

Mapping the Transformation of Political Participation through Digital Citizenship: Global Trends from a Bibliometric Analysis (2019–2024)

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Abstract

This study investigates the transformation of political participation in the era of digital citizenship, where information and communication technologies have reshaped how citizens engage in democratic processes. Moving beyond traditional notions of rights and obligations, citizenship is increasingly characterized by the ability to participate actively in public affairs through digital platforms. Using a bibliometric analysis of 339 Scopus-indexed articles published between 2019 and 2024, this research maps publication trends, conceptual clusters, and thematic evolutions related to digital citizenship and political participation. The findings reveal four dominant clusters: digital citizenship, citizenship, political participation, and digital transformation that organize the field, with emerging themes such as COVID-19, gender, and digital education policies shaping more recent scholarship. Results highlight the strategic role of digital technologies in enabling political campaigns, online petitions, e-voting, and social media activism while exposing persistent challenges such as misinformation, privacy concerns, and digital divides. This study contributes to the literature by offering a comprehensive mapping of global scholarship, clarifying conceptual linkages, and identifying research gaps related to inclusivity and cross-regional comparisons. Strengthening digital and media literacy is

crucial to ensure more inclusive, ethical, and meaningful forms of political participation in the digital age.

Keywords: *Digital Citizenship, Political Participation, Digital Literacy, Digital Transformation, Online Activism.*

1. Introduction

Over the past decade, the rapid growth of digital technologies has transformed the ways in which citizens access information, deliberate, and participate in political processes. Social media platforms, online petitions, and civic technology applications have lowered barriers for engagement while expanding opportunities for visibility and coordination (Boulianne & Theocharis, 2020; Loader et al., 2014). These opportunities, however, coexist with challenges such as disinformation, privacy concerns, and the digital divide. Understanding how these dynamics reshape political participation is therefore essential to evaluating the quality of democracy in the digital age (Dijck, 2018).

In this study, *digital citizenship* is defined as the competent, ethical, and participatory use of digital technologies that connects online behavior with civic and political life (Choi, 2016a; Mascheroni & Ólafsson, 2016). This perspective highlights digital literacy, responsible interaction, and the capacity to employ platforms for collective action. *Political participation* is understood as a spectrum of behaviors, both conventional and non-conventional, through which citizens influence public decision-making, increasingly mediated by digital infrastructures (Boulianne & Theocharis, 2020).

The existing literature reveals three key strands of research. First, several studies highlight the relationship between digital and media literacy and political engagement, although findings vary depending on age, education, and socio-political context (Mihailidis & Thevenin, 2013). Second, digital platforms such as e-petitions, crowdsourced consultations, and participatory party processes have introduced new opportunities for mobilization, though their long-term democratic effects remain contested (Schmidhuber et al., 2019; Skoric, 2021). Third, structural barriers, including unequal access to technology, algorithmic governance, and varying levels of institutional openness, shape the inclusiveness and sustainability of digital participation (Chen et al., 2020). While valuable, these strands remain fragmented across disciplines and geographies, limiting a comprehensive understanding of how digital citizenship transforms political participation.

To address this limitation, a consolidated, cross-national synthesis is required to clarify the intellectual structure of this emerging field, highlight influential contributions, and identify underexplored areas. Responding to this need, the present research undertakes a Scopus-based bibliometric analysis of journal articles on digital citizenship and political participation published between 2019 and 2024. Using a PRISMA-informed screening process and VOSviewer for network, overlay, and density visualizations, we curated a dataset of 339 documents to explore conceptual clusters, collaboration patterns, and thematic trends.

This study is guided by several research questions that frame the bibliometric investigation. First, it seeks to explore how scholarly output on digital citizenship and political participation has evolved between 2019 and 2024, particularly in terms of publication volume, distribution across academic venues, and citation patterns. Second, it examines what conceptual clusters and thematic linkages organize the literature, with special attention to dimensions such as literacy, governance, mobilization, and inclusion or exclusion. Finally, the study aims to identify the research gaps that remain within this body of work and to propose future research agendas that can advance both theoretical development and practical applications in the field of digital citizenship and political participation.

