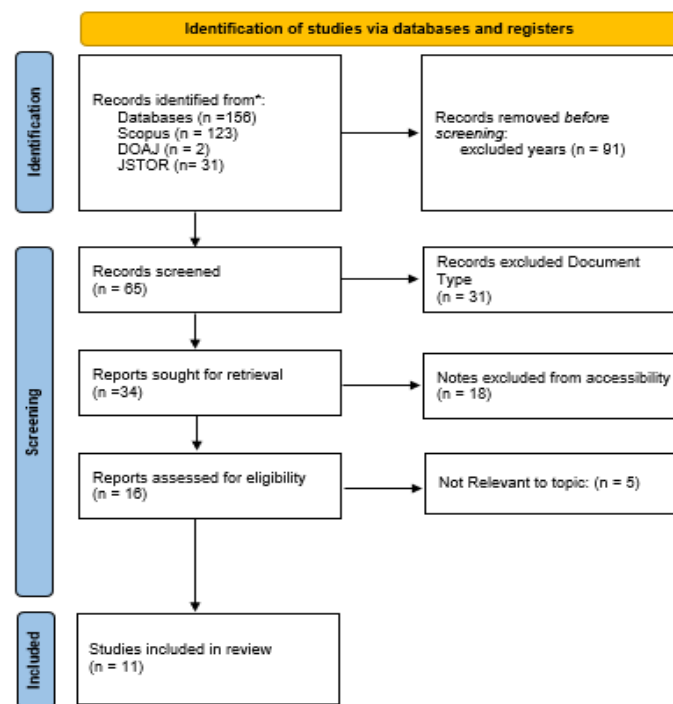
Criteria	Inclusion	Exclusion
Publication Period	Published studies from 2020 to 2025	Not published before 2020 and after 2025
Publishing Type	Journal articles	Conference papers, reports, books, book chapters, and others
Type of Research	Empirical studies	Literature reviews, theoretical papers, book reviews, and others
Language	English	Not in English
Place of Study	Studies conducted in different regions	Does not specify study region
Focus of Study	Open access articles	Hybrid access and closed access

Source: Processed by the author, 2026

The study selection process was conducted systematically and transparently to ensure the validity and reliability of the study results (Snyder, 2019). This study employed a phased screening approach based on the systematic literature review protocol, thereby enabling a structured and replicable selection process

(Carrera-Rivera et al., 2022). The initial stage began with identifying articles from the specified databases, followed by an initial screening based on publication date and document type. Subsequently, the screening process involved reviewing titles and abstracts to assess alignment with the study's focus. Articles irrelevant to digital technology and voter participation were eliminated at this stage. Studies that passed this stage were then analyzed in *full-text* to ensure eligibility based on inclusion and exclusion criteria, including substantive relevance, accessibility, and academic quality. Throughout the selection process, consistency in decision-making was maintained to minimize potential bias. Only studies meeting all criteria were included in the final synthesis stage. A detailed illustration of the study selection stages is presented in Figure 3, which shows the screening flow from the identification stage to final inclusion (Haddaway et al., 2022).

Figure 3. PRISMA Study Selection Process



Source: Processed by the author, 2026

The inclusion criteria were defined based on (1) relevance to digital technology and electoral participation, (2) empirical or theoretical contribution to participation outcomes, and (3) publication within the 2020–2025 period. The “open access” criterion was applied solely as an accessibility filter rather than a substantive inclusion criterion. In addition, a qualitative appraisal process was conducted to assess the analytical relevance of selected studies. Rather than relying on formal scoring, studies were evaluated based on conceptual clarity, methodological rigor, and relevance to the uneven effects framework. This approach ensures that the selected corpus provides sufficient depth for conceptual synthesis. Although the final sample comprises 11 articles, this reflects the application of strict inclusion criteria focused specifically on electoral participation rather than on broader digital engagement. Therefore, the selected studies are considered adequate to support the analytical objectives of this review.

The data analysis and synthesis phase of this study was conducted to integrate findings from various systematically selected studies. Given the nature of this systematic literature review, the approach used was thematic analysis combined with narrative and conceptual synthesis. This approach allows for the comprehensive identification of patterns, relationships, and variations in findings across studies (Alharbi & Stevenson, 2020; Xiao & Watson, 2019). The analysis began by grouping the data according to the study's main variables: the use of digital technology as the independent variable and voter participation as the

dependent variable. Next, the key findings from each study were *coded* to identify recurring key themes. These themes were then classified into several analytical categories, such as the positive impact of digital technology on participation, risks or negative impacts, and factors influencing variations in impact (uneven effects).

