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Participatory Governance in Times of Crisis: Tools of Digital Democracy

Tetiana Madryha[1,*], Andrii Aleksandrovych[2], Serhii Piddubnyi[3], Anastasiia Konovalenko[4] and Vasyl Prodanyk[5]
[1]Department of Political Science, Faculty of History, Political Science and International Relations, Vasyl Stefanyk Carpathian National University, Ivano-Frankivsk, Ukraine
[2]Department of Public Management, Administration and Law, National University "Yuri Kondratyuk Poltava Polytechnic", Poltava, Ukraine
[3]Institute of Law, Kyiv National Economic University named after Vadym Hetman, Kyiv, Ukraine
[4]Department of Economics and Business, Faculty of Economics and Business, Dmytro Motornyi Tavria State Agrotechnological University, Zaporizhzhia, Ukraine
[5]Departments of Public Administration and Finance, Banking and Insurance, Interregional Academy of Personnel Management, Kyiv, Ukraine

Correspondence: tetiana_madryga@ujis.in.ua

Abstract This article examines the role of participatory governance and digital democracy during crises, including public-health emergencies, armed conflict, and political instability, with particular attention to Ukraine. Its main objective is to assess how digital tools can sustain citizen engagement, enhance communication, and support accountability when conventional forms of participation are disrupted. The study adopts an exploratory secondary-research design, combining qualitative thematic analysis of peer-reviewed scholarship, institutional reports, and policy materials with descriptive consideration of published indicators of digital-government development and platform adoption. It evaluates online consultation systems, electronic petitions, participatory budgeting, civic technology, social media, and public-service portals as distinct mechanisms rather than interchangeable indicators of democratic participation. The reviewed evidence suggests that these tools can sustain public communication and create opportunities for consultation, public scrutiny, mobilization, and collaborative problem-solving during emergencies. Digital uptake also expanded during the COVID-19 period, although the magnitude of change varied by country, platform, measure, and population, and the available sources do not support a single universal percentage increase. Ukraine provides an instructive example: the Diia ecosystem enabled millions of people to access digital public services during the pandemic and wartime, while civil society organizations and volunteer networks used online channels to coordinate humanitarian assistance and communicate community needs. These developments should not automatically be equated with increased deliberative influence over public policy, since service usage and democratic participation measure different activities. The synthesis also identifies persistent barriers, including unequal internet access, limitations in digital skills, institutional distrust, misinformation, cybersecurity risks, and possible restrictions on civic freedoms during emergencies. Such inequalities can marginalize populations most affected by crises and reduce the representative quality of digital participation. The article concludes that digital democracy can strengthen participatory governance when digital infrastructure is accompanied by accessible consultation procedures, transparent institutional responses, civic capacity, privacy safeguards, and meaningful opportunities for citizens to influence public decisions.

Index Terms participatory governance; democracy; digital democracy; political participation; civil society; crisis governance; e-governance; digital advocacy; participatory governance in crisis; public policy; society; transformation.

I. Introduction

Participatory governance is a model of public decision-making in which citizens, civil society organizations, and other stakeholders are actively involved in policy development and implementation rather than treated as passive recipients of government decisions [1]. Grounded in democratic theory, participatory governance emphasizes inclusiveness, accountability, and responsiveness, potentially reinforcing the legitimacy and effectiveness of political institutions [2]. Meaningful citizen involvement can help governments align public policies more closely with societal needs while supporting transparency, public trust, and informed institutional decision-making [3].

The significance of participatory governance has become particularly apparent during recent crises, including the COVID-19 pandemic, climate-related disasters, and political upheaval. Such emergencies often require rapid decisions, concentrate executive authority, and interrupt established procedures for public consultation and democratic deliberation [4]. Although emergency arrangements may improve administrative speed and coordination, they can also narrow opportunities for public input and diminish the role of civil society

unless safeguards for openness and accountability remain in place.

At the same time, the growth of digital technologies has transformed governance practices and accelerated the development of e-government and digitally mediated forms of public participation. Online consultations, public-service platforms, and real-time communication tools can enable governments to interact with residents, disseminate reliable information more efficiently, and receive feedback on emerging policy problems [5]. The movement from exclusively hierarchical procedures toward digitally supported participation creates opportunities for more inclusive engagement while introducing challenges involving accessibility, equity, data protection, and the reliability of information [6].

