

Social media, big data, and AI in Indonesia's political campaign strategy

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Abstract The digital era has transformed political marketing through the collaboration of social media, big data, and artificial intelligence (AI), each of which offers complementary roles in shaping campaign strategies. This study investigates how these technologies are reconfiguring political communication by enabling data-driven, emotionally resonant, and personalised interactions between candidates and voters. The analysis is theoretically grounded in Political Market-Oriented Theory, which explains the strategic adaptation of political actors to voter demands; affective publics, which highlights how emotional expression and virality shape engagement in digital platforms; and surveillance capitalism, which frames the commodification of personal data and algorithmic control within political messaging practices. Using a qualitative analytical bibliometric approach, the study employs three main tools: VOSviewer for keyword co-occurrence analysis, R Studio for conceptual structure and thematic evolution mapping, and CiteSpace for co-citation clustering and timeline visualisation. The dataset consists of Scopus-indexed journal articles from 2015 to 2024 and is included in the open access. The study places a particular focus on non-Western democracies, with Indonesia as a case study, to highlight contextual challenges such as digital inequality and low digital literacy. The findings highlight strategic benefits such as targeted messaging, voter segmentation, and real-time feedback. However, they also raise ethical issues, including algorithmic bias, digital surveillance, and the threat of misinformation to democratic integrity. This study contributes to closing the literature gap on AI-based political marketing in emerging democracies and proposes normative guidelines for the ethical, inclusive, and transparent use of digital technologies in political campaigns.

Keywords: artificial intelligence; big data; political marketing; social media

INTRODUCTION

The transformation of political marketing in the digital era is an important phenomenon that deserves to be studied, especially with the collaboration of digital technologies such as social media, big data, and artificial intelligence (AI) in modern campaign strategies. These three technologies have different but complementary functions in forming an integrated campaign ecosystem. Social media is used as a means of direct interaction between candidates and voters without going through mainstream media (Abid & Roy, 2024), while big data allows for the collection and analysis of voter behaviour on a large scale. AI, on the other hand, strengthens the data-based decision-making process through automation and personalization of campaign strategies.

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This change shows a shift from the conventional political marketing approach to a model oriented towards the political market (Political Market-Oriented Model) as developed by Lees-Marshment (2001). In this model, political actors are required to be more adaptive to the desires and needs of the public, not only selling programs, but also creating political products that are in accordance with voter aspirations through a research-based approach, market segmentation, and strategic communication.

The application of digital technology allows for the creation of strong and consistent political branding. Candidate images are strategically managed and disseminated across multiple digital platforms to ensure alignment with public expectations (Pich et al., 2020). In addition, digital campaigns now leverage advanced data analytics for micro-targeting based on voter demographics and psychographics (Chester & Montgomery, 2019). This process not only increases efficiency but also enables the mobilisation of digital volunteers and public fundraising through massive small donations (Howard, 2005; Rahyadi & Aras, 2020).

However, these developments also pose significant challenges, especially in terms of ethics and regulation. AI and machine learning enable campaigns to be more personalised and efficient, but also have the potential to be misused to spread disinformation, hate speech, and manipulate public opinion that threatens the integrity of democracy (García-Orosa, 2021; Sánchez-Holgado et al., 2024). This calls for a new regulatory framework and strong digital ethics to maintain accountability in the political process.

The Indonesian context presents unique challenges. Low digital literacy, damaged internet infrastructure between regions, and the dominance of figure and issue-based campaigns are obstacles to optimising this technology (Afrina et al., 2024; Megasari et al., 2022). Moreover, the socio-economic gap between urban and rural voters creates an unequal level of access to digital political communication. According to data from BPS (2024), the percentage of the poor population in urban areas is 7.09%, while in rural areas it reaches 11.79%. This disparity reflects the digital divide that potentially limits the effectiveness of technologically driven campaigns in certain segments of the population.