In addition, this study also adopts a conceptual synthesis approach to integrate the findings into a broader analytical framework. This approach enables the development of a deeper understanding of the mechanisms underlying the relationship between digital technology and voter participation, including the role of mediating and moderating factors in explaining disparities in impact (Brunton et al., 2020; Schreiber & Cramer, 2024). In the final stage, the synthesis results are presented as a structured analytical narrative that not only summarizes the research findings but also identifies research gaps and theoretical and practical implications. Thus, the analysis and synthesis process in this study is not merely descriptive but also interpretive and critical, thereby making a more significant contribution to the advancement of digital democracy research.

3. Results and Discussion

Based on the study selection process, 11 articles met the inclusion criteria and were subsequently analyzed in this study. These studies provide the empirical basis for examining the relationship between digital technology use and voter participation in elections. The selected studies in Table 4 demonstrate variation in both research contexts and methodological approaches, reflecting the evolving body of research on the role of digital technology in democratic processes. This variation is crucial for capturing differences in findings that emerge across contexts, including geographical regions, voter characteristics, and types of technology employed. The geographic concentration of studies in certain regions, particularly in developed democracies, reflects both the availability of digital infrastructure and the maturity of electoral data ecosystems. Regions with limited representation in the dataset are often characterized by lower levels of digital penetration, restricted data access, or weaker research funding capacities. This uneven distribution has important implications for the generalizability of this review, as the findings may disproportionately reflect contexts where digital democracy is more institutionalized, potentially overlooking dynamics in emerging or underrepresented electoral systems.

Table 4. Overview of Selected Studies

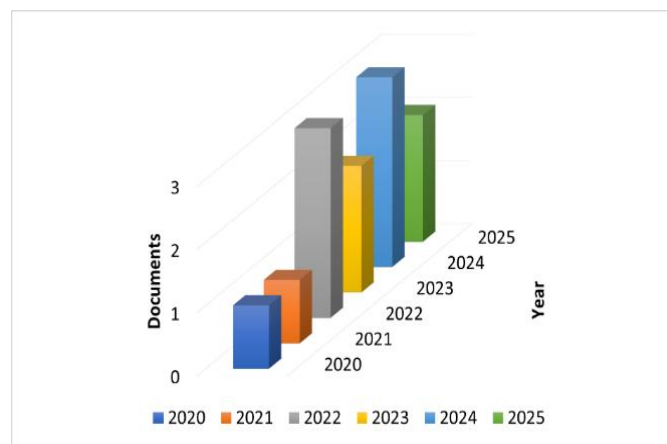
No	Authors (Year)	Country/Region	Research Method	Relevance to This Study
1	(Elven & Al-Muqorrobin, 2021)	Comparative (India, Philippines)	Comparative qualitative analysis	Examines e-voting implementation and its implications for electoral participation
2	(Lablih & Sciarini, 2025)	Switzerland	Quantitative (age-period-cohort analysis)	Analyzes patterns of e-voting use across different demographic groups
3	(Soyipov et al., 2024)	Central Asia (contextual)	Conceptual-empirical	Explores the role of digital democracy in increasing voter turnout
4	(Theocharis et al., 2023)	Canada	Quantitative (campaign analysis)	Investigates social media campaigning and its effect on political engagement
5	(Allcott et al., 2024)	United States	Experimental study	Examines causal effects of social media on electoral behavior
6	(Wang & Tsai, 2023)	Taiwan	Quantitative	Explores dual role of social media as mobilizer and demobilizer
7	(Green et al., 2022)	United States	Quantitative (big data analysis)	Studies misinformation and its impact on voter turnout
8	(Matthes, 2022)	Europe	Quantitative (survey-based)	Examines youth political engagement in digital environments
9	(Ugur-Cinar & Ince, 2023)	Turkey	Quantitative	Analyzes emotional and behavioral drivers of voter turnout

Table 4. Overview of Selected Studies				
No	Authors (Year)	Country/Region	Research Method	Relevance to This Study
10	(Indriyanti et al., 2025)	Indonesia	Computational (LDA topic modeling)	Identifies public issues in elections through social media data
11	(Al-Zoubi et al., 2022)	Middle East	Applied/technical with empirical context	Explores blockchain for electoral transparency and trust

Source: Processed by the author, 2026

The impact of digital technology on voter participation identified in various selected studies is summarized in Table 5. Overall, these findings indicate that digital technology plays a varied role, with impacts that are not always positive or negative. Some studies report a positive relationship between digital technology particularly social media and digital democracy tools and increased political engagement and voter turnout. However, other studies highlight mixed effects, showing that the same platforms can both mobilize and demobilize voters depending on the context and patterns of use. Additionally, negative effects have been identified regarding misinformation, which can reduce voter participation. Several studies also point to indirect or conditional impacts, particularly in the case of new technologies such as e-voting and blockchain, where the effects depend on contextual and institutional factors. It is important to distinguish between the core articles included in the systematic review and additional literature used to support theoretical interpretation. The 11 selected studies constitute the primary empirical basis of the analysis, while supplementary references are used to contextualize and strengthen the conceptual discussion.

