BIG DATA AND ARTIFICIAL INTELLIGENCE IN EUROPEAN POLITICAL COMMUNICATION: ETHICAL IMPLICATIONS, TECHNOLOGICAL SHIFTS AND REGULATORY CHALLANGES[1]

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Abstract. *The digitalization of public communication, particularly within political campaigns, has undergone a significant transformation driven by Big Data and Artificial Intelligence (AI). In the European context, this shift brings forth both unprecedented opportunities and complex ethical and regulatory dilemmas. This article explores the evolving role of Big Data and AI in political communication, analyzing its impact on democratic processes, citizens' trust, and regulatory frameworks. Drawing on recent literature, it offers a critical reflection on the capabilities and limits of data-driven campaigning, cross-national differences in technological adoption, and public perceptions of microtargeting. Furthermore, the article discusses the emerging governance models, ethical paradoxes, and the necessity of transparency in the face of generative AI and algorithmic persuasion. The aim is to contribute to a deeper understanding of how European democracies can align digital innovation with democratic resilience and ethical responsibility.*

Keywords: *Big Data, Artificial Intelligence, Political Communication, Ethical Implications, Regulation, Public Trust, Europe*.

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1. Introduction

In the past decade, the convergence of Big Data and artificial intelligence (AI) has fundamentally reconfigured the landscape of political communication, disrupting long-standing models of voter engagement, message dissemination, and public discourse. These technologies have ushered in an era of algorithmically mediated communication, characterized by hyper-personalized messaging, sentiment analysis, real-time behavioral predictions, and increasingly automated decision-making processes. Political actors, from parties and candidates to interest groups and foreign entities, now wield unprecedented tools for micro-targeting, content amplification, and influence operations - often beyond the scrutiny of traditional media oversight or public transparency mechanisms.

While this digital transformation has introduced new efficiencies and innovations in civic engagement, it also raises significant normative and regulatory challenges. Concerns regarding the ethical use of personal data, algorithmic opacity, surveillance capitalism, and the weaponization of misinformation have intensified. These developments risk amplifying political polarization, undermining trust in democratic institutions, and marginalizing vulnerable groups who may be disproportionately targeted or excluded by AI-driven campaign strategies.

Moreover, as recent electoral cycles across various European democracies illustrate, the integration of Big Data and AI into political strategy is not monolithic. Instead, it is deeply embedded in distinct national political cultures, institutional arrangements, data protection regimes, and levels of digital infrastructure development (Barclay et al., 2024). This variability underscores the need for a nuanced, context-sensitive analysis of how these technologies interact with existing democratic norms and practices.

Against this backdrop, the present article aims to advance an evidence-based exploration of the multifaceted ways in which Big Data and AI are reshaping democratic life in Europe. It interrogates the implications of these technological shifts for ethical political communication, democratic accountability, and the evolving relationship between citizens and the state. By synthesizing empirical case studies and interdisciplinary scholarship, this analysis seeks to inform a more principled and proactive regulatory discourse on digital campaigning in the age of intelligent machines.

2. Big Data and AI in Political Campaigning

The foundational characteristics of Big Data, volume, velocity, variety, veracity, and value, remain central to understanding its strategic utility and its associated challenges in the political domain (Laney, 2001). These dimensions articulate not only the vast scope and heterogeneity of data generated by citizens and systems alike, but also the increasingly urgent need for robust frameworks to assess data quality and ethical provenance. Akter et al. (2016) extend this model by introducing additional dimensions such as variability and visualization, underscoring the importance of adaptability and real-time analytical representation in dynamic political environments. These expanded features are especially relevant in electoral contexts, where rapid opinion shifts, emergent narratives, and platform-specific content types create constant volatility in the data ecosystem.

Artificial Intelligence (AI) amplifies these complexities by enabling automation, predictive modeling, and generative output at an unprecedented scale. Through techniques such as machine learning, neural networks, natural language processing (NLP), and generative adversarial networks (GANs), AI systems not only analyze data but increasingly shape it, producing content, detecting patterns, and making real-time recommendations. In political campaigning, these capabilities have been deployed for microtargeting (Vliegenthart et al., 2024), voter segmentation (Dutceac Segesten & Sandberg, 2024), personalized content delivery (Bon et al., 2024), and engagement optimization through platform-specific analytics (Figeac et al., 2024). Notably, Dommett, Barclay, and Gibson (2024) observe that the field lacks a universally accepted taxonomy for "data-driven campaigning". This absence of definitional clarity poses difficulties for comparative research and regulatory design, especially in multi-party European democracies.