Although participatory governance establishes a normative expectation of citizen involvement, a substantial gap often remains between democratic ideals and actual decision-making practices, particularly during periods of emergency. Emergency conditions may require immediate state intervention and can push participatory procedures into the background, particularly when consultation mechanisms are not adapted to urgent circumstances [4], [7]. When participation is curtailed, democratic accountability may weaken and citizens may find it more difficult to scrutinize official decisions or express informed concerns about the government's response.

The expansion of digital engagement has also made structural inequalities more visible, particularly those associated with the digital divide. Differences in broadband infrastructure, device availability, accessible design, and digital literacy constrain meaningful participation among economically disadvantaged and otherwise marginalized populations [6]. Misinformation and disinformation circulating on online platforms further complicate deliberation, influence public perceptions, and may distort the information environment in which policies are discussed [8].

Beyond inequalities in participation, an additional concern is the limited or merely symbolic involvement of civil society organizations in some crisis-governance arrangements. Civil society organizations articulate community interests, mobilize local knowledge, and help hold policymakers accountable for their responses to citizens' needs, but emergency arrangements may restrict their ability to influence decisions [9]. These challenges justify examining whether digital democracy can support substantive participation under crisis conditions rather than simply expand the number of people using online services. The present study therefore assesses the potential of digital tools to strengthen participatory governance during emergencies, considering variations in institutional capacity, public trust, accessibility, and crisis context.

II. Literature Review

A. Concept of Participatory Governance

Participatory governance is based on democratic theory that emphasizes citizen participation in decision making outside of the traditional process of electing leaders. Arnstein's ladder model of citizen participation is an influential model for distinguishing levels of public influence, ranging from manipulation and tokenistic consultation to genuine citizen power [10]. The model demonstrates why the existence of a consultation channel is insufficient: participation is meaningful only when participants have opportunities to shape decisions and influence policy outcomes.

Deliberative democracy develops this argument by emphasizing the quality of public reasoning, the inclusion of diverse perspectives, and the conditions under which collective decisions are justified. Dryzek [2] argues that deliberative procedures allow citizens to exchange reasons, consider conflicting interests, and develop a better understanding of competing positions in public affairs. Inclusiveness, transparency, mutual respect, and the exchange of diverse perspectives are therefore central requirements of democratic deliberation and accountable public administration.

Civil society has a central role in participatory governance because its organizations and networks can mediate relationships between citizens and public institutions. Policy development can benefit from the participation of nongovernmental organizations (NGOs), advocacy associations, and community networks that facilitate public involvement and scrutinize government activities [9]. In these roles, civil society improves accountability and empowers democratic institutions. Nevertheless, effective participation depends on political will, administrative resources, civic autonomy, and procedures that allow the contributions of stakeholders to affect institutional responses.

B. Digital Democracy and E-Governance

Digital democracy refers to the application of information and communication technologies (ICTs) to strengthen democratic activities, including political participation, public deliberation, transparency, and accountability [11]. It overlaps with e-government, which uses digital systems to improve administration and public-service delivery, although the provision of online services is not itself equivalent to meaningful participation in democratic decision-making [5].

The expansion of digital democracy has been facilitated by internet connectivity, mobile communication, data infrastructures, and increasingly interactive public-sector platforms. Earlier e-government initiatives emphasized information dissemination and administrative efficiency; contemporary platforms may also enable citizens to submit proposals, express preferences, and participate in consultation processes [12]. Electronic voting, virtual consultation services, participatory budgeting applications, and open data portals are some of the tools that allow citizens to participate in the process of government.

Such technologies can improve transparency when relevant public information is accessible, understandable, and accompanied by opportunities for citizens to obtain explanations from decision-makers. Open-data initiatives can help stakeholders monitor public spending and policy implementation, provided that datasets are sufficiently complete, interpretable, and regularly updated to support independent scrutiny [13].

On the same note, social media has emerged as a significant medium of political communication where governments and citizens have been able to communicate through the sharing of information and opinions, respectively.

The effectiveness of digital democracy nevertheless depends on digital skills, affordable infrastructure, accessible platform design, and institutional commitments to respond to public input. Although digital tools may broaden opportunities for engagement, they may also reinforce existing inequalities when access to devices, connectivity, and political influence remains uneven [6].

C. Governance in Times of Crisis

Crisis governance encompasses the institutional processes through which governments and other actors prepare for, respond to, and recover from emergencies such as natural disasters, pandemics, and armed conflict. It frequently requires rapid decisions, coordination across institutions, the mobilization of limited resources, and communication with affected populations under conditions of considerable uncertainty [4].