This article makes three contributions. Empirically, it provides the first comprehensive bibliometric map of global scholarship at the intersection of digital citizenship and political participation in the post-2019 period. Methodologically, it combines evaluative indicators (e.g., productivity, impact) with relational analyses (e.g., co-occurrence, co-citation, co-authorship) to capture both structural patterns and dynamic linkages in the field. Substantively, it distills an agenda for future research focused on digital inclusion, literacy, governance, and the quality, not merely the quantity, of digitally mediated participation (Boulianne & Theocharis, 2020; Loader et al., 2014).

The remainder of this article is structured as follows. Section 2 outlines the methodology and bibliometric procedures. Section 3 presents results on publication trends, intellectual clusters, and collaboration networks. Section 4 discusses these findings in relation to broader debates on digital democracy and civic engagement. Section 5 concludes with implications for research and policy.

2. Method

This study systematically applies a bibliometric analysis to map the literature on digital citizenship and political participation. Bibliometric methods are well established for synthesizing large corpora of publications

and provide both descriptive and relational insights (Donthu et al., 2021). To ensure transparency, a PRISMA-informed screening procedure was employed (Figure 1).

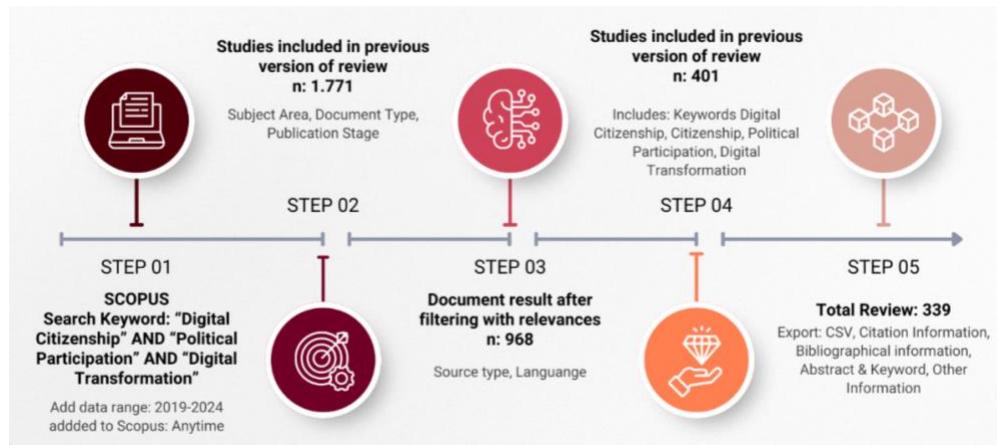


Figure 1. The PRISMA pipeline diagram is employed to find, screen, and incorporate papers for our bibliometric review.

Source: Analyzed by Author 2025

The initial search in Scopus yielded 1,771 records. After excluding non-articles and non-final publications, 968 remained. Limiting to peer-reviewed journals and English-language publications reduced the corpus to 401. A final refinement ensured the presence of the keywords "Digital Citizenship," "Citizenship," "Political Participation," and "Digital Transformation" in the title, abstract, or keywords, producing 339 documents published between January 2019 and December 2024. These criteria ensured quality, language consistency, and thematic relevance. The selection of keywords was grounded in prior scholarship that identifies digital citizenship and political participation as core constructs (Boulianne & Theocharis, 2020; Choi, 2016a), with digital transformation providing the technological frame.

The dataset was analyzed using VOSviewer software (Aria & Cuccurullo, 2017), a widely used tool in bibliometric research for constructing and visualizing bibliometric networks. A minimum occurrence threshold of five was applied to reduce noise while capturing dominant themes, following standard bibliometric research practices (van Eck & Waltman, 2010). Two complementary strategies were applied: evaluative analysis (publication trends, citation counts, geographical distribution, prolific authors) and relational analysis (co-occurrence of keywords, co-authorship networks, and co-citation clusters). Keyword

cleaning was performed manually and with the VOSviewer thesaurus. Clusters were labeled inductively based on their predominant themes. While this approach enhances replicability, certain limitations should be noted. Scopus coverage may omit relevant studies indexed elsewhere, the focus on English-language publications introduces potential linguistic bias, and bibliometric methods privilege citation patterns rather than substantive quality. These limitations were mitigated by focusing on a multi-year period (2019–2024) and by triangulating evaluative and relational analyses to capture productivity and conceptual linkages. These procedures ensured that the dataset and analysis framework were directly aligned with the research questions, enabling a systematic mapping of scholarly trends, conceptual structures, and gaps in the field.