Figure 4. Distribution of publications by year

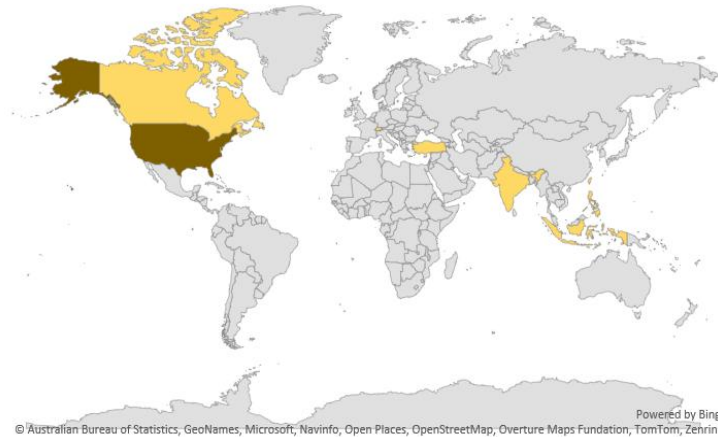


Source: Processed by the author, 2026

The results of this study indicate that digital technology has a varied impact on voter participation, with effects that are not entirely consistent across different contexts. These findings align with previous research indicating that information and communication technology plays a crucial role in expanding citizen participation in democratic processes, particularly by increasing access to information and political engagement (Asimakopoulos et al., 2025; Ruess et al., 2023). In the context of social media, the results of this study reinforce the argument that digital platforms can serve as effective tools for political mobilization. Interactive features on social media enable the rapid dissemination of political information and encourage voter engagement, particularly among younger generations (Alodat et al., 2023; Theocharis et al., 2023). This is also consistent with findings that digital-based political education can increase first-time voter participation by raising political awareness. However, the findings of this study also reveal contradictory effects, where digital technology does not always increase participation. In some cases, the use of digital

platforms is actually associated with a decline in the quality of participation or even voter demobilization. This phenomenon can be explained through the concept of platform affordances, where the characteristics of technology not only facilitate participation but can also create distractions or exposure to biased information (Theocharis et al., 2023). Furthermore, the dominance of certain actors in the digital space also has the potential to limit the quality of democracy, as explained in the concept of digital domination (Wandaogo, 2022). Thus, the results of this study confirm that the relationship between digital technology and voter participation is ambivalent; that is, it can function as both a driver and a barrier to participation, depending on how the technology is used and the context in which it operates.

Figure 5. Geographical distribution of the study



Source: Processed by the author, 2026

The results of the analysis show that the impact of digital technology on voter participation varies across studies. Some studies highlight individual factors, such as age and digital literacy, that are associated with differences in engagement with digital technology for political activities. Additionally, behavioral factors, such as emotional responses to digital campaigns, are reported to influence voter decisions. On the other hand, technological characteristics, including the type of digital platform used, are also associated with variations in participation levels. Some studies indicate that different platforms yield different levels of engagement.

Table 5. Effects of Digital Technology on Voter Participation

No	Authors (Year)	Type of Digital Technology	Effect on Voter Participation	Direction of Effect	Key Evidence
1	(Elven & Al-Muqorrobin, 2021)	E-voting systems	Electoral participation	Conditional	Impact depends on institutional readiness and infrastructure
2	(Lablih & Sciarini, 2025)	E-voting	Voting participation	Positive	Facilitates participation among specific demographic groups
3	(Soyipov et al., 2024)	Digital democracy tools	Voter turnout	Positive	Digital tools enhance accessibility and participation
4	(Theocharis et al., 2023)	Social media campaigning	Political engagement	Positive	Increased exposure to campaigns boosts engagement
5	(Allcott et al., 2024)	Facebook & Instagram	Voting behavior	Mixed	Platform use affects political knowledge and turnout variably
6	(Wang & Tsai, 2023)	Social media	Mobilization/demobilization	Mixed	Social media can both increase and decrease participation
7	(Green et al., 2022)	Online misinformation	Voter turnout	Negative	Exposure to misinformation reduces participation