A recurring tension in crisis governance concerns the allocation of authority between centralized and decentralized institutions. Centralized arrangements may support fast, coordinated action, but they can also reduce local discretion, constrain community input, and weaken accountability if emergency authority is exercised without effective oversight. Conversely, decentralized governance can facilitate locally appropriate solutions and stakeholder involvement, although fragmented authority may complicate coordination and the equitable distribution of resources [7].

Granting emergency powers to governments may create additional pressures on democratic oversight and the protection of civil liberties. Although these powers are supposed to help in achieving a good response, they can contribute to undermining democratic norms, such as transparency, accountability, and citizen participation [14], [15]. Balancing rapid and effective crisis management with proportionality, transparency, and democratic accountability is therefore a central concern of public administration.

Under these circumstances, participatory governance may be more difficult to organize, yet it can also become more important for the legitimacy and practical responsiveness of emergency measures. Citizen and civil-society involvement can contribute local knowledge, improve the suitability of policy responses, and strengthen social resilience, provided that consultation procedures, technological access, and institutional follow-through are available.

D. Role of Civil Society in Crisis Participation

Civil society organizations (CSOs) can facilitate participation during emergencies by representing community interests, mobilizing resources, identifying unmet needs, and reaching people who might otherwise be excluded. Nongovernmental organizations, grassroots initiatives, and volunteer networks frequently mediate relationships between public officials and residents, creating channels through which diverse experiences may inform policy [9], [16].

Civil society can enhance community resilience during emergencies by providing essential assistance, sharing verified information, coordinating volunteers, and organizing responses adapted to local conditions. For example, grassroots groups helped address gaps in health services, emergency relief, and social support during the COVID-19 pandemic, especially where public services were overstretched [16].

Civil society can also contribute to the co-production of public services, whereby citizens and public authorities collaborate in designing and implementing responses. Such collaboration can strengthen policy relevance by incorporating situated knowledge and developing shared responsibility for implementation and evaluation [17].

Nevertheless, the scope of civil-society participation varies considerably across political settings and may be restricted by regulatory constraints, organizational resources, safety considerations, or unequal access to digital technology. Meaningful engagement requires supportive policy arrangements, accessible communication channels, and formal recognition of civil society as an independent participant in public decision-making rather than merely an auxiliary service provider.

E. Gaps in Existing Literature

Although a substantial literature addresses participatory governance and digital democracy, the operation of digital engagement mechanisms under emergency conditions remains insufficiently understood across different institutional and geographical settings. Many studies investigate relatively stable governance environments, whereas emergency conditions may alter public access, institutional decision-making authority, consultation priorities, and the consequences of exclusion [7].

Research is also disproportionately concentrated in countries with comparatively strong digital infrastructure, established administrative capacity, and accessible public records. Such concentration can obscure the distinct problems encountered in less-resourced regions, including connectivity deficits, weaker institutions, limited digital skills, and socioeconomic inequality [6].

Another research need concerns the integration of technological assessments with normative and institutional theories of democracy. Analyses emphasizing technological efficiency and service innovation may overlook inclusiveness, equity, power asymmetries, and the distribution of decision-making influence [12]. Conversely, democratic theory alone may not fully explain the design choices, infrastructure constraints, and platform practices that shape digitally mediated participation.

Addressing these questions requires an interdisciplinary approach that combines political science, public administration, information systems, and crisis-management research. Such an approach can distinguish wider digital uptake from genuine policy influence while examining how participation varies across emergencies and populations.

F. Participatory Governance and Digital Democracy in Ukraine

Ukraine provides an important case for examining participatory governance and digital democracy amid political transformation, institutional reform, the COVID-19 pandemic, and the consequences of Russia's full-scale invasion. Its governance reforms have involved decentralization, digital innovation, and continuing contributions from civil society, although the degree of meaningful participation differs across policy areas. The decentralization reforms launched in 2014 sought to transfer responsibilities and resources to local government, strengthen administrative capacity, and improve opportunities for community involvement and public-service delivery [18]. These reforms created additional institutional channels for local decision-making, while their practical effectiveness continued to depend on resources, administrative arrangements, and citizen participation.

