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Direct democracy in the digital age: opportunities, challenges, and new approaches

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This article delves into the evolving landscape of direct democracy, particularly in the context of the digital era, where ICT and digital platforms play a pivotal role in shaping democratic engagement. Through a comprehensive analysis of empirical data and theoretical frameworks, it evaluates the advantages and inherent challenges of direct democracy, such as majority tyranny, short-term focus, polarization, and the spread of misinformation. It proposes the concept of Liquid democracy as a promising hybrid model that combines direct and representative elements, allowing for voting rights delegation to trusted entities, thereby potentially mitigating some of the traditional drawbacks of direct democracy. Furthermore, the article underscores the necessity for legal regulations and constitutional safeguards to protect fundamental rights and ensure long-term sustainability within a direct democracy framework. This research contributes to the ongoing discourse on democratic innovation and highlights the need for a balanced approach to integrating digital tools with democratic processes.

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Introduction

In recent decades, democratic regimes have spread globally. However, this expansion has been accompanied by widespread discontent about how these regimes function, affecting both new and long-established democracies. This dissatisfaction reflects a general loss of public confidence in democratic systems. Although democracy has gained broad acceptance since the collapse of numerous authoritarian and communist regimes, reports of public disillusionment and alienation continue to surface (Ruth et al., 2018). Supporting this trend, research from the Center for the Future of Democracy indicates that public satisfaction with democracy is currently at an unprecedented low, based on 5 million survey responses collected over 40 years from 160 countries (Foa et al., 2020). While most democracies are representative, where citizens elect officials to make decisions on their behalf, institutions like elections and parliaments have faced ongoing criticism and are at the forefront of political science debates.

This discontent has sparked interest in alternative forms of democratic governance, such as direct democracy. For instance, Switzerland maintains the most comprehensive system of direct democracy, requiring mandatory referendums for constitutional amendments, citizens' initiatives, new parliamentary legislation, and major international treaties. Swiss citizens have the power to veto parliamentary laws. In the UK, eight referendums were held between 1997 and 2016, alongside efforts to involve citizens directly in decision-making through mechanisms like citizens' juries (The Constitution Society, 2021). Similarly, in the United States, many states and municipalities—including Oregon, California, Colorado, Utah, South Dakota, Oklahoma, and New England—have adopted direct democracy practices, such as citizen initiatives, recall elections, and votes on public finances.

Direct democracy, or “pure democracy”, involves the public directly in decision-making. Unlike representative democracy, where elected officials pass laws, direct democracy allows citizens to determine laws and policies themselves (Longley, 2024). It can be implemented through citizen assemblies or referendums, where people vote on specific issues instead of electing representatives or parties. While it is sometimes envisioned as a complete political system, in modern contexts, direct democracy often exists alongside representative institutions as part of a mixed system (Schiller, 2022). Despite its reputation as the purest form of democracy, where citizens directly influence the laws under which they live, bypassing elected politicians to enhance transparency and accountability, direct democracy has several notable drawbacks. These limitations suggest reasons for caution when considering its implementation.

Building on advancements in digital technologies, liquid democracy exemplifies how democratic participation can evolve in the digital age. By allowing citizens to participate directly in decision-making or delegating their voting power to trusted representatives, liquid democracy offers flexibility, allowing citizens to participate directly or delegate their votes to trusted representatives, depending on their interest and expertise. This approach combines direct democracy, empowering citizens to vote on specific policies, with representative democracy, enabling a fluid transfer of authority based on trust and competence. Moreover, liquid democracy leverages online platforms for transparent delegation, continuous participation, and real-time decision-making, making it possible to engage a broader segment of the population actively. As a result, it offers a promising pathway toward more inclusive and responsive governance by fostering greater citizen involvement, reducing the distance between voters and decision-makers, and facilitating informed, deliberative processes in the digital age.

This article seeks to address the following key research questions: How has the digital age influenced the practice of direct democracy, and what opportunities and challenges arise from this transformation? Can liquid democracy, as a hybrid model, offer viable solutions to the limitations inherent in both direct and representative democratic systems, particularly with regard to voter competence, majority tyranny, and misinformation? To answer these questions, the manuscript is structured as follows. The next section provides a detailed review of the global practices of direct democracy, followed by an analysis of the theoretical framework supporting direct and liquid democracy. The third section explores the opportunities presented by digital platforms in facilitating direct democratic processes, while the fourth section critically evaluates the challenges these platforms introduce. Finally, the analysis of liquid democracy as a hybrid model assesses both theoretical potential and empirical evidence, concluding with policy implications for integrating digital tools into democratic governance. Ultimately, this article aims to inform policymakers and scholars on how digital tools can bridge the gap between citizens and decision-makers, paving the way for more inclusive and participatory governance in the 21st century. This article relies on secondary sources and employs documentary research, analyzing existing literature and case studies to explore the potential of digital technologies in reshaping democratic participation.

Global use of direct democracy and its challenges

Direct democracy, where citizens participate directly in decision-making, bypassing elected representatives, utilizes mechanisms such as referendums, citizens' initiatives, and recall elections. Its implementation varies across countries, reflecting diverse political systems and cultural contexts. For example, Switzerland has institutionalized referendums as a mandatory process for constitutional amendments, while in the U.K., referendums are typically held on an ad hoc basis for specific issues (Schiller, 2022). Similarly, citizens' initiatives allow citizens to propose legislation or constitutional amendments, but the requirements for initiating such processes differ by jurisdiction (Smith, 2009). A comparative understanding of these mechanisms is crucial as their legal frameworks and frequency of use can shape their effectiveness in democratic processes (International IDEA, 2008).