The core elements identified by Dommett and colleagues, database integration, algorithmic predictions, behavioral modeling, and operational efficiency - are widely recognized across recent empirical studies as constituting the backbone of contemporary campaign infrastructure. Yet, the application of these elements varies significantly across national contexts. In Sweden, for example, data-driven practices are shaped more by resource disparities among parties than by ideology or organizational structure (Dutceac Segesten & Sandberg, 2024). In Germany, the use of Google Ads and targeted search advertising has been normalized among well-resourced parties, further entrenching digital inequalities (Fitzpatrick & von Nostitz, 2024).

Moreover, AI has facilitated the rise of generative content production in campaigns, enabling the creation of tailored political messages at scale. While this can enhance message resonance with target demographics, it also introduces risks related to manipulation, deepfake dissemination, and erosion of trust in authentic communication (Dan et al., 2025; Appel & Prietzel, 2022). These developments demand a reevaluation of the role of AI not merely as a campaign enhancement tool but as a transformative force in agenda-setting and voter perception.

Consequently, the integration of Big Data and AI into political campaigning must be understood not as a monolithic or uniformly adopted strategy but as a contested and evolving field, deeply shaped by institutional, legal, and cultural variables. Scholars such as Brkan (2023) and Farrand (2024) highlight the emerging regulatory landscape in Europe, particularly the shift from general-purpose data protection frameworks (e.g., GDPR) to targeted instruments addressing political advertising transparency and algorithmic accountability. These developments point to the growing recognition that data-driven political communication requires distinct ethical and legal considerations beyond traditional marketing or commercial applications.

In sum, the intersection of Big Data and AI with political campaigning in Europe is not only about technological sophistication but also about normative choices, institutional capacity, and democratic resilience. While the promise of enhanced efficiency and personalization remains attractive to campaign strategists, the growing body of research signals that the deployment of these tools must be critically examined through the lenses of fairness, transparency, and accountability - particularly in a continent where electoral integrity and public trust remain foundational to political legitimacy.

3. Ethical Implications of Data-Driven Political Communication

The integration of Big Data and Artificial Intelligence (AI) into electoral strategy presents a constellation of ethical dilemmas that transcend conventional concerns about campaign misconduct. While earlier critiques focused on manipulation through messaging or opaque funding sources, the emergence of computational politics has shifted attention toward deeper structural issues, particularly the automated collection, algorithmic processing, and deployment of personal data without informed consent. As Christodoulou and Iordanou (2021) argue, algorithmic systems increasingly mediate civic interactions, creating feedback loops that not only predict but also shape behavior, thereby eroding the foundational principles of individual autonomy and democratic deliberation. These systems, often developed within opaque

corporate infrastructures, introduce a form of "algorithmic governance" in which political communication is no longer merely persuasive, but performatively constitutive of voter identity and engagement.

Smith and Cordes (2019) outline a set of methodological pitfalls in data science, such as truncated datasets, cherry-picking, p-hacking, and inappropriate regression modeling, that are especially dangerous in a political context. These practices can distort the strategic landscape by amplifying marginal voter groups or falsely projecting message resonance. When used to optimize campaign targeting, they risk turning strategic miscalculations into systemic democratic distortions. For example, misidentifying a community as politically "swingable" based on false correlations could redirect resources away from more inclusive democratic engagement and toward divisive or polarizing tactics.

Empirical evidence from recent European studies further underscores these risks. For instance, Bon et al. (2024) demonstrate that public tolerance for microtargeting sharply declines when campaigns utilize sensitive data such as ethnicity or sexual orientation, yet such traits are often inferred algorithmically from seemingly innocuous inputs, raising serious consent and discrimination concerns. Similarly, Minihold and Votta (2024) reveal how exclusionary targeting, wherein political ads are selectively hidden from specific groups, risks reinforcing voter silos and undermining the norm of universal political addressability. This selective exposure challenges not only fairness in political competition but also voters' rights to receive comprehensive electoral information.