One of the most visible initiatives in Ukraine's digital transformation is Diia, an e-government ecosystem through which citizens can access public services, official digital documents, and selected forms of interaction with state institutions. Digital initiatives such as Diia have broadened access to administrative services, although service delivery should be analytically distinguished from citizen participation in the formulation of public policy [5]. As documented by the OECD, the Diia application had approximately 19.5 million users in September 2023, illustrating substantial service uptake without establishing how many users participated in policy deliberation [19].

Civil society has also played a substantial role in Ukraine's crisis responses following the escalation of the war in 2022. Ukrainian CSOs have organized humanitarian assistance, shared practical information, advocated for community needs, and coordinated voluntary action through a combination of digital platforms and in-person networks [20]. These developments illustrate the relevance of digital communication for civic coordination during wartime, while also indicating the need to distinguish humanitarian mobilization from formal participation in government decision-making.

III. Materials and Methods

A. Research Design

This study used an exploratory secondary-research design combining qualitative interpretation of published scholarship and policy reports with descriptive examination of verified quantitative indicators concerning digital governance and citizen engagement during crises. Qualitative analysis permits closer examination of institutional processes, stakeholder relationships, and context-dependent interpretations of participation [21], while descriptive indicators offer independently observable context for evaluating the scale of digital-government adoption. The two sources of evidence were considered together without assuming that descriptive statistics establish causal effects.

The exploratory analysis focused on recurring patterns in the ways digital participation tools, institutional governance arrangements, and emergency conditions intersect. In addition to thematic interpretation, the study examined available quantitative measures such as the E-Government Development Index, published estimates of internet connectivity, and documented adoption of the Diia platform. These measures provide context for assessing digital capacity, but they do not directly measure the quality of deliberation or the influence of citizens on policy choices.

B. Data Sources

The study drew on qualitative and quantitative secondary sources, including peer-reviewed articles, institutional reports from the OECD, World Bank, and United Nations organizations, and published indicators of e-government, connectivity, digital service use, and civic engagement. No original survey, interview, or experiment was conducted.

Sources were selected for relevance, institutional credibility, and relevance to digital governance and crises, with particular attention to the period 2015–2025 while retaining foundational theoretical work published earlier. Alongside scholarly literature, official reports and indicators, especially the United Nations E-Government Survey and information published by the OECD, were used to contextualize the analysis and identify differences in administrative digital capacity [5], [18].

Special attention was given to Ukraine-related evidence on digital public-service use, decentralization, wartime governance, and civil-society coordination. This combination connects theoretical arguments with documented institutional practices, while recognizing that descriptive indicators and qualitative case material support different types of inference.

C. Data Analysis Method

Thematic analysis was used to identify recurring patterns involving digital instruments, opportunities for participation, institutional responses, and barriers to inclusion [22]. Qualitative interpretation was supplemented by descriptive assessment of selected official indicators, enabling comparisons of available digital capacities without implying that platform adoption alone represents democratic effectiveness.

The material was organized into three analytical categories: digital participation tools, institutional governance mechanisms, and structural barriers to effective participation. Published statistics on internet access, government digital development, and platform usage were reviewed where their underlying definitions and source institutions could be identified. The Ukrainian case was considered alongside international research to clarify variations in policy context, technological capacity, and institutional arrangements. Findings were presented as a secondary synthesis rather than as causal estimates or a harmonized cross-national statistical comparison [23].

D. Limitations

Reliance on secondary materials limits the depth of contextual verification, particularly where the original datasets, survey

instruments, or evaluation protocols were not available. Although official quantitative indicators were considered, the absence of primary interviews, surveys, and platform-level participation data precluded direct verification of citizens' experiences and the influence of online consultations on government decisions [24]. Comparisons are further limited by variation in reporting dates, definitions of digital users, levels of geographical aggregation, and the distinction between public-service transactions and democratic participation.

IV. Results

A. Digital Tools Enabling Participation

The literature reviewed indicates that online consultation systems, electronic petitions, participatory budgeting, and civic-technology initiatives can provide public involvement channels when face-to-face engagement is disrupted. The principal participation tools and their different functions are summarized in Table 1. The OECD documents the development of innovative participation arrangements, but the cited report does not substantiate a uniform 30–40% increase in online participation across OECD countries during COVID-19 [5]. The scale of uptake must instead be assessed for each platform and context.

Digital consultation portals allow authorities to invite submissions, collect feedback, publish responses, and maintain contact with participants despite restrictions on physical meetings. European research on online democratic participation during COVID-19 identifies inclusiveness and access as important concerns, although the cited study does not establish a uniform one-quarter rise in consultation accessibility [25]. Electronic petitions can also offer a route for citizens to raise public concerns and seek an institutional response, but such opportunities should not be confused with guaranteed influence over the final agenda.

