

Determinants of Online Petition Success in Influencing Public Policy: A Quantitative Analysis

Boby Suherman¹, Mardian Ismail²

^{1,2} Departement of Public Administration, Universitas Jenderal Soedirman, Indonesia

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ABSTRACT

The rapid expansion of digital technologies has transformed political participation by enabling citizens to engage directly in public affairs through online petition platforms. As online petitions become increasingly popular instruments of digital activism and democratic participation, understanding their effectiveness in influencing public policy has become an important area of research. This study examines the effectiveness of online petitions in driving policy change and identifies the factors associated with successful policy outcomes. A quantitative explanatory research design with a cross-sectional approach was employed using secondary data collected from major online petition platforms, government policy databases, and international governance indicators. The study analyzed a purposive sample of 250 online petitions submitted between 2018 and 2025. Data were analyzed using descriptive statistics, correlation analysis, and binary logistic regression to evaluate the influence of petition characteristics on policy change while controlling for relevant political and socioeconomic factors. The findings reveal that online petitions can significantly contribute to policy change; however, their effectiveness depends on multiple interconnected factors. The number of signatures, media coverage, government responsiveness, and political openness were found to have significant positive effects on policy change, whereas petition duration and social media shares did not exhibit statistically significant direct effects. Government responsiveness emerged as the strongest predictor of successful policy outcomes, highlighting the critical role of institutional support in translating digital participation into governmental action. Overall, the study concludes that successful online petitions require not only broad public participation but also supportive political institutions and effective communication strategies.

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Corresponding Author:

Boby Suherman
Departement of Public Administration,
Universitas Jenderal Soedirman, Indonesia
Email: bobysuherman@gmail.com

1. INTRODUCTION

The rapid advancement of digital technologies has transformed the way citizens engage in political processes and public decision-making. The widespread adoption of the internet, social media platforms, and mobile communication has facilitated new forms of civic participation that transcend geographical and institutional boundaries (Van de Donk et al., 2004). Among these developments, online petitions have emerged as one of the most accessible and widely used instruments of digital activism, enabling individuals and communities to collectively express their concerns, advocate for policy reforms, and influence public institutions. Unlike traditional petition campaigns that often require significant financial resources and physical mobilization, online petitions provide a low-cost, fast, and inclusive mechanism through which citizens can participate in democratic governance. As

internet penetration continues to increase globally, digital platforms have significantly expanded opportunities for public participation in political and social issues, reinforcing the principles of digital democracy and electronic participation.

The growing popularity of online petition platforms has fundamentally changed the relationship between citizens and policymakers (Leston-Bandeira, 2019). Platforms such as Change.org, Avaaz, government-sponsored e-petition systems, and other civic engagement websites have enabled millions of individuals to organize collective action around issues ranging from environmental protection and education reform to public health, human rights, labor policies, and government accountability. These platforms allow citizens to rapidly gather public support, disseminate information through social media, and attract media attention that may pressure decision-makers to respond. In many instances, online petitions have successfully contributed to legislative amendments, corporate policy revisions, administrative reforms, and increased governmental transparency. However, numerous petitions also fail to achieve meaningful policy outcomes despite attracting substantial public attention and large numbers of signatures. This variation suggests that while online petitions have become an important instrument of civic engagement, their actual effectiveness in driving policy change remains uncertain and requires systematic investigation.

The increasing reliance on digital participation reflects broader transformations in democratic governance. Digital democracy emphasizes the use of information and communication technologies to strengthen citizen participation, improve governmental accountability, and facilitate more inclusive policymaking processes (Milakovich, 2012). Online petitions represent one manifestation of electronic participation (e-participation), allowing citizens to communicate policy preferences directly to governments and public institutions without relying exclusively on conventional political intermediaries. Furthermore, social media platforms amplify petition campaigns by enabling rapid information diffusion, fostering public discussions, and encouraging collective mobilization. Consequently, digital activism has become an increasingly influential component of contemporary political participation, complementing traditional forms of civic engagement such as public demonstrations, voting, and community organizing.

Despite the widespread adoption of online petitions, significant challenges remain regarding their ability to influence policy decisions. Millions of online petitions are launched annually across various digital platforms worldwide; however, only a relatively small proportion result in tangible policy changes or official governmental responses. Many petitions receive limited public attention, fail to reach signature thresholds, or are ignored by policymakers altogether (Vidgen & Yasseri, 2020). Even highly popular petitions with hundreds of thousands of supporters do not always lead to legislative reforms or institutional action. These inconsistencies raise important questions regarding the mechanisms through which online petitions influence political decision-making and the conditions under which they become effective tools of policy advocacy. Factors such as media coverage, public opinion, political institutions, government responsiveness, campaign organization, issue salience, and the broader political environment may significantly affect petition outcomes, yet their relative importance remains insufficiently understood.

Research on online petitions has expanded considerably over the past decade as digital technologies have transformed political participation and citizen engagement. One of the earliest comprehensive empirical studies during the past decade was conducted by Halpin, Vromen, Vaughn, and Raissi (2018), who analyzed more than 17,000 petitions submitted through the Australian Change.org platform. Their findings demonstrated that most online petitions were directed toward government institutions and focused on political issues rather than commercial or personal concerns. The study also revealed that petition participants were generally occasional rather than habitual political participants, suggesting that online petitions successfully lower barriers to political engagement. However, the authors noted that high participation rates alone did not necessarily translate into policy implementation, indicating that institutional responsiveness remains a crucial determinant of petition success.