Furthermore, referendums have played a significant role in certain situations, either in the establishment of new democracies or in facilitating the transition from authoritarian to democratic governance. For instance, conducting a direct vote on a new constitution serves as a means to legitimize the document, gaining acceptance among a country's own citizens and on the global stage. Referendums can also serve as a mechanism for addressing territorial or sovereignty issues, such as cases of secession or the formation of a new state. Following the dissolution of the Soviet Union in 1991, many former Soviet republics held referendums to affirm their independent status. In 2006, a referendum in Montenegro dissolved the union between Serbia and Montenegro, effectively severing the last remaining ties between the states that once comprised Yugoslavia. The authority to hold referendums varies, with some, like the 1997 devolution referendum in Scotland, organized by the national government, while others, like the 1980 and 1995 Quebec 'sovereignty' referendums, are managed by provincial governments. Referendums are sometimes conducted under international supervision, as exemplified by the UN-administered referendum in Timor Leste in 1999.

At present, Switzerland is recognized as having one of the most comprehensive systems of direct democracy. It offers citizens a robust set of tools to influence government decisions, including mandatory and optional referendums, initiatives to propose

constitutional amendments, and veto powers over parliamentary laws (Kriesi and Trechsel, 2008). Swiss direct democracy ensures that significant decisions, particularly those related to constitutional changes or international treaties, are directly approved by the populace. Furthermore, Swiss citizens have used initiatives to propose various laws and policy changes, often leading to major national debates and legislative reforms (Vatter, 2000). In the UK, the use of direct democracy has primarily taken the form of referendums on major issues. Notable examples include the 1975 referendum on European Economic Community membership, the 2014 Scottish independence referendum, and the 2016 Brexit referendum. While direct democracy is not as institutionalized as in Switzerland, these instances have demonstrated the UK's capacity to integrate direct citizen participation on pivotal matters (Qvortrup, 2022). Nonetheless, the relatively ad hoc use of referendums highlights challenges, such as lack of established procedures and potential for polarized campaigns and outcomes.

In the US, direct democracy is a prominent feature at the state and local levels, with states like California, Oregon, Colorado, and Utah allowing citizens to propose initiatives, vote on referendums, and even recall elected officials. These tools provide a direct pathway for public influence over policy, and they have been used on various issues, from tax laws to social policies. However, the use of these mechanisms varies significantly by state, with some embracing direct democracy more fully than others. While direct democracy empowers citizens to shape policies directly, its implementation has also led to concerns about policy complexity, campaign financing, and potential voter fatigue from frequent ballots (Matsusaka, 2020).

The use of direct democracy mechanisms is not limited to Europe and North America; they have also played a pivotal role in other regions, such as Southern Europe and South America, particularly during periods of democratic transition and reform. For instance, in Spain and Greece, referendums were instrumental in the transition from authoritarian rule to democratic governance (Lowenthal and Bitar, 2015). Similarly, in Latin America, countries like Bolivia and Venezuela have employed direct democracy mechanisms, including citizens' initiatives and referendums, often as part of broader populist movements aimed at challenging elite control and promoting social reform (Matsusaka, 2020). While these mechanisms have at times contributed to democratic deepening, they have also been used by populist leaders to bypass representative institutions and consolidate power, raising concerns about their potential for misuse in contexts of weak institutional oversight (Smith, 2009; Qvortrup, 2022).

The shift towards digital platforms has introduced new opportunities and challenges for direct democracy. On one hand, digital tools have the potential to enhance citizen engagement by making participation more accessible, offering real-time feedback on policies, and fostering public deliberation (Karpf, 2016). For instance, online platforms in Estonia have enabled citizens to discuss and propose policy changes, demonstrating how technology can support participatory processes. However, the digital era also poses significant challenges for direct democracy. One primary concern is the 'digital divide', where disparities in access to technology and digital literacy can exclude certain groups from participation, leading to unequal representation (Norris, 2001). Additionally, the use of social media and other online platforms can amplify misinformation, foster polarization, and lead to superficial deliberation, as complex policy discussions are often reduced to simple, emotionally charged messages (Tucker et al., 2017). Security is another critical issue. Digital voting systems are susceptible to cyberattacks, hacking, and data breaches, raising concerns about the integrity of the electoral process. The lack of trust in digital systems can also undermine the legitimacy of direct democratic practices and lead to decreased public confidence in the process (Alvarez and Hall, 2004). As the digital era

introduces new complexities, balancing these factors is critical to ensuring direct democracy's viability in the digital age.

Theoretical framework of analysis

In theory, primary arguments for direct democracy are derived from shortfalls in representative systems and from the limitations of the theory of liberal democracy. Early critiques of representative democracy emerged in the 1970s, led by scholars who developed theories of participatory democracy. At that time, most contributions to the theory of participatory democracy did not directly elaborate on direct democracy as a form of extended participation, but the main general normative justifications which also apply to direct democracy have been put forward and have become the natural 'home base' of direct democracy (Schiller, 2007). The concept of participatory democracy has existed in various forms since Athenian democracy and was further developed by Jean-Jacques Rousseau in the 18th century. Later, it was promoted by John Stuart Mill and G. D. H. Cole, who viewed that political participation and active politics are crucial for a just society. Then, the term 'participatory democracy' was coined by Arnold Kaufman in 1960 and Carole Pateman broke into the scene in 1970 with the most important book on participation democracy in political science (Mansbridge, 2008).

In her book 'Participation and Democratic Theory', Pateman aimed at verifying the desirability of increased citizen participation in a modern democratic theory by observing the existing participatory experiments in the field of industrial relations. After using factories in Yugoslavia as case studies to support the claims for citizen participation, she justified the benefits of participatory politics in terms of education and the political efficacy of the citizen. Pateman also contended that what had been found in the factories can be extended to the entire society, in other words if the workers were used to exercising their own political efficacy at the workplace, they would be able to manage the same responsibility towards the polity (Gara, 2020). Fundamentally, participatory democracy is a transformative theory, its core normative benefits resting on the idea that taking part in the processes of democracy can work to shape individuals' behavior, with democratic institutions valued in part for their effects on the 'psychological orientations' of citizens (Pateman, 1970: 26). In this view, participation can be seen as a form of 'socialization', or 'social training', promoting the development of the capacity, skill and knowledge required to effectively participate as well as engendering a positive inclination towards democracy (Pateman, 1970: 42).