The use of big data in Indonesian political contests is starting to become common, especially to describe public sentiment (De Rosa, 2018; Mameli et al., 2022), but the application of AI is still limited. In fact, AI has great potential to process data on a large scale, predict political trends, and build more relevant and algorithm-based political communication.

In the context of political campaigns, artificial intelligence (AI) can be applied through structured stages, starting from collecting voter data such as demographic data, bold behaviour, and political preference history. This data is then analysed using algorithms to identify voter segmentation and the issues they consider important. AI models such as machine learning and natural language processing (NLP) are used to predict voter behaviour, design more targeted message campaigns, and automate communications through chatbots or personalised digital ads. For example, sentiment and topic analysis can be combined with psychographic profiles to generate messages tailored to the characteristics of each voter. If big data provides descriptive insights, then AI provides predictive and prescriptive value, namely projecting the likelihood of voter behaviour and determining the type of message that is most effective in influencing them.

This study aimed to fill the gap in the literature on the role of AI in political marketing in Indonesia, especially in its collaboration with social media and big data. In addition to identifying strategic opportunities, this study also describes the normative risks that arise, such as privacy violations, algorithmic bias, and digital campaign ethics.

This study is theoretically grounded in Political Market-Oriented Theory (Lees-Marshment, 2001), which explains how political actors adapt to voter demands through research-based and strategically planned marketing approaches. To capture the digital transformation of this strategy, this study also draws on affective publics (Papacharissi, 2014), which highlights the role of emotional expression in shaping political engagement on social media, and surveillance capitalism (Zuboff, 2019), which critically examines the commodification of personal data and the algorithmic logics underlying modern campaign practices. Together, these frameworks offer a multidimensional lens for analysing how digital technologies are reshaping political communication strategically, emotionally, and structurally. Building on this theoretical foundation, this study aimed to explore two main research questions: (1) how are social media, big data, and artificial intelligence integrated into political campaign strategies in Indonesia; and (2) what are the strategic benefits and ethical risks arising from the use of these

technologies in shaping political communication and democratic processes. The answers to these questions are expected to provide theoretical contributions to the advancement of digital political marketing studies and provide practical insights for designing inclusive, ethical, and adaptive campaign strategies in the digital era.

METHODOLOGY

This study used a qualitative approach using bibliometric analysis to explore the transformation of political marketing in the digital era, focusing on social media collaboration, big data, and artificial intelligence (AI). The research data were taken from the Scopus database through a systematic search using Boolean search strings:

(TITLE-ABS-KEY ("Political Marketing") OR TITLE-ABS-KEY ("Social Media" AND "Big Data" AND "Artificial Intelligence" OR "AI")) AND PUBYEAR > 2013 AND PUBYEAR < 2025 AND (LIMIT-TO (LANGUAGE, "English")) AND (LIMIT-TO (SRCTYPE, "j")) AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (OA, "all")).

This strategy limits the results to English-language journal articles published between 2014 and 2024 and included in the open-access category. Scopus was chosen because of its broad multidisciplinary coverage, especially in social sciences, communication technology, and political marketing and the availability of detailed bibliometric metadata such as citation analysis and author collaboration networks, which are essential for this study (Suárez et al., 2022).

However, the selection of Scopus also brings inherent limitations, such as language bias toward English and overrepresentation of research from the Global North (Osadchyi, 2021). To mitigate this, manual screening was conducted on the titles, abstracts, and, where necessary, the full text to ensure that articles selected for analysis were thematically relevant to the transformation of political marketing using digital technologies in diverse global contexts, including the Global South.