3. Results and Discussion

3.1. Research networks, trends, and density

This analysis delineates the network and density of research papers concerning Political Participation and Digital Citizenship from 2019 to 2024. The research seeks to uncover terms closely linked to Political Participation and Digital Citizenship.

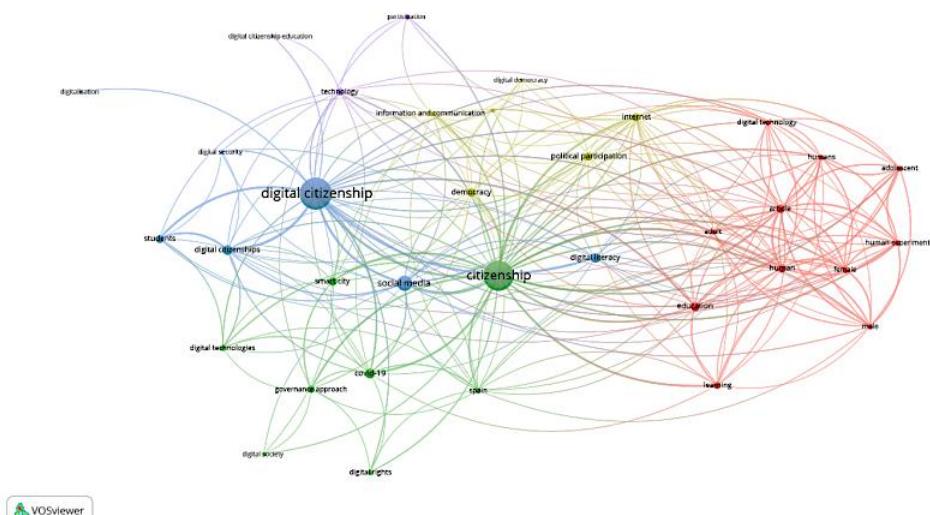


Figure 2. An overview of the evolution of research on Political Participation and Digital Citizenship
Source: *Author's Data Processing Using VOSviewer*

Figure 2 presents the keyword co-occurrence network generated from 339 Scopus-indexed articles published between 2019 and 2024. The

visualization identifies five major clusters represented by different colors, with political participation in the yellow-green cluster. This cluster is strongly connected to citizenship, democracy, digital democracy, the internet, and communication. The positioning of political participation near these nodes indicates its dual role: on the one hand, it remains closely tied to traditional democratic practices such as elections and collective action, while on the other hand, it increasingly intersects with digitally mediated forms of participation.

The blue cluster centers on digital citizenship, linked to terms like digital literacy, students, education, and digital security, reflecting research that emphasizes the educational and normative aspects of digital engagement. The green cluster revolves around citizenship and connects with social media, governance approaches, and digital society, showing civic engagement's institutional and participatory dimensions. The red cluster highlights human rights, adolescents, gender, and education, indicating the growing attention to socio-demographic contexts. Finally, the purple cluster connects technology with digital democracy and participation, reflecting a technological perspective on citizen involvement.

From a structural perspective, citizenship and digital citizenship appear as the network's most central and densely connected nodes, functioning as bridges between other clusters. The degree of connectivity of political participation confirms its relevance as a mediating concept that links normative theories of citizenship with emerging practices in the digital public sphere.