The ethical implications extend beyond the mechanics of targeting to encompass the psychological and epistemic effects of data-driven messaging. Noetzel, Binder, and Matthes (2024) find that citizens respond to microtargeted ads through varying "cognitive coping strategies," but those with lower political sophistication are particularly vulnerable to manipulation. Meanwhile, Appel and Prietzel (2022) show that susceptibility to deepfake content, a growing application of generative AI in political contexts is inversely correlated with analytical thinking and political awareness. These findings suggest that the deployment of advanced AI tools may disproportionately disadvantage already marginalized or less digitally literate voters, exacerbating inequalities in political influence and informational access.

Furthermore, the regulatory vacuum around these ethical dilemmas remains partially unresolved. While the General Data Protection Regulation (GDPR) offers some constraints, such as prohibiting the processing of political opinions without explicit consent, its enforcement

in campaign contexts remains inconsistent (Brkan, 2023). The emerging Digital Services Act and the proposed EU Regulation on political advertising attempt to fill this gap by introducing transparency mandates and accountability mechanisms. Yet as Farrand (2024) cautions, the fragmented jurisdictional structure across EU member states often leads to regulatory arbitrage, wherein campaigns exploit weaker legal regimes to bypass stricter controls.

Ultimately, the ethical challenges posed by Big Data and AI in political communication demand a paradigm shift from reactive regulation toward anticipatory governance. This includes the development of normative frameworks that foreground transparency, informed consent, data minimization, and fairness in algorithmic profiling. It also requires the institutionalization of multidisciplinary audit mechanisms capable of scrutinizing both the technological infrastructures and the human decision-making processes that underlie political AI systems.

4. Public Acceptance and Microtargeting

A pivotal concern in the ethics of data-driven campaigning is whether citizens perceive these practices as legitimate, transparent, and respectful of their autonomy. Recent empirical studies have shown that public attitudes toward political microtargeting are not monolithic but contingent upon several key variables, including the nature of the targeting criteria, the framing of the message, the identity of the sender, and the national political and regulatory context.

Vliegenthart et al. (2024) provide one of the most comprehensive examinations to date through a large-scale, cross-national vignette experiment involving over 14,000 participants from 25 countries. Their findings reveal a nuanced hierarchy of acceptability. Citizens are generally more receptive to campaign messages targeting them via broad demographic categories, such as age, geographic location, or voting history, than those derived from inferred psychological traits, browsing histories, or social media behavior. Acceptance increases markedly when the message content is issue-based rather than overtly partisan, and when the call to action is framed around civic participation (e.g., “go vote”) rather than specific candidate support. These patterns are echoed in Bon et al. (2024), who compared responses to microtargeting in Germany, the Netherlands, and the United States. The study found that European citizens were more skeptical than their American counterparts, particularly when sensitive data categories (such as religion or sexual orientation) were used. This suggests that not only the type of data, but also prevailing cultural norms around privacy and political communication, significantly influence public judgment. Moreover, Bon et al. report that ideology moderates acceptability: right-leaning individuals tended to view microtargeting as more legitimate than left-leaning ones, particularly

in contexts involving immigration or national identity. Noetzel, Binder, and Matthes (2024) further enrich this understanding through a gaze-cued think-aloud study conducted in Austria, which examined not just what people say they find acceptable, but how they cognitively process targeted political ads. The research identified five distinct cognitive response styles, ranging from "avoidant skepticism" to "neutral observation" and "partisan confirmation." Importantly, those who engaged with messages neutrally, neither embracing nor rejecting them based on prior bias, were the most susceptible to persuasion. This suggests that the ethical concern is not merely whether citizens find microtargeting acceptable, but whether certain subgroups - especially politically disengaged or undecided voters are more vulnerable to influence. Additionally, Minihold and Votta (2024) introduce the concept of exclusionary targeting, wherein specific voter groups are intentionally omitted from receiving political messages. Their study of Dutch Facebook ad practices indicates that while such practices are still relatively limited, public backlash is significant. Survey respondents viewed all forms of exclusion as ethically problematic, particularly when based on immutable characteristics like ethnicity or age. This finding supports the idea that the absence of exposure to political content can be just as ethically fraught as overexposure to manipulative messaging. Taken together, these studies indicate that public perceptions of microtargeting are highly conditional, shaped by the transparency of the practice, the sensitivity of the data used, the tone and intent of the message, and contextual political trust. They suggest that for campaigns to remain both effective and ethically defensible, political strategists must prioritize transparency and relevance while avoiding invasive or exclusionary practices. Moreover, differences in legal culture and civic expectations across European countries point to the need for context-sensitive regulations that reflect the ethical priorities of distinct democratic publics. Finally, these findings underscore the importance of media literacy as a moderating factor. Individuals with higher levels of digital competence are more likely to identify manipulative messaging and question the provenance of targeted ads (Appel & Prietzel, 2022). Hence, ethical political campaigning must not only regulate content and targeting mechanisms but also invest in the empowerment of the electorate to critically assess the information they receive.

