

FULL PAPER

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Abstract: The rise of AI-generated content represents a new frontier in political communication. As synthetic media become more sophisticated and accessible, their role in shaping voter perceptions and influencing public discourse warrants closer examination. This study examines the use of AI-generated images in the 2025 German federal election campaign, assessing their prevalence, strategic use, and transparency. We conducted a content analysis of Instagram posts from the major German political parties and their youth organizations in the six weeks leading up to the election. Our analysis focused on identifying AI-generated visuals, evaluating their labeling practices, and examining their communicative and ideological functions. We also compared differences in adoption and usage patterns across parties to assess potential implications for democratic processes. Our findings indicate that the far-right Alternative for Germany (AfD) uses synthetic visuals significantly more than other parties. These AI-generated images are predominantly photorealistic and often lack clear labeling, raising concerns about transparency and potential voter deception. The AfD primarily uses such visuals for emotional and ideological messaging, using AI-generated content to reinforce its political narratives and mobilize support. Our findings provide a structured assessment of AI-generated content in German political communication and highlight the potential risks associated with unregulated use of synthetic media in electoral campaigns. Our research also contributes to the broader discourse on the ethical implications of synthetic media in democratic societies.

Keywords: Synthetic images, generated images, generative AI, election campaigning, campaign strategies, German elections

Zusammenfassung: Die Zunahme von KI-generierten Inhalten stellt eine neue Herausforderung für die politische Kommunikation dar. Da synthetische Medien sich stetig weiterentwickeln und immer zugänglicher werden, muss ihre Rolle für die Meinungsbildung der Wähler*innen und für die öffentliche Debatte genauer untersucht werden. Die vorliegende Studie befasst sich mit der Verwendung KI-generierter Bilder im Wahlkampf zur Bundestagswahl 2025 und zeichnet deren Verbreitung, strategischen Einsatz und Transparenz nach. Anhand einer Inhaltsanalyse der Instagram-Beiträge der großen deutschen Parteien und ihrer Jugendorganisationen in den sechs Wochen vor der Wahl identifizieren wir KI-generierte Bilder, analysieren die Kennzeichnungspraktiken und untersuchen ihre kommunikativen und ideologischen Funktionen. Außerdem vergleichen wir die Unterschiede in der Akzeptanz und Nutzung der Bilder durch die verschiedenen Parteien, um mögliche Auswirkungen auf demokratische Prozesse zu bewerten. Unsere Ergebnisse zeigen, dass die

rechtsextreme Alternative für Deutschland (AfD) deutlich mehr synthetische Bilder verwendet als andere Parteien. Diese KI-generierten Bilder sind überwiegend fotorealistisch und oft nicht eindeutig gekennzeichnet, was Bedenken hinsichtlich der Transparenz und einer möglichen Täuschung der Wähler aufkommen lässt. Die AfD nutzt solche Bilder in erster Linie für emotionale und ideologische Botschaften und setzt KI-generierte Inhalte ein, um ihre politischen Narrative zu verstärken und Unterstützung zu mobilisieren. Unsere Ergebnisse liefern eine strukturierte Bewertung von KI-generierten Inhalten in der deutschen politischen Kommunikation, die die potenziellen Risiken hervorhebt, die mit der unkontrollierten Verwendung solcher Inhalte verbunden sind. Unsere Forschung dient auch einer breiteren Diskussion über die ethischen Implikationen synthetischer Medien in demokratischen Gesellschaften.

Schlagwörter: Synthetische Bilder, generierte Bilder, generative KI, Wahlkampf, Wahlkampfstrategien, deutsche Wahlen.

1. Introduction

The rise of AI-generated content represents a new frontier in political communication. Recent advances in artificial intelligence have made it easier, cheaper, and more effective to create synthetic images, deepfake videos, and other forms of digital content that are nearly indistinguishable from reality (Bray et al., 2023; Lu et al., 2023; Peng et al., 2025). AI's ability to generate synthetic images – defined as visual content that is entirely generated by artificial intelligence and has no photographic source or real-world reference – can blur the line between reality and fiction and raises concerns about misinformation and propaganda (Godulla et al., 2021; Momeni, 2025). In addition, AI-generated content often reflects biases embedded in the training data, resulting in distorted representations of political issues, events, or social groups (Laba, 2024). These biases can reinforce stereotypes, amplify existing power dynamics, and shape public perception in ways that privilege certain narratives over others (Hameleers & Marquart, 2023; Laba, 2024). In political communication, this is particularly problematic as it can distort the democratic debate, manipulate voter sentiment, and contribute to a more polarized information environment (Dobber et al., 2021; Hameleers et al., 2024; Vaccari & Chadwick, 2020). This corresponds to what Bennett and Livingston (2018) refer to as the “disinformation order,” in which digital media environments facilitate affective and fragmented communication strategies that can be used to gain a political advantage. In line with these ideas, the increasing accessibility of generative AI tools raises questions about the authenticity of political communication, the ethical boundaries of campaign tactics, and the risks associated with disinformation and voter manipulation (Godulla et al., 2021; Momeni, 2025; Peng et al., 2025). These concerns also address fundamental principles of communication ethics (Habermas, 1983), which emphasize truthfulness, transparency, and the rationality of public discourse as these values are undermined when synthetic media is used without disclosure. Against this background, our study examines the role of synthetic images in campaign advertising, specifically their use on social media by German political parties in the 2025 federal election. These developments are embedded in a broader transformation of political com-

munication, which has undergone profound changes in recent decades, driven by the interplay of digitization, mediatization, and professionalization (Esser & Strömbäck, 2014). While traditional models of voter behavior have emphasized long-term party identification as a stable determinant of electoral choice (Campbell, 1960), research has also highlighted the increasing volatility of voter preferences. The erosion of party loyalty and the rise of undecided and swing voters (Dalton, 2018) have made voting decisions more susceptible to short-term influences, including media framing, campaign strategies, and emotional appeals. As a result, political actors are constantly adapting their communication strategies to take advantage of new technological opportunities to maximize voter engagement and persuasion, and social media platforms have become a central arena for contemporary political campaigns, allowing parties to engage with voters in a highly targeted and interactive manner.

Scholars have described these profound changes in political communication, especially in election campaigns, as the “fourth age” of political campaigning, characterized by the integration of digital technologies, data analytics, and artificial intelligence (e.g., Magin et al., 2017; Semetko & Tworzecki, 2017). As a result, political communication has become increasingly differentiated, with parties and politicians using digital platforms to engage with voters in increasingly precise and sometimes divisive ways (Vaccari & Chadwick, 2020), as newer technologies such as AI-driven predictive analytics allow political actors to dynamically refine their messages and ensure maximum resonance with target audiences (Semetko & Tworzecki, 2017). Such findings are consistent with the broader idea that traditional mass communication methods are increasingly being supplanted by strategies that prioritize direct voter engagement and real-time narrative adjustments.

However, the increased reliance on digital platforms also poses challenges at the societal level, particularly regarding polarization, disinformation, and foreign interference (Vaccari & Chadwick, 2020). For example, Gerbaudo (2018) has argued that the proliferation of social media facilitates the spread of emotional and polarizing content, contributing to the rise of populism in which emotional appeals can overshadow evidence-based discourse. Engesser et al. (2017) showed that such developments can amplify fringe perspectives, as evidenced by the growing popularity of populist parties among younger voters in Germany, who are attracted to their digital-first communication strategies. Some scholars suggest these innovations shape not only the strategies available to political campaigns but also voter perceptions and democratic norms (Perloff, 2021; Vaccari & Chadwick, 2020). In this changing environment, the use of AI-generated imagery in political advertising adds a new dimension to these challenges. First studies show that AI-generated content, particularly synthetic images and deepfakes, has the potential to reinforce political biases, fuel disinformation, shape public perceptions, and influence election outcomes (Dobber et al., 2021; Hameleers & Marquart, 2023; Hameleers et al., 2024). In addition to such micro-level effects, synthetic images that present biased or misleading narratives can also undermine public trust in the media, further complicating the information environment in

which voters make decisions (Hameleers & Marquart, 2023; Ternovski et al., 2022; Vaccari & Chadwick, 2020).