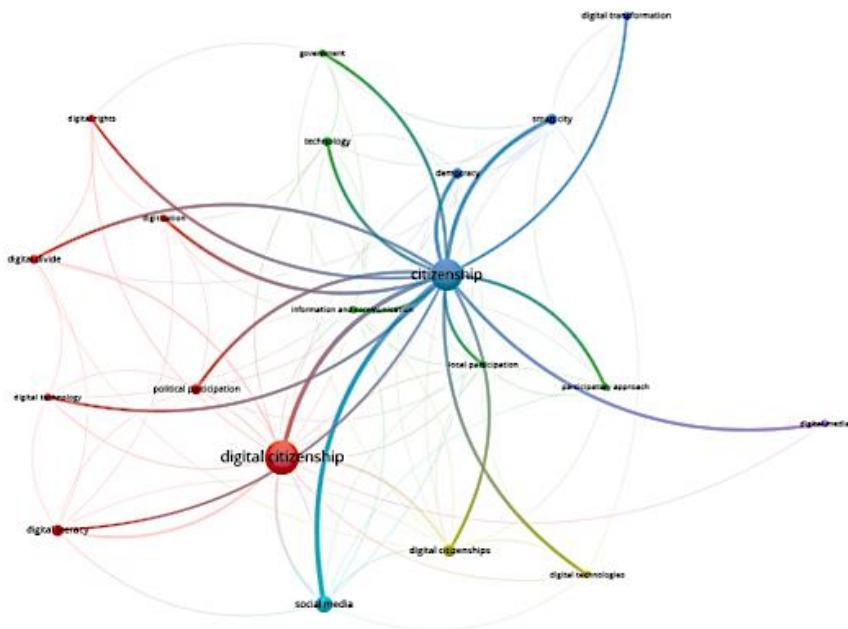


Figure 3. Keyword Network Mapping
Source: Data Processed by the Author Utilizing VOSviewer

Figure 3 shows three main clusters: digital political participation, citizenship, and digital transformation. The political participation cluster closely relates to digital rights, literacy, and technology. This finding confirms that citizen participation in democratic spaces is determined not only by the availability of digital platforms but also by the capacity of citizens to understand and use technology effectively. The closeness of this cluster to the concepts of citizenship and digital democracy illustrates the research's orientation to citizen engagement in the democratic process, whether through elections, online campaigns, or digital petitions.

The second cluster, digital citizenship, places digital literacy, social media, and the digital divide at the center. This pattern shows that access to technology does not automatically result in quality participation, as digital participation requires an understanding of ethics, critical thinking skills, and awareness of responsibilities as a digital citizen. Social media does provide a more open space for participation, but it also poses a risk of information manipulation and political polarization if citizens' digital literacy is low. Therefore, digital citizenship is understood as access to

technology and as a form of socio-political identity reflected through technology's ethical, critical, and productive use.

The last cluster, digital transformation, is closely related to smart cities and digital governance. This pattern reflects how technological developments can encourage more transparent, efficient, and participatory governance. However, the findings also point to new challenges such as over-reliance on technology, an unresolved digital divide, and the potential for data manipulation that could undermine democratic legitimacy. The interconnections between digital transformation, digital citizenship, and political participation show that digital democracy requires an inclusive, safe ecosystem that supports meaningful citizen participation.

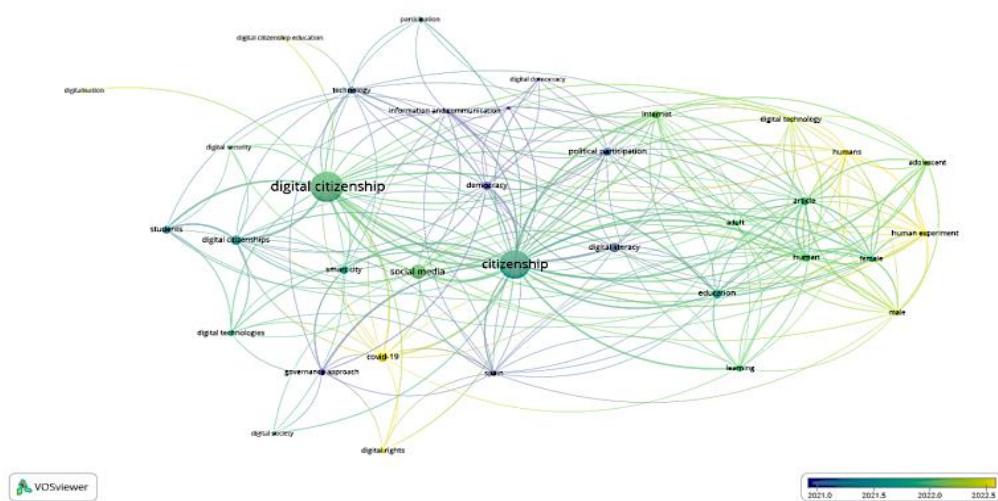


Figure 4. A snapshot of the research development on Political and Digital Participation from 2019 to 2024.

