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Uneven Digital Visibility of Urban Places: Evidence From TikTok Hotspots

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Abstract

Social media platforms increasingly shape how urban places gain visibility and attention in the digital age. In this article, we examine patterns of "place visibility" on TikTok in Amsterdam. We propose and operationalise a TikTok Place Visibility Score, defined as a composite indicator based on user engagement metrics, to measure the relative visibility of places on the platform. We then explore how TikTok mediates and redistributes visibility within existing urban hierarchies. Drawing on 3,767 TikTok posts associated with #amsterdam and hotspot-related keywords, we apply geo-parsing, spatial mapping, visualisation, and network analysis to analyse how visibility is distributed across the city. Our results show that several neighbourhoods just outside the historic urban core—rather than only central locations—exhibit high digital visibility on TikTok. These areas function as digitally prominent activity spaces despite their non-central position in the urban hierarchy, while central neighbourhoods maintain a strong online presence. The findings suggest that social media algorithms and user interactions affect digital visibility and may reconfigure how attention is redistributed across urban space. We argue that digital visibility patterns shape how places are circulated and prioritised in the digital public sphere, with implications for how people use and engage with urban space. More broadly, the article highlights the importance of attending to platform mechanisms and visibility dynamics when studying urban space in the digital transition era.

Keywords

digital visibility; hotspots; social media; TikTok; uneven representation

1. Introduction

In contemporary societies, social media has become an important lens through which people perceive, imagine, and experience cities (Boy & Uitermark, 2017; Degen & Rose, 2021; Zasina, 2018). The identification of urban "hotspots" is no longer limited to tourist guidebooks or official planning discourses, but is increasingly driven by the interplay between social media platform algorithms and user-generated content (UGC; Fan & Zhang, 2022). In this era of digital transition, social media platforms have not only reshaped how people engage with and perceive urban spaces but also redefine which places become visible, attractive, and perceived as worth seeing or visiting (Chang & Spierings, 2023). This, in turn, can influence a neighbourhood's reputational capital, transportation and human mobility, rental values, and even patterns of redevelopment (Bronsvoort & Uitermark, 2022; Törnberg & Uitermark, 2022). While social media is often framed as a tool that breaks down traditional information monopolies and supports pluralistic representation, the visibility it generates is uneven (Thompson, 2005). Some urban areas are highly visible on social media platforms due to popular content, visual appeal, or algorithmic preferences, while other neighbourhoods remain "invisible" for long periods of time (F. Zhang et al., 2020). Importantly, this unevenness is also related to the mundanity of most everyday locations. Social media posting behaviour does not reflect routine presence in space but rather resembles the logic of postcards: Users are more likely to share places, events, or moments perceived as new, exciting, or noteworthy, while ordinary and repetitive environments tend to be underrepresented. As a result, the everyday spaces where most urban life unfolds are structurally less visible on social media platforms. This form of platform-generated visibility is not merely symbolic; it may be contributing to a reordering of urban hierarchies and the distribution of social and cultural capital within the city.

A growing body of research has examined how social media data relate to urban spatial structure and socio-spatial inequality, particularly through analyses of geotagged content, representations of place, and patterns of attention (Indaco & Manovich, 2016; Shelton et al., 2015). Early studies highlighted the spatial concentration of social media content and questioned the representational biases embedded in platform data (Tasse et al., 2017). Subsequent work has demonstrated how location-tagged posts and platform-mediated visibility can reinforce existing socio-spatial divisions by selectively foregrounding certain places, communities, or narratives while marginalising others (Boy & Uitermark, 2020). More recent research has expanded this perspective by examining the role of social networks, online discourses, and platform affordances—such as likes, shares, hashtags, and algorithmic ranking—in shaping attention and visibility dynamics across digital spaces (Adelfio et al., 2020; Hausmann et al., 2025). However, despite these advances, relatively little attention has been paid to how platform-specific visibility mechanisms intersect with place-based spatial hierarchies, particularly in relation to hotspots within cities. This article approaches uneven visibility as an empirical question by examining how different urban areas become differentially visible through platform-mediated interactions.

To address these gaps, this study will construct a TikTok place visibility score (PLVS) using TikTok videos tagged with #amsterdam and hotspot-related terms to measure and define the digital visibility of urban spaces on social media. Through geo-parsing, calculating PLVSs, mapping, statistical analysis, and network analysis, we compare digital places with urban amenity density by points of interest (POI) and distance from the city centre, identify places that exhibit high digital visibility despite relatively low POI density or far from the city centre—what we term "unexpected hotspots." We further analyse the hashtags of these places represented on TikTok

and consumption topics in relation to the hotspots. The research question of this study is: What patterns of social media visibility across the city relate to, reproduce, or diverge from existing urban spatial structures?