IDENTIFICATION OF STUDIES THROUGH DATABASES

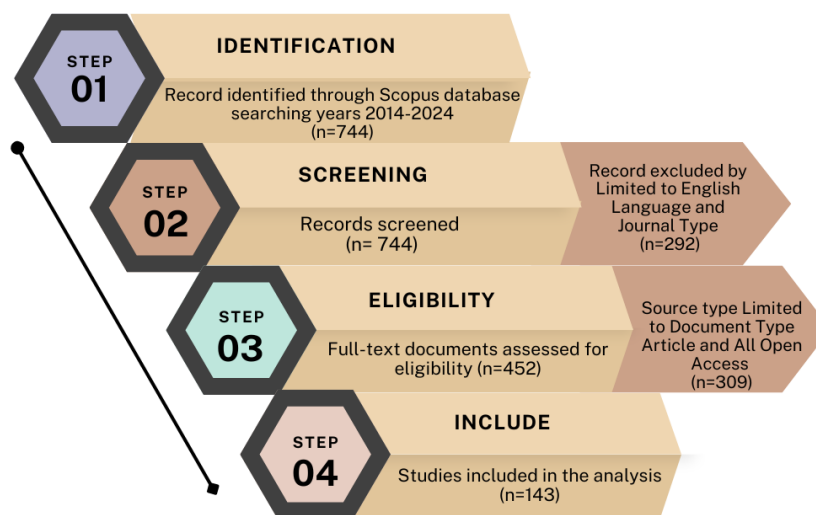


Figure 1. Prisma chart
Source: Processed by author, 2024

The article selection process followed an adapted PRISMA protocol (See Figure 1) designed for bibliometric analysis. Although the PRISMA framework is typically applicable to systematic literature reviews, in this study it was modified to support systematic literature tracking and transparent screening without assessing the quality of article content. From an initial dataset of 744 documents, the screening process based on inclusion and exclusion criteria resulted in 143 articles for analysis.

Bibliometric analysis was performed using three software tools to ensure analytical depth and triangulation. VOSviewer was used for keyword co-occurrence analysis using the strength of association algorithm, which allows the construction of keyword co-occurrence networks to identify key research themes and topic clusters (Li et al., 2023). R Studio, via the bibliometrix package, was used to perform Multiple Correspondence Analysis (MCA) to generate conceptual

processing, predictive modelling, and content personalisation. Big data analytics enables large-scale behavioural tracking, while machine learning algorithms, a subset of AI, provide tools for sentiment analysis, voter profiling, and campaign optimisation.

In addition, the themes of big data analytics and machine learning demonstrate the growing role of computing technologies in analysing voter behaviour, measuring public sentiment, and personalising political messages. Key concepts such as sentiment analysis, data mining, and behavioural targeting are more accurately placed in the domain of machine learning, especially as applied to the large datasets derived from social media platforms. These technologies enable political actors to track emotional responses, map ideological groups, and design highly targeted messaging strategies.

This transformation also reflects a broader socio-political shift, where political marketing has become entangled in what Zuboff (2019) calls surveillance capitalism, the commodification of personal data for strategic influence. In addition, social media-driven campaigns increasingly mobilise what (Papacharissi, 2014) calls affective publics, where political discourse is shaped by emotional resonance rather than rational considerations.

Taken together, this picture illustrates how modern political marketing has shifted from traditional outreach to a digitally mediated and data-intensive model. By leveraging social media, big data, and machine learning, campaigns can become more responsive, personalised, and adaptive but also risk reinforcing bias, manipulation, and emotional polarisation.

Topic domain

Figure 3 shows a multidimensional mapping that shows three main interconnected clusters in the context of political marketing transformation in the digital era, namely the red cluster (social media and political marketing), the blue cluster (data acquisition and machine learning), and the green cluster (humanity and social impact, including COVID-19). This figure illustrates the shift in political marketing strategies that increasingly rely on digital technology and data-based analysis in building public engagement and influencing voter behaviour.