Moreover, Benjamin Barber's 'Strong Democracy' marked another major milestone in the framing of participatory democracy theory. His work serves as a blueprint for progressive democrats as he provided a detailed program of integration of participatory features in the US institutional system, such as the neighborhood assemblies with agenda-setting powers; televised town meetings at regional level; public paid civic education; a national initiative and referendum process on congressional legislation, with a multi-choice format at two-stage voting; universal citizen service to strengthen the people responsibility for public interest; as well as public support for workplace democracy (Gara, 2020). Barber's perspective on participatory democracy also emphasized the importance of direct involvement of citizens that it could not only on a local level but also affect national decision-making (Barber, 2003).

Much like participatory democracy, the theory of *deliberative democracy* shares many features and claims much of the same normative ground as that demonstrated by the theorists associated with participatory democratic theory. The term originally appeared in 1980, in an article published by the American

political scientist Joseph M. Bessette (1980) and later became popular after it came out in publications by Manin et al. (1987) and Joshua Cohen (1989). Deliberative democracy emphasizes decision-making through structured debates, where legitimacy is derived from reasoned discussion and consensus-building among members (Cohen, 1989). The debates must consist of an exchange of arguments and information such that the political stance taken by the parties should be accepted or at least respected, while public discussion should be open to all members of society and essentially no one should be excluded from it signifying that they have an equal right to put forward arguments, criticize them and ask questions (Wojciechowska, 2010).

Moreover, the members of society cannot yield to any external pressure and must be free from distortions of unequal political power, for example power obtained through economic wealth or the support of particular interest groups. After deliberating on a proposal, if it cannot achieve a consensus, then the discussion may be settled by using a form of majority rule. Such a majority form is different from the majority rule in liberal democracy in the sense that the support of a given position derives from the fact that they are convinced it is right, not from voting for a given option by chance. While participatory democracy emphasizes citizen engagement in all aspects of decision-making, the legitimacy claims made by deliberative democrats do not primarily reside within participation itself but in the logic of reason-giving argumentation (Dacombe and Parvin, 2021: 152). According to Chambers (2003) and Dryzek (2000), public decisions and laws need to be publicly justified to those who are subject to them, and the emphasis is on the processes of discussion and communication which occur earlier, where opinions are formed and preferences shaped, instead of the point of decision (i.e., the vote).

Building on the principles of participatory and deliberative democracy, *liquid democracy* leverages technology to create a more dynamic and adaptable democratic model. It is introduced as a response to the limitations of traditional democratic processes designed around paper-based bureaucracy. Liquid democracy is described as an idea that leverages networked computing technologies to make democracy more fluid and continuously participatory. The term 'liquid democracy' originated from the analogy of physical liquid, which has two fundamental properties: the ability to flow and the incompressibility or volume-preserving nature. However, it lacks a precise or universally agreed-upon definition, with its origins traced back to an outdated wiki that is no longer active. In this research context, liquid democracy can be considered as a hybrid democratic system that combines elements of direct democracy and representative democracy, allowing individuals to either vote directly on issues or delegate their voting power to a delegate of their choice. Its essence lies in managing the expression and use of power in a democratic governance system similar to how a liquid flows and can be subdivided easily at fine granularity and low cost. The technology context in which liquid democracy emerged is characterized by the potential of networked computing technologies to reduce the cost of interactions significantly, enabling a qualitative change in designing democratic institutions (Ford, 2020).

According to Götz et al. (2021) and Blum and Zuber (2016), key aspects of liquid democracy include:

1. *Delegation*: Voters can delegate their voting power to individuals they trust to make informed decisions on specific issues.
2. *Transitivity*: Delegated votes can pass through multiple individuals, forming a chain of representation.
3. *Revocability*: Delegations are not permanent and can be withdrawn at any time. This flexibility allows individuals to

reclaim their direct voting power or change their delegate as they see fit, ensuring that their political preferences are always accurately represented.

4. *Issue-specific delegation*: Voters can delegate authority on a case-by-case basis, choosing different representatives for different policy areas.
5. *Fluid participation*: Liquid democracy allows for a dynamic and fluid form of participation, where voters can choose to be directly involved in decision-making on some issues while relying on their delegates for others. This adaptability caters to varying levels of interest and expertise among the electorate.

Opportunities in the digital age for direct democracy

Firstly, direct democracy mechanisms serve as pivotal tools for *enhancing citizen participation* in the democratic process. These mechanisms enable voters to directly decide on specific policy issues or legislative proposals, reducing the gap between the electorate and decision-making processes. They also empower individuals by providing them with a more direct say in shaping policies that impact their daily lives, extending beyond the act of electing representatives. Direct democracy fosters a sense of empowerment and accountability by encouraging citizens to engage directly with complex policy issues. In the early years of the 21st century, John G. Matsusaka, a prominent figure particularly known for his pioneering research on direct democracy, found that the availability of direct democracy tools correlates with increased voter turnout and political engagement, as individuals recognize the tangible influence of their vote on policy outcomes (Matsusaka, 2004). Moreover, Tolbert and Smith (2005) provide empirical evidence suggesting that states with initiative processes witness higher levels of political engagement, as measured by voter turnout and political donations, compared to states without such processes. Their contention is that the initiative process, which engages citizens directly in the legislative procedure, cultivates a heightened sense of civic responsibility and political empowerment among the public, leading to a more vibrant democratic culture.

ICT and digital platforms enhance citizen participation by simplifying voting processes and facilitating direct engagement with democratic activities. Online voting systems, electronic petitions, and digital platforms for submitting initiatives make it easier for citizens to take part in direct democracy from anywhere, at any time. Congge et al. (2023) point out that digital platforms, such as social media and online forums, enable individuals to engage in political discussions, share their opinions, and participate in activism. Enhanced connectivity and accessibility give citizens a stronger voice in shaping political discourse and advocating for social change. As evidenced by Estonia's innovative e-voting system, which Alvarez et al. (2009) highlight for its potential to increase electoral engagement, the ease of use associated with digital platforms can result in increased participation rates.