This study selects TikTok as a case platform for analysis. TikTok has become one of the most influential social media platforms globally and is particularly popular among younger generations (Fong et al., 2024). Its algorithm-driven content dissemination and emphasis on short, visually engaging videos have made it a powerful medium for shaping urban perceptions and spatial visibility. In recent years, media reports and case observations, such as long queues at TikTok-famous locations like Fabel Friet ("Amsterdam Residents Sue City," 2025), suggest that viral content may shape visitation patterns in urban settings, though systematic quantitative investigation remains limited.

This article makes three main contributions to the literature. First, it develops and operationalises a multi-dimensional indicator of TikTok place visibility, capturing how urban places become differentially visible through platform-mediated interactions. Second, using TikTok as a case, it empirically examines how platform-specific content logics and visibility mechanisms intersect with existing urban spatial hierarchies. Third, the article contributes to debates on urban spatial inequality by highlighting how algorithmic processes and politics of visibility shape emerging digital hotspots and generate new governance challenges, complementing existing perspectives focused on physical and infrastructural dimensions of urban space.

2. Background Literature

2.1. Spatial Inequality and Centre-Periphery Theory

Spatial inequality refers to the uneven distribution of resources, services, accessibility, and development opportunities across geographic space (Harvey, 1992). It is often reflected in differences between urban and suburban areas, between core and peripheral communities, and between popular and neglected spaces. Such differences are not accidental but result from structural mechanisms (Van Ham et al., 2024). "Centre-periphery theory," for example, provides a framework for understanding this structure (Friedmann, 1970; Myint, 1965; Prebisch, 1962). The theory stresses that, in geographic or social spaces, the "centre" region is dominant due to economic, cultural, and informational concentration, while "periphery" regions remain in subordinate and dependent positions (Myint, 1965). This perspective helps explain how the concentration of spatial resources in visible areas creates inequality in power and accessibility (Wallerstein & Wallerstein, 2011). At the same time, alternative spatial theories, such as Christaller and Baskin's (1966) central place theory, emphasise a hierarchical distribution of services and consumption functions across urban space, particularly in relation to retail and everyday amenities. This model suggests a more functionally differentiated spatial structure than the more polarised centre–periphery logic. These theories provide analytical references for examining digital and physical urban spatial hierarchies.

In the 1970s, when social media did not exist, people had limited access to travel information, relying mainly on travel agents, guidebooks (e.g., Lonely Planet), and recommendations from friends and relatives (Yuan & Peluso, 2021). Although these media strongly influenced destination choices, their scope of dissemination was limited, and updates were slower than digital media. In this environment, the physical structure of urban space, shaped by historical development and planning paradigms such as Garden City models and modernist functional zoning (Howard & Osborn, 2001), largely determined consumption spaces and travel mobility.

Daily activities such as dining, shopping, culture, and entertainment tended to concentrate in urban centres due to accessibility, high facility density, and information centrality, whereas peripheral areas—often separated as residential or industrial zones—received less public activity. This pattern reflects the combined influence of planning, transport infrastructure, and centralised information networks. Such space-dominated travel behaviour reinforces the centre–periphery structure and produces spatial inequality (Kühn, 2015). The centre attracts traffic and resources, while the periphery is often disadvantaged in visibility and participation. Since the 1970s, mass tourism has expanded, and tourists are less likely to visit restaurants or shops in the city outskirts. Travel agencies and guidebooks began promoting new destinations, including "hidden gems" outside traditional centres, giving selective visibility to these places. With the rise of the internet and social media, this trend has accelerated, as visitors increasingly travel to locations discovered online, reshaping activity patterns beyond central areas (De Vos & Meijers, 2019).