Participatory budgeting can support public deliberation about expenditure priorities, but comparisons of turnout across pandemic periods require location-specific administrative records and consistent denominators. The cited study on digital accountability does not verify a general 20–30% rise in turnout [26]. Civic technology also creates opportunities for crowdsourced reporting, citizen-science data collection, and collaborative identification of needs, although participation in data gathering is not identical to decision-making authority.

The expansion of digital public-service platforms has been an important institutional development in Ukraine, particularly as the state sought to maintain administrative continuity amid war. According to the OECD, approximately 19.5 million people were using the Diia application by September 2023 [19]. This figure demonstrates extensive service uptake, although it cannot be translated directly into a participation rate or a share of all eligible voters without appropriate denominator data.

Even as availability increased, actual access to and benefits from digital tools remained unequal across population groups. Higher numbers of accounts or transactions do not demonstrate equivalent improvements in deliberation, representativeness, trust-building, or citizens' ability to influence decisions [27].

B. Role of Social Media in Crisis Participation

Social media platforms have become important channels for real-time public communication, civic mobilization, and exchanges between citizens, community organizations, and official institutions. Table 2 distinguishes the communication, mobilization, and deliberative functions of social media, together with the risks affecting each function. Research on digital communication during COVID-19 documents changes in online practices, but the cited study does not establish that global social media use increased by more than 50%. The evidence instead supports a more qualified assessment of changes in communication routines and unequal opportunities for participation [29].

Through these platforms, citizens could discuss political decisions, coordinate collective action, share information, and communicate concerns to public officials. Such exchanges nevertheless varied in visibility and organizational reach. Online discourse is often highly unequal: research on news comments documents the concentration of visible activity among comparatively active users, without supporting a universal fixed 10% share for all political platforms [30].

At the same time, online participation entails risks. Research on the COVID-19 information environment describes the rapid circulation of unreliable and contested content across digital platforms, although the cited analysis does not support a general claim that misinformation increased by precisely 70% during all crises [8]. Polarization, hostile expression, and incivility can also affect the quality of public discussion, particularly when online participants encounter contentious policies and highly politicized events [31].

Since Russia's full-scale invasion of Ukraine in 2022, social media and messaging platforms have been important for information sharing, humanitarian coordination, civic mobilization, and communication about urgent needs. These functions can support public resilience, but their effects on formal policy deliberation require separate examination [20].

C. Government-Led Digital Initiatives

Governments have expanded digital services and public information systems to maintain administrative continuity during crises and reduce dependence on in-person service delivery. Table 3 summarizes the administrative functions of these digital initiatives and the institutional conditions that influence their contribution to crisis governance. E-government portals can facilitate essential administrative transactions, while crisis dashboards can make public-health, emergency, or service information available to a wider audience.

The United Nations reports that the global average E-Government Development Index increased from 0.5988 in 2020 to 0.6102 in 2022 and reached 0.6382 in 2024 [32]. These figures indicate gradual improvements in measured digital-government development, rather than the previously

Table 1: Digital Tools for Participation in Crisis Contexts

Tool Type	Function	Key Findings	Source
Online consultation platforms	Public input on policies	Expanded opportunities for feedback, conditional on inclusive access	Hofstra et al. [25]
E-petitions	Agenda setting	Provided channels for submitting public concerns during restrictions	OECD [5]
Participatory budgeting	Resource allocation	Can support scrutiny and public involvement in budget choices	Fırtın et al. [26]
Civic technology applications	Crowdsourcing and data collection	Enabled collaborative data gathering and community participation	Diethei et al. [28]

Table 2: Social Media and Crisis Participation

Function	Benefits	Risks	Source
Real-time communication	Rapid information dissemination	Circulation of misinformation	Cinelli et al. [8]
Civic mobilization	Collective action and engagement	Polarization and incivility	Nishi [31]
Public discourse	More opportunities for public expression	Concentration of visible participation	Kim and Noh [30]

claimed increase to 0.73 by 2022. Crisis dashboards and public communication portals were also important for informing communities and explaining administrative decisions; their accountability value depends on accuracy, transparency, and timely updates.

Open-data and transparency platforms can enable independent monitoring of government actions. However, the cited study of digital accountability does not establish a 15–20% increase in trust attributable to transparent data provision. A more defensible inference is that accessible information and meaningful e-participation can contribute to accountability under appropriate institutional conditions [26].