Despite these concerns, research on the role of AI-generated visuals in political communication is still in its infancy. While some scholars suggest that generative AI will become an increasingly integral part of political campaigns (Dobber et al., 2021; Hameleers & Marquart, 2023), empirical evidence on its actual use in elections remains scarce (De Vreese & Votta, 2023; Hameleers et al., 2024; Momeni, 2025). Election campaigns are a particularly relevant context for studying AI-generated content because they involve heightened political messaging, strategic communication, and voter persuasion. If political parties incorporate synthetic visuals into their campaign materials, it could have significant consequences for public opinion formation and the integrity of democratic discourse.

Against this backdrop, our study addresses an urgent empirical and conceptual gap. How are synthetic images currently being used in real-world election campaigns, and what strategic, visual, and ideological functions do they fulfill? Linking the use of AI-generated visuals to concerns about disinformation, emotionalization, and framing in political communication allows us to derive a set of research questions to guide our empirical analysis. This study, therefore, focuses on the prevalence and characteristics of AI-generated imagery in election campaigns based on a quantitative content analysis. While this examination does not address the potential media effects of generative imagery, it will lay the groundwork for future studies on the impact of AI-generated images on democratic processes.

2. Aim of the study

To address these conceptual and empirical challenges, our study focuses on synthetic content specifically in the context of political campaigning. For this study, we specifically focus on synthetic imagery defined as fully AI-generated images (AIGIs), content with no real-world reference. Unlike digitally manipulated visuals, which maintain a connection to reality, AI-generated, synthetic photographs create fictional, photo-realistic scenes from scratch. This definition is based on both conceptual and normative grounds. Conceptually, synthetic photographs represent a qualitative shift in political communication because they fabricate visual “realities” that have no basis in actual events, objects, or materials (Momeni, 2025; Peng et al., 2025). Normatively, synthetic images raise distinct ethical concerns as they exploit the persuasive power of realistic imagery while concealing their artificial origin (Bray et al., 2023; Hausken, 2025). We focus on this form of content because we believe it poses unique challenges to transparency, authenticity, and democratic discourse, especially in the emotionally charged, visually driven context of election campaigning.

Using the 2025 federal German election campaign, the study addresses six research questions: To what extent are synthetic images integrated into campaign ads (1), are AI-generated visuals explicitly labeled to inform the public of their artificial nature (2), and which formats (e.g., video, photography) and applied image types (e.g., portraits, symbolic representations) of AI-generated visuals are

used in political advertising (3)? We also explore how these visuals are linked to specific political issues and campaign strategies (4) and examine differences in their use across political parties (5). Furthermore, we explore which visual characteristics facilitate the identification of AI-generated images as synthetic within the context of political campaign communication (6).

To investigate these aspects, we conducted a quantitative content analysis of Instagram posts from the major German political parties and their youth organizations in the six weeks leading up to the 2025 federal election, measuring the prevalence, labeling and strategic use of AI-generated visuals as well as their characteristics, allowing us to compare differences between parties. Our study provides a structured assessment of AI-generated content in political communication, at least in the German context. The findings contribute to debates on the ethics of AI in elections, transparency in digital campaigns, and risks such as disinformation or voter manipulation (De Vreese & Votta, 2023; Vaccari & Chadwick, 2020). By raising awareness, we aim to inform policymakers, researchers and the public and promote the responsible use of AI in political advertising.

3. Theoretical framework

This study assesses the role of AI-generated images in political campaigning by drawing on four interrelated theoretical strands: The concept of a “disinformation order” (Bennett & Livingston, 2018); Habermas’ (1983) ideas of political deliberation and communication ethics; visual and multimodal framing theories; and the mediatization of digital campaigning as a meta-trend in political communication. In the following section, we aim to integrate these strands into a coherent analytical framework that enables us to evaluate the strategic logic and normative implications of synthetic media in electoral communication.

The theoretical framework starts with the theory of *mediatization*, which emphasizes how political communication is increasingly influenced by the logic of digital media (Esser & Strömbäck, 2014). In contemporary campaigning, visibility, emotional resonance, and aesthetic optimization are paramount. Generative AI aligns seamlessly with this logic; it enables political actors to produce compelling and scalable visuals that can dominate social media feeds, bypass journalistic scrutiny, and maximize engagement. This transformation in campaign practice creates fertile ground for the diffusion of synthetic content, particularly among actors willing to experiment outside of conventional communicative norms (Corsi et al, 2024; Momeni, 2025).

Within this mediatized and digitized landscape, the concepts of *visual and multimodal framing* help us understand how AI-generated images and their textual companions (campaign slogans, claims, headlines) contribute to the creation of meaning in political contexts. While visual framing refers to the representational and stylistic choices within individual images that highlight certain aspects of reality while obscuring others (Geise & Baden, 2015; Messaris & Abraham, 2001), multimodal framing builds on this by emphasizing the interplay of visual, textual and other semiotic elements in the creation of meaning (Geise & Xu, 2024; Moernaut et al, 2020; Powell et al., 2019). Building on the work of Grabe and

Bucy (2009), Messaris and Abraham (2014), and Geise and Baden (2015), we conceptualize campaign posts as active rhetorical devices that strategically frame issues, evoke emotional responses, and construct ideological narratives rather than as neutral representations. Studies have shown that it is particularly the photo-realistic quality of the embedded images that amplifies their persuasive impact (Seo, 2020), allowing campaigns to simulate scenarios designed to elicit emotions such as fear, hope, pride, and outrage. Likewise, the photorealistic aesthetic of many AI-generated visuals strengthens this effect by presenting simulated political realities in ways that feel authentic and thus more convincing (Peng et al., 2025).

At the same time, the strategic use of such imagery must be considered in the context of the proposed *disinformation order*, described as a shift toward fragmented, emotionally driven, and often misleading political communication (Bennett & Livingston, 2018). Synthetic visuals embedded in political campaigns, especially when unlabeled, can function as tools of deception, reinforcing polarizing narratives or distorting public understanding (De Vreese & Votta, 2023). These dynamics are particularly salient in electoral contexts, where even subtle manipulations of perception can influence voter sentiment and undermine democratic deliberation. These developments raise urgent concerns about the *ethics of political communication* and campaigning. The idea of deliberation and ethically responsible communication is a well-theorized expectation in democratic societies, particularly within the Habermasian tradition, viewing the public sphere as a space for rational, critical debate based on mutual understanding (Habermas, 1983). According to this perspective, political communication is not merely a tool for persuasion, but rather a normative practice governed by principles such as truthfulness, transparency, and justification. It assumes that, even when strategic, political communication operates within a framework of communicative responsibility and accountability. These expectations are not merely abstract ideals but rather function as institutional guardrails that help sustain public trust and democratic legitimacy. The covert use of AI-generated imagery that mimics reality or conceals its synthetic origin obviously violates these core principles. When political actors disseminate photo-realistic yet fabricated visuals without disclosure, they exploit citizens' trust in visual evidence and circumvent the conditions necessary for making informed judgments. This practice calls into question the authenticity of political communication and undermines the deliberative foundations of democratic participation.