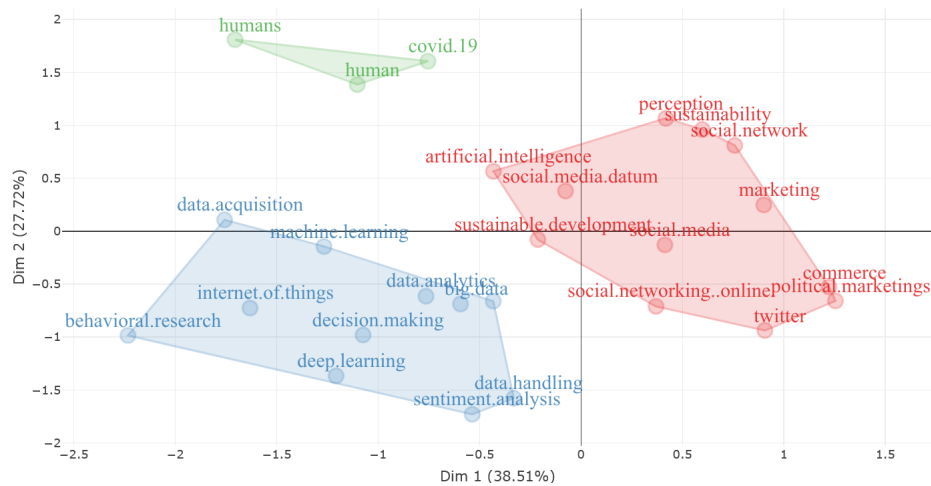


Figure 3. Conceptual Structure Map - MCA
 Source: RStudio, 2024

The first cluster highlights concepts related to social media and political marketing, such as social networks, social media, political marketing, and platforms like Twitter. This cluster emphasises the role of social media as a key channel in disseminating campaign messages, building political images, and mobilising voters digitally. In the digital era, social media is not only a communication tool, but also serves as a space to shape public opinion and influence people's perceptions of political candidates (Ahmad et al., 2024). This shows that modern campaign strategies utilise social media to create compelling narratives and build direct connections with audiences.

Meanwhile, the second cluster includes concepts such as data acquisition, machine learning, deep learning, sentiment analysis, and behavioural research, which emphasise the importance of utilising big data and artificial intelligence (AI) in political campaign strategies.

These technologies are useful for the collection, processing and analysis of large amounts of data to understand voter preferences, gauge public sentiment and personalise campaign messages (Safiullah & Parveen, 2022). With machine learning algorithms, campaign teams can make more accurate predictions regarding voter behaviour and determine effective strategic steps based on existing data.

The third cluster highlights aspects of humanity and social impact, including the context of the COVID-19 pandemic, which has accelerated the adoption of digital technology in various sectors, including political marketing. The pandemic has changed the pattern of political interaction from face-to-face to virtual, thus strengthening the role of social media and digital technology in the campaign process (Dewi et al., 2022). The concept of humans in this cluster shows that digital transformation in political marketing must still pay attention to humanitarian and ethical aspects, including maintaining public trust and avoiding data manipulation (Litovtseva et al., 2022).

Overall, this picture illustrates that the digitalisation of political marketing presents a dual dynamic: on the one hand, it offers democratizing potential such as broader access to political information, more personalised voter engagement, and increased citizen mobilisation. On the other hand, it introduces destabilising risks, including opaque algorithmic decision-making, intrusive data surveillance, and increased emotional polarisation in political discourse. To ensure that these technological developments strengthen rather than undermine democratic values, the integration of AI and data-driven tools must be guided by clear principles of algorithmic accountability, transparency, and data fairness.

Thematic Evolution

Figure 4 illustrates the thematic evolution of political marketing between 2014 and 2024, reflecting a shift from early adoption of the internet to the growing integration of social media, big data, and political branding as dominant elements of campaign strategy. The diagram highlights the transformation in digital political communication, where campaigns increasingly rely on media platforms and data analytics to engage voters more strategically.