In the context of deliberative democracy, when citizens participate in voting directly on policy matters through referendums and initiatives, it inevitably encourages broader public discourse and deliberation on those matters. The success of a referendum or initiative often depends on the proponents' ability to convince a wide spectrum of the electorate. Consequently, campaigns related to direct democracy measures typically encompass various informational and educational activities, such as public forums, debates, and the distribution of literature, which can contribute to a better-informed electorate. Gastil and Knobloch (2020) demonstrated the value of citizens' initiative reviews. In these

processes, panels of randomly selected voters deliberate on ballot measures and provide voter guides, improving public deliberation and decision-making. Furthermore, the process of gathering signatures for initiatives and the public debates surrounding referendums and initiatives stimulate public discourse, encouraging citizens to engage in discussions and deliberations on the merits of various policy proposals. This aspect of direct democracy promotes a more vibrant civil society, where diverse viewpoints are explored and contested in the public arena.

Moreover, public discussion—an essential component of a healthy direct democracy—is made possible by digital platforms in ways never seen before. Today, online forums, social media, and dedicated deliberation platforms enable citizens to discuss, debate, and refine policy proposals before voting. Amelin et al. (2016) noted that tools like social media, email, and online forums facilitate direct interaction between citizens and government officials. These platforms provide channels for citizens to express their opinions, provide feedback, and engage in discussions on various issues. Likewise, Wright (2012) emphasizes the potential of online deliberative spaces to enhance the quality of democratic decision-making by incorporating diverse viewpoints and facilitating reasoned debate among citizens.

Besides, the fundamental nature of direct democracy mechanisms, such as referendums and initiatives, promotes increased *transparency and accountability* in the political system. Direct citizen involvement compels policymakers to provide clear, accessible information about policy proposals and their consequences. This obligation ensures that decisions are made transparently and subjected to public scrutiny. To illustrate, Matsusaka (2005b) explained that direct democracy can hold elected officials accountable for their actions, as they are required to respond to public initiatives and referendums, fostering greater transparency and responsiveness in governance. This is similar to Kildea et al. (2021) who argued that when important issues are put to a direct vote, the process becomes more visible to the public, potentially increasing trust in the outcomes and the democratic system as a whole, thus promoting transparency and accountability in decision-making. By incorporating mechanisms such as referendums and initiatives into the constitution, these direct democratic tools can also serve as checks on the power of traditional governmental institutions, helping to prevent any single entity from dominating the decision-making process and ensuring that the will and the interests of ordinary citizens are respected and upheld (But et al. 2023). At the same time, governments can leverage information technologies to implement open data initiatives, making government data and information publicly available in a structured and accessible format. This would promote transparency, accountability, and citizen engagement by enabling citizens to analyze government data, monitor government activities, and participate in policy discussions (Amelin et al., 2016). Parallel to this, Heald (2006) argued that the visibility of government actions and decisions through digital means is crucial for fostering a culture of accountability.

Challenges and risks of digital direct democracy

Direct democracy mechanisms face several challenges that require careful integration into broader democratic frameworks. The most commonly raised concern is *voter competence* and the public's ability to understand complex policy issues. This is important as direct democracy places the responsibility of decision-making directly on voters. Several scholars have addressed this issue. Matsusaka (2005a) pointed out that voters may only have a superficial understanding of complex issues, often relying on limited sources of information such as television programs. This lack of competence and reliance on emotional

appeals can result in suboptimal and potentially harmful policy outcomes. Similarly, Bulmer (2017) stated that citizens may not have the necessary expertise or information to make informed choices on intricate issues, potentially leading to suboptimal outcomes. Dalton et al. (2011) also emphasized the challenge of ensuring that voters possess or can access the necessary information to make informed choices, and the importance of political knowledge in democratic participation. While in representative democracies elected officials often have access to expert advice and resources to make informed decisions, direct democracy may lack the expertise and specialized knowledge required to address complex policy issues effectively (Amelin et al., 2016).

Moreover, direct democracy mechanisms, such as referendums and citizen initiatives, have the potential to oversimplify complex policy issues due to their binary nature of decision-making. As demonstrated by But et al. (2023), complex decision-making poses a challenge when certain issues are not easily reducible to a simple 'yes' or 'no' referendum question. Some policy issues are too complex to resolve with a single vote, requiring nuanced understanding and expertise. Consequently, decisions made in such cases could be influenced by emotions like fear or anger rather than a rational evaluation of the policy consequences, as emotional appeals and simplistic messaging often can sway public opinion more effectively than nuanced arguments.

Furthermore, the discussion regarding voter competency becomes more intricate when considering the concept of rational ignorance. Rational ignorance occurs when voters refrain from educating themselves about issues, believing their individual vote has little impact. The nature of direct democracy requires active participation from citizens in decision-making processes, which can be demanding in terms of time, resources and effort. In this regard, Amelin et al. (2016) explained that participating in direct democracy requires citizens to invest time in researching, analyzing, and deliberating on various issues before making decisions. This time commitment can be significant, especially for individuals with busy schedules or limited access to information resources. As a whole, while direct democracy can empower citizens to participate in decision-making processes, it may not always be the most suitable mechanism for addressing complex issues that require in-depth analysis and expertise.

Second, the spread of misinformation and the appeal of populist sentiments are often cited as a major concern about direct democracy, particularly in the era of digital media. Misinformation refers to the dissemination of inaccurate or deceptive information, which has the potential to warp voters' perceptions and result in uninformed choices. The dynamics of modern information dissemination, particularly through social media platforms, have created fertile ground for misinformation to influence public opinion and voting behavior. Evidently, ICT and digital platforms can inadvertently serve as conduits for the rapid dissemination of false information. Berg and Hofmann (2021) viewed that the ease of spreading fake news and the challenge of ensuring the authenticity and accuracy of digital content raise questions about the effectiveness of these technologies in fostering a well-informed electorate.