Building on these four strands – mediatization, multimodal framing, disinformation dynamics, and communication ethics – we propose an analytical framework that enables us to examine AI-generated campaign imagery along two axes: (1) its strategic communicative function within mediatized campaigning, and (2) its normative implications for democratic discourse.

This conceptual structure allows us to assess both how and why AI-generated images are used in campaign communication – and what their proliferation implies for the health and integrity of democratic processes. In the empirical sections that follow, we apply this framework to analyze the prevalence, function, and transparency of synthetic images in the 2025 German federal election campaign.

4. Method

4.1 Data collection

A comprehensive content analysis of the Instagram posts of the major German political parties (CDU/CSU, SPD, Bündnis 90/Die Grünen, FDP, AfD, BSW, & Die Linke) and their youth organizations (Junge Union, Jusos, Grüne Jugend, Junge Liberale, Linksjugend/Solid) was conducted during the six weeks before the 2025 federal election (January 12–February 23, 2025). This period was deliberately chosen as it represents the most intense phase of the election campaign, during which parties communicate strategically and rely heavily on multimodal social media content. This period is a well-established time frame to investigate electoral campaigning in Germany (Brettschneider et al., 2007; Wilke & Reinemann, 2003).

To gain a comprehensive understanding of political communication strategies on Instagram, we analyzed both official party channels and their youth organizations. Political parties act as central organizing entities in election campaigns, shaping overarching narratives, policy priorities, and strategic messaging (Farrell & Schmitt-Beck, 2002). While individual politicians may have their own communication styles, party-related content ensures a more consistent and institutionally embedded perspective on campaign strategies. In addition, party accounts often reach a broader audience and serve as the primary vehicle for mobilization and agenda setting on social media (Gibson & McAllister, 2015). By analyzing party communications rather than individual politicians, we aim to capture the structured, collective approach to digital campaigning rather than the personalized and sometimes idiosyncratic strategies of individual candidates.

Political youth organizations play a crucial role in digital campaigning as they often engage in more experimental, activist, and provocative communication styles compared to their parent parties (Ward, 2011; Weber, 2017). They also serve as an important link between parties and young voters, who are particularly active on digital and social media (Hooghe et al., 2004; Weber, 2017). By including both entities, we capture a broader range of campaign strategies, messaging techniques, and audiences, allowing for a more nuanced analysis of how political actors engage different demographics in the digital sphere.

For data collection, a systematic retrieval of all Instagram posts was conducted using *Instaloader* (Graf & Koch-Kramer, 2020), a Python-based tool for downloading social media content. Following the scraping, the Instagram data was checked for completeness by comparing it to the respective Instagram accounts. Collaborative posts (e.g., with individual politicians) were kept in the dataset. Each embedded image was analyzed separately, even if they were part of the same post.

No filtering of the dataset was necessary after scraping. This approach ensured a complete and unbiased dataset of the images and videos that German parties used in their political communication on Instagram. We collected 1,553 Instagram posts from the parties' channels and 315 posts from the corresponding youth organizations as the starting point for further analysis.

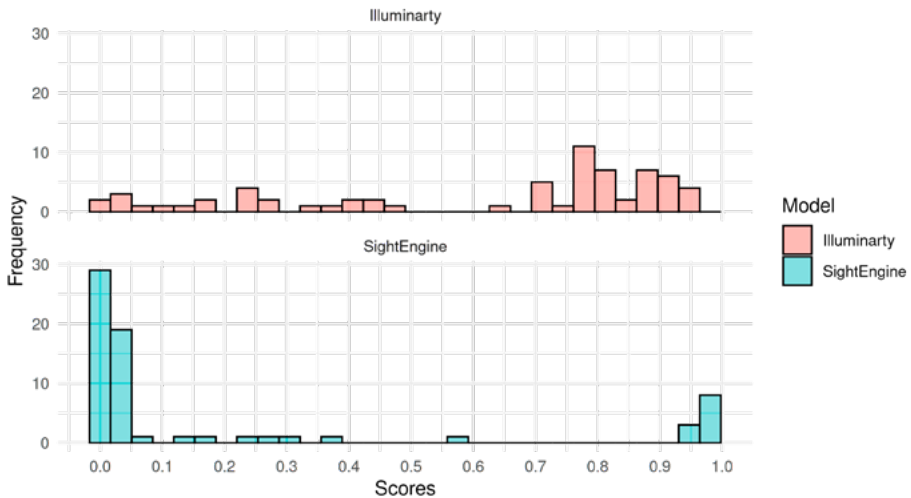
For this analysis, we used a sequential procedure, drawing on visual and multi-modal framing research. First, we examined the images as independent visual frames. This step was particularly relevant given our focus on AI-generated imagery and our aim to identify distinctive visual characteristics, such as style and synthetic indicators (*see Section 4.3, Coding Categories*). Second, we analyzed the Instagram posts as multimodal ensembles, treating the combination of image and caption as a unified communicative act (Geise & Baden, 2015; Moernaut et al, 2020).

This approach reflects the understanding that communicative meaning, as manifested in the articulation of campaign issues, for example, and strategic framing – as reflected in the promotion of election campaign strategies – often emerges from the interplay of visual and textual elements (Coleman, 2010; Müller & Geise, 2015). Thus, we conceptualize AI-generated visuals as symbolic amplifiers and framing devices within political discourse, both in isolation and as integral components of broader multimodal communication strategies.

4.2 Two-step classification of generated images

After compiling the dataset, we categorized multimodal posts (containing text and images or videos) based on their generative nature, distinguishing between human-created visuals and potentially AI-generated images. To ensure optimal classification accuracy, a two-step validation process was implemented, combining human and automated coding. In the first step, four trained human coders systematically assessed whether an image appeared synthetic based on visual cues and contextual indicators (Mathys et al., 2024). These AI indicators were formalized within a codebook (*see Appendix in OSF*).

Given the potential for human judgment to be subjective, in a second step, images and videos suspected of being AI-generated were further validated using two established AI detection tools (sightengine.com and Illuminarty.ai). As these tools were expected to provide additional insight into whether an image or video has been artificially generated, this should additionally ensure that the classification is reliable. In prior research, SightEngine was shown to be able to achieve a high accuracy compared to other alternatives (Li et al., 2024). Illuminarty has also been tested as a detector of AI-generated images, showing mixed results (Gosselin, 2025).

Figure 1. Comparison of the classification scores of the models

Our analysis revealed significant discrepancies between the automated classification results and our manual coding, as well as inconsistencies between the two AI detection tools. Even in cases where AI generation was either highly likely or very unlikely, both models often produced unreliable or conflicting results. *Figure 1* shows histograms comparing the confidence scores assigned by the two tools, which range from 0–1, with higher values indicating greater confidence that an object was AI-generated.

Illuminarty's classification was slightly closer to manual coding, with a median score of 0.77, while *SightEngine* produced a median score of only 0.02, classifying most images as not AI-generated. While *Illuminarty's* performance is somewhat in line with previous research, it still deviates significantly from manual classification. *SightEngine*, on the other hand, performed unexpectedly poorly. One possible explanation could be the nature of the images analyzed, which often contain additional text and graphical elements that may affect the model's performance. However, even this does not explain the large divergence in scores for structurally similar images.

Overall, automated detection tools did not provide reliable validation of AI-generated content due to two key issues. First, there was a high degree of inconsistency – not only between manual and automated coding, but also between the AI models themselves. Second, these tools lack interpretability, as they do not explain why an image is classified as AI-generated or not. This “black box” nature makes the classification process opaque and, in many cases, seemingly erratic.