Source: Data Processed by the Author Utilizing VOSviewer

Figure 4 shows research trends in the 2019-2025 period on Political Participation and Digital Citizenship indexed in the Scopus database. The network visualization pattern places political participation in a purple cluster with key nodes such as digital democracy, social media, and digital citizenship. This position shows that political participation is no longer understood as conventional involvement in elections or offline social movements, but has evolved into new forms mediated by digital technology. This relationship confirms that digital media functions as a means of political communication and an arena for deliberation, advocacy, and social mobilization that can expand democratic space. This also shows that technological developments have opened channels of political

participation that are more inclusive, interactive, and oriented towards citizen involvement.

Furthermore, the close connection between digital citizenship and political participation highlights the importance of digital literacy, ethics, and civic responsibility as prerequisites for quality political engagement. The network visualization shows that digital literacy nodes are directly connected to political participation issues, indicating that access to technology alone cannot guarantee effective participation. Citizens with good digital literacy will better distinguish credible information from disinformation and avoid getting caught up in the political polarization that often appears on social media. In addition, the digital ethics node in this network also shows that political participation in the digital space demands mutual respect and awareness of collective responsibility.

The visualization results also show that digital political participation cannot be separated from technological development and social media dynamics. The digital democracy nodes in the purple cluster emphasize that democratic transformation is no longer separated from digital space, but increasingly relies on online mechanisms such as digital petitions, social media-based political campaigns, and electronic voting. This finding shows a new pattern in research trends, where political participation is seen as a simultaneous process between physical and digital spaces. This means that digital democracy becomes an integrative platform that connects conventional democratic practices with citizen participation in cyberspace.

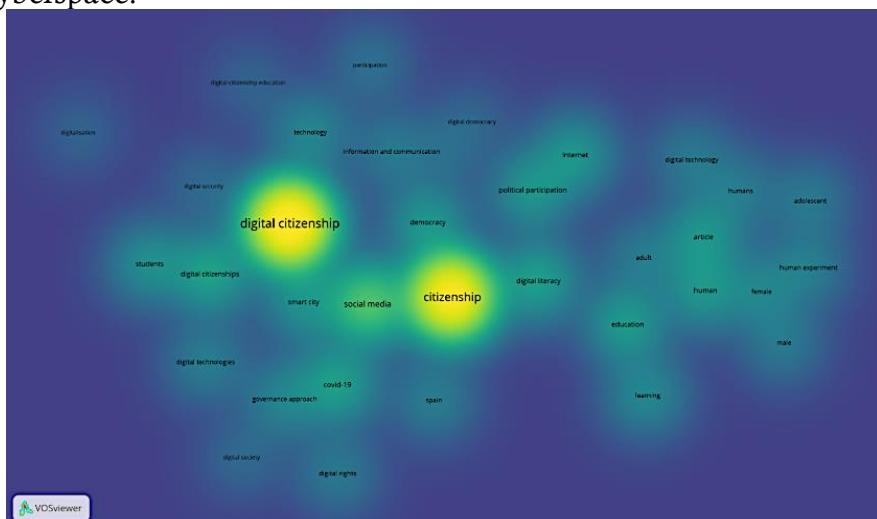


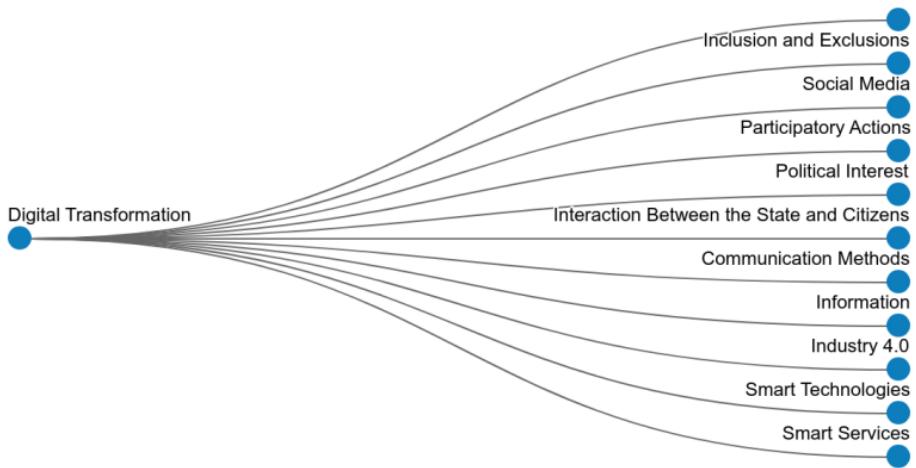
Figure 5. Visualisasi overlay Partisipasi Politik dan Kewarganegaraan Digital dari Tahun 2019 hingga 2024