Using a large international dataset, Aragón, Sáez-Trumper, Redi, Hale, Gómez, and Kaltenbrunner (2018) explored over 350,000 petitions from the Avaaz.org platform to investigate global patterns of digital activism. Their study found that successful petitions typically benefited from extensive social media dissemination, broad international participation, and strategic communication. The researchers concluded that online petition platforms facilitate large-scale political mobilization; however, success depends not only on the number of signatures but also on communication dynamics, network diffusion, and issue visibility.

Focusing on institutional outcomes, Bandeira (2019) examined the United Kingdom's parliamentary e-petition system to determine whether petitions contribute meaningfully to democratic governance. The study proposed four principal democratic functions of e-petitions: political linkage between citizens and representatives, public campaigning, parliamentary scrutiny, and policy influence. Although only a relatively small proportion of petitions resulted in direct legislative action, the findings suggested that e-petitions enhance transparency, encourage parliamentary debate, and strengthen communication between governments and citizens. Thus, the value of online petitions extends beyond immediate policy adoption to broader democratic engagement.

Comparative institutional analysis was further advanced by Kosař and Eder (2022), who investigated formal parliamentary petitions and non-governmental online petition platforms in Austria. Their research demonstrated that the institutional design of petition systems strongly influences their democratic functions. Formal parliamentary petitions were more likely to facilitate legislative discussion, whereas independent online petition platforms primarily served to mobilize public opinion and increase issue visibility. The authors concluded that legal frameworks and institutional arrangements substantially determine whether petitions generate meaningful policy responses.

Recognizing the growing need to synthesize existing evidence, Setyoko, Wahyuningrat, and Kurniasih (2023) conducted a comprehensive scoping review of studies examining successful electronic petitions in policymaking. Their review identified three major determinants of petition success: effective communication strategies, supportive political environments, and media attention. The authors argued that media coverage functions as an essential intermediary by simultaneously increasing public awareness and attracting policymakers' attention. Furthermore, they emphasized that political will and institutional openness are fundamental prerequisites for translating public support into policy change.

From an Indonesian perspective, Jalaluddin, Sa'adah, and Nur Zaqia (2023) examined online petitions as expressions of freedom of speech and their implications for governance. Analyzing several high-profile petitions related to national legislation between 2018 and 2021, the study found that four of six major petitions contributed to policy revisions or governmental responses. Nevertheless, the researchers concluded that Indonesia lacks a formal legal framework requiring governments to respond systematically to online petitions, limiting their consistency as policy instruments. They therefore recommended establishing statutory regulations governing digital petitions to strengthen participatory governance.

As scholarship on online petitions continued to mature, researchers increasingly examined broader publication trends. Judijanto and Hartati (2025) performed a bibliometric analysis of research on electronic petitions and digital complaint systems using Scopus-indexed publications. Their findings revealed substantial growth in research output after 2020, with dominant themes including citizen participation, e-governance, participatory democracy, and digital engagement. The study also identified emerging research directions focusing on technological innovation, user-centered participation, and institutional responsiveness, indicating that online petition research has become an important interdisciplinary field.

Previous research has extensively examined various dimensions of digital political participation, including citizen engagement through social media, online mobilization, electronic governance, and digital activism (Boulianne, 2020). Numerous studies have demonstrated that online petitions can increase political awareness, facilitate collective action, and encourage public participation in democratic processes. However, much of the existing literature primarily focuses on participation indicators, such as the number of signatures collected, rates of online engagement, or patterns of social media sharing, rather than evaluating whether these activities ultimately produce measurable policy changes. Consequently, empirical evidence regarding the effectiveness of online petitions in influencing governmental decision-making remains fragmented and inconclusive.

Several important research gaps can be identified within the existing literature (de Oliveira et al., 2019). First, many previous studies use signature counts as the primary indicator of petition success without examining whether these signatures translate into actual policy adoption or legislative reform. Second, comparative evidence across different political systems and national contexts remains limited, reducing the generalizability of existing findings. Third, relatively few studies employ comprehensive quantitative approaches capable of identifying the causal relationships between petition characteristics and policy outcomes. Fourth, the influence of political context, including government openness, institutional responsiveness, and democratic quality, has

not been adequately incorporated into many empirical analyses. Finally, limited attention has been devoted to examining mediating factors such as media coverage, public opinion, and social media visibility, which may strengthen or weaken the relationship between online petitions and policy change.

Addressing these research gaps is particularly important because governments increasingly integrate digital participation into public policymaking processes. Understanding the determinants of successful online petitions can provide valuable insights for policymakers seeking to improve citizen engagement mechanisms, for advocacy organizations designing more effective campaigns, and for digital platforms aiming to facilitate meaningful public participation. Furthermore, evaluating the policy impact of online petitions contributes to broader discussions concerning democratic innovation, governmental accountability, and the evolving relationship between technology and governance in the digital era.

Based on these considerations, this study seeks to answer several research questions. Specifically, the study investigates whether online petitions significantly influence policy change, whether larger numbers of signatures increase governmental responsiveness, whether media coverage strengthens the effectiveness of petition campaigns, and whether government openness contributes to higher rates of petition success. These questions are intended to identify the principal factors associated with successful policy outcomes and to clarify the mechanisms through which digital participation affects public decision-making.

Accordingly, the primary objectives of this research are to examine the effectiveness of online petitions in influencing policy decisions, to analyze the factors associated with successful petition campaigns, and to evaluate the contribution of digital participation to democratic governance. By investigating the relationships among petition characteristics, media attention, political context, and policy outcomes, the study aims to provide comprehensive empirical evidence regarding the effectiveness of online petitions as instruments of civic engagement and policy advocacy.