Although our dataset includes images for which we cannot be completely sure of the degree of AI generation or processing, the substantial discrepancies, especially in cases where classification should be straightforward, undermine the reliability of the automated approach. While human coding is not entirely free of subjectivity, our structured coding scheme and expert review provided greater

reliability and transparency. In contrast, the AI detection models struggled with robustness and generalizability, particularly when faced with images containing text overlays or graphic elements. Therefore, we concluded that automated classification would introduce more uncertainty rather than improve accuracy. As a result, we relied on manual coding, which, despite its limitations, provided a more consistent and interpretable method for evaluating AI-generated content.

4.3 Coding categories

Following the manual classification process, we subjected the identified synthetic posts to a *standardized content analysis*. The coding process was based on a predefined codebook encompassing categories designed to systematically capture patterns in how political actors use synthetic media and how this affects campaign narratives:

Addressing RQ1, we measured the *prevalence of AI-generated visuals* in campaign ads, compared to the number of social media posts in general. Regarding the transparency of AI-generated content, the category *labeling* assessed whether and how synthetic images are marked as AI-generated. Following recent suggestions of practitioners (Burrus et al., 2024; Epstein et al., 2023; Wittenberg et al., 2023), this includes four levels: Clear labeling, where the image is explicitly identified as AI-generated; indirect or hidden labeling, where disclosure is not immediately recognizable; no labeling, where no indication of artificial generation is provided; and deceptive representation, where synthetic images are deliberately presented as real. For the coding of labeling, we took the visual content of the post into account and closely inspected the accompanying text to assess whether any disclosure of AI generation was provided here. This categorization directly addresses RQ2, which investigates the extent to which political actors provide transparency when using AI-generated visuals.

To record the political messaging and political strategy in the election campaign post, corresponding categories were included in the codebook: First, we coded the central *political issue* of each post. Based on a predefined list of 17 categories (cf., Leidecker-Sandmann & Thomas, 2023; Wilke & Leidecker, 2013), this classification covers a broad range of topics, including domestic policy, foreign policy, internal security, social and labor policy, migration, economy, and climate change policy. The codebook also identifies various *election campaign strategies*, each of which can be used to frame political messages and influence public perception. In line with prior research (Klinger et al., 2023; Leidecker-Sandmann & Geise, 2020; Leidecker-Sandmann & Thomas, 2023; Wilke, & Leidecker, 2013), the respective coding category includes 15 commonly used campaign strategies, ranging from personalization, where candidates focus on their personal qualities, to negative campaigning, which targets political opponents, help shape the tone of the posts and thematic focus, which highlights specific issues like climate change or social justice, and emotionalization, which aims to evoke strong feelings. These strategies are coded based on their prominence within the post and can be linked to different political issues, as they may guide the use of AI-generated visuals and their connection to specific campaign objectives. This

enables an analysis of whether synthetic images are used strategically in relation to specific political narratives and whether their presence varies across different issue areas.

Further categories have been implemented in the codebook to better define the style of the post and the image content. We coded the *format of the post*, recording the basic presentation form of the post. The variable measures whether the post contains text, images or videos. The category *visual style of the content* distinguished between different visual styles such as photography, video, graphic illustrations, photomontages, cartoons, memes, and other experimental formats. This classification is essential for answering RQ3, as it allows us to examine whether synthetic images are more prevalent in specific visual styles, such as AI-generated illustrations or manipulated photographs.

We also coded the dominant *image type* used in the posts to examine the communicative strategy behind the visual content. Following the work of Grittmann (2007), this category captures the main theme of each post and includes different picture types, such as portraits of politicians, testimonial images featuring ordinary citizens, symbolic images representing abstract concepts, negative visual stereotypes used to reinforce political narratives, campaign slogans, protest images, and on-the-ground interactions between politicians and the public. Understanding the distribution of these image types is crucial to answering RQ1 and RQ3, as it will allow us to determine whether synthetic images more frequently use certain motifs and picture types, such as AI-generated portraits or visual metaphors, or whether they are used strategically in combination with specific political issues and campaign strategies.

In addition to visual style, content, political messaging, and campaign strategies, the codebook includes a category identifying visual characteristics that suggest an image may be AI-generated, as suggested by prior research (Geise & Yu, under review; Mathys et al., 2024). These *visual AI indicators* include (1) faulty textures or unrealistic surfaces (2) unrealistic facial features or expressions, (3) distorted or unusual body proportions, (4) incoherent combinations or implausible interactions (5) exaggerated colors or unnatural color balance, (6) unnatural lighting or shadowing, (7) irregularities in texts, symbols or numbers, (8) centered composition and symmetry, (9) high level of staging/hyperrealism and (10) visible image or representation errors. The category allowed coders to document up to four key visual markers that signal an AI origin. A more detailed description with example images for each category can be found in the codebook (see *Appendix in OSF*).

By systematically analyzing the visual features, frequency, and types of AI-generated images used across different political parties, our approach offers a thorough assessment of how synthetic images are strategically employed in digital political communication. This methodology contributes to a deeper understanding of the role AI plays in shaping public perception during election campaigns.

4.4 Coding process & intercoder reliability

Two independent coders jointly analyzed a total of 20 posts. After coding the first ten posts, a joint discussion was held to review and resolve any discrepancies and to ensure a common understanding of the coding scheme. Ten further posts were then double-coded to assess inter-coder reliability. The analysis showed satisfactory reliability for the variables examined. For the formal categories *post style* (agreement: 100%, Krippendorff's alpha: 1.00) and *style form of the visual* (agreement: 100%, α : 1.00), coders showed perfect agreement, indicating a clear and objective classification process. Similarly, *AI Labeling* (agreement: 95%, α : 0.89) showed high reliability, reflecting a strong consensus in identifying AI-generated content markers. The *central topic of the post* (agreement: 90%, α : 0.85) and image type (agreement: 90%, α : 0.86) also achieved substantial agreement, confirming that coders were largely in agreement when categorizing the thematic focus and visual format of the posts. For *campaign strategy* (agreement: 85%, α : 0.78) and *AI identifier* (agreement: 80%, α : 0.74), where multiple coding was allowed and coding was more complex and challenging, agreement was slightly lower. However, the values remained within an acceptable range, supporting the reliability of the classification process.

Overall, these results confirm that the coding framework provides a robust and reliable basis for analyzing the use of synthetic imagery in political advertising, with only minor variations in the more complex coding categories.

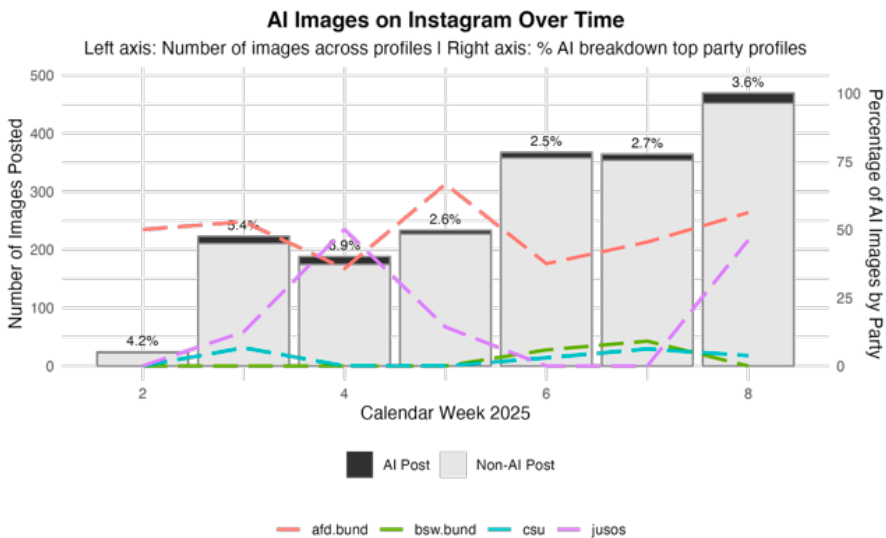
5. Results

With RQ1, we examine the extent to which German political parties use synthetic images in their campaign ads. We identified and downloaded a total of 1,553 images on the Instagram profiles of the parties and 315 images on the profiles of the youth organizations during the study period (January 12–February 23, 2025). Of these, we classified a total of 68 as AI-generated as part of the manual analysis, of which 53 fall on the accounts of the parties and 15 of the youth organizations. This corresponds to a share of 3.8% of AI-generated images in the total volume of posts published on Instagram during the study period. A week-by-week breakdown (*cf.*, Figure 2) shows that the share of AI-generated images among all posted images throughout the campaign remained small. For the top posting party, AfD, AI-generated images kept a stable share of around 50% during the election campaign.