5. Regulatory Ecosystems and Digital Sovereignty

The regulatory landscape governing data-driven political communication in Europe is undergoing significant transformation, driven by the twin imperatives of safeguarding democratic integrity and asserting digital sovereignty in the face of transnational platform

power. Farrand (2024) conceptualizes this shift as a form of regulatory mercantilism, whereby the European Union (EU) reclaims jurisdictional authority over online political communication by constructing a normative and legal perimeter distinct from the laissez-faire digital governance model of Silicon Valley. This strategy reflects growing concerns about foreign influence operations, the amplification of misinformation through opaque algorithms, and the erosion of electoral fairness via personalized persuasion.

The cornerstone of this evolving framework is the Digital Services Act (DSA), adopted in 2022, which imposes new obligations on very large online platforms (VLOPs) to mitigate systemic risks, including those related to disinformation and political advertising. Complementing this, the proposed Regulation on Transparency and Targeting of Political Advertising (2021/0381) introduces robust provisions mandating explicit disclosures for sponsored political content, restricting microtargeting based on sensitive personal data, and imposing documentation requirements for algorithmic targeting techniques. These measures signal a shift toward anticipatory governance - an effort not merely to penalize infractions but to embed democratic safeguards within the design and deployment of digital political infrastructures.

Nevertheless, this ambition faces formidable implementation challenges. Brkan (2023) notes that while the General Data Protection Regulation (GDPR) remains a foundational legal instrument, its relevance to political campaigning has reached structural limits. GDPR was not designed to address the emergent use cases of political deepfakes, generative AI, and real-time voter profiling. For instance, while the GDPR prohibits processing of sensitive data, political campaigns often circumvent this through inferred data or opaque third-party profiling, which remains difficult to audit in practice. The fragmented enforcement landscape, where national data protection authorities vary in resources, priorities, and technical capacity, further undermines uniform application.

Post-Brexit, the UK's regulatory trajectory illustrates the risks of disarticulated governance. Barclay, Gibson, and Dommett (2023) highlight that while the UK retains GDPR-inspired legislation, its electoral and data regulation systems operate with limited coordination, resulting in gaps in oversight. The Electoral Commission, Information Commissioner's Office (ICO), and other relevant bodies often work in silos, lacking the unified mandate or technical tools to assess algorithmic harms in real time. This is especially problematic in an environment where political actors can rapidly deploy targeted ads, exploit viral trends, or test dark patterns across multiple jurisdictions with limited traceability.

Moreover, the digital campaigning space continues to evolve faster than legislation can adapt. Studies by Fitzpatrick and von Nostitz (2024) reveal that political parties increasingly use Google Ads and search optimization tools, areas that are not comprehensively covered by existing platform transparency reports or ad archives. Similarly, Minihold and Votta (2024) document the underregulated practice of exclusionary targeting, where certain groups are intentionally excluded from seeing political ads, raising concerns about unequal access to political discourse and violations of voters' right to information.

One particularly difficult regulatory frontier is AI-generated content in campaigning, including deepfakes and synthetic personas. While proposals within the AI Act include rules for transparency and risk mitigation in "high-risk AI systems," it remains uncertain whether political campaigns, often considered expressions of free speech, will fall under these rules. This ambiguity opens the door for campaigns to deploy persuasive AI tools without robust scrutiny, especially in countries lacking independent regulatory audits or civil society watchdog mechanisms (Dan et al., 2025; Appel & Prietzel, 2022).