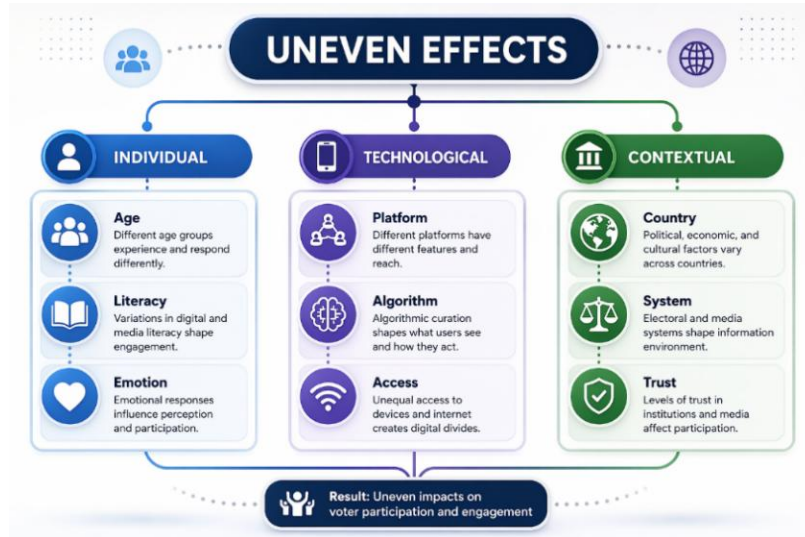
Table 5. Effects of Digital Technology on Voter Participation

No	Authors (Year)	Type of Digital Technology	Effect on Voter Participation	Direction of Effect	Key Evidence
8	(Matthes, 2022)	Social media	Youth political engagement	Positive	Enhances participation among younger voters
9	(Ugur-Cinar & Ince, 2023)	Digital campaigns	Voting behavior	Mixed	Emotional and campaign exposure influence turnout decisions
10	(Indriyanti et al., 2025)	Social media (X platform)	Issue engagement	Indirect	Shapes political awareness rather than direct turnout
11	(Al-Zoubi et al., 2022)	Blockchain technology	Trust & participation	Indirect	Improves trust, indirectly supporting participation

Source: Processed by the author, 2026

Another identified factor is exposure to inaccurate information, which, in some studies, is linked to a decline in voter participation. Furthermore, institutional factors such as the readiness of digital-based electoral systems and the level of trust in technology are also reported to influence participation. Overall, these findings indicate that variations in the effects of digital technology on voter participation are related to various factors identified in the analyzed studies, as summarized in visualized in Figure 6. His study is subject to several limitations. First, the reliance on open-access English-language publications may exclude relevant studies published in other languages or indexed in restricted databases. Second, the heterogeneity of research designs across the reviewed studies limits the ability to draw causal inferences. Third, the geographic concentration of the literature may reduce the representativeness of findings for less-studied regions.

Figure 6. Categories of Factors Influencing Uneven Effects



Source: Processed by the author, 2026

One of the key findings of this study is the existence of uneven effects of digital technology on voter participation. This finding expands the existing literature by demonstrating that the impact of digital technology is not universal but shaped by the interplay of various factors. At the individual level, the literature indicates that the ability to utilize digital technology, including digital literacy and critical thinking skills, plays a role in determining how individuals respond to political information available online (Gonzalez-Mohino et al., 2023). This explains why certain groups of voters are better able to leverage digital technology to increase participation, while others are more vulnerable to negative effects such as misinformation.

Table 6. Opportunities and Risks of Digital Technology in Electoral Participation

No	Authors (Year)	Opportunities	Risks	Type of Impact
1	(Elven & Al-Muqorrobin, 2021)	Improved accessibility through e-voting	Dependence on infrastructure readiness	Conditional
2	(Lablih & Sciarini, 2025)	Increased convenience in voting	Unequal adoption across groups	Mixed
3	(Soyipov et al., 2024)	Enhanced voter turnout	Potential over-reliance on digital tools	Positive
4	(Theocharis et al., 2023)	Increased political engagement	Campaign manipulation	Mixed
5	(Allcott et al., 2024)	Access to political information	Reduced knowledge when disengaged	Mixed
6	(Wang & Tsai, 2023)	Mobilization of voters	Demobilization effects	Mixed
7	(Green et al., 2022)	—	Misinformation reduces turnout	Negative
8	(Matthes, 2022)	Youth political engagement	Digital distraction	Mixed
9	(Ugur-Cinar & Ince, 2023)	Emotional engagement in campaigns	Emotional manipulation	Mixed
10	(Indriyanti et al., 2025)	Increased issue awareness	Information bias	Indirect
11	(Al-Zoubi et al., 2022)	Improved trust via blockchain	Technological complexity	Indirect