Concerning this, Sunstein (2018) argued that in an environment saturated with misinformation, voters may find it increasingly difficult to distinguish between truth and falsehood, undermining the premise of informed decision-making foundational to direct democracy. Organ (2019) and Steiner and Landwehr (2023) found that the 2016 Brexit campaign was rife with inaccuracies, misleading claims, and unbalanced information, hindering deliberation. However, they agreed that the aftermath of the Brexit vote underscored several challenges and inadequacies of direct democracy, including issues regarding misinformation dissemination, unequal turnout, and the

campaign's polarizing nature. Similarly, Allcott and Gentzkow's (2017) studied the role and impact of fake news shared on social media during the U.S. presidential election. They found that fake news stories favoring Donald Trump were shared 30 million times on Facebook, compared to 8 million shares for stories favoring Hillary Clinton. Furthermore, the average American adult was likely to have seen at least one, if not several, fake news stories in the months surrounding the election, with over half of those who recalled seeing fake news believing it. This underscores the complex challenges posed by fake news and the urgent need for strategies to mitigate the spread of misinformation in the digital age.

Populist sentiments, characterized by anti-elite, anti-establishment rhetoric, often appeal to the emotions and grievances of the public rather than reasoned deliberation on policy issues. In the context of direct democracy, populist leaders can exploit these sentiments to rally support for initiatives or referendums in order to legitimize their agenda as well as bypass traditional legislative processes and the checks and balances of representative democracy. Regarding this, Amelin et al. (2016) direct democracy may be susceptible to populism, where decisions are driven by popular sentiment rather than informed reasoning or long-term considerations, resulting in ill-advised or ill-considered decisions that may not be in the best interest of the society as a whole. Parallel to this, as elucidated by Bulmer (2017), authoritarian rulers such as Napoleon in France, Franco in Spain, Pinochet in Chile, Marcos in the Philippines, and Park Chung Hee in South Korea have exploited non-competitive referendums to create an illusion of democratic legitimacy over time. Such referendums offer populist leaders a pathway to bypass legislative, judicial, or constitutional constraints on their power by appealing directly to the public.

Third, *the tyranny of the majority*, referring to the potential for direct democracy to enforce the will of the majority without sufficient protection for minority rights or interests, is another frequently raised concern. Direct democracy's reliance on popular votes increases the risk of majority tyranny. In the absence of the mediating influence of representative institutions or constitutional safeguards, policies reflecting the majority's preferences might be enforced, even at the expense of harming minority groups. This risk is heightened in divided societies or those where populist movements exploit existing cleavages. Referencing the work of Bulmer (2017), Amelin et al. (2016) and But et al. (2023), direct democracy carries the inherent risk of disregarding the rights and interests of minority groups, as decision-making tends to be dominated by majority opinion, potentially leading to majority tyranny. Safeguarding minority rights and promoting inclusivity pose significant challenges within direct democratic systems, where the concerns of minority groups may be marginalized in favor of popular sentiment. Lewis (2011) also found that states with direct democracy mechanisms are more likely to adopt same-sex marriage bans, highlighting the risks direct democracy poses to minority groups. Lastly, Matsusaka (2005b) provided historical instances about how direct democracy can be used to infringe upon minority rights, such as the approval of initiatives in Oklahoma in 1910 that deprived black citizens of their voting rights and the approval of initiatives in California in 1920 that restricted the property rights of Japanese individuals.

Fourth, the tendency towards a *short-term focus* in decision-making processes is another important concern. Short-term focus emphasizes immediate issues over long-term planning, particularly in policies requiring forward-thinking approaches. This phenomenon arises from the nature of referendums and initiatives, which often tackle pressing issues or anxieties. In a direct democracy context, voters may prioritize policies that provide immediate advantages or solutions, overlooking the potential

long-term repercussions or expenses associated with their choices. For example, policies that mandate tax cuts or increased public spending without clear funding sources can lead to budget deficits and undermine fiscal discipline. This short-term focus often leads to policies that undermine long-term societal welfare. Bulmer (2017) explained that direct democracy mechanisms often reflect immediate public sentiment on specific issues at a particular time. This can lead to a focus on short-term policy goals that cater to current popular preferences. Frey (1994) argued that direct democracy risks enacting policies that are not sustainable or economically prudent over the long term. Similarly, Kirchgässner (2016) viewed that it is important to ensure that initiatives or referenda that involve spending do not lead to unsustainable levels of debt. This is because direct democracy can potentially lead to more spending if initiatives or referenda are approved by the citizens. Also, Bowler and Donovan (2002) discuss how direct democracy mechanisms often bypass the deliberative processes typical of legislative bodies, where long-term impacts and policy trade-offs are more systematically evaluated.

Viewing from the aspect of voters, the final drawback of direct democracy to be addressed is *cognitive biases*. Cognitive biases, or systematic deviations from rational judgment, are especially relevant in direct democracy, where voters directly approve or reject policy proposals. One notable example is confirmation bias, where voters tend to favor information that confirms their existing beliefs or opinions, often resulting in polarized perspectives on policy issues. Sunstein (2001) explores how confirmation bias can deepen divisions among the electorate, as individuals seek information that reinforces their viewpoints while disregarding contradictory evidence. He found that this selective exposure to information can distort voter decision-making, leading to less rational and more polarized outcomes.

Another considerable example is the status quo bias, characterized by a preference for maintaining current conditions rather than embracing change, which can also significantly influence policy outcomes in direct democracy settings. Samuelson and Zeckhauser (1988) illustrate how this bias may prompt voters to oppose policy changes that might be beneficial in the long term, simply due to an inherent resistance to change. Finally, Susskind (2018: 247) outlined a range of cognitive biases that significantly influence human decision-making and perception. As written in his book:

‘We are biased, for example, toward arguments that favour our own special interests. We tend to dismiss things that are inconsistent with our worldview. We view the world through frames drawn by élites. We dislike being inconsistent, even when changing our minds would be the rational thing to do. We are overly influenced by others, especially those in authority. We like to conform and be liked by others. We prefer our intuitions to reason. We favour the status quo’

These biases affect not only personal judgments but also how individuals interact with societal and political issues. In the context of direct democracy, it becomes clear that they can significantly impact the quality of decision-making and the democratic process.

Liquid democracy as a hybrid model: theoretical and practical analysis

The role of ICT and digital platforms in direct democracy presents both opportunities and challenges. While they offer groundbreaking opportunities for broadening democratic participation and facilitating informed public discourse, they also pose significant risks that could undermine the premise of democracy.