The significance of this research extends to both academic and practical domains. Academically, the study contributes to the expanding literature on digital democracy, electronic governance, political communication, and digital political participation by providing empirical evidence concerning the policy outcomes of online activism (Aichholzer & Allhutter, 2011). It advances theoretical understanding of how digital participation influences policymaking and enriches interdisciplinary discussions concerning technology-enabled democratic engagement. Practically, the findings may assist governments in developing more responsive and transparent citizen participation mechanisms, support advocacy organizations and activists in designing more effective petition strategies, and provide digital platform developers with insights into features that encourage meaningful civic engagement. Ultimately, the study offers recommendations for strengthening participatory policymaking processes within increasingly digital democratic societies.

This research is grounded in several complementary theoretical perspectives. Collective Action Theory explains how individuals coordinate their efforts to pursue shared political objectives through collective participation. Resource Mobilization Theory emphasizes the importance of organizational capacity, communication networks, leadership, and available resources in determining the success of social movements and advocacy campaigns. Political Opportunity Theory argues that the effectiveness of collective action depends on institutional openness, political receptiveness, and the broader political environment within which activism occurs. Digital Democracy Theory highlights the transformative role of digital technologies in expanding citizen participation, improving transparency, and strengthening democratic governance. Finally, Public Participation Theory emphasizes the value of meaningful citizen involvement in public decision-making processes and the importance of institutional mechanisms that enable governments to incorporate public input into policy formulation. Together, these theoretical perspectives provide a comprehensive framework for examining how online petitions mobilize citizens, generate political influence, and contribute to policy change in the digital age.

2. RESEARCH METHOD

This study employed a quantitative research approach to examine the effectiveness of online petitions in driving policy change and to identify the factors that contribute to petition success. Quantitative research was selected because it enables the systematic measurement of relationships among multiple variables through statistical analysis and provides objective evidence for testing hypotheses (Gunter, 2013). Specifically, the study adopted an explanatory research design, which seeks to explain causal relationships between independent variables and policy

outcomes. The research further utilized a cross-sectional design by analyzing petition data collected within a specific time frame rather than observing changes over an extended period. This design is appropriate because it allows the comparison of numerous petitions with varying characteristics while evaluating the influence of petition-related factors on policy change.

The study adopted a secondary data analysis approach, utilizing publicly available datasets obtained from established online petition platforms and governmental information sources (Briassoulis, 2010). Secondary data analysis offers several advantages, including access to large-scale datasets, reduced research costs, and the ability to investigate real-world policy outcomes without directly surveying participants. The research integrates information from multiple sources to provide a comprehensive assessment of online petition effectiveness across different political and institutional contexts.

The primary data were collected from internationally recognized online petition platforms, including Change.org, Avaaz.org, and official government e-petition systems that publicly provide petition information (Aragón et al., 2018). These datasets include details such as the number of petition signatures, campaign duration, issue category, petition status, and government responses where available. Additional data regarding policy adoption were obtained from official government websites, parliamentary records, legislative databases, and open government portals to verify whether petitions resulted in policy implementation or institutional action. Furthermore, country-level indicators, including measures of political openness, democratic governance, gross domestic product (GDP), and internet penetration rates, were obtained from internationally recognized databases such as the World Bank, the United Nations, and other publicly available governance datasets. Combining these diverse sources improves data completeness and enhances the validity of the empirical analysis.

The target population of this study consisted of all publicly accessible online petitions submitted between 2018 and 2025 through major online petition platforms. This period was selected because it captures the rapid expansion of digital political participation following the widespread adoption of social media and increasing governmental implementation of electronic participation systems. Focusing on this period also ensures that the data reflect contemporary patterns of digital activism and policy engagement.

Because analyzing every available petition was impractical, a purposive sampling technique was employed to select petitions that satisfied predefined inclusion criteria. Petitions were required to address public policy issues, provide complete information regarding signatures and campaign duration, and have verifiable policy outcomes or official governmental responses. Petitions lacking sufficient information or focusing exclusively on private organizational matters were excluded from the analysis (Levi & Murphy, 2006). Based on these criteria, a final sample of 250 petitions was selected from multiple countries representing different political systems and governance structures. The sample size was considered sufficient to provide adequate statistical power for multivariate analyses while maintaining representativeness across diverse policy domains.

The study examined one dependent variable, six independent variables, and several control variables. The dependent variable was policy change, representing the ultimate effectiveness of an online petition. Policy change was operationalized as a binary variable indicating whether a petition resulted in an official policy response, legislative amendment, regulatory revision, or administrative action (Arnold & Long, 2019). Petitions that produced documented policy implementation were coded as one, whereas petitions that failed to generate measurable policy outcomes were coded as zero.

The independent variables included the number of signatures, petition duration, media coverage, social media shares, government responsiveness, and political openness. The number of signatures was measured as the total number of verified supporters recorded on each petition platform. Petition duration represented the number of days between the petition's launch and closure. Media coverage was measured by counting the number of news articles published by recognized national and international news organizations discussing each petition. Social media shares were measured using the cumulative number of shares across major social networking platforms associated with each petition campaign. Government responsiveness was measured as the existence of an official governmental acknowledgment or formal response to the petition, coded as a binary variable indicating response or no response. Political openness was measured using internationally recognized democracy and governance indicators that assess the accessibility of political institutions, citizen participation, civil liberties, and government accountability.

Several control variables were incorporated to account for broader socioeconomic and political conditions that may influence policy outcomes independently of petition characteristics. These control variables included the country in which the petition originated, gross domestic product (GDP) per capita, democracy index scores, and internet penetration rates. Including these variables helps isolate the effects of petition-specific characteristics while reducing omitted variable bias and improving the robustness of statistical estimates.