Consequently, scholars such as Brkan (2023) and Farrand (2024) advocate for a new integrated regulatory architecture that bridges data protection, electoral integrity, AI ethics, and media law. This would entail not only harmonization across EU member states but also the creation of cross-sectoral regulatory bodies capable of monitoring, auditing, and sanctioning actors operating in the hybrid space of data, technology, and democracy. Proposals for independent algorithmic auditing boards and real-time ad monitoring platforms are currently under discussion in several policy circles, reflecting an emerging consensus that reactive, siloed regulation is insufficient in the age of computational politics.

In sum, the regulatory ecosystems of European democracies are at a critical juncture. While progress has been made in designing forward-looking legislation, the capacity to enforce these norms, especially across digital borders and fast-moving campaign cycles, remains underdeveloped. As the interplay between Big Data, AI, and political communication intensifies, digital sovereignty will increasingly depend not only on legislative foresight but on institutional agility, cross-border cooperation, and a recalibrated understanding of electoral fairness in the algorithmic age.

6. Generative AI and Communication Strategy

The advent of generative artificial intelligence (AI) has inaugurated a paradigm shift in political communication, offering both transformative potential and profound normative risks.

Generative AI, encompassing technologies such as large language models, synthetic speech systems, and generative adversarial networks (GANs), enables the automation of content creation at a scale and sophistication previously unattainable. In the political realm, these technologies are being increasingly adopted by public institutions and campaign teams across Europe to streamline communication workflows, personalize outreach, and simulate interactive engagement (Lovari & De Rosa, 2025). For example, AI-generated messaging can dynamically adjust language, tone, and content to match specific voter profiles or demographic segments, enabling campaigns to maintain a high degree of message discipline while tailoring delivery to individual preferences.

However, this efficiency comes at a cost. As Lovari and De Rosa (2025) caution, the widespread adoption of generative AI tools raises urgent concerns about authenticity, transparency, and the erosion of editorial and journalistic standards. Particularly in contexts where public trust in institutions is fragile, the perception that communications may be "machine-authored" rather than human-crafted risks deepening cynicism and disengagement. Furthermore, the use of AI chatbots and voice assistants by government agencies for citizen interaction, though often framed as innovation, poses long-term questions about the depersonalization of public service and the accountability of algorithmic interfaces.

More alarmingly, generative AI can be weaponized to subvert democratic norms, particularly through the production and dissemination of deepfakes, synthetic audiovisual content that mimics real individuals with striking realism. Dan et al. (2025) provide experimental evidence that exposure to deepfakes portraying political figures can significantly distort public perception and erode trust in democratic institutions. Their study finds that even brief encounters with manipulated content can alter perceptions of candidate integrity, competence, or ideological stance. This risk is amplified by the speed at which deepfakes can be produced and disseminated via social media, often eluding traditional gatekeepers and reaching audiences before fact-checking mechanisms can intervene.

Despite these threats, the research also points to mitigating pathways. Dan et al. (2025) emphasize that timely media interventions, especially when accompanied by journalistic fact-checking and visual cues, can reduce the persuasive impact of deep fakes. These findings align with Apple and Prietzel (2022), who demonstrate that individuals with high analytical thinking skills and political awareness are better equipped to detect synthetic content and resist its

influence. This suggests a dual mitigation strategy: institutional investment in real-time content verification systems, and societal investment in digital literacy and critical thinking education.

At the regulatory level, however, responses remain uneven. While the European Commission's draft AI Act proposes labeling requirements for synthetic content and mandates risk classification for certain AI applications, it is unclear whether political campaign tools - often protected under freedom of expression - will be subject to the same level of scrutiny. This regulatory ambiguity creates a governance gap, allowing actors to exploit generative technologies with minimal oversight during critical electoral periods (Brkan, 2023; Farrand, 2024).