Ukraine demonstrated substantial progress in the United Nations E-Government Survey: its EGDI was 0.8029 in 2022 and 0.8841 in 2024, when the country ranked 30th among 193 Member States [32]. Diia and open-data initiatives illustrate efforts to expand public-service accessibility, although administrative adoption alone should not be taken as evidence that all citizens gained equal influence over public decisions.

The effectiveness and democratic significance of these measures depend on institutional responsiveness, secure and affordable infrastructure, the accessibility of online systems, and public confidence in official institutions.

D. Civil Society and Grassroots Digital Engagement

Digital tools have enabled civil society organizations and grassroots actors to coordinate assistance, exchange information, and communicate community priorities during emergencies. The actors, activities, and potential outcomes of digitally supported civic engagement are summarized in Table 4.

Comparative research on civil-society responses to COVID-19 documents the importance of volunteer networks and community organizations, but it does not establish a worldwide increase of more than 60% in digital volunteering [16]. Such activity demonstrates the capacity of decentralized networks to respond to urgent needs, maintain social connections, and complement public emergency services where institutional resources are limited.

Citizen-science initiatives also supported voluntary data collection and public involvement in identifying shared challenges, although the transfer of these data into formal policymaking should be demonstrated rather than assumed [28]. Digital advocacy campaigns can increase the visibility of issues affecting underrepresented populations, but opportunities to be heard depend on platform practices, media attention, and the responsiveness of public institutions.

Civil society in Ukraine has remained active during wartime, using digital communication alongside offline networks to coordinate humanitarian relief, mobilize volunteers, fundraise, and communicate with displaced or otherwise affected residents. Institutional reports document a wide range of civil-society practices during the war, highlighting civic capacity without supplying a standardized measure of the acceleration in overall engagement after 2022 [20].

The contribution of these initiatives depends on connectivity, organizational capacity, volunteers' safety, institutional partnerships, and reliable information channels. Insecurity and displacement can particularly affect the continuity of these activities.

Crisis-related advocacy increasingly involves digital channels as communication among citizens, civic organizations, and government institutions moves partly into online environments. Digital democracy tools should therefore be assessed not only as technological services but also as institutional mechanisms that may enable citizens to participate in public consultation, agenda-setting, and scrutiny of policy.

E. Barriers to Effective Digital Participation

Despite the expansion of online participation opportunities, several persistent barriers continue to affect who can engage, how participation occurs, and whether contributions influence institutional decisions. Table 5 organizes the main barriers, their implications, and the research used to interpret them.

The digital divide remains an important obstacle to inclusive participation. The International Telecommunication Union estimated that approximately 2.7 billion people worldwide were offline in 2022, demonstrating the scale of global connectivity inequalities [34]. Such figures describe internet use, not direct participation in specific public consultation platforms.

Institutional trust is another important condition. Empirical work on internet voting demonstrates that trust in electoral administration and technology is associated with willingness to use a digital participation channel, but it does not establish

Table 3: Government Digital Initiatives in Crisis Governance

Initiative	Purpose	Key Implication	Source
E-government portals	Administrative service provision	Continuity of access during physical disruptions	OECD [19]
Crisis dashboards	Public information	More timely access to reported developments	Zhang et al. [33]
Open-data platforms	Transparency	Potential to support scrutiny and accountability	Janssen et al. [13]

Table 4: Civil Society Digital Engagement

Actor Type	Activity	Potential Outcome	Source
Volunteer networks	Humanitarian and resource coordination	Community support and emergency resilience	Cai et al. [16]
Citizen science	Data contributions and monitoring	Community evidence for identifying problems	Diethei et al. [28]
Digital advocacy	Awareness and public campaigns	Greater visibility of civic concerns	Edwards [9]

a universal 40-point reduction in engagement in low-trust settings [35].

Cybersecurity, personal data protection, and surveillance concerns also shape public willingness to use government platforms, particularly when emergency powers expand data collection or create uncertainty about future access to personal information [36].

Political and institutional restrictions may also reduce citizens' opportunities to participate. A scoping review of COVID-19 and democracy identifies diverse pressures on democratic processes, but does not support the statement that democratic freedoms universally declined to one-fifth of their original level [15].

In Ukraine, substantial use of digital public services coexists with unequal infrastructure access, cybersecurity concerns, displacement, and varying levels of institutional trust. These constraints are particularly relevant for people affected by conflict-related service disruptions.