In the context of Web 2.0 and the rise of social media, many scholars have examined how ICT changes daily activities and spatial behaviour (Ellegård, 2019; Shen et al., 2020). Social media is seen as a tool that weakens the centralised control of traditional media and empowers ordinary users, encouraging the production of UGC (Wilken & Humphreys, 2021) and giving new visibility to non-mainstream locations. For example, users create personalised "little Lonely Planets" through blogs, graphics, and short videos, providing travellers with more personalised and immediate travel information (Wu & Pearce, 2016). This decentralised content production allows marginal neighbourhoods or lesser-known destinations—often described as "off the beaten track"—to reach wider audiences and influence subsequent tourists through early sharing behaviours (Bronsvoort & Uitermark, 2022). In addition, virtual social relationships reshape spatial choices: Research shows that the number of friends and the strength of social ties significantly influence travel behaviour (Chen et al., 2018). However, it remains unclear whether social media reshapes spatial distributions of functions and flows in ways that diverge from traditional centre–periphery dynamics. Platform recommendation algorithms, converging visual aesthetics and influencer effects also channel attention toward a limited number of visually appealing or highly shareable landmarks—often described as the "Instagrammability" of locations (Lobo, 2023; Törnberg, 2025)—creating new forms of "digital centres" within urban space. This shifts the logic of spatial centrality from the physical level to the platform level. Rather than dispersing attention, social media may reinforce the concentration of visibility on specific locations. This platform-driven "re-centring" of space may exacerbate digital marginalisation and concentrate tourism pressures (Gretzel, 2019; Siegel et al., 2023).

2.2. Platform Urbanism and Social Media Visibility

As digital platforms become more embedded in urban life, the concept of "platform urbanism" describes their role in spatial governance, resource coordination, and shaping urban experience (Ash et al., 2018; Leszczynski, 2015). Platforms function not only as channels for information flow but also as agents organising space and distributing resources (Sadowski, 2020). Operating within commercial and advertising-driven logics of data capitalism, platform algorithms tend to amplify content and places that are consumption-oriented, aesthetically appealing, or promoted by influencers and commercial accounts, rather than emerging organically from everyday users. This selective amplification turns platforms into covert marketing instruments, shaping which urban locations gain attention. Spatial data processed through APIs, algorithms, and interface design becomes tools for commercial and urban management (Barns, 2019). This exemplifies the concept of "code/space," highlighting the co-dependent relationship between digital systems and spatial experience, where coded infrastructures shape how urban space is used and understood (Zook &

Graham, 2007). Similarly, "platform affordances" determine which places become visible, how users interact with them, and how attention is redistributed online, showing how algorithmic and interface design mediate social and spatial hierarchies (S. Zhang & Zhang, 2025).

Within platform urbanism, "visibility" is a key mechanism reshaping digital space. It no longer refers merely to whether a place exists on a map, but to the extent and way it is seen, shared, and circulated on social media (Neumayer & Rossi, 2018). Digital visibility results from algorithmic design, user behaviour, and media strategies. The concept links to Foucault's "politics of visibility" (Gordon, 2002), while "mediated visibility" (Thompson, 2005) highlights how media allows individuals and events to appear beyond time and space limits, while exposing them to judgement. A recent approach frames visibility as a process shaped by communication intention, platform mechanisms, data accessibility, and meaning-making (Neumayer et al., 2021). Visibility is not merely likes or follower counts. Practically, social media visibility operates through three mechanisms: algorithmic visibility, shaped by platform algorithms and user interaction; strategic visibility, driven by creators' optimisation and engagement tactics; and networked visibility, influenced by users' positions in the social network (Neumayer & Rossi, 2018). Together, these produce unequal patterns of visibility and power, reshaping how urban space is perceived and experienced (Zeng & Kaye, 2022).

Quantitative research provides tools to operationalise these concepts. Early Twitter studies showed that surface indicators like follower counts do not fully capture influence, while mentions, retweets, and reach better reflect visibility (Cha et al., 2010). Despite challenges such as bots or inactive users (Davis et al., 2016), these metrics allow measurement of how platform mechanisms and social interactions amplify certain content (Harada et al., 2017; Suh et al., 2010). Building on this, "dynamic visibility" (Sun et al., 2024) considers post-ranking and duration, offering insight into how visibility shifts under algorithmic control. In this study, such metrics enable quantifying which urban hotspots on TikTok gain attention, how algorithmic and social factors interact to produce spatially uneven visibility, and the extent to which these patterns echo Amsterdam's spatial hierarchies.

2.3. Uneven Digital Visibility on Social Media

Although social media is widely recognised for breaking the information control of traditional media, the "digital visibility" it brings is uneven across urban space. Geographically peripheral places that are frequently referenced on social media have seen marked increases in visibility and spatial reconfiguration (Speake et al., 2023). However, such processes are often accompanied by social media-induced tourism, commercial gentrification, and encroachment on residents' living spaces (Chang & Spierings, 2023). While social media reshapes ideas of which places are worth seeing, it may also reinforce existing spatial hierarchies and generate new hotspots and cold spots. This dynamic can be seen as a digital version of the centre–periphery model, where platforms and user behaviour define new "digital centres" and render untagged areas as "digital peripheries." Instead of a single dominant core, a "polycentric social media city" emerges, structured around multiple attention hubs.