Source: Data Processed by the Author Utilizing VOSviewer

Figure 5 shows the density of research topics on Political Participation and Digital Citizenship based on keywords. Mapping the density using VOSviewer provides an overview of keywords that have been widely discussed and those that are still rarely researched. Yellow indicates topics that are most frequently the focus of research, while areas with less intense yellow indicate that the topic is relatively seldom explored. Less prominent keywords can be positioned as new research opportunities, thus potentially contributing significantly to the development of Political Participation and Digital Citizenship studies.

This visualization shows that Digital Citizenship, Citizenship, Social Media, and Digital Literacy form a dense cluster. This indicates that these terms are often linked and discussed in the analyzed literature. The high density around these keywords reflects an academic consensus on the importance of digital literacy and the role of social media in supporting digital citizenship. In other words, research in this field has focused on how citizens interact and participate through digital technology, emphasizing literacy, ethics, and responsibility in the digital public sphere.

Conversely, keywords such as Political Participation, Digital Democracy, Digital Security, and Digital Society tend to appear on the outer edges of the visualization with lower density. This position indicates that although these topics are highly relevant, academic studies on them are still relatively limited or not yet strongly connected to the main terms. This condition opens up opportunities for further research to explore the relationship between digital political participation and issues of democracy, digital security, and the dynamics of digital society. Specifically, this area has the potential to become a new field of research that can enrich the academic discourse on political and citizenship transformation in the digital age.



Powered by Scopus AI, Tue Nov 19 2024

Figure 6. Map Concept
Source: Author's Data Processing Using Scopus AI

Figure 6 illustrates the conceptual mapping of digital transformation and its primary linkages within the literature on political participation and digital citizenship. The visualization identifies ten major thematic connections radiating from the central node of digital transformation. These include inclusion and exclusions, social media, participatory actions, political interest, interaction between the state and citizens, communication methods, information, Industry 4.0, smart technologies, and smart services.

The central placement of digital transformation indicates its role as the structural hub of recent scholarship, bridging technological innovation with political and civic processes. Among the most salient linkages, participatory actions and political interest highlight how digital technologies are intertwined with citizens' political behaviors and motivations. The strong ties with social media and interaction between the state and citizens reflect the dual function of digital platforms as spaces for both horizontal civic engagement and vertical state–society communication.

The presence of terms such as inclusion and exclusion and communication methods points to ongoing academic attention to structural inequalities and the mechanisms through which technology enables or restricts access to democratic participation. Finally, connections to Industry 4.0, smart technologies, and smart services suggest that digital

transformation is increasingly examined in relation to broader socio-technical ecosystems, linking political participation with innovations in governance, automation, and service delivery.

4. Discussion

The results of a bibliometric analysis of 339 articles discussing digital citizenship and political participation between 2019 and 2024 show significant developments in the number of publications, diversity of themes, and patterns of conceptual interconnections. These findings confirm that political participation is no longer limited to conventional mechanisms such as elections or offline collective actions, but is increasingly mediated by digital technology through social media, online petitions, and platform-based campaign fields (Boulianne, 2020). The network analysis in Figures 2 and 3 shows that citizenship and digital citizenship function as central nodes connecting various other clusters, including political participation and digital transformation. These findings show that digital citizenship is understood in a normative framework of rights and obligations and as a practice of political participation that depends on digital literacy, access to technology, and digital governance that supports citizen engagement. Thus, the results of this study support the view that political participation in the digital age must be understood as a combination of individual agency in the form of literacy, ethics, and political motivation with systemic structures that include infrastructure, policies, and institutions (Choi, 2016a).