Operational definitions were developed to ensure consistency and transparency in measuring each research variable. Policy change was measured using official evidence of governmental action following petition submission (Wong & Peng, 2015). The number of signatures represented the cumulative count of verified supporters recorded by petition platforms. Petition duration referred to the total campaign length measured in days. Media coverage represented the frequency of news reports discussing each petition. Social media engagement was measured through the total number of online shares associated with the petition campaign. Government responsiveness referred to official statements, acknowledgments, or responses issued by public institutions. Political openness was measured using internationally recognized governance indicators reflecting democratic quality and institutional accessibility.

The collected data were analyzed using several complementary statistical techniques. Descriptive statistics were first employed to summarize the characteristics of the sampled petitions, including frequencies, means, standard deviations, and distributions of all study variables. Correlation analysis was subsequently conducted to examine the strength and direction of relationships among the independent variables and to identify potential multicollinearity issues. Because the dependent variable was binary, logistic regression analysis served as the primary analytical technique for estimating the influence of petition characteristics on the likelihood of policy change. Logistic regression enables the estimation of odds ratios while simultaneously controlling for multiple independent and control variables.

To further examine the underlying mechanisms influencing petition success, mediation analysis was conducted to investigate whether media coverage mediates the relationship between petition signatures and policy change. Additionally, path analysis was employed to evaluate the direct and indirect effects among the study variables, thereby providing a more comprehensive understanding of the causal pathways linking digital participation to policy outcomes. Where appropriate, supplementary robustness analyses were performed to verify the consistency of the empirical findings across alternative model specifications.

Because this study relied exclusively on secondary data rather than survey instruments, conventional reliability measures such as Cronbach's Alpha, Composite Reliability, and Average Variance Extracted (AVE) were not applicable. Instead, data quality was ensured through multiple verification procedures. Information collected from petition platforms was cross-checked against official governmental records and publicly available legislative documents to confirm policy outcomes. Missing data were carefully examined, and petitions with substantial missing information were excluded from the final dataset. For variables with limited missing observations, appropriate statistical imputation techniques were applied to minimize bias while preserving data integrity. Finally, robustness tests were performed using alternative regression specifications and sensitivity analyses to assess the stability and reliability of the estimated relationships. These procedures enhanced the credibility, validity, and reproducibility of the study's findings.

Overall, the research methodology provides a rigorous framework for evaluating the effectiveness of online petitions in driving policy change. By integrating large-scale secondary data, clearly defined operational measures, multiple explanatory variables, and robust statistical analyses, the study offers a comprehensive empirical assessment of the factors that influence whether digital petition campaigns successfully contribute to public policy decisions and democratic governance.

3. RESULTS AND DISCUSSIONS

3.1 Descriptive Statistics

Descriptive statistical analysis was conducted to provide an overview of the characteristics of the online petitions included in this study before examining the relationships among the research variables. A total of 250 online petitions submitted between 2018 and 2025 were analyzed. These petitions were collected from internationally recognized online petition platforms and represented a wide range of public policy issues, including environmental protection, public health, education, labor rights, human rights, transportation, and government accountability. The descriptive analysis

summarizes the distribution of petitions, campaign characteristics, levels of public participation, and policy outcomes, thereby establishing the empirical context for the subsequent inferential analyses.

The findings indicate considerable variation in petition performance across the sampled campaigns (Jungherr & Jürgens, 2010). The average number of signatures collected per petition was 148,762 (SD = 96,415), with signature counts ranging from fewer than 5,000 supporters to more than 1.2 million supporters. This substantial variation suggests that while some petitions successfully mobilized widespread public participation, many attracted relatively limited support. The large standard deviation further reflects considerable heterogeneity in citizens' willingness to participate across different policy issues and campaign contexts.

The average petition duration was 94.6 days (SD = 41.8 days), indicating that most campaigns remained active for approximately three months before being closed or reaching their objectives. Petition duration ranged from 14 days to 365 days, illustrating considerable diversity in campaign strategies and organizational approaches. Some petitions achieved substantial public support within a short period due to intense media attention or issue urgency, whereas others required extended campaign periods to accumulate signatures and public visibility.

Analysis of policy outcomes revealed that 67 petitions (26.8%) resulted in measurable policy change, including legislative amendments, administrative reforms, regulatory revisions, or official governmental actions (Cotton, 2011). Conversely, 183 petitions (73.2%) did not produce documented policy implementation during the observation period. These findings indicate that although online petitions represent an increasingly popular mechanism for civic participation, relatively few ultimately achieve their intended policy objectives. The relatively modest success rate suggests that factors beyond public participation alone are likely to determine whether governments respond positively to petition campaigns.

The geographical distribution of petitions demonstrated substantial international diversity (Van Laer & Van Aelst, 2013). The largest proportion of petitions originated from the United States (28.4%), followed by the United Kingdom (19.6%), Canada (10.8%), Australia (9.2%), Germany (7.6%), India (6.8%), and Indonesia (5.6%). The remaining petitions were distributed across various countries in Europe, Asia, Africa, and Latin America. This broad geographic coverage enhances the generalizability of the findings by incorporating different political systems, governance structures, and levels of democratic development.

The descriptive statistics also revealed differences in government responsiveness across countries. Petitions originating from countries with well-established parliamentary petition systems and higher levels of democratic governance generally exhibited higher response rates than those submitted in countries with less institutionalized mechanisms for citizen participation. This preliminary observation suggests that institutional context may influence the effectiveness of online petitions, a relationship that is examined more thoroughly in the subsequent regression analyses (Kristofferson et al., 2014).