Uneven digital visibility refers to the unequal attention different urban areas receive on platforms such as Instagram, where some places attract far more posts and engagement than others (Indaco & Manovich, 2016; Neumayer et al., 2021; Sanderson et al., 2024). It is reflected not only in platform recommendations and user engagement but also in how certain areas gain attention, commercial investment, and tourism

through frequent tagging, while others remain in a "digital periphery" with little visibility (Boy & Uitermark, 2020; Speake et al., 2023). Increased exposure of certain areas has been linked to gentrification and shrinking everyday residential space (Chang & Spierings, 2023). These transformations often follow patterns of selective representation, where particular images and narratives are repeatedly highlighted, reinforcing urban divisions in subtle, fragmented ways—producing reduced difference but increased variation (Boy & Uitermark, 2020). Critiques from relational spatial theory and critical GIS argue that analyses should consider the relational and processual nature of spatial production and the power relations embedded in spatial data, rather than treating geotagged social media as neutral, static representations (Burns, 2021; Kitchin, 2014; S. Zhang & Zhang, 2025). Social media data should thus be treated as evidence of spatial production in process (Shelton et al., 2015).

Despite growing interest in the spatial effects of social media, uneven digital visibility remains underexplored. Many studies map geotagged post distributions and identify high- or low-density areas (Lansley & Longley, 2016; Levin et al., 2015), but this provides limited insight into how digital attention interacts with urban spatial structure. The mechanisms producing uneven patterns—including platform algorithms, user engagement, and social practices—remain underexamined. Mapping hotspots highlights spatial concentrations, but does not explain how digital prominence relates to existing urban hierarchies. In this article, we treat uneven spatial patterns of digital visibility as an empirical phenomenon, focusing on how hotspots gain visibility through platform interactions and algorithmic processes, and how these patterns may reinforce, challenge, or diverge from existing spatial hierarchies.

3. Case, Data, and Methods

3.1. Case Selection and Background

This study uses Amsterdam, the capital of the Netherlands, as a case study of a typical tourist city to examine how its hotspots are represented on TikTok and whether this deviates from the city's spatial structure. Amsterdam consists of eight districts, including the central Centrum, surrounded by West, Zuid, Oost, and Noord. To provide context for analysing social media visibility, a functional mix map (Figure 1a) shows land-use distribution across residential, commercial, cultural, and leisure activities. Functional diversity is highest in Centrum, where commercial, cultural, and residential activities are most interwoven. Within Centrum, the Jordaan neighbourhood is notable for its high residential share compared to surrounding areas dominated by tourism and commerce. In contrast, the adjacent districts—West, Zuid, Oost, and Noord—are predominantly residential with lower concentrations of tourism and mixed-use functions. Property value maps (Figure 1b) indicate a spatial gradient: Centrum, West, Zuid, Oost, and Noord all have relatively high housing prices, with Zuid the most expensive, while Oost and Noord are comparatively lower.