F. Indicators of Participatory Governance in Ukraine

To contextualize participatory governance under crisis conditions, selected indicators of Ukraine's digital-government development and public-service uptake are summarized below. Selected published values and their definitions are presented in Table 6; the table distinguishes administrative digital uptake from deliberative participation. These indicators describe the scale of digital infrastructure and service adoption; they should not be interpreted as direct measures of deliberation, representation, or influence over policy decisions.

Digital government is an area in which Ukrainian public institutions have demonstrated substantial progress, including improvements in the international EGDI ranking and the expansion of online administrative services. At the same time, unequal access and differing levels of institutional trust remain important challenges for inclusive use of those services and any accompanying participation mechanisms. The pandemic and the war accelerated the practical importance of digital channels for communication and service delivery. Nevertheless, evaluating change in democratic participation requires evidence on who submitted input, how institutions responded, and whether policy decisions were affected.

V. Discussion

A. Interpretation of Findings

The secondary evidence reviewed suggests that digital democracy tools can expand opportunities for citizen communication and institutional interaction during emergencies, especially where conventional meetings or administrative services are disrupted. Their contribution varies by institutional design and must be distinguished from measured influence on final decisions. Through online consultations, participatory budgeting, and civic-technology applications, public authorities may maintain contact with residents and provide alternative channels for participation despite restrictions on physical access. The effectiveness of such channels nevertheless depends on their accessibility, inclusiveness, and institutional follow-through [5]. These mechanisms can also support timely communication and transparency, while accessible design and complementary offline channels remain necessary to reach people who cannot engage online.

Important limitations accompany the growing availability of digitally mediated participation, particularly where public services and consultation mechanisms are treated as interchangeable. Increased registration, website traffic, or digital service use does not necessarily imply equivalent improvements in deliberation, inclusion, representative participation, or policy influence [12]. Without targeted inclusion measures, digital engagement may disproportionately benefit people with reliable internet connections, suitable devices, greater digital skills, and more time to participate, thereby reinforcing socioeconomic disparities [6].

The synthesis also indicates that digital tools are more likely to support meaningful governance when embedded within institutional procedures that provide transparency, accountability, and clear responses to public input. In settings characterized by weak institutional capacity or limited trust, the availability of an online platform alone cannot guarantee meaningful involvement, and technical access should not be confused with democratic empowerment [7].

B. Comparison with Existing Literature

The findings of this secondary review are consistent with scholarship that identifies the potential of information and communication technologies to expand citizen engagement,

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Table 5: Barriers to Digital Participation

Barrier	Description	Possible Effect	Source
Digital divide	Unequal access and digital skills	Exclusion from online consultations	Zheng and Walsham [37]
Lack of trust	Institutional and technological distrust	Lower willingness to use services	Decman and Kozel [35]
Cybersecurity risks	Privacy and information-security concerns	Reluctance to share information	Ventrella [36]
Political restrictions	Emergency powers and administrative controls	Reduced public oversight and involvement	Sorsa and Kivikoski [15]

Table 6: Selected Digital-Governance Indicators for Ukraine

Indicator	Published Value and Context
E-Government Development Index (2022)	0.8029 (United Nations E-Government Survey) [32]
E-Government Development Index (2024)	0.8841; global rank 30 (United Nations) [32]
Diia application users (September 2023)	Approximately 19.5 million (OECD report) [19]
Digital public-service use	The OECD documents substantial administrative service adoption; population-wide rates must use defined samples and years [19]
Civil-society engagement during wartime	Qualitative evidence of humanitarian coordination and civic mobilization; no comparable national participation rate [20]

improve information availability, and support transparent government procedures. Earlier studies discuss how ICTs can facilitate new opportunities for political participation and government responsiveness [5], [11], although the evidence must be interpreted in relation to the type of platform, the policy context, and the actual role given to participating citizens.

The analysis also reinforces concerns identified in earlier research regarding the unequal social distribution of opportunities for digital participation. Researchers such as van Dijk [6] emphasize that inequalities in internet access and skills can limit equitable use of online systems, even when participation is formally open to everyone. Crisis-governance studies likewise highlight the tendency toward centralized decision-making under emergency conditions, a tendency that the existence of digital consultation channels does not automatically overcome [4].