The temporal visualisation in Figure 4 shows a shift in the focus of research from conceptual discussions in the 2019–2020 period to more contextual and practical issues in the 2022–2024 period, such as COVID-19, gender, and education. This shift shows that digital citizenship is increasingly understood as an abstract concept and a contextual practice influenced by global crises, cultural norms, and public policy. For example, studies on the pandemic show how social media functions as an alternative space for political participation when face-to-face interaction is limited (Pirouz et al., 2020). At the same time, research with a gender perspective in Indonesia highlights how digital citizenship can be a means of resistance against patriarchal norms. The density map in Figure 5 further emphasises the importance of digital literacy and social media as central themes in the literature, reflecting the academic consensus that digital literacy is a prerequisite for meaningful participation. However, the literature shows contradictory results: some studies find a positive relationship between digital literacy and political participation, while others show no significant relationship, indicating that digital literacy may be a necessary but not

sufficient condition because its effectiveness is highly dependent on other contextual variables such as age, ideology, and socio-economic status, (Schmidhuber et al., 2019).

Meanwhile, Figure 6 shows that digital transformation is central to the literature, connecting to themes such as participatory actions, political interest, social media, and Industry 4.0. This position confirms that digital transformation functions as technological infrastructure and a catalyst for paradigm shifts in citizenship and political participation. However, its connection to inclusion and exclusion also reveals a paradox: although digital technology opens up wider opportunities for participation, access gaps, low literacy, and socio-economic disparities can give rise to new forms of exclusion in political participation (Chen et al., 2020). This shows that digital transformation is not a neutral process, but is highly influenced by the structural context that determines who has the opportunity to participate and who is left behind. Thus, this literature emphasises the urgency of policies that guarantee equitable access to technology, inclusive digital literacy programmes, and capacity building for citizens to use digital spaces effectively (Loader et al., 2014).

This study contributes to theoretical development by showing that the literature in this field is still fragmented into four main clusters: digital citizenship, citizenship, political participation, and digital transformation. Still, the interconnections between clusters open up opportunities to build a more integrative conceptual framework. Empirically, this study successfully maps global publication trends post 2019, identifies dominant themes, and discovers under-explored areas, such as digital democracy and participation in the Global South. From a practical perspective, the study's results emphasise the importance of inclusive digital literacy education, transparency in digital governance, and the provision of equitable access to technology to strengthen more meaningful political participation (Choi, 2016b). However, this study also has limitations, including the use of the Scopus database, which excludes non-indexed and non-English publications, making Western bias difficult to avoid, the selective choice of keywords, and the limited time frame (2019–2024), which only captures contemporary developments without being able to trace long-term historical trends (Zupic & Čater, 2015).

Furthermore, bibliometric methods tend to emphasise citation patterns and co-occurrence, thus failing to capture the qualitative nuances in academic discourse. Therefore, future research must combine bibliometrics with qualitative content analysis, expand the database to other platforms such as Web of Science or Dimensions, and include non-English literature to be more globally representative. Cross-country and

cross-regional comparative studies are also essential to bridge the literature gap, particularly regarding the underrepresented experiences of digital participation in the Global South.

5. Conclusion

This study makes an important contribution to understanding the dynamics of political participation in the era of digital citizenship through a bibliometric approach to scientific publications from 2019 to 2024. The analysis shows that literature on political digital involvement is growing rapidly, primarily focusing on topics such as digital literacy, social media, e-democracy, and citizen engagement in the digital public sphere. These findings confirm that digital citizenship expands the space for political participation and reshapes how citizens understand, express, and practice their rights and obligations in the context of a digital society. Furthermore, the close relationship with the development of Industry 4.0, smart technologies, and smart services indicates that digital political participation can no longer be viewed solely from a socio-political dimension, but also as the result of interactions with a complex technological ecosystem. This creates a new form of multidimensional citizenship involving political, social, economic, and technological aspects while encouraging a redefinition of citizen participation structure in the digital age.

However, this study has methodological limitations that should be noted. First, the study's main limitation is that the data used only comes from the Scopus database. Second, the selection of keywords may limit the scope of the analysis, while the 2019–2024 period may not be long enough to capture long-term trends. Nevertheless, this study makes two main contributions: first, it offers a systematic mapping of the current literature on the relationship between political participation and digital citizenship; second, it highlights the conceptual shift from traditional political participation to more interactive, distributed, and smart technology-based participation. In the future, further research needs to expand the database and keyword coverage, conduct comparative studies between countries, and explore the practical implications for public policy, particularly in the development of digital literacy programs, e-governance, and regulatory frameworks that can anticipate the impact of smart technology on the political rights of citizens.

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