In RQ2, we asked to what extent synthetic images or AI-generated posts are explicitly labeled to inform the public of their artificial nature. The standardized content analysis of the 2025 campaign posts revealed that *not a single* political party or youth organization labeled their AI-generated images to inform the public of their artificial nature. This lack of transparency is concerning, as it raises questions about the ethical implications of using synthetic images in political messaging without clear disclosure. The lack of labeling suggests that voters were not made aware of the manipulated nature of the images they were exposed to, potentially leading to a distorted understanding of the candidates or issues being

presented. This could contribute to the manipulation of public perception, as AI-generated imagery often has subtle visual markers that may be recognizable to some but go unnoticed by others. The failure to disclose the use of AI undermines the integrity of political communication, making it more difficult for voters to critically assess the authenticity of campaign content and the motives behind its creation. This lack of transparency in AI use highlights a significant gap in ensuring fair and ethical digital campaigning and raises concerns about potential disinformation and voter manipulation.

Figure 2. AI content over time



Note. The bar chart relates to the left axis, indicating the number of images posted in that respective week. The black highlighted portion of this bar indicates the number of AI images from the entirety of the images posted in that week. The number above the bar displays the percentage of all AI images from all images posted this week across all parties. The dotted line chart relates to the right axis, showing the percentage of AI images per party, in relation to all images that each party posted in the respective week.

RQ3 sought to identify the types of AI-generated visuals, including video, photography, illustration, collage, photomontage and cartoon, used in campaign ads and to examine which specific image types (e.g., portraits of politicians, testimonial images of citizens, symbolic representations, negative visual stereotypes) were used. The analysis revealed that the dominant type of AI-generated image used across all parties was photography (73.5%), followed by collage (25%) and graphic illustration (1.5%). This strong reliance on photorealistic images suggests an intentional effort to create visuals that closely resemble real-life representations, likely enhancing their credibility and persuasive impact on voters. This effect is further intensified by the finding that no AI post is labeled. This is particularly problematic, as prior research has shown that audiences are more likely to perceive

ve AI-generated images as genuine when they resemble real photographs (e.g., Lu et al., 2023) and when depicting humans (e.g., Bray et al., 2023). Without clear labeling, voters may struggle to differentiate between authentic and AI-generated content, increasing the risk of misleading or manipulative campaign tactics.

We also analyzed the main image motifs or picture types to uncover key patterns in the visual strategies used by political parties. This allowed us to assess whether AI-generated images were mainly used for symbolic, emotional, or personalized appeals, and to understand how these choices aligned with broader campaign strategies.

Table 1. Prevalence of AI-generated image types in campaign ads

Rank	Topic label	<i>n</i>	Percent
1	Symbolic image/metaphor	32	47.1
2	Testimonial portrait (citizen solo)	21	30.9
3	Testimonial group portrait	5	7.4
4	Politician portrait (solo)	4	5.9
5	Negative visual stereotype	4	5.9
6	Image compilation (e.g., in video)	2	2.9

Our results indicate that AI-generated campaign visuals predominantly feature a narrow set of image types, with symbolic images and testimonial portraits being the most used (*see Table 1*). Symbolic images and visual metaphors (47.1%) serve as the dominant category, likely because they allow for “easy” abstract messaging and emotional engagement without explicitly referencing real-world events or individuals. Example images for the three most prominent image types of symbolic image/metaphor, testimonial portrait and testimonial group can be found in *Figure 3*.

Figure 3. Example images for the image types symbolic image/metaphor, testimonial portrait and testimonial group (from left to right)



Note. The translated text elements from left to right: “How our society looks like, when we invest one billion euros”; “Time for cheap energy – Time for Germany”; “Master plan to strengthen the Bundeswehr and Germany’s defence – Swipe now”

Testimonial portraits – both individual (30.9%) and group-based (7.4%) – play a crucial role in personalizing campaign messages by showcasing “ordinary citizens”, suggesting a strong strategic focus on portraying the party as “close to the people.” In contrast, AI-generated portraits of politicians (5.9%) appear relatively infrequently, suggesting that synthetic visuals focus more on broader narratives than individual political figures. Negative visual stereotypes (5.9%) – while a small category – raise concerns as they could reinforce biases or serve divisive campaign tactics. Image compilations (2.9%), used primarily in video formats, are rare, possibly due to technical limitations or lower effectiveness in short-term campaign messaging.

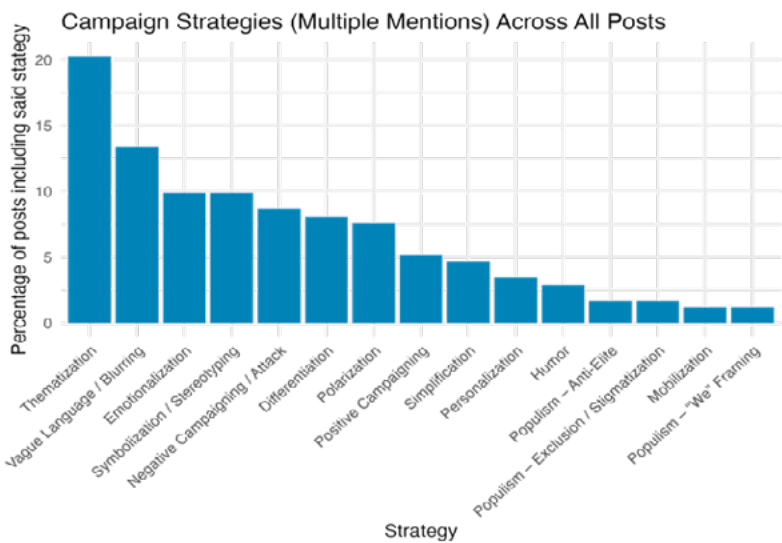
Overall, the findings highlight the selective and strategic use of AI-generated imagery in campaign communication, with an emphasis on abstraction, emotional engagement, and citizen testimonials. The limited variety of image types suggests that parties have not yet fully diversified their AI-generated visual strategies, possibly due to resource constraints or the novelty of these tools in the campaign context.

RQ4 examines how these visuals are associated with political issues and campaign strategies. When examining the *political issues* communicated with AI synthetic visuals, our analysis revealed that “social policy and justice” emerged as the most frequently referenced subjects. Economy and trade-related issues, as well as asylum and migration policy, were also prominent themes. Each party exhibited a distinct emphasis on these issues in their respective AI-generated posts. The AfD placed significant emphasis on economic issues, migration, and domestic security, while the BSW employed AI visuals exclusively for social justice subjects. The CSU’s AI-generated posts primarily addressed the economy and internal security, while the SPD’s youth organization (Jusos) concentrated more on social issues compared to the larger parties.