A further contribution of this analysis is its attention to the differing capacities of countries and institutions to operate digital participation mechanisms under crisis conditions. Countries with stronger digital infrastructure and broader digital literacy often have more favorable conditions for implementing e-participation, although technical resources do not guarantee substantive policy influence. Less-resourced settings may confront more severe barriers relating to connectivity, institutional capacity, affordability, and socioeconomic inequality. These differences should be investigated empirically rather than treated as a universal division between successful and unsuccessful national models [37].

C. Implications for Governance and Democracy

The findings offer implications for democratic governance and public administration, especially for the design of accountable and inclusive participation procedures during emergencies. First, policymakers should integrate digital tools into transparent decision-making procedures, making clear what matters are open for consultation, who can participate, and how contributions will be considered. Digital democracy should be evaluated in relation to accountability and meaningful citizen engagement [1] rather than judged solely by the number of available platforms or the volume of online transactions.

Second, the analysis underlines the importance of investment in affordable, accessible, and secure digital infrastructure, together with training that enables different social groups to use public platforms effectively. Reducing the digital divide requires attention to people with disabilities, older residents, displaced populations, low-income households, and rural communities whose participation may be constrained by design or connectivity barriers. This requires improved access to devices and connectivity, greater digital literacy, accessible interfaces, and complementary offline participation options where necessary [6].

Third, civil society should be recognized as an independent partner in participatory governance, particularly when emergency conditions place pressure on conventional public institutions. Governments can collaborate with CSOs to identify community needs, co-design appropriate responses, facilitate communication with underserved groups, and build institutional trust through transparent follow-up [9].

Finally, participation procedures should be institutionalized as part of crisis preparedness rather than improvised only after an emergency begins. Clear rules should address consultation opportunities, reasons for urgent decisions, the publication of government responses, protection of personal information, and independent accountability during emergencies [7].

D. Risks and Ethical Considerations

Greater reliance on digital governance raises significant ethical and practical concerns concerning privacy, surveillance, algorithmic processes, and the protection of civil rights during emergencies. A major risk is the expansion of surveillance powers when governments introduce emergency arrangements involving data collection, digital identification, or intensified monitoring of public activity. Although certain measures may be justified by urgent public-safety needs, disproportionate surveillance or insufficient legal safeguards can undermine civil liberties and public trust [14], [36].

Algorithmic bias presents another concern because automated classification, recommendation, and ranking systems can reproduce existing inequalities in the visibility of information or access to services. Such systems may affect what

information residents encounter, whose contributions become visible, and how administrative decisions are made, raising questions about explainability and independent oversight [38].

Data privacy also directly affects the legitimacy and accessibility of citizen-engagement mechanisms. Appropriate consent arrangements, information security, data minimization, and institutional accountability are essential when governments collect or process personal data through digital systems. Privacy concerns may discourage platform use, particularly where citizens have limited confidence in the institutions responsible for collecting, storing, or sharing their information [36].

VI. Conclusion

This study illustrates the potential of digital democracy tools to sustain communication, public-service access, and opportunities for participatory governance during crises, while distinguishing these functions from demonstrated policy influence. Digital service platforms, civic technologies, and social networks offer alternative channels for citizen interaction and enable public institutions to communicate and receive feedback when conventional procedures are disrupted. Their contribution to democratic processes depends on whether opportunities for real-time information exchange are accompanied by inclusive deliberation, transparent decision-making, and clear institutional responses to citizens' concerns.

Persistent challenges include digital exclusion, limited institutional trust, misinformation, cybersecurity threats, and potential misuse of personal data during emergencies. More intensive use of digital channels does not necessarily produce equitable representation or meaningful public influence. The evidence reviewed is therefore insufficient to conclude that all groups benefited equally or that consultation consistently changed policy outcomes.

The analysis emphasizes the importance of participatory governance as one element of democratic resilience during crises. Policymakers should prioritize inclusive digital access, open and accessible public information, proportionate emergency powers, and durable participation procedures within administrative institutions. Regular consultation with independent civil society organizations and affected communities can help ensure that crisis responses reflect different social needs and remain accountable to the public.

Ethics Statement

This secondary analysis used publicly available publications and aggregated indicators. No participants were recruited or interviewed, and no identifiable personal information was collected. Accordingly, the study did not require participant consent or approval for human-subjects research under the authors' stated secondary-research design. Institutional requirements should be confirmed before publication, and all consulted sources are cited.

Competing Interests

The authors declare no competing interests.

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Data Availability

No new data were created or analyzed in this study.

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