Additionally, the ability of campaigns to use generative AI to create "hyper-real" but emotionally resonant narratives, such as fabricated testimonies, AI-voiced candidate endorsements, or digitally reconstructed historical events, challenges traditional notions of political authenticity. Unlike older forms of propaganda, these techniques are not only scalable but also adaptive, capable of responding in real-time to voter feedback and engagement metrics. In this context, the line between strategic storytelling and manipulation becomes increasingly blurred, necessitating new ethical frameworks that go beyond conventional concerns with misinformation.

In summary, while generative AI provides powerful tools for innovation in political communication, it simultaneously introduces risks to electoral integrity, voter autonomy, and democratic discourse. The deployment of such tools must therefore be accompanied by robust transparency obligations, ethical standards for political messaging, and civic resilience strategies aimed at inoculating publics against computational persuasion. As European democracies increasingly grapple with the implications of AI-driven politics, the challenge will not be merely to regulate the technology, but to ensure that its integration enhances rather than corrodes the foundations of democratic communication.

7. Reassessing the Impact: Data Hype vs. Reality

While much of the public and scholarly discourse has fixated on the disruptive potential of Big Data and AI in electoral politics, a growing body of empirical research offers a more tempered perspective. Kefford et al. (2022), in a comparative study across six advanced democracies, reveal that although data-driven campaigning is increasingly embedded within electoral strategy, its actual sophistication and systemic influence are often overstated. Many political

parties continue to operate with fragmented datasets, legacy infrastructure, and inconsistent data integration protocols, limiting the efficacy of advanced analytics. In such contexts, the deployment of predictive models or algorithmic targeting tends to be rudimentary, shaped more by symbolic adoption than by strategic optimization.

This theme of overestimated impact is reinforced by Dobber et al. (2023), who conducted one of the few real-world field experiments on microtargeting within a European multi-party context. Their findings show that issue-based microtargeting, while capable of modestly increasing alignment between voters and campaign messages, had no significant influence on final voting behavior. The study's significance lies not only in its outcome, but in its methodological robustness: it empirically distinguishes between attitudinal alignment and behavioral conversion, a gap often overlooked in discussions on political persuasion via data.

Additional evidence from the European landscape corroborates this restrained view. For instance, Dutceac Segesten and Sandberg (2024) found that in Sweden, a digitally advanced democracy, many parties lacked the institutional or financial capacity to fully harness the promise of Big Data. In practice, the adoption of advanced targeting and analytics was concentrated among a small subset of well-resourced parties, while smaller or ideologically niche parties continued to rely on intuition-driven strategy, traditional segmentation, or grassroots networks. Similarly, Fitzpatrick and von Nostitz (2024) highlight that while German parties have invested in paid Google Ads, the sophistication of targeting remains uneven, and ad messaging often follows broad demographic heuristics rather than individualized data modeling.

These findings collectively suggest that the perceived omnipotence of Big Data in politics is largely contextual, contingent upon organizational capacity, electoral system complexity, and platform-specific constraints. Political parties are not homogenous adopters of digital tools. Instead, their ability to extract strategic value from Big Data is shaped by financial resources, internal expertise, access to proprietary datasets, and legal environments that either enable or inhibit experimental targeting. Furthermore, several studies caution against the risk of "data determinism", the belief that electoral outcomes can be engineered through algorithmic precision. Minihold and Votta (2024) note that even where exclusionary targeting tactics are used, public backlash and ethical pushback may diminish their effectiveness, creating reputational costs that outweigh tactical gains. Noetzel, Binder, and Matthes (2024) also underscore the variability in voter responses, showing that cognitive resistance, partisan

filtering, and political literacy mediate how individuals engage with targeted content. In essence, the actual power of Big Data in influencing political behavior appears to be mediated by human agency, institutional constraints, and socio-political context. While data analytics can improve message relevance, segmentation precision, and campaign resource allocation, it does not inherently guarantee voter persuasion or behavioral change. The predictive validity of data-driven campaigning is thus conditional, not deterministic, and must be interpreted through a lens that appreciates both its technical promise and its strategic limitations.