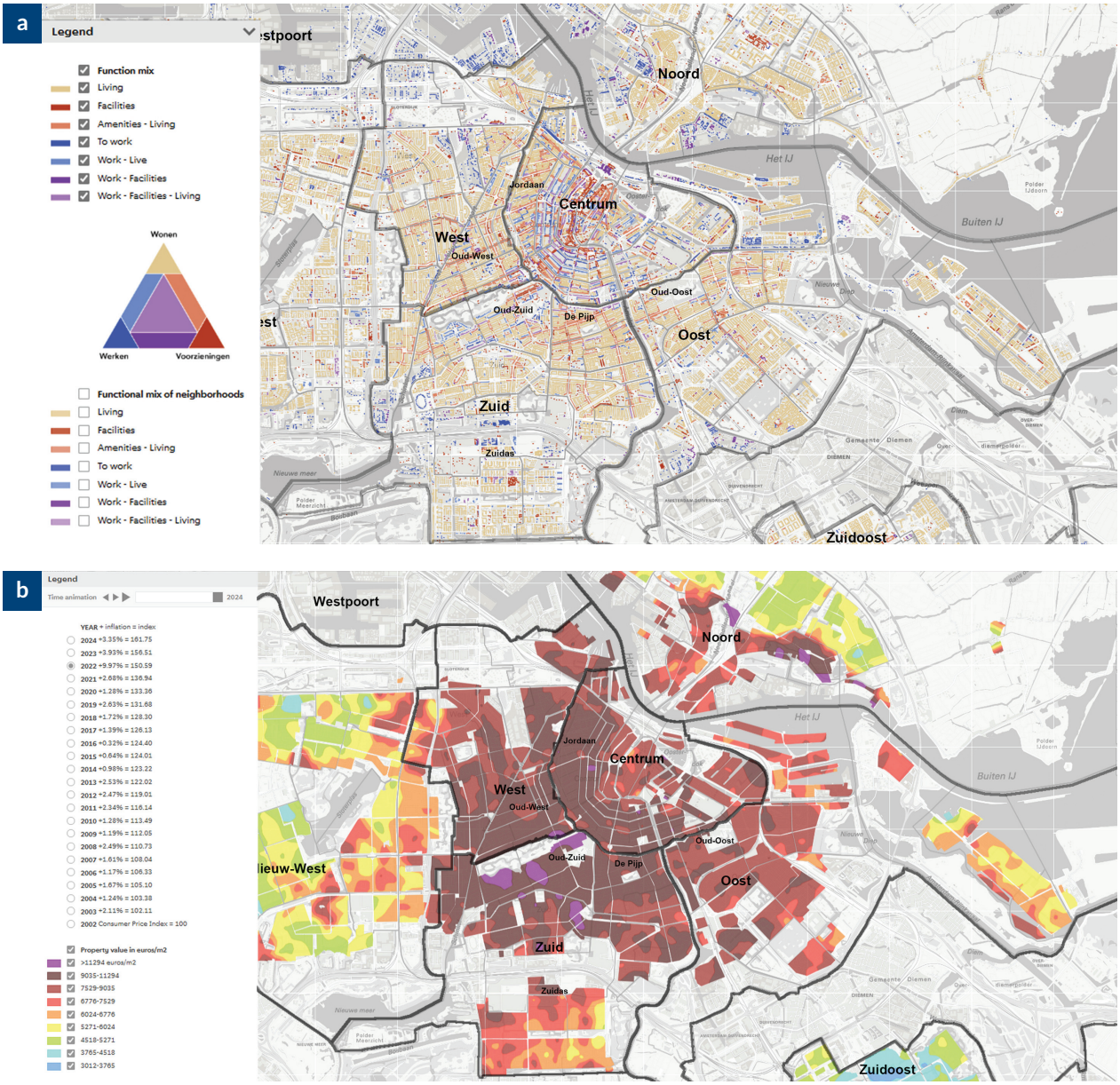

Figure 1. Functional mix map of Amsterdam (a) and property value map of Amsterdam (b). Source: Functional mix map (https://maps.amsterdam.nl/functiemix) and property value map (https://maps.amsterdam.nl/woningwaarde)

3.2. Data Collection

This study selects TikTok as the case platform due to its highly algorithm-driven content dissemination and strong emphasis on short-form, visually oriented videos, which makes it particularly suitable for examining patterns of digital place visibility. The data analysed in this study consist of publicly available TikTok posts associated with #amsterdam and hotspot-related keywords. TikTok content is distributed through recommendation algorithms, meaning that the visibility of places is shaped by engagement metrics and platform logics.

3.3. Analytical Methods

Based on the Amsterdam case city and TikTok case social media platform, the data and methods process of this article is shown in Figure 2.