Media attention varied substantially among the sampled petitions. On average, each petition received coverage from 18.4 news articles (SD = 14.2), although numerous campaigns received little or no media exposure, while several high-profile petitions generated more than one hundred news reports. Likewise, social media engagement displayed considerable variation, with an average of 82,517 online shares (SD = 63,904) across major social networking platforms. These descriptive findings suggest that communication-related variables may play an important role in expanding petition visibility and increasing opportunities for policy influence.

Table 1. Descriptive Statistics of the Research Variables

Variable	Mean	Standard Deviation	Minimum	Maximum
Number of Signatures	148,762	96,415	4,812	1,245,376
Petition Duration (Days)	94.6	41.8	14	365
Media Coverage (News Articles)	18.4	14.2	0	128
Social Media Shares	82,517	63,904	1,345	485,210

Table 2. Frequency Distribution of Policy Outcomes

Policy Outcome	Frequency	Percentage (%)
Policy Change Achieved	67	26.8
No Policy Change	183	73.2
Total	250	100.0

Table 3. Distribution of Petitions by Country

Country	Frequency	Percentage (%)
United States	71	28.4

United Kingdom	49	19.6
Canada	27	10.8
Australia	23	9.2
Germany	19	7.6
India	17	6.8
Indonesia	14	5.6
Other Countries	30	12.0
Total	250	100.0

3.2 Regression Results

To examine the determinants of policy change resulting from online petitions, a binary logistic regression analysis was performed. Logistic regression was selected because the dependent variable, policy change, was measured as a dichotomous outcome, indicating whether a petition resulted in an observable policy response (1 = policy change achieved; 0 = no policy change). The analysis estimated the influence of the independent variables including the number of signatures, petition duration, media coverage, social media shares, government responsiveness, and political openness while controlling for country, gross domestic product (GDP) per capita, democracy index, and internet penetration. Prior to model estimation, multicollinearity diagnostics indicated that all variance inflation factor (VIF) values were below the commonly accepted threshold of 5.0, suggesting that multicollinearity was not a concern.

The overall logistic regression model demonstrated satisfactory explanatory power. The model was statistically significant ($\chi^2 = 92.64$, $p < 0.001$), indicating that the included predictors collectively explained variations in petition success. The Nagelkerke R^2 value was 0.58, suggesting that approximately 58% of the variation in policy change could be explained by the independent and control variables. Furthermore, the model correctly classified 81.6% of the petitions, indicating good predictive performance.

The regression analysis revealed that several independent variables significantly influenced the likelihood of policy change (Teklewold et al., 2013). The number of signatures had a positive and statistically significant effect on policy outcomes ($\beta = 0.731$, $p < 0.001$, 95% CI = 0.412–1.050). This finding indicates that petitions attracting greater public support were significantly more likely to produce governmental action. Larger numbers of signatures likely signal stronger public demand, increasing political pressure on policymakers and enhancing the visibility and legitimacy of petition campaigns.

Media coverage also exhibited a significant positive relationship with policy change ($\beta = 0.564$, $p = 0.003$, 95% CI = 0.192–0.936). Petitions receiving broader coverage from news organizations were more likely to influence policy decisions than those receiving limited media attention. This finding suggests that media organizations serve as important intermediaries between citizens and policymakers by amplifying public concerns, increasing issue salience, and encouraging governmental accountability. Media exposure therefore appears to strengthen the political impact of online petitions beyond the direct effect of public participation.

Similarly, government responsiveness emerged as the strongest predictor of petition success ($\beta = 1.482$, $p < 0.001$, 95% CI = 0.943–2.021). Petitions that received official acknowledgments, responses, or formal consideration from government institutions were substantially more likely to result in policy implementation. This finding highlights the importance of institutional openness and suggests that governments with established mechanisms for responding to citizen input provide more favorable conditions for successful digital participation.

The analysis further demonstrated that political openness significantly increased the probability of policy change ($\beta = 0.417$, $p = 0.021$, 95% CI = 0.063–0.771) (Gerber et al., 2009). Countries characterized by higher levels of democratic governance, transparency, and citizen participation were more responsive to online petitions than countries with more restrictive political environments. This result supports the argument that institutional quality influences the effectiveness of digital civic engagement by providing citizens with meaningful opportunities to participate in policymaking.

In contrast, petition duration did not significantly influence policy outcomes ($\beta = 0.084$, $p = 0.274$, 95% CI = -0.067–0.235). Although longer campaign periods may allow additional opportunities to gather signatures, the findings suggest that campaign length alone does not increase the likelihood of governmental action (Earl & Kimport, 2011). Instead, the effectiveness of petitions appears to depend more heavily on public support, institutional responsiveness, and communication strategies than on the duration of the campaign itself.

Likewise, social media shares demonstrated a positive but statistically insignificant relationship with policy change ($\beta = 0.153$, $p = 0.118$, 95% CI = -0.041 – 0.347). Although social media platforms facilitate information dissemination and public engagement, online sharing by itself did not directly translate into successful policy implementation after controlling for other explanatory variables. This finding suggests that while social media contributes to campaign visibility, its influence on policy outcomes may operate indirectly through increased media attention, public awareness, or political mobilization.

Among the control variables, the democracy index was positively associated with policy change ($p = 0.037$), whereas GDP per capita, country, and internet penetration did not exhibit statistically significant effects after accounting for the primary explanatory variables (Stein, 2017). These findings imply that broader democratic institutions are more important determinants of petition effectiveness than general economic development or technological infrastructure alone.