8. Ethical Paradoxes and Democratic Resilience

The integration of Big Data and Artificial Intelligence (AI) into political communication not only disrupts campaign mechanics but also challenges foundational democratic values. Richards and King (2013), and subsequently King (2013), articulate three enduring ethical paradoxes that frame this disruption: transparency, identity, and power. These paradoxes remain highly relevant as data-intensive technologies become further entrenched in European political campaigning. The paradox of transparency refers to the incongruity between the scale of data collection and the invisibility of its mechanisms to the average user. Political parties and digital platforms increasingly rely on vast troves of behavioral, psychographic, and contextual data to optimize targeting, yet the average voter remains unaware of how their information is harvested, inferred, and operationalized (Bon et al., 2024). This opacity not only undermines informed consent but also erodes trust in political institutions, especially when synthetic personas, deep fakes, or algorithmically curated content blur the boundaries between authentic and manipulated communication (Dan et al., 2025). The identity paradox is equally concerning. Algorithmic profiling tools-used to infer political leaning, issue salience, or emotional disposition, construct datafied versions of voters that may diverge significantly from their self-perceptions. These computational identities, often developed without consent and through opaque inferences, are then used to tailor content that reinforces stereotypes, nudges behavior, or isolates users into epistemic silos (Minihold & Votta, 2024). As Noetzel, Binder, and Matthes (2024) suggest, such targeting can subtly redefine how individuals see themselves politically, particularly when content is consumed passively and in echo chambers. This feedback loop diminishes opportunities for genuine opinion formation and deliberative citizenship, leading to what some scholars term a “post-consensual public sphere.”

The power paradox concerns the structural asymmetry between those who control data infrastructures (i.e., political parties, digital platforms, and data brokers) and those who are

profiled, influenced, or excluded. As Kefford et al. (2022) and Dutceac Segesten & Sandberg (2024) illustrate, resource-rich actors, typically large, mainstream parties, are disproportionately able to benefit from sophisticated data analytics, while underfunded or ideologically peripheral parties lag behind. This not only raises questions about fairness in electoral competition but also exacerbates political inequality, as some voter segments may be hyper-targeted while others are excluded altogether from key campaign messages (Minihold & Votta, 2024). Moreover, the use of AI-enhanced persuasion techniques (such as sentiment-adaptive video ads or GAN-generated testimonials) raises the specter of "informational domination," wherein voters are not merely influenced, but structurally manipulated without recourse or awareness (Lovari & De Rosa, 2025).

In response to these tensions, scholars and policymakers increasingly advocate for responsible innovation frameworks rooted in ethical foresight and civic participation. These frameworks emphasize principles such as *privacy-by-design*, *algorithmic transparency*, and *human-centric design*, which aim to ensure that technological progress aligns with democratic norms. The European Union has taken preliminary steps in this direction: the proposed AI Act includes transparency requirements for high-risk systems and mandates disclosure for synthetic media, while the Digital Services Act imposes due diligence obligations on platforms to mitigate systemic risks.

However, critics such as Brkan (2023) and Farrand (2024) warn that regulation alone is insufficient if not matched with institutional capacity and cross-sectoral coordination. Enforcement mechanisms must be supported by independent auditing bodies capable of real-time algorithmic oversight, alongside civil society watchdogs equipped to hold political actors accountable. Additionally, digital literacy initiatives, aimed at strengthening citizens' ability to recognize manipulation, assess the provenance of content, and demand transparency, are essential components of democratic resilience in the age of data-driven politics (Appel & Prietzel, 2022).

Ultimately, navigating the ethical paradoxes of Big Data and AI in political communication requires not only regulatory innovation but a recalibration of political ethics. Democratic resilience will depend on societies' collective ability to embed normative reflection into the design, deployment, and governance of digital campaign technologies. This means recognizing that the democratic project is no longer solely about fair competition and free speech, but also

about algorithmic fairness, data justice, and the preservation of the civic imagination in a computational era.

Conclusions and Future Directions Big Data and AI represent a transformative force in European political communication. While they offer avenues for innovation, personalization, and efficiency, they also pose profound risks to democratic norms, ethical conduct, and public trust. Bridging the gap between innovation and accountability requires coordinated action among policymakers, technologists, political actors, and civil society.

Future research should explore the longitudinal effects of AI-enhanced campaigns on voter behavior, the impact of digital literacy initiatives on resisting disinformation, and the potential for interoperable regulatory frameworks across the EU. Furthermore, the inclusion of ethical design principles in campaign technology development can ensure that digital transformation strengthens rather than undermines democratic engagement.

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