These tools empower individuals by providing them with direct influence over policies that affect their lives, thereby cultivating a culture of active engagement. This shift is essential for reviving faith in democracy, promoting civic responsibility, and fostering a more dynamic democratic culture with higher voter participation and better-informed citizens. Nevertheless, the journey towards integrating direct democracy within a digital context is laden with hurdles, notably concerning voter competence and the spread of misinformation. Additionally, the digital age brings to the forefront the risks associated with the tyranny of the majority, the dominance of populist narratives and the tendency towards short-termism in policy decisions, potentially leading to emotionally charged, rather than rationally based, decisions. This highlights the need for a balanced approach that includes safeguarding minority rights, ensuring equitable policy outcomes, and encouraging long-term sustainable planning.

Liquid democracy, a hybrid system combining the benefits of direct and representative democracy, offers potential solutions to the challenges faced by both systems. In liquid democracy, citizens can either vote directly on policy issues or delegate their voting power to trusted representatives, often referred to as "proxies" or "delegates." This system operates on the principle of dynamic delegation, where delegation can occur on an issue-by-issue basis, allowing for a tailored approach to political representation. A key feature is that delegation is revocable at any time, offering participants more control over how their vote is used (Blum and Zuber, 2016). This contrasts with representative democracy, where voters elect officials for fixed terms and cannot influence their decision-making directly until the next election cycle. Moreover, liquid democracy's flexibility allows citizens to engage in decision-making at varying levels of intensity. Those with strong expertise or interest in particular policy areas can vote directly, while others may prefer to delegate their voting rights to experts or individuals (or even AI systems) they trust to make informed decisions on their behalf (Ford, 2014). This blend of direct and delegated participation makes liquid democracy a promising approach in addressing several of the traditional shortcomings of both representative and direct democracy.

One of the theoretical justifications for liquid democracy lies in its potential to remedy the democratic deficit often associated with representative systems. In representative democracies, a growing disconnect exists between voters and elected officials, who often fail to act in line with their constituents' interests or preferences (Blum and Zuber, 2016). Additionally, direct democracy, despite offering more citizen engagement, can suffer from issues such as low voter competence and the tyranny of the majority (Gerber and Lupia, 1999). Liquid democracy, by offering a hybrid system, seeks to overcome these issues by allowing more fluid participation while maintaining a balance between expert decision-making and broad citizen involvement. Furthermore, while liquid democracy offers flexibility through optional delegation of voting rights, it is important to stress that this delegation does not replace or mediate direct participation. Citizens retain full autonomy to engage directly in decision-making processes, ensuring that the core principles of direct democracy remain intact. The option to delegate serves only as a tool to enhance participation for those who wish to consult trusted representatives or subject matter experts on specific issues, without undermining the direct, unmediated nature of the system for others.

Empirical evidence on liquid democracy remains limited, as it has yet to be widely adopted at the national level. However, several small-scale experiments and case studies offer insights into how liquid democracy might function in practice. One of the most well-known implementations of liquid democracy is found in Germany's Pirate Party, a political party that adopted liquid democracy through an online platform called LiquidFeedback.

The system allowed members of the party to participate in decision-making by either voting directly or delegating their vote to another member. Although the Pirate Party faced internal challenges and electoral failure, its use of liquid democracy highlighted both the strengths and weaknesses of the system (Behrens et al., 2014).

Another notable example of civic engagement platforms can be found in DemocracyOS, an open-source application initially developed in Argentina. The platform was designed to facilitate citizen participation in decision-making by allowing users to engage in debates, vote on policies, and influence legislative processes directly online. While not a pure liquid democracy system, DemocracyOS incorporates key principles of open and direct political engagement. It was initially piloted in Buenos Aires and later adopted by political organizations and social movements, including Mexico's political party, Partido de la Red (Wired, 2014). The platform's ability to connect citizens with political decision-making in real time was seen as a transformative tool for political participation, particularly among younger, tech-savvy voters.

Beyond Argentina, the model has been implemented or inspired initiatives in other countries, including Spain, Brazil, and Taiwan, where digital tools have been used to foster more direct citizen engagement in government processes. For instance, Taiwan's vTaiwan platform, which encourages public participation in crafting legislation, draws from the participatory ideals of platforms like DemocracyOS (The Guardian, 2016). These digital tools offer the potential for a more responsive and inclusive form of governance by making it easier for citizens to directly engage with decision-makers. In practice, the most substantial contributions of liquid democracy appear in its ability to foster a more informed and expert-driven decision-making process. A study by Blum and Zuber (2016) emphasized that in a liquid democracy system, participants were more likely to delegate their voting power to individuals with proven expertise in specific areas, thus potentially leading to more competent and effective governance. Additionally, the flexibility of the system helps mitigate some of the drawbacks of direct democracy, such as the potential for uninformed or short-termist decision-making (Ford, 2014).

Despite its potential, liquid democracy faces several significant challenges. A significant concern is the risk of delegation creating new forms of political inequality. While the system theoretically allows for equal participation, there is a risk that certain individuals or groups may accumulate disproportionate power through vote delegation. Individuals with large social networks or political influence may accumulate excessive delegated votes, concentrating power and undermining equal representation (Paulin, 2020). Another challenge is the issue of trust and transparency in digital platforms. Liquid democracy relies on digital systems for voting and delegation, which raises concerns about cybersecurity vulnerabilities, data privacy, and transparency. In the case of the Pirate Party in Germany, the LiquidFeedback platform faced criticism over its complexity and lack of accessibility, particularly for non-technical users (Behrens et al., 2014). Ensuring that liquid democracy platforms are secure, user-friendly, and transparent will be essential for their successful implementation.