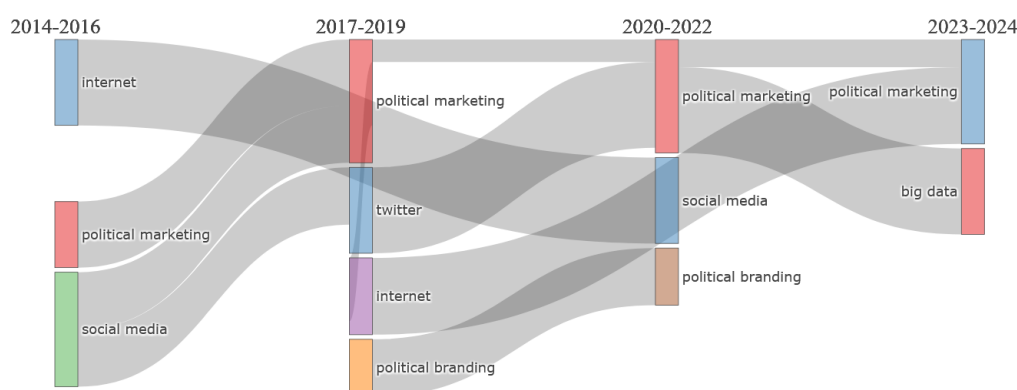


Figure 4. Sankey diagram of thematic evolution
Source: RStudio, 2024

During the period 2014–2016, the dominant themes were the internet, political marketing, and social media. The internet served primarily as a medium for disseminating political information, while the role of social media was still emerging, with limited personalisation and data-driven targeting (Petrosyan, 2019). Political campaigns at this stage were broad and one-way.

The period 2017–2019 marked the increasing importance of social media, particularly platforms such as Twitter, and the emergence of political branding as a strategic priority. Candidates began to craft political identities and narratives tailored to online audiences, moving toward more interactive and emotionally resonant communications (Boulianne & Larsson, 2023; Neihouser & Dubois, 2024).

In the 2020-2022 phase, the themes of political marketing, social media, and political branding became dominant. Campaigns increasingly adopted digital channels to reach different voter segments, while data analytics began to play a more active role in tailoring messages and tracking voter engagement.

The 2023-2024 period saw further evolution with the emergence of big data as a key theme. This signified a shift from communicative to analytical sophistication, with political campaigns leveraging large-scale data collection and behavioural analysis to inform microtargeting and message optimisation (Geet et al., 2023). The increasing role of data analytics reflects a more sophisticated and evidence-based approach to influencing voter behaviour.

Overall, this thematic evolution reflects how political marketing has shifted from generic digital communications to a data-driven ecosystem centred on social media and big data. These tools are now the foundation of political engagement, enabling campaigns to build dynamic voter relationships through personalisation, segmentation, and targeted narrative delivery.

Literature mapping

Figure 5 shows a visual representation of the concept map related to topics related to the transformation of political marketing in the digital era. Looking at this figure, we can see a clustering of themes involving terms such as social media, political branding, artificial intelligence, and political marketing, which is the core of the discussion of the integration of social media, big data, and artificial intelligence in modern political campaign strategies