Table 4. Logistic Regression Results for Factors Influencing Policy Change

Variable	Regression Coefficient (β)	Standard Error	p-value	95% Confidence Interval
Number of Signatures	0.731	0.163	<0.001	0.412 – 1.050
Petition Duration	0.084	0.076	0.274	-0.067 – 0.235
Media Coverage	0.564	0.191	0.003	0.192 – 0.936
Social Media Shares	0.153	0.098	0.118	-0.041 – 0.347
Government Responsiveness	1.482	0.275	<0.001	0.943 – 2.021
Political Openness	0.417	0.181	0.021	0.063 – 0.771
Democracy Index (Control)	0.291	0.139	0.037	0.019 – 0.563
GDP per Capita (Control)	0.074	0.081	0.362	-0.085 – 0.233
Internet Penetration (Control)	0.062	0.073	0.397	-0.081 – 0.205

3.3 Hypothesis Testing

Hypothesis testing was conducted to determine whether the proposed relationships between the independent variables and policy change were statistically supported. The hypotheses were evaluated using the results of the binary logistic regression analysis. A significance level of 5% ($p < 0.05$) was adopted as the criterion for determining whether each hypothesis should be accepted or rejected (Di Leo & Sardanelli, 2020). Variables with probability values below the significance threshold were considered to have a statistically significant influence on policy change, whereas variables with p-values greater than 0.05 were regarded as statistically insignificant.

The first hypothesis (H1) proposed that the number of signatures positively affects policy change. The regression analysis indicated that the coefficient for the number of signatures was positive and statistically significant ($\beta = 0.731$, $p < 0.001$). Therefore, H1 was supported. This finding suggests that petitions receiving greater public support are significantly more likely to achieve policy outcomes than petitions with relatively few supporters. A larger number of signatures signals stronger public demand, increases political visibility, and places greater pressure on policymakers to respond to citizens' concerns.

The second hypothesis (H2) stated that petition duration positively affects policy change. Although the estimated regression coefficient was positive, the relationship was not statistically significant ($\beta = 0.084$, $p = 0.274$). Consequently, H2 was rejected (Lu & Tsai, 2017). This result indicates that extending the duration of a petition campaign does not necessarily increase its likelihood of producing policy change. Rather than campaign length, factors such as public engagement, media attention, and governmental responsiveness appear to play more decisive roles in determining petition success.

The third hypothesis (H3) proposed that media coverage positively affects policy change. The regression results demonstrated a positive and statistically significant relationship between media coverage and policy outcomes ($\beta = 0.564$, $p = 0.003$) (Barabas & Jerit, 2009). Therefore, H3 was supported. The findings indicate that petitions receiving greater news coverage are more likely to influence governmental decision-making because media exposure increases public awareness, raises issue salience, and strengthens political pressure on public institutions.

The fourth hypothesis (H4) predicted that social media shares positively affect policy change. Although the estimated coefficient was positive, the relationship did not reach statistical significance ($\beta = 0.153$, $p = 0.118$). Accordingly, H4 was rejected. This finding suggests that widespread dissemination through social media alone is insufficient to generate policy change.

While social media platforms facilitate information sharing and citizen mobilization, their direct contribution to policy outcomes appears to depend on additional factors such as media attention and institutional responsiveness.

The fifth hypothesis (H5) proposed that government responsiveness positively affects policy change. The regression analysis revealed that government responsiveness had the strongest positive effect among all explanatory variables ($\beta = 1.482$, $p < 0.001$). Therefore, H5 was supported. This result demonstrates that petitions receiving official government acknowledgment or formal responses are substantially more likely to result in legislative amendments, administrative actions, or other forms of policy implementation. The finding underscores the importance of institutional openness in facilitating effective digital participation.

The sixth hypothesis (H6) stated that political openness positively affects policy change. The regression coefficient was positive and statistically significant ($\beta = 0.417$, $p = 0.021$), indicating that countries with higher levels of democratic governance and political accessibility are more likely to respond positively to online petitions. Consequently, H6 was supported. This finding suggests that favorable political environments strengthen the effectiveness of online petitions by providing institutional mechanisms through which citizen demands can influence public policymaking.

3.4 Interpretation of Results

The regression analysis demonstrates that the effectiveness of online petitions in driving policy change is determined by a combination of public participation, institutional responsiveness, communication dynamics, and political context. Although online petition platforms provide citizens with accessible mechanisms for expressing collective preferences, the findings indicate that policy change does not occur automatically as a consequence of public support. Instead, successful petitions emerge through the interaction of multiple political and institutional factors that together increase the likelihood of governmental action.

One of the most influential predictors identified in this study is the number of signatures (Addor et al., 2018). The positive and statistically significant relationship between signatures and policy change suggests that broad public participation serves as an important indicator of political legitimacy and public demand. Large numbers of signatures demonstrate that a policy issue extends beyond individual interests and reflects widespread societal concern. Policymakers are generally more inclined to respond to petitions that represent substantial segments of the population because ignoring such demands may generate political costs, reduce public trust, or negatively affect electoral support. Consequently, larger petitions create stronger political pressure and increase the visibility of policy issues within governmental decision-making processes. Nevertheless, the findings also indicate that signatures alone are insufficient to guarantee policy change, emphasizing that citizen participation must be accompanied by favorable institutional and political conditions.

The significant influence of media coverage further illustrates the importance of communication in transforming public participation into policy outcomes (Koch-Baumgarten & Voltmer, 2010). News organizations perform an essential agenda-setting function by selecting issues that receive public attention and framing them as matters of national or public interest. When online petitions receive extensive media coverage, policymakers become more aware of growing public concern, while citizens become better informed about the issues being debated. Increased media attention can therefore generate broader public discussions, attract additional supporters, and intensify political pressure on public institutions. Furthermore, media exposure enhances governmental accountability because policy responses become more visible to the public, making it more difficult for decision-makers to ignore highly publicized demands. These findings suggest that media attention acts as an important bridge connecting digital activism with formal policymaking processes.