Conclusion and policy implications

The author presents a nuanced perspective on integrating direct democracy with modern technological advancements. While direct democracy faces inherent challenges, these do not justify a blanket rejection of the concept. Rather, the author advocates for its continuous evolution and refinement, emphasizing that direct democracy encompasses far more than the sporadic posing of

singular questions through referenda. Direct democracy has the potential to enrich democracy if its complexities are thoughtfully integrated into the broader democratic system. Additionally, it advocates for a dynamic, rather than static, understanding of direct democracy, one that is adaptable and responsive to the complexities of modern society.

Direct democracy mechanisms should not replace representative democracy but complement it. Instead, it should serve as a vital complement by allowing citizens to weigh in on significant policy issues or moral dilemmas that transcend everyday governance. Representative institutions remain essential for addressing the complex, technical, and long-term challenges of governance, ensuring both continuity and expertise in policy development. Referendums and other direct democracy mechanisms complement representative democracy by enabling citizens to influence major policy decisions while preserving legislative stability. This balanced strategy affirms the significance of direct democracy in boosting democratic engagement and responsibility for basic policy problems while acknowledging its limitations in handling intricate legislative matters.

The author advocates for liquid democracy, a hybrid system allowing voters to cast votes directly or delegate their voting rights to trusted representatives. Delegation to trusted individuals, experts, or even AI systems enables liquid democracy to address key limitations of direct democracy, such as voter knowledge gaps, majority tyranny, and short-termism. However, its success depends on addressing challenges like political equality, trust in digital platforms, and sustained political engagement. Furthermore, the author stresses the importance of establishing legal regulations and mechanisms to protect minority rights, ensure long-term sustainability, and maintain social cohesion within the framework of direct democracy. Such regulatory measures are deemed essential to prevent the infringement of minority rights and human rights, curb excessive spending, and check the actions of political leaders and influential figures that may run counter to the public interest. Jurisdictional oversight and constitutional protections ensure that direct democracy and digital platforms align with the goals of equity, sustainability, and social harmony.

On the whole, the author's analysis explores the advantages and disadvantages of direct democracy in the digital era and presents an insightful argument for its continued development and integration into representative democratic systems. In an increasingly digital world, the author outlines a practical framework for enhancing democratic participation through liquid democracy and robust legal protections. This approach recognizes that while ICT and digital platforms can transform democracy, structural and legal frameworks are necessary to address unresolved challenges associated with direct democracy.

Data availability

All data analyzed during this study are cited in the reference list of the article.

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References

- Allcott H, Gentzkow M (2017) Social media and fake news in the 2016 election. *J Econ Perspect* 31(2):211–236
- Alvarez RM, Hall TE (2004) Point, click, and vote: the future of internet voting. Brookings Institution Press
- Alvarez RM, Hall TE, Trechsel AH (2009) Internet voting in comparative perspective: the case of Estonia. *Political Sci Polit* 42(3):497–505
- Amelin R, Channov S, Polyakova T (2016) Direct democracy: Prospects for the use of information technology. In: Chugunov A, Bolgov R, Kabanov Y, Kampis G, Wimmer M (eds) Digital transformation and global society. DTGS 2016. Communications in Computer and Information Science, vol 674. Springer, Cham
- Barber BR (2003) Strong democracy: Participatory politics for a new age. University of California Press, Berkeley and Los Angeles
- Behrens J, Kistner A, Nitsche A, Swierczek B (2014) The principles of Liquid-Feedback (1st ed.). Interaktive Demokratie e. V., Berlin
- Berg S, Hofmann J (2021) Digital democracy. *Internet Policy Review* 10(4)
- Bessette JM (1980) Deliberative democracy: The majority principle in republican government. In: Goldwin RA, Schambra WA (eds) How democratic is the constitution? American Enterprise Institute for Public Policy Research, Washington, pp 102–116
- Blum C, Zuber CI (2016) Liquid democracy: Potentials, problems, and perspectives. *J Political Philos* 24(2):162–182
- Bowler S, Donovan T (2002) Democracy, institutions and attitudes about citizen influence on government. *Br J Political Sci*. 32(2):371–390
- Bulmer E (2017) Direct democracy: International IDEA constitution-building primer 3. International IDEA
- But JJ, Jongkind DK, Voermans WJM (2023) Direct democracy in the constitution: Good or bad for democracy? *Theory Pract Legislation* 11(1):52–82
- Chambers S (2003) Deliberative democratic theory. *Annu Rev Political Sci*. 6(1):307–326
- Cohen J (1989) Deliberation and democratic legitimacy. In: Hamlin A, Pettit B (eds) The good polity. Normative analysis of the state. Blackwell, Oxford, pp 17–34
- Congre U, Guillamón M-D, Nurmandi A, Salahudin, Sihidi IT (2023) Digital democracy: A systematic literature review. *Front Polit Sci*. 5:1–11
- Dalton RJ, Farrell DM, McAllister I (2011) Political parties and democratic linkage: How parties organize democracy. Oxford University Press, Oxford
- Dacombe R, Parvin P (2021) Participatory democracy in an age of inequality. *Representation* 57(2):145–157
- Dryzek J (2000) Deliberative democracy and beyond. Liberals Critics Contests. Oxford University Press, Oxford
- Foa RS, Klassen A, Slide M, Rand A, Collins R (2020) The global satisfaction with democracy report 2020. Centre for the Future of Democracy, Cambridge
- Ford B (2014) Delegative democracy revisited. Retrieved from <http://bford.github.io/2014/11/16/deleg.html>
- Ford B (2020) A Liquid Perspective on Democratic Choice. Retrieved from <https://arxiv.org/pdf/2003.12393>
- Frey BS (1994) Direct democracy: Politico-economic lessons from Swiss experience. *Am Econ Rev*. 84(2):338–342
- Gara M (2020) What kind of institutional implementation for participatory democracy? Theories and debate during the long 1970s in the United States. *USA Broad J Am Hist Polit* 3(1S):69–79
- Gastil J, Knobloch KR (2020) Hope for democracy: How citizens can bring reason back into politics. Oxford University Press, Oxford
- Gerber ER, Lupia A (1999) Voter competence in direct legislation elections. In: Elkin SL, Soltan KE (eds) Citizen competence and democratic institutions. Pennsylvania State University Press, University Park, pp 147–160
- Götz P, Kahng A, Mackenzie S, Procaccia AD (2021) The fluid mechanics of liquid democracy. *ACM Trans Econ Comput* 9(4):1–39
- Heald D (2006) Varieties of transparency. In: Hood C, Heald D (eds) Transparency: The key to better governance? Oxford University Press, Oxford, pp 24–43
- International IDEA (2008) Direct democracy: The international IDEA handbook. International Institute for Democracy and Electoral Assistance, Stockholm
- Karpf D (2016) Analytic activism: Digital listening and the new political strategy. Oxford University Press, Oxford
- Kildea P, Brown AJ, Deem J (2021) When should the people decide? Public support for direct democracy in Australia. *Parliam Aff* 74(4):911–942
- Kirchgässner G (2016) Direct democracy: chances and challenges. *Open J Political Sci* 6:229–249
- Kriesi H, Trechsel AH (2008) The politics of Switzerland: continuity and change in a consensus democracy. Cambridge University Press, Cambridge
- Lewis DC (2011) Direct democracy and minority rights: same-sex marriage bans in the U.S. *Soc Sci Q* 92(2):364–383
- Longley R (2024) Direct democracy: definition, examples, pros and cons. Retrieved from <https://www.thoughtco.com/what-is-direct-democracy-3322038>
- Lowenthal AF, Bitar S (2015) From authoritarian rule toward democratic governance: Learning from political leaders. International Institute for Democracy and Electoral Assistance, Stockholm
- Manin B, Stein E, Mansbridge J (1987) On legitimacy and political deliberation. *Political Theory* 15(3):338–368
- Mansbridge J (2008) Carole Pateman: Radical liberal?. In: O'Neill D, Shanley M, Young I (eds) Illusion of consent: Engaging with Carole Pateman. Penn State University Press, University Park, pp 17–30