Source: Processed by the author, 2026

From a technological perspective, the characteristics of digital platforms also influence participation patterns. The concept of platform affordances explains that technological features can shape how individuals interact with political information, thereby resulting in variations in engagement levels (Theocharis et al., 2023). Additionally, technological advancements such as artificial intelligence and digital communication systems also have the potential to influence public trust in democratic institutions (Kreps & Jakesch, 2023). Meanwhile, contextual and institutional factors further strengthen or weaken the effects of digital technology. Studies indicate that levels of trust in the government and the effectiveness of digital governance play a role in driving public participation (Abdulkareem et al., 2022; Claassen & Magalhães, 2022). In this context, the implementation of e-government and digital governance becomes a critical factor in determining the success of digital technology utilization in democracy (Espinosa & Pino, 2025). Thus, the findings of this study confirm that the varied impacts of digital technology cannot be explained by a single factor but result from complex interactions among individual factors, technology, and institutional contexts.

The findings of this study also indicate that the use of digital technology in elections presents both opportunities and risks for the democratic process. On the one hand, digital technology creates opportunities to enhance the inclusivity of participation by expanding access to information and broadening political engagement (Aisyah et al., 2024). This aligns with the view that digitalization can strengthen democratic practices by increasing citizen engagement (Asimakopoulos et al., 2025). On the other hand, the emerging risks cannot be ignored. The spread of misinformation, manipulation of public opinion, and disparities in access to technology are major challenges in the use of digital technology in elections (Widiasari & Thalib, 2022). These risks have the potential to undermine the quality of democracy and create inequalities in political participation.

Furthermore, these findings indicate that these opportunities and risks are not distributed evenly but depend on social, economic, and institutional contexts. Therefore, the use of digital technology in elections requires an approach that focuses not only on technology adoption but also on strengthening user capacity

and adaptive governance. Although this study provides a comprehensive synthesis of the relationship between digital technology and voter participation, several limitations warrant attention. First, this study employs a systematic literature review approach that relies on available studies, so the findings are heavily influenced by the methodological limitations and contextual factors of the analyzed studies. Second, the literature selection is limited to English-language, open-access articles from 2020–2025, which may exclude relevant studies from other sources or non-Western contexts. Third, the heterogeneity of methodological approaches across studies (quantitative, qualitative, experimental) limits the universal generalizability of the findings. Fourth, this study has not empirically tested causal relationships between variables, so the findings are more conceptual and synthetic than confirmatory. Therefore, future research is recommended to combine cross-national comparative approaches and empirical analysis to test the uneven effects model more thoroughly.

Beyond descriptive categorization, this study develops a typology of uneven effects based on the interaction between technology, users, and context. Four main patterns can be identified. First, mobilizing effects occur when digital technology enhances access to information and lowers barriers to participation, particularly among politically engaged and digitally literate users. Second, demobilizing effects emerge when exposure to misinformation, political fatigue, or distrust discourages participation. Third, indirect effects arise when digital engagement increases political awareness without necessarily translating into voting behavior. Fourth, inequality-reproducing effects occur when structural disparities such as unequal access to digital resources lead to systematically uneven participation outcomes. These patterns demonstrate that digital technology does not produce uniform democratic consequences. Instead, its effects are contingent upon the alignment between individual capacities, technological affordances, and institutional conditions. This typology provides a more analytical explanation of uneven effects and moves the discussion beyond simple positive–negative classifications.

4. Conclusion

This study concludes that digital technology plays a significant yet ambivalent role in influencing voter participation. On the one hand, digital technology can expand access to information, increase political awareness, and facilitate citizen engagement in the democratic process. On the other hand, the same technology can also fuel disinformation, polarization, and a decline in the quality of participation. Thus, the impact of digital technology on voter participation is not linear, but rather complex and contextual. The main contribution of this study is the assertion that the impact of digital technology is uneven, shaped by interactions among individual factors (e.g., age and digital literacy), technological factors (platform and algorithmic characteristics), and contextual factors (institutional, trust, and governance). The findings of this study suggest that policymakers and electoral institutions must move beyond a technology-centric approach and address the structural inequalities that shape digital participation. Efforts to enhance voter engagement should include investments in digital literacy, equitable access to digital infrastructure, and regulatory frameworks to mitigate misinformation and algorithmic bias. Without such institutional interventions, the expansion of digital technologies risks reinforcing participatory inequalities rather than strengthening democratic inclusion.

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