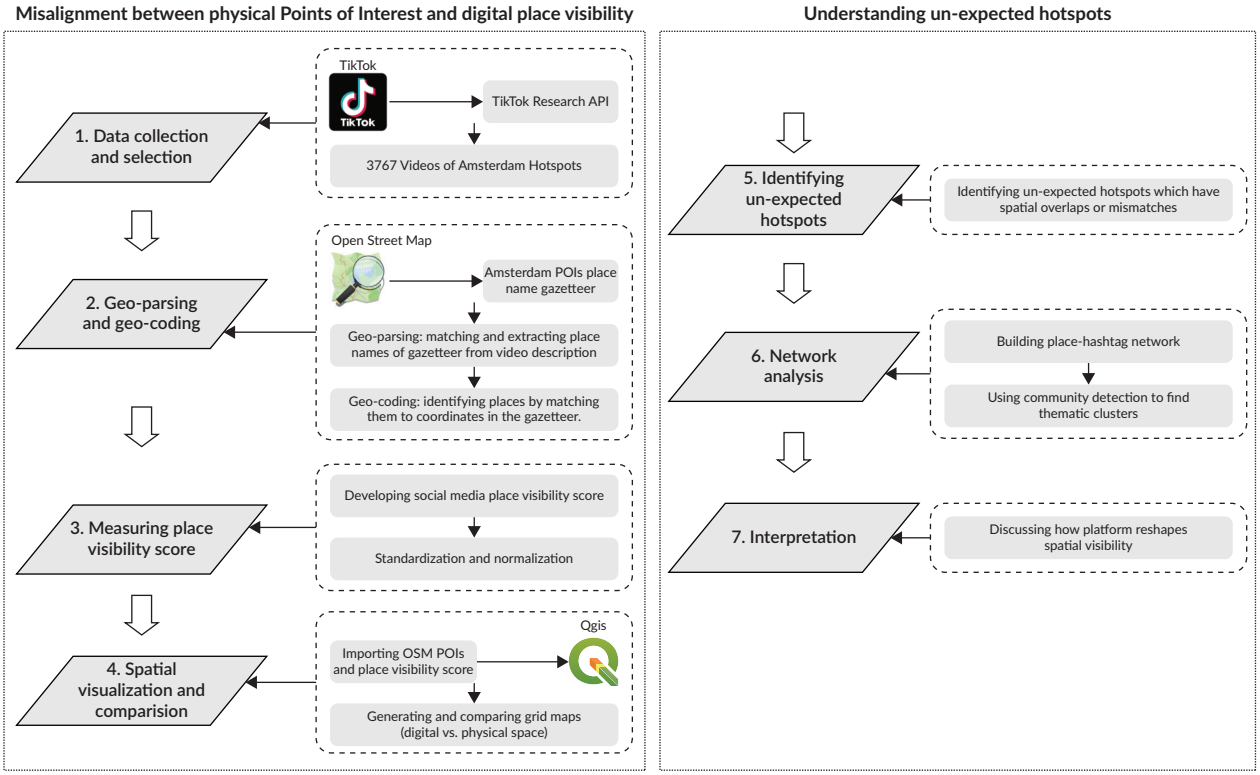

Figure 2. The research methods framework.

This study first collected TikTok video post data using the TikTok research API. The data collection period was determined by historical data availability (starting in 2020) and the API access duration (ending in 2023). To capture content related to urban hotspots, filtering keywords—such as hotspot, mustsee, travel, tour, todo, visit, trip, recommendation—were applied, yielding 3,767 posts associated with popular locations in Amsterdam. Each post includes metadata such as descriptions, hashtags, views, likes, comments, shares, and publication time, forming the basis for visibility analysis.

As TikTok does not provide explicit geographic coordinates, a geo-parsing method was used to extract location references. This involved three steps. First, a local gazetteer was built using OpenStreetMap (OSM) POI data for Amsterdam, including place names, category attributes, and coordinates (Psyllidis et al., 2022). Standard geocoding services, like Nominatim, are optimised for larger-scale features and do not reliably capture smaller venues such as shops or cafés. The local gazetteer provides a fine-grained reference for mapping TikTok hotspots at the venue level. It was cleaned by standardising names and merging near-duplicates. Second, the gazetteer was matched with post descriptions to identify place names. Manual verification improved accuracy, given informal expressions and spelling variations. Finally, identified names were matched with coordinates for geo-coding and mapping.

Based on this geographic information, a visibility scoring system was designed to measure how visible a place is on TikTok. The system considers user interactions—views, likes, comments, shares—and whether viral hashtags were used. Hashtags such as #foryoupage increase the likelihood of content being recommended by TikTok's algorithm, amplifying visibility. Drawing on the principle of user effort, actions requiring more input are weighted higher: Views indicate basic recognition, likes and comments indicate moderate engagement, and shares reflect active endorsement. Hashtag usage is associated with higher visibility, as the TikTok algorithm tends to promote content that is more likely to go viral (Darvin, 2022; Eriksson Krutrök, 2021). Based on this framework, the post visibility score (PVS) and the place visibility score (PLVS) were developed (Table 1). The visibility of each place is calculated by summing the PVS of all posts associated with it.

Table 1. Indicators for calculating social media's PVS and PLVS.

Level	Indicator	Description	Weight	Computation/data source
Post visibility level	View count	Measures how many times a post is viewed; reflects basic exposure.	1	TikTok metadata; $\log(x + 1)$ transformation, min–max scaling
	Like count	Indicates users' positive reactions; reflects mid-level engagement.	2	Same as above
	Comment count	Reflects deeper cognitive engagement and discussion intensity.	5	Same as above
	Share count	Shows users' willingness to redistribute content; represents the strongest interaction.	10	Same as above
	Presence of viral hashtags (e.g., #foryoupage)	Captures whether a post adopts algorithmically promoted hashtags that enhance visibility.	6	Binary variable (1 = *used*, 0 = *not used*)
PVS	= (view count × view weight) + (like count × like weight) + (comment count × comment weight) + (share count × share weight) + (presence of viral hashtags × hashtag weight)			
Place visibility level	Aggregated PVS	Represents the total digital visibility of a specific location, calculated by summing all PVS mentioning that place.	—	PLVS = Σ (PVS of all posts referring to the same place)
PLVS	= SUM (PVS of all related posts mentioned that place)			

Note: Interaction counts (views, likes, comments, and shares) were log-transformed and normalised.