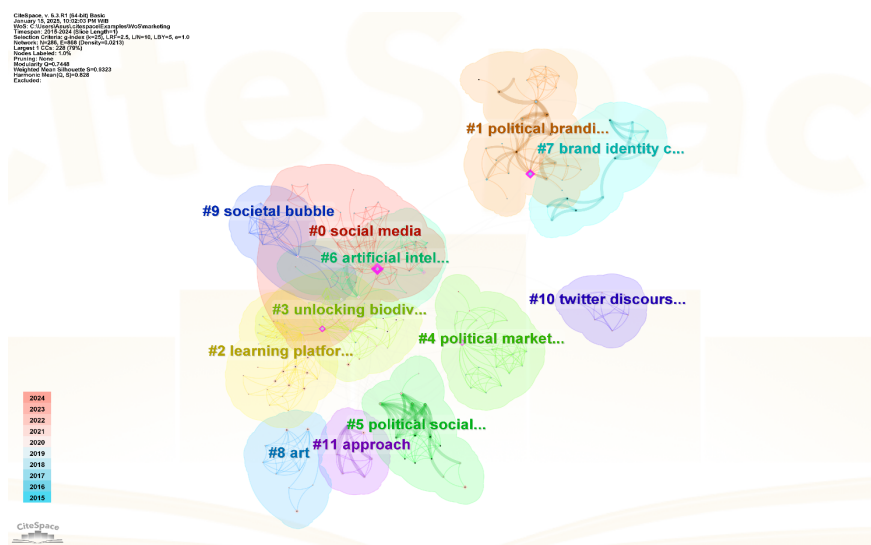


Figure 5. Cluster of co-cited references
Source: CiteSpace, 2024

Figure 5 presents a co-citation cluster map that visualises the intellectual structure of scholarly discourse on the digital transformation of political marketing. The clusters reflect the thematic intersections of academic sources and reveal how concepts such as social media, political branding, artificial intelligence, big data, and voter behaviour have co-evolved in the literature.

Clusters #0 social media and #1 political branding dominate the map, underscoring the growing importance of digital platforms in building political identities and enabling direct interactions between politicians and voters. This cluster reveals a strategic shift from mass communication to individual engagement, facilitated by the capabilities of social media platforms.

Cluster #6 artificial intelligence represents the computational dimension of modern campaigns, focusing on the use of AI for data mining, sentiment analysis, and predictive modelling. The prominence of this cluster suggests a deepening reliance on algorithmic systems, raising important ethical questions about data privacy, bias, and automated decision-making. These concerns relate to the asymmetry of power between political actors who control data infrastructures and citizens who are subject to invisible forms of influence.

Cluster #9 societal bubbles emerge as an important node pointing to the unintended consequences of digital personalisation: the creation of ideological echo chambers and fragmented public spaces. This phenomenon, closely related to affective publics (Papacharissi, 2014), illustrates how algorithmic curation can distort deliberative democracy by amplifying emotionally charged content while suppressing dissent or complexity.

Clusters #4 political marketing and #5 socio-political approaches explore the tactical application of marketing logic in political contexts, often supported by big data analytics and microtargeting tools. Cluster #10 Twitter discourse emphasises the platform's specific dynamics, in particular how Twitter functions as a space for real-time agenda-setting and symbolic political performance.

The emergence of Clusters #2 learning platforms and #8 Art may initially seem insignificant, but are indicative of an evolving landscape in which political communication intersects with the realms of culture, education, and aesthetics. The inclusion of art signals the role of visual storytelling and symbolic representation in digital campaigns, while learning platforms demonstrate that political knowledge is increasingly mediated through algorithmic learning systems.

Rather than viewing these clusters as isolated findings, they should be interpreted as interconnected elements of a broader transformation in political marketing. Collectively, they show how AI, big data, and social media are reshaping electoral strategies not only by increasing efficiency and personalisation, but also by introducing risks associated with surveillance, manipulation, and the erosion of collective deliberation. This map supports a cohesive narrative: the digitalisation of political marketing is characterised by both democratising and destabilising potentials, depending on how technological power is structured, regulated, and ethically constrained.