The second part of the question relates to *campaign strategies*. Multiple coding was provided here; up to 3 strategies per contribution could be recorded. In general, analysis of AI-generated posts by political party revealed that the most prevalent strategy adopted was the utilization of thematization, employed in 20.3% of the posts. As a campaign strategy, thematization refers to the deliberate emphasis of specific issues, thereby influencing the salience of particular issues in public discourse. As thematization is a fundamental tool frequently used by parties and candidates to align their messages with voter concerns and media agendas (Perloff, 2021), the high prevalence in AI-generated campaign posts is not surprising. Unlike more specific strategies such as emotionalization or polarization, thematization serves as a basic function of political messaging. However, when combined with these more targeted strategies, it can contribute to a more populist style of communication.

In addition to thematization, AI-generated posts frequently used vague language and blurring (13.4%), as well as emotionalization (9.9%), symbolizing and stereotyping (9.9%). Other recurring strategies, each appearing in more than 5% of the posts, included negative campaigning, differentiation, positive campaigning, and polarization. The picture becomes clearer if only the AfD, which produced the most AI-generated posts, is considered (see RQ5).

Figure 4. The percentages of posts employing different campaign strategies



Since only six image types appear in the sample, showing little overall variance, further analysis of the association of specific image types with political strategies or issues is limited (see *Table 2* & *A2*). It should also be noted that up to three strategies could be coded per post. Taking these issues into account, the analysis shows that symbolic images, the most frequently used type of visuals, are mainly used to set themes. However, they often appear in combination with strategies such as stereotyping, differentiation, polarization and negative campaigning, suggesting that they are also employed to sharpen ideological divides and reinforce simplified narratives. This aligns with findings in populist communication research, where simplified, emotionally charged imagery is used to delegitimize political adversaries (Ernst et al., 2019; Schmuck & Matthes, 2017).

Table 2. AI-generated image types and their associated campaign strategies

Rank	Sujet (image type)	Strategy	Count
1	Symbolic image/metaphor	Thematization	19
2	Testimonial portrait (citizen solo)	Thematization	12
3	Testimonial portrait (citizen solo)	Vague language/blurring	12
4	Symbolic image/metaphor	Symbolization/stereotyping	10
5	Testimonial portrait (citizen solo)	Emotionalization	10
6	Symbolic image/metaphor	Differentiation	9
7	Symbolic image/metaphor	Negative campaigning/attack	8
8	Symbolic image/metaphor	Polarization	7
9	Symbolic image/metaphor	Simplification	7
10	Symbolic image/metaphor	Vague language/blurring	6

Testimonial portraits are often combined with vague language and emotionalization, aligning with their intended function: Testimonials are designed to signal proximity to voters and foster an emotional connection. By featuring (AI-generated) “ordinary citizens” and pairing them with emotionally charged yet ambiguous messaging, campaigns aim to create a sense of relatability and engagement while leaving room for broad identification. However, traditionally, such portraits build trust and emotional connections by featuring *real people* who support a party’s message. This makes the AfD’s reliance on AI-generated, entirely fictional individuals particularly paradoxical: While these images are meant to represent “citizens like you and me”, they instead depict synthetic figures with no real agency. As a result, they become carefully controlled representations rather than authentic endorsements, raising critical concerns about credibility, transparency, and potential voter skepticism.

The analysis of the image type crossed with the central political themes is subject to similar limitations as the analysis of the association of image types and strategies, but here, only one central theme was coded per post. The image types, in combination with the central political themes, show interesting patterns. The most frequently used image type, symbolic image/metaphor, is particularly used in relation to the two political issues “social policy & justice” and “economy, trade & finance”. Testimonial portraits are also frequently used, especially combined with “economy, trade & finance” and “culture & education”, suggesting that personal connection and authenticity are emphasized in these areas. Negative visual stereotypes are used less frequently but are particularly associated with sensitive issues such as asylum and migration policy or social policy and justice, suggesting a strategic use of negative images to shape public perception. Portraits of politicians (alone) are more often associated with elections and election campaigns, illustrating the emphasis on individual political personalities in campaign imagery.

RQ5 asked how the use of synthetic imagery varies across political parties. Here, a key difference between the parties can be seen in the frequency of use of AI-generated images: The Alternative for Germany (AfD) has the highest frequency of AI use, with nearly half of all posts containing AI-generated images ($n = 39$). Other major parties had significantly lower usage rates, such as the Christian Social Union (CSU) with eight posts and the Sarah Wagenknecht Alliance (BSW) with three posts. Among the youth organizations, only the Jusos showed a significant level of AI usage with 13 AI-generated images, followed by the Linksjugend with two AI images. These results suggest that synthetic images were particularly prevalent in the AfD’s digital communication strategy, while other parties, including the youth organizations, used AI to a much lesser extent. This suggests that AI-generated images may play a greater role in the campaign tactics of certain parties, particularly those that target specific voter groups, address specific campaign issues, or pursue specific campaign strategies.

A differentiated view by party also shows a clearer picture of the strategies used, especially as the AfD produced the most AI-generated posts. Analysis shows that the most common strategy applied by AfD is thematization (16 posts), closely followed by emotionalization (14 posts) and vague language/blurring (13 posts). The other parties posted significantly less AI-generated content, and no

clear strategic trends were observed in their posts. This suggests that the AfD’s use of AI in its communication is more intentional and focused on specific strategies. These findings strongly suggest a populist style of communication (Ernst et al., 2019; Hameleers & Schmuck, 2017). Populist (visual) rhetoric aims to mobilize audiences through simple messages, visual stereotypes, and emotional appeals, while delegitimizing opponents and framing politics as a binary struggle, often at the expense of democratic norms (Bast, 2024; Ernst et al., 2019; Schmuck & Matthes, 2017). The incorporation of generative imagery into these strategies further amplifies their effectiveness, raising concerns about misinformation and manipulation. Given the increasing role of AI in political communication, understanding these dynamics seems critical to addressing the broader implications for democratic discourse and electoral integrity.

In addition, primarily the AfD relied heavily on testimonial portraits of individuals and groups (see *Appendix, Table A1 in OSF*). This suggests a strategic focus on citizen representations and emotionally charged narratives, potentially reinforcing populist messaging styles. Symbolic images and metaphors are widely used across parties, emphasizing the role of abstract visual messaging in AI-generated campaign communication. While the AfD leads in this category as well ($n = 15$), the CDU, CSU, and the Greens also employ this strategy. Another notable aspect is the use of negative visual stereotypes, almost exclusively found in AfD ($n = 2$), CSU ($n = 1$), and BSW ($n = 1$) posts. This highlights differences in visual communication strategies between parties, with some employing more polarizing imagery than others.

Table 3. Visual AI identifier represented in AI-generated election posts

Rank	Identifier	<i>n</i>	Percent
1	Faulty textures or unrealistic surfaces	40	58.8
2	Visible image or representation errors	25	36.8
3	Unrealistic facial features or expressions	24	35.3
4	Incoherent combinations or implausible interactions	23	33.8
5	High level of staging/hyperrealism	22	32.4
6	Unnatural lighting or shadowing	14	20.6
7	Irregularities in text, symbols, or numbers	8	11.8
8	Exaggerated colors or unnatural color balance	7	10.3
9	Distorted or unusual body proportions	6	8.8
10	Centered composition and symmetry	1	1.5

RQ 6 explores the visual characteristics that facilitate the identification of AI-generated images as synthetic within the context of political campaign communication. Our analysis revealed that key visual markers that facilitate the identification of AI-generated images are present in the context of political campaign communication (see *Table 3*). The most prevalent visual AI identifier was “faulty textures or unrealistic surfaces,” which was observed in more than half of all images (58.8%). This finding suggests that a considerable proportion of AI-generated images are deficient in their depiction of realistic surface textures, a deficiency that can serve as a discernible indication of their synthetic origin. Inspecting sur-

faces such as clothing or hair, particularly when in motion, can aid in the identification of AI-generated visuals. *Figure 5* gives an example of such faulty textures, evident in the implausible movement of the clothing texture.