The weights were determined based on the depth of user engagement and the effort investment principle: Actions requiring greater effort (e.g., sharing) contribute more to visibility than low-effort actions (e.g., viewing) (Cha et al., 2010). As shown in Table 1, view weight is 1, like 2, comment 5, hashtag 6, and share 10. Alternative weighting sets were tested, yielding consistent spatial patterns, indicating robustness to parameter choices. A sensitivity analysis aggregated TikTok visibility on 250- and 500-meter grids and used raw post counts instead of weighted PLVS scores. Spatial patterns and regression results remained consistent, confirming the PLVS robustness (see details in the Supplementary File). Interaction variables were log-transformed ($\log(x+1)$)

and rescaled to [0,1] using min–max scaling. The theoretical PLVS range is 0–25, while empirical values ranged from 0 to approximately 1300 across grid cells, reflecting cumulative visibility from multiple posts.

Visibility scores were aggregated onto a 500-meter grid for standardisation and compared with OSM POI to examine alignment with functional spatial structure. Global Moran's I was calculated to quantify spatial clustering, with positive values indicating clustering of high- or low-visibility areas and highlighting non-random spatial patterns. The relationship between TikTok visibility and urban characteristics was examined using OLS regression, with aggregated PLVS as the dependent variable and POI density and distance to the city centre as independent variables, assessing how digital visibility echoes functional structure and centrality.

"Unexpected hotspots"—areas with low OSM prominence or distant from the centre but high TikTok visibility—were identified. OSM prominence was measured by POI counts per 500-meter cell, and TikTok visibility by PLVS. Cells with high PLVS but low POI were classified as unexpected hotspots. To explore content co-occurrence, a bipartite network linked places and hashtags. Community detection using the Louvain algorithm (Blondel et al., 2008) uncovered latent "thematic communities"—groups of hashtags consistently co-occurring in specific spatial contexts, indicating which hashtags are associated with particular areas.

Finally, visibility scores were interpreted alongside the bipartite network, providing insights into how platform-mediated visibility reflects TikTok user preferences and how digital attention differs from the physical spatial structure.

4. Results

4.1. Misalignment Between Physical POI and Digital Place Visibility

Analysis of TikTok place visibility across the 500 m grid reveals distinct spatial patterns in Amsterdam (Figure 3a). Areas such as Zuid, with relatively low POI counts, exhibit high digital visibility, while some central locations with dense POI show moderate or low TikTok visibility. These observations indicate that platform-mediated attention does not strictly follow the city's functional structure, and digital visibility can concentrate in areas that are not traditionally central or commercially dense. The bipartite network of hashtags and locations shows that clusters such as food and drinks are associated with these digitally prominent areas, reflecting thematic patterns of social media activity.

Using a 500-meter grid covering Amsterdam (Figure 3b), both OSM POI and TikTok PLVS were aggregated onto the same grids for systematic spatial comparison. POI distribution is heavily concentrated in the city centre (Centrum), consistent with centralised urban functions (Figure 3a). In contrast, TikTok visibility scores reveal a more polycentric digital pattern. Global Moran's I is 0.494 ($p < 0.001$), indicating significant positive spatial autocorrelation—high-visibility locations cluster rather than being randomly distributed. While the city centre remains highly visible, surrounding areas such as De Pijp and Zuidas show unexpectedly high visibility relative to their POI density. The Jordaan neighbourhood, at the edge of the historic centre, also emerges as a strong digital hotspot (Figure 3b).