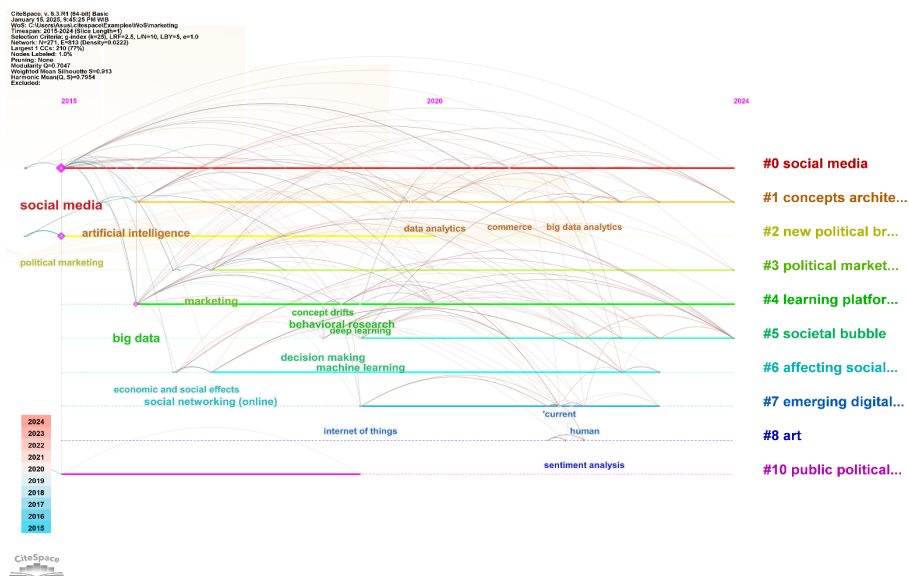


Figure 6. Timeline view based on keyword
 Source: CiteSpace, 2024

Figure 6 shows the evolution and relationship between the main topics in the study of political marketing transformation in the digital era. In the context of the integration of social media, big data and artificial intelligence (AI) in political campaign strategies, this figure displays the main interrelated clusters.

Cluster #0 social media serve as a central element, indicating that social media is a key pillar in political marketing transformation. The role of social media is closely connected to clusters #1 concept architecture and #6 affecting social, which shows the influence of digital architecture and social media on public opinion and political strategy. In addition, #3 political marketing and #2 new political branding reveals the importance of social media in building political identities and effectively marketing campaign messages.

The artificial intelligence (AI) group is a broader conceptual framework that includes machine learning (ML) as part of the group. In the context of political campaigns, especially in

the context of elections, ML-based big data analytics is often used to analyse voter behaviour, segment audiences, and optimise campaign messages in real time. While AI encompasses a wider range of technologies, such as natural language processing and predictive modelling, machine learning is specifically applied to detect patterns and make decisions based on data. Therefore, the reference to AI in this study primarily refers to the application of machine learning techniques based on big data to improve the effectiveness and personalisation of political communication strategies.

Social phenomena are also emphasised in cluster #5, societal bubbles, illustrating the effect of digital media in creating echo chambers that influence public perception. Cluster #10 public political discourse shows the role of digital platforms in supporting public discussions that influence political dynamics. The overall analysis reflects the collaboration of modern technology in political marketing, centred on the use of social media, the utilisation of big data for behavioural analysis, and artificial intelligence for campaign strategy optimisation.

Evaluation of artificial intelligence integration in political marketing

The integration of artificial intelligence (AI) into political marketing has generated significant ethical and operational debates, particularly around privacy, transparency, and fairness. AI systems that collect and process personal data can violate individuals' privacy rights, particularly when the data is collected without explicit consent or used beyond its original intent. Furthermore, the opaque nature of AI algorithms often limits public understanding, leading to distrust of how political messages are generated and delivered (Benjelloun & Kabak, 2024).

AI's capacity to rapidly generate, analyse, and disseminate content offers substantial benefits in refining communication strategies. However, this efficiency also poses significant risks, particularly in spreading misinformation, deepening political polarisation, and reinforcing societal biases. AI-generated political content, particularly when micro-targeted, can include biased or false narratives that influence public opinion and potentially distort election outcomes (López-Ponce et al., 2024). This has been observed in various democratic settings, including Indonesia during the 2019 and 2024 general elections, where automated bots, sentiment analysis tools, and AI-based ad targeting were reportedly used to influence voter behaviour through social media platforms such as Facebook and Twitter (Putri et al., 2024; Wulandari, 2023). These practices have sparked public debate about manipulation, data misuse, and the ethical boundaries of digital campaigning.

In implementing AI in political marketing, organisations must have a comprehensive understanding of the underlying technology and its implications. Managing AI systems requires ensuring data quality, algorithmic accuracy, and compatibility with existing political marketing frameworks (Pugna et al., 2024). In addition, successful integration requires organisational readiness, including the implementation of change management strategies and adequate training for stakeholders to effectively navigate AI-driven processes.