- Matsusaka JG (2004) For the many or the few: The initiative, public policy, and American democracy. University of Chicago Press, Chicago
- Matsusaka JG (2005a) Direct democracy works. *J Econ Perspect* 19(2):185–206
- Matsusaka JG (2005b) The eclipse of legislatures: direct democracy in the 21st century. *Public Choice* 124(1/2):157–177
- Matsusaka JG (2020) Let the people rule: How direct democracy can meet the populist challenge. Princeton University Press, Princeton
- Norris P (2001) Digital divide: civic engagement, information poverty, and the internet worldwide. Cambridge University Press, Cambridge
- Organ J (2019) Legal regulation of campaign deliberation: Lessons from Brexit. *Polit Gov.* 7(2):268–277
- Pateman C (1970) Participation and democratic theory. Cambridge University Press, London
- Paulin A (2020) Ten years of liquid democracy research: An overview. *Cent East Eur EDem EGov Days* 338:455–466
- Qvortrup M (2022) Referendums and ethnic conflict. University of Pennsylvania Press, Philadelphia
- Ruth SP, Welp Y, Whitehead L (2018) Let the people rule: Direct democracy in the twenty-first century. ECPR Press
- Samuelson W, Zeckhauser R (1988) Status quo bias in decision making. *J Risk Uncertain* 1(1):7–59
- Schiller T (2007) Direct democracy and theories of participatory democracy—some observations. In: Pällinger ZT, Kaufmann B, Marxer W, Schiller T (eds) Direct democracy in Europe, VS Verlag für Sozialwissenschaften, pp 52–63
- Schiller T (2022) Direct democracy. Encyclopedia Britannica. Retrieved from <https://www.britannica.com/topic/direct-democracy>
- Smith G (2009) Democratic innovations: Designing institutions for citizen participation. Cambridge University Press, Cambridge
- Steiner ND, Landwehr C (2023) Learning the Brexit lesson? Shifting support for direct democracy in Germany in the aftermath of the Brexit referendum. *Br J Political Sci.* 53(2):757–765
- Sunstein CR (2001) Republic.com. Princeton University Press, Princeton
- Sunstein CR (2018) #Republic: Divided democracy in the age of social media. Princeton University Press, Princeton
- Susskind J (2018) Future politics: Living together in a world transformed by tech. Oxford University Press, Oxford
- The Constitution Society (2021) Direct democracy. Retrieved from <https://consoc.org.uk/the-constitution-explained/direct-democracy/#widely-utilised>
- The Guardian (2016) How one woman's app is changing politics in the digital age. Retrieved from <https://www.theguardian.com/women-in-leadership/2016/feb/23/how-one-womans-app-is-changing-politics-in-the-digital-age>
- Tolbert CJ, Smith DA (2005) The educative effects of ballot initiatives on voter turnout. *Am Polit Res.* 33(2):283–309
- Tucker JA, Theocharis Y, Roberts ME, Barberá P (2017) From liberation to turmoil: Social media and democracy. *J Democr.* 28(4):46–59
- Vatter A (2000) Consensus and direct democracy: Conceptual and empirical linkages. *Eur J Polit Res.* 38(1):171–192
- Wired (2014) Out in the open: An open-source website that gives voters a platform to influence politicians. Retrieved from <https://www.wired.com/2014/05/democracy-os/>
- Wojciechowska M (2010) Deliberative democracy as an answer for crisis in democratic governance. Radical Politics Today (April 2010). Retrieved from https://research.ncl.ac.uk/spaceofdemocracy/word%20docs%20linked%20to/Uploaded%202009and10/Marta/Deliberative_Democracy_as_an_Answer_for_Crisis_in_Democratic_Governance.pdf
- Wright S (2012) Politics as usual? Revolution, normalization and a new agenda for online deliberation. *N Media Soc.* 14(2):244–261

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Author contributions

PR led the study design, performed the majority of the research and analysis, and drafted the manuscript. YA contributed to data collection, preliminary analysis, and revisions of the manuscript. YC contributed to the theoretical framework, literature review, and manuscript editing. All authors provided critical feedback and approved the final submission.

Competing interests

The authors declare no competing interests.

Ethical approval

Ethical approval was not required as the study did not involve human participants.

Informed consent

This article does not contain any studies with human participants performed by any of the authors.

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