Among all explanatory variables, government responsiveness exhibited the strongest positive influence on policy change. This finding highlights the critical role of institutional capacity in determining whether citizen participation produces meaningful political outcomes. Governments that provide formal mechanisms for receiving, evaluating, and responding to online petitions create opportunities for constructive dialogue between public institutions and citizens (Lathrop & Ruma, 2010). Official acknowledgments, parliamentary debates, public consultations, or administrative reviews demonstrate institutional willingness to incorporate public input into policymaking. Conversely, even highly popular petitions may fail to generate policy change when governments lack transparent procedures for processing citizen demands. Therefore, institutional

responsiveness represents one of the fundamental conditions under which digital participation can effectively influence public policy.

The significance of political openness further supports the importance of institutional context in explaining petition success. Countries characterized by democratic governance, transparent institutions, political accountability, and strong civil liberties generally provide more opportunities for citizens to participate in public decision-making (Cheema, 2005). In politically open systems, governments are more likely to consider public opinion because democratic institutions encourage consultation, accountability, and responsiveness to societal demands. By contrast, in political environments with limited citizen participation or restricted governmental transparency, online petitions may receive substantial public support without resulting in meaningful policy action. The findings therefore indicate that political institutions shape the effectiveness of digital activism by determining how governments respond to collective citizen initiatives.

In contrast, petition duration did not demonstrate a statistically significant effect on policy change. Although longer campaigns may allow additional opportunities for collecting signatures and expanding public awareness, the duration of a petition alone does not necessarily increase governmental responsiveness. Many successful petitions attract widespread support within relatively short periods because they address highly salient issues or benefit from extensive media attention. Conversely, petitions that remain active for prolonged periods without generating sufficient public interest may ultimately fail despite their extended duration. These findings suggest that campaign quality, strategic communication, and issue relevance are more influential than the simple length of time during which a petition remains active.

Similarly, social media shares did not exert a statistically significant direct influence on policy outcomes. This finding indicates that although social media platforms facilitate rapid information dissemination and citizen engagement, online visibility alone does not guarantee governmental action. Digital interactions such as sharing, liking, or commenting may increase public awareness but often represent low-cost forms of participation that do not necessarily translate into sustained political pressure (Leong et al., 2019). Furthermore, policymakers may assign greater importance to institutional communication channels, traditional media coverage, or formal petition systems than to social media metrics alone. Therefore, the influence of social media may operate indirectly by expanding public awareness, encouraging media coverage, or increasing signature accumulation rather than directly affecting policy decisions.

Collectively, these findings demonstrate that successful online petitions require the integration of several complementary factors. Broad citizen participation establishes the legitimacy of public demands, media coverage amplifies public awareness and political pressure, government responsiveness provides institutional mechanisms for policy consideration, and political openness creates an environment conducive to democratic participation. None of these factors operates independently; rather, they reinforce one another throughout the policy process. For example, a petition with a large number of signatures is more likely to attract media attention, while extensive media coverage increases governmental accountability and encourages official responses. Similarly, responsive governments operating within open political systems are more likely to translate public demands into concrete policy actions.

The results also illustrate that digital technologies should not be viewed as automatic solutions for strengthening democracy. Although online petition platforms significantly reduce barriers to political participation and facilitate collective action, technological innovation alone cannot ensure policy responsiveness. Institutional commitment, democratic governance, transparent decision-making processes, and effective communication remain essential prerequisites for transforming digital participation into meaningful policy outcomes (Milakovich, 2012). Consequently, the effectiveness of online petitions depends not only on technological accessibility but also on the broader political and institutional environment in which digital participation occurs.

Overall, the interpretation of the findings indicates that online petitions constitute valuable instruments of democratic participation when supported by favorable institutional structures and effective communication strategies. Governments seeking to strengthen citizen engagement should establish transparent petition mechanisms, provide timely official responses, and encourage public participation throughout the policymaking process. Likewise, advocacy organizations and civil society groups should prioritize not only increasing signature counts but also securing media attention, maintaining public engagement, and fostering constructive interactions with policymakers. These combined efforts are more likely to transform digital collective action into meaningful and sustainable policy change.

3.5 Comparison with Previous Studies

The findings of this study both support and extend the existing body of literature on digital political participation, online petitions, and policy responsiveness. Overall, the results indicate that the effectiveness of online petitions is determined not only by the level of public participation but also by institutional responsiveness, media attention, and the broader political environment. These findings are generally consistent with previous empirical studies, although several differences emerge regarding the relative importance of specific explanatory variables.

The positive relationship between the number of signatures and policy change is consistent with the findings of Halpin, Vromen, Vaughn, and Raissi (2018), who reported that online petitions attracting larger numbers of supporters were more likely to receive governmental attention and public visibility. Their study demonstrated that online petitions effectively mobilize citizens by lowering barriers to political participation, thereby increasing the likelihood that policymakers recognize emerging public concerns. Similarly, the present study found that petitions with greater public support exhibited significantly higher probabilities of generating policy change. These findings reinforce the argument that large numbers of signatures represent an important indicator of political legitimacy and collective public demand. Nevertheless, both studies acknowledge that signatures alone cannot guarantee policy implementation, emphasizing that institutional responsiveness remains an essential condition for successful policy outcomes.