Figure 5. Example image for AI identifier “faulty textures or unrealistic surfaces”. This was posted by the @afd.bund account on Instagram on 14.01.2025.



Note. Translated text elements: “Finally free in your own country – Time for Germany”

The second most prevalent characteristic, “visible image or representation errors,” was identified in more than one-third of the images (36.8%), underscoring the prevalence of errors in the representation of objects or scenes. This identifier is likely most unambiguous due to its clear faultiness, such as six fingers or hovering objects. As these errors frequently occur in smaller details, they might require a more detailed inspection. *Figure 6* depicts an example image for this AI identifier from our dataset. Here, one visible image error is the change in material of the sitting bench from yellow plastic to brown wood.

Figure 6. Example image for the AI identifier “visible image or representation errors” and “unrealistic facial features or expressions”. This was posted by the @jusos account on Instagram on 24.01.2025



Note. Translated text element: “Punctual public transport everywhere”

Additionally, “unrealistic facial features or expressions” were observed in one third of the images (35.3%), suggesting that AI models face challenges in accurately replicating natural facial expressions, potentially resulting in unnatural or distorted depictions of individuals. *Figure 6* can also serve as an example for this AI identifier due to the distorted facial features of the depicted girl. A detailed inspection of the facial features, particularly eyes, ears and mouth, allows for the identification of this error. Furthermore, our analysis showed that “incoherent combinations or implausible interactions” were present in 33.8% of the images, suggesting that AI models frequently encounter difficulties in generating logical and coherent interactions between people, objects and scenes, resulting in images that may appear implausible.

Figure 7. Example image for the AI identifier “incoherent combinations or implausible interactions”. This was posted by the @afd.bund account on Instagram on 06.02.2025.



Note. Translated text elements: “Exclusive analysis: This is how the CDU is financing the terror against themselves – Time for Germany”

Figure 7 illustrates this AI identifier. Illogical combinations of image parts from Friedrich Merz are evident due to the mixing of scenes from different sources that do not harmonize with each other. The interaction between the two depictions of Friedrich Merz is also implausible, not only regarding the scene itself but also due to the incorrect posture and relation between the two arms. To recognize this identifier, detailed attention to interaction points (e.g., the parts where a hand is grasping an object) as well as to the overarching scene (e.g., how the bodies are positioned to one another) is necessary.

The “high level of staging/hyperrealism” category, which appeared in 32.4% of the images, suggests that AI tends to generate highly idealized, almost surreal visuals, thereby creating a hyperrealistic atmosphere that may appear oversimplified and artificial. Figure 8 illustrates this example, displaying an unnaturally polished appearance characterized by precise lighting and exaggeratedly composed poses. This hyperreal aesthetic, which lacks the subtle irregularities of authentic photography, can indicate synthetic image generation.

Figure 8. Example image for the AI identifier „high level of staging/hyperrealism“. This was posted by the @afd.bund account on Instagram on 16.02.2025.



Note. Translated text elements: “Now it’s our turn – Time for Germany”

Other less frequent but still significant visual AI-features included unnatural lighting or shadowing (20.6%) and irregularities in text, symbols, or numbers (11.8%). These errors often point to the AI’s inability to replicate real-world complexities like correct typographic elements. The least prevalent features were exaggerated colors or unnatural color balance (10.3%), distorted or unusual body proportions (8.8%), and centered composition and symmetry (1.5%). These findings imply that, while AI has achieved substantial progress in generating visuals, it continues to grapple with the creation of entirely realistic and coherent representations of the physical world.

The identification of visual markers indicative of synthetic imagery, such as unrealistic textures, distorted facial features, inconsistent lighting, or unnatural proportions, is crucial for assessing the authenticity of political imagery. By identifying these markers, researchers and voters can be more informed about the origins of the visuals they encounter, which is crucial in an era where the lines between real and fake can easily be blurred. From the perspective of the user, these findings are of particular significance as they underscore the challenges encountered by AI-generated visuals in the context of political campaign communication. As synthetic imagery becomes more prevalent in political campaigns, these visual markers can serve as indicators for users to critically assess the authenticity of content. The identification of these characteristics empowers users to discern when an image may lack authenticity, thereby contributing to the maintenance of transparency and the mitigation of potential manipulation or misrepresentation. In a political context, the ability to identify AI-generated images is of particular importance, as

these visuals could be used to shape public opinion or influence voters by presenting idealized or fabricated representations of candidates, events, or policies.

6. Discussion

Our analysis of AI-generated imagery in the political campaign around the German federal election in 2025 reveals systematic patterns in how AI-generated images are applied in election campaigns. Building on the theoretical framework outlined above, this discussion interprets our empirical findings along two central analytical axes: (1) the strategic communicative function of AI-generated images within mediatized campaigning, and (2) their normative implications for democratic discourse. This dual perspective allows us to examine how generative visuals are used in practice and how they reflect broader transformations in mediatized political communication.

6.1 Strategic use of AI-generated imagery in mediatized election campaigning

Our findings show a significant difference in the frequency with which political parties use synthetic images. The AfD stands out as the most frequent and systematic user of AI-generated images. Other major parties, including the CSU and BSW, used AI-generated images only sporadically. This asymmetry suggests that the AfD has integrated AI tools as a core part of its campaign strategy, while other parties have remained more cautious or traditional in their approach. Closely linked to this strategic adoption is another pattern: The predominant use of photo-realistic images, and the relatively limited use of other image types (e.g., collages, graphic illustrations) highlights a preference for visuals that appear authentic. This photo-realistic visual style serves a dual purpose: From a multimodal framing perspective, this strategy serves to capture attention and enhance emotional appeal, reinforcing credibility through the illusion of authenticity. Both functions closely align with the logic of mediatized campaigning, which prioritizes emotional resonance and visibility over deliberative content – advantages that AI-generated imagery can help deliver more effectively for parties willing to innovate within this logic.

Many AI-generated visuals featured so-called “ordinary citizens”, representing testimonials. While this strategy humanizes campaign messages and suggests proximity to the electorate, the use of fictitious, AI-generated individuals introduces a paradox: Employing entirely synthetic personas to promote party credibility undermines the very authenticity these visuals seek to convey, revealing the tension between strategic emotional appeal and the risk of credibility loss. Such communicative practices compromise the conditions necessary for open, rational, and informed public discourse, even within persuasive election campaigning.

It is noteworthy how little creative variation political actors display when using generative image AI. In our sample, the range of subjects and types of images is mostly limited to standard campaign imagery, such as pseudo-portraits of candidates or supporters and symbolic representations of issues. This limited use contrasts with the broader range of political imagery documented in previous

studies. For example, Grittmann's (2007) typology of political image types and Müller's (1997) historical analysis of visual strategies in U.S. presidential campaigns illustrate how political actors have long used diverse image motifs to construct identity, credibility, and emotional appeal. These findings suggest that political parties have not yet fully exploited the aesthetic and narrative potential of AI-generated visuals for election campaigns.

Most visuals conformed to familiar campaign tropes – symbolic images and portraits – suggesting that even innovative tools are subsumed under traditional visual campaign logic rather than used for novel messaging. The analysis also highlights that symbolic images are often combined with strategies such as stereotyping, differentiation, and polarization, suggesting that these images serve not only to engage voters emotionally but also to reinforce ideological divides and simplify political narratives. This again was particularly evident in AfD content, which used such visuals to create binary oppositions and reinforce ideological divisions. The use of negative visual stereotypes, while less common in our sample, is of particular concern in this context as it targets sensitive issues such as asylum and migration policy or social policy and justice, potentially using negative imagery to divide public opinion. In these examples, the visuals not only conveyed policy positions but served to delegitimize political opponents through affective framing. Such practices reflect the logic of the “disinformation order” (Bennett & Livingston, 2018), which – as outlined in our theoretical framework – emphasizes the erosion of rational discourse through emotionally charged media content. In such campaigns, AI-generated imagery can become a vehicle for further eroding democratic communication norms.