As the influence of AI grows, regulatory oversight becomes increasingly important. Many countries, including Indonesia, are exploring governance frameworks to mitigate the potential for misuse of AI in political communication. Regulatory mechanisms must balance technological innovation with ethical imperatives such as protecting voter rights, promoting electoral integrity, and accountability in algorithmic decisions (Juddoo, 2023). However, the rapid evolution of AI poses challenges for policymakers in formulating agile yet robust legal instruments.

Ultimately, public trust plays a major role in determining the legitimacy and acceptance of AI-driven political campaigns. If perceived as manipulative or intrusive, such technologies may face public resistance and undermine the credibility of political actors using them. Therefore, promoting transparency, ensuring ethical implementation, and addressing issues related to data security and misuse are critical in aligning AI practices with democratic values and promoting informed citizen engagement (Reshmidilova et al., 2024).

CONCLUSION

The transformation of political marketing in the digital era demonstrates a fundamental shift in how political messages are constructed, delivered, and perceived. This shift is driven not merely by technological adoption, but by deeper systemic dynamics related to surveillance capitalism and algorithmic governance, where personal data is commodified and utilised for micro-targeted political messaging. Social media, big data, and artificial intelligence (AI) are no longer

neutral tools; they actively shape the public sphere, influence voter behaviour, and potentially alter democratic processes.

Platforms like Twitter and Facebook have become central in shaping political discourse, enabling campaigns to tailor content through sentiment analysis, topic modelling, and predictive analytics powered by machine learning. These AI-driven tools allow for dynamic engagement with voters but also raise questions about algorithmic opacity, bias reinforcement, and information asymmetry. From 2014 to 2024, political marketing evolved from merely internet-based outreach to complex, data-driven systems that construct digital political identities and foster emotional connections with target audiences.

In the Indonesian context, this evolution is complicated by digital divides such as uneven internet access, varying levels of digital literacy, and regional disparities in media consumption. These challenges mirror broader issues faced by many countries in the Global South. For example, during Indonesia's 2019 and 2024 general elections (Pemilu), there was widespread concern over the spread of AI-generated disinformation, including deepfakes and bot-driven political propaganda which amplified polarisation and misinformation across social platforms. These cases underscore the necessity of contextualised approaches that not only import global frameworks but also account for Indonesia's unique socio-technological landscape.

Despite the strategic advantages of AI in enhancing campaign efficiency, these technologies introduce significant ethical risks, particularly around privacy infringement, lack of transparency, and discrimination. The deployment of AI in political marketing without clear oversight can exacerbate political polarisation, as witnessed in several electoral contexts. In Indonesia, for instance, automated amplification of sectarian narratives during local elections has been linked to rising online hate speech and fragmented public discourse.

Therefore, robust regulatory mechanisms are essential to ensure the ethical deployment of AI. Policies should mandate transparency in algorithmic decision-making, safeguard data protection, and impose accountability on platforms and campaign actors. Ethical principles must be embedded not as rhetorical commitments, but as institutionalised safeguards that govern digital political practices.

Furthermore, enhancing public digital literacy is crucial to mitigate the impact of algorithmically curated content. Public education campaigns and transparent data governance policies can empower citizens to critically assess political information, thus fostering a more resilient democratic society. In conclusion, while AI offers significant potential to modernise political marketing, its implementation must be technically sound, ethically grounded, and contextually responsive to protect the integrity of democratic processes.

However, behind these benefits come ethical challenges related to privacy, transparency and potential discrimination. The risk of disinformation and political polarisation posed by AI demands comprehensive regulation to ensure the technology is used ethically and fairly. In addition, the successful use of AI in political marketing relies heavily on public trust. Transparency in the application of AI, data protection, and an ethical and non-manipulative approach are important steps to maintain public trust in the democratic process. With the integration of increasingly sophisticated technology, political marketing in the digital era is able to create more effective and adaptive campaigns, but still needs to emphasise ethical and regulatory principles to maintain fairness and public trust.

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