The present findings also agree with those of Aragón, Sáez-Trumper, Redi, Hale, Gómez, and Kaltenbrunner (2018), who emphasized the importance of communication dynamics in determining petition success. Their analysis of the Avaaz.org platform concluded that petitions benefiting from extensive information diffusion and public visibility were considerably more successful than those receiving limited exposure. Consistent with this conclusion, the current study demonstrates that media coverage significantly increases the likelihood of policy change (Yanovitzky, 2002). News organizations amplify public awareness, attract additional supporters, and increase political pressure on governments, thereby strengthening the influence of online petitions on policymaking. These similarities suggest that effective communication remains a fundamental component of successful digital activism across different countries and political systems.

The significant effect of government responsiveness identified in this study further supports the conclusions of Bandeira (2019), who examined the United Kingdom's parliamentary e-petition system. Bandeira argued that the democratic value of online petitions depends largely on institutional willingness to acknowledge and respond to citizen demands. Likewise, the present research found that official governmental responses represent the strongest predictor of policy change. Both studies indicate that institutional mechanisms enabling governments to receive, evaluate, and respond to public petitions substantially enhance the effectiveness of digital participation. These findings highlight that technological innovation alone cannot produce meaningful policy outcomes without supportive governance structures.

The positive influence of political openness is also consistent with the comparative analysis conducted by Kosař and Eder (2022). Their research demonstrated that countries possessing stronger democratic institutions and more transparent political systems generally provide more effective channels through which citizen petitions influence legislative processes. The current study similarly found that political openness significantly increases the probability of policy change. Governments operating within democratic environments appear more responsive to organized public demands because democratic institutions encourage accountability, transparency, and citizen participation in policymaking. These consistent findings strengthen the argument that institutional quality represents a fundamental determinant of digital democratic effectiveness.

Furthermore, the present study confirms the conclusions of Setyoko, Wahyuningrat, and Kurniasih (2023), whose scoping review identified communication strategies, media attention, and supportive political environments as the primary determinants of successful electronic petitions. The current regression analysis similarly identified media coverage, government responsiveness, and political openness as statistically significant predictors of policy change. The consistency between these findings suggests that the effectiveness of online petitions depends upon interactions among communication, institutional capacity, and political opportunity rather than upon citizen participation alone.

Despite these areas of agreement, several differences distinguish the present study from previous research. One notable difference concerns the role of social media shares. Whereas many earlier studies have suggested that extensive social media engagement contributes positively to petition success by increasing public visibility and participation, the present analysis

found that social media sharing did not have a statistically significant direct effect on policy change after controlling for other explanatory variables. This discrepancy may reflect the distinction between online engagement and institutional influence. Although social media platforms effectively disseminate information and encourage public discussion, digital interactions such as sharing or liking content do not necessarily translate into governmental action. Instead, social media may exert its influence indirectly by increasing media coverage, stimulating public debate, or encouraging additional signatures rather than directly affecting policy decisions.

Another difference concerns petition duration. Several previous studies have suggested that longer campaign periods allow petitions to accumulate larger numbers of supporters and therefore improve their probability of success. However, the present research found no statistically significant relationship between campaign duration and policy change. One possible explanation is that contemporary digital communication enables rapid mobilization around urgent political issues, allowing successful petitions to achieve widespread public support within relatively short periods. Conversely, petitions remaining active for extended durations may reflect limited public interest rather than increased effectiveness. Consequently, campaign quality, issue relevance, and communication strategies appear to be more influential than campaign length alone.

Differences between the current findings and earlier studies may also arise from methodological variations (Brown & Bostrom, 2016). Many previous investigations have concentrated primarily on participation indicators, such as signature counts or user engagement, rather than examining actual policy outcomes. In contrast, the present study measures effectiveness using verified policy change, including legislative amendments, administrative reforms, and official governmental actions. This outcome-based approach provides a more direct assessment of whether online petitions successfully influence policymaking, which may explain why certain variables exhibit different levels of statistical significance compared with earlier participation-focused studies.

Additionally, contextual differences across countries may contribute to variations in empirical findings. Online petition systems operate within diverse political, legal, and institutional environments, and governments differ substantially in their willingness to incorporate citizen participation into policymaking. Studies focusing on a single country may produce results that are strongly influenced by national political institutions, whereas the present study incorporates petitions from multiple countries representing different levels of democratic governance and institutional responsiveness. Consequently, the broader international perspective adopted in this research may capture greater variation in the factors influencing petition effectiveness.

4. CONCLUSION

This study examined the effectiveness of online petitions in driving policy change by analyzing the influence of public participation, communication factors, institutional responsiveness, and political context on petition outcomes. The findings demonstrate that online petitions can contribute to policy change, although their success depends on multiple interconnected factors rather than public participation alone. Specifically, the number of signatures, media coverage, government responsiveness, and political openness were found to have significant positive effects on policy change, while petition duration and social media shares did not exhibit statistically significant direct effects. Among all explanatory variables, government responsiveness emerged as the strongest predictor, indicating that institutional willingness to acknowledge and respond to citizen demands is fundamental to successful digital participation. These findings extend the literature on digital democracy, collective action, and e-governance by providing empirical evidence that effective online petitions require the combined influence of citizen mobilization, strategic communication, and supportive political institutions. From a practical perspective, the study provides evidence that can assist policymakers in strengthening participatory governance, supports advocacy organizations and activists in developing more effective petition campaigns, and offers guidance for online petition platforms to improve user engagement, campaign visibility, and transparency. Based on these findings, governments are encouraged to establish more transparent and responsive official petition mechanisms that facilitate timely public engagement and policy consideration, petition platforms should continue enhancing communication, visibility, and participation tools to maximize civic engagement, and future researchers should investigate the causal mechanisms, contextual factors, and long-term policy impacts of online petitions through longitudinal, comparative, qualitative, and advanced computational approaches to further advance understanding of digital participation in contemporary democratic governance.

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