The specific policy issues addressed in AI-generated posts reveal clear patterns. Social policy and justice is the most common theme, followed by economy and trade, as well as asylum and migration policy. The parties vary in their foci, with the AfD emphasizing economic concerns, migration, and internal security, while other parties, such as the BSW, focus more on social justice issues. These themes are consistent with the broader visual strategies, with symbolic images and emotional appeals serving to shape the public's perception of these issues. These findings reflect a multimodal framing logic in which images are not merely illustrations but rather central devices for ideological positioning. The emotional framing of these issues through AI-generated imagery underlines how mediatization enables the amplification of affective and symbolic narratives, reinforcing party-specific ideological positions and voter mobilization strategies.

6.2 Normative implications for democratic discourse

Turning to the normative perspective, the common unlabeled use of photorealistic synthetic images challenges the principles of communicative responsibility that are essential to deliberative democracies, as suggested by Habermas' (1983) communication ethics, which emphasize sincerity, truthfulness, and rational justification as foundations of discourse. By disguising fabricated visuals as authentic representations, political actors undermine the public's ability to make informed judgments and violate core deliberative norms such as transparency, truthfulness,

and justification. Especially when combined with populist rhetorical strategies, (unlabeled) generative images can be used to fabricate misleading narratives, reinforce stereotypes, and influence election outcomes (Dobber et al., 2021; Hameleers et al., 2024).

The strategic amplification of polarizing and emotionally charged imagery also exacerbates the fragmentation of public debate. Using visually amplified, emotional, antagonistic, yet stereotypical and under-complex messages narrows the space for rational deliberation, mirroring the democratic risks associated with Bennett and Livingston's idea of disinformation order. That way, AI-generated images can contribute to the erosion of informed, rational political debate, further exacerbate societal polarization, and weaken democratic norms. Given AI's growing role in political communication, it is crucial to understand these dynamics early on to address the broader implications for democratic discourse and electoral integrity.

6.3 Potential avenues for regulation, resilience and research

Despite these challenges, our analysis identifies potential avenues for resilience as some AI-generated visuals still exhibit noticeable characteristics that can be identified by laypeople without technical expertise – particularly when prompted to scrutinize the image. A close examination of textures and lighting, as well as common inconsistencies in specific areas of the human body (e.g., eyes, hands, ears, hair), or the background can help voters recognize AI-generated images. While the detection of synthetic images remains challenging even for trained coders and automated tools, some of the AI indicators can still be identified by laypeople, given that they are aware of them and spent some time inspecting the image more closely. The presence of detectable artifacts in some synthetic images provides a tangible leverage point for media literacy interventions. Encouraging citizens to critically inspect visuals and recognize AI-generated cues could mitigate the risk of manipulation, fostering an electorate that is more informed and capable of navigating the media-saturated and AI-permeated information landscape. While these indicators likely evolve as AI technology advances rapidly, their current presence provides an opportunity to enhance public awareness and critical engagement with political visuals.

Additionally, our findings underscore the urgent need for regulatory measures, such as the mandatory labeling of AI-generated content, to ensure transparency and accountability. Alongside media literacy efforts, strengthening transparency regulations and labeling practices are crucial for countering the normative threats posed by synthetic campaign imagery and protecting democratic legitimacy.

This highlights a possible way for restoring deliberative integrity through institutional safeguards, such as labeling, as well as civic education and media literacy. These methods reinforce the normative conditions that underpin democratic communication, emphasized in communication ethics and our theoretical framework.

The strategic and normative analyses show that AI-generated visuals are a political instrument, not just a technical innovation. Their deployment reflects the two analytical axes introduced in our theoretical framework. Strategically, they

function as tools for mediated campaigning and affective and multimodal framing. Normatively, they raise significant concerns about the erosion of deliberative democratic principles. This dual role highlights the appeal and democratic risks of AI-generated imagery in political contexts. They serve distinct strategic functions within the logic of mediated campaigning while raising profound normative challenges to democratic discourse and electoral integrity. Applying our two-dimensional theoretical framework, which focuses on strategic function and normative implications, to our content analytical data allows us to better understand the appeal and risks of AI-generated campaign content.

Future research should explicitly address the impact of AI-generated imagery on voter perception, public opinion formation, and the broader democratic process. Although our study, conceptualized as content analysis, cannot empirically assess these effects, the use of photorealistic synthetic images, emotional framing, and polarizing visual strategies observed suggests the potential influence of AI-generated imagery on voter trust, the spread of disinformation, and social polarization. Investigating how audiences interpret and respond to such imagery is essential to comprehensively evaluating the societal consequences of AI-mediated political communication. This research could also better inform the development of effective regulatory and educational interventions to protect democratic discourse in an increasingly AI-saturated media environment.

7. Limitations

Our study investigates the use of synthetic images in campaign advertising, with a particular focus on their presence on social media during the 2025 German federal elections. By conducting a content analysis of Instagram posts of the major German political parties, we aimed to explore the extent to which synthetic images were integrated, whether AI-generated visuals were explicitly labeled, and the types of synthetic visuals used. We examined how these images were associated with specific political issues and campaign strategies, and how their use differed across political parties. This study is novel in the context of German political campaigns, as it is the first to assess the role of AI-generated images in this specific electoral setting. However, this novelty is reflected in the relatively small sample size, with only 68 posts identified. While this number allows for an initial understanding of the use of synthetic images, it is a limitation for a more in-depth analysis. This study provides valuable insights, but further research with a larger sample size would be beneficial to confirm and extend these findings.

Due to recurring access issues with Instaloader, the data collection process proved challenging and required continuous manual verification of the scraped content against the original Instagram posts. While this iterative comparison ensured the completeness and accuracy of the dataset, it significantly undermined the intended benefit of automation. As a result, the process became time-intensive and only partially scalable, highlighting a key limitation in relying on third-party scraping tools for systematic social media research.

Another limitation of our study is the exclusive focus on Instagram as the social media platform. While we hypothesize that other platforms may yield similar

results, this remains speculative and future research would need to include multiple platforms to fully assess the extent of synthetic image use in political campaign advertising. In addition, our study does not address the potential influence of synthetic imagery on voter perception or behavior, which may be an interesting avenue for future research.

The attempted automated classification also had a few critical limitations: A comparison between more than two classifiers would have been more insightful, but two was the only option within the given time frame. Decisions made by these models are not transparent due to their design as black boxes (in terms of the architecture and the data used to train them). Their exact performance cannot be calculated based on the given data, due to the human coders' own uncertainty. The limited access restricted our possibilities to perform extensive tests. For instance, the performance on partial images could not be tested, so it cannot be ruled out that the classification was influenced by subsequent edits, like inserted logos or text. Only images that had previously been manually coded as AI images were processed. It would have been interesting to see the full confusion matrix, which, however, would come with its own problems, since the dataset would have been highly imbalanced.

It is also important to note that the analysis was conducted in the specific context of the German federal elections, and the findings may not be readily transferable to other political contexts. The German political system, with its multi-party structure and the situational aspects of the election, such as the early dissolution of the government leading to a snap election, are factors that could influence the results. These contextual elements need to be considered when interpreting the results and applying them to other electoral settings or political systems.

Online appendix

Available at the OSF repository <https://osf.io/y59um>

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