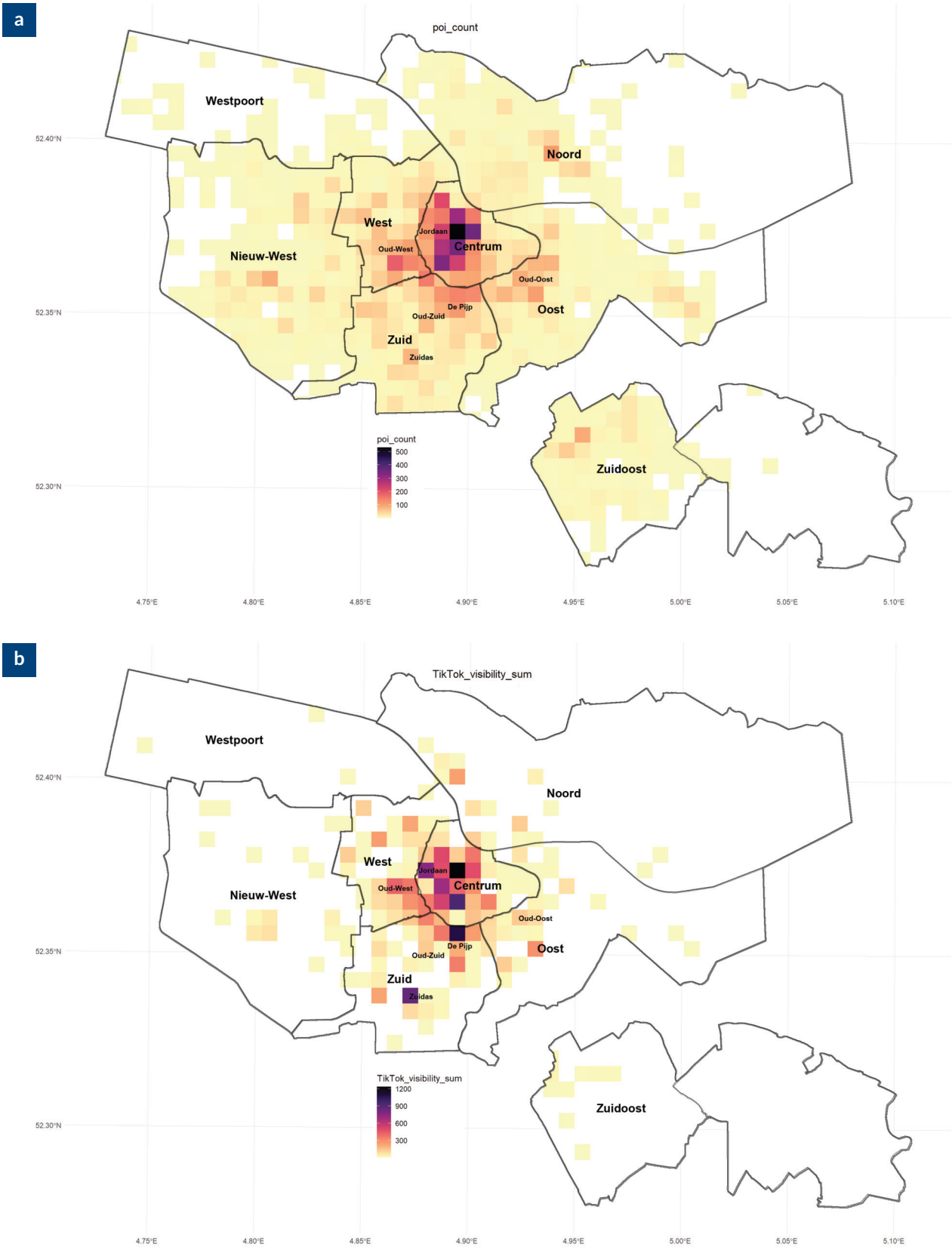

Figure 3. 500-meter spatial grid aggregation of POI from OSM (a) and 500-meter spatial grid aggregation of TikTok PLVS (b).

Among the hotspots, De Pijp and Zuid are primarily residential or lifestyle-oriented neighbourhoods rather than traditional tourist or commercial centres. Their prominence on TikTok suggests that digital visibility is not solely determined by spatial hierarchies but also by how users experience and represent urban life. These areas deviate from the physical urban centralities, showing how everyday residential environments gain symbolic visibility through social media, where visibility is shaped by aesthetic and experiential values rather than functional hierarchies. Unlike other platforms, TikTok is primarily populated by residents rather than visitors, making living areas more visible than traditional tourist centres.

Furthermore, we applied scatter plot visualisation and OLS regression to examine how digital visibility aligns with urban functional structure and distance from the city centre, allowing a robust assessment of spatial distribution and the influence of POI.

Figure 4 presents the OLS results. Figure 4a shows a strong positive association between visibility and POI density, indicating that areas with more amenities generally attract more attention. However, several grid cells exhibit high visibility despite low POI density, suggesting that POI alone does not fully explain observed patterns. Figure 4b shows visibility declines with distance from the city centre, but the presence of high-visibility cells outside the core suggests decentralisation occurs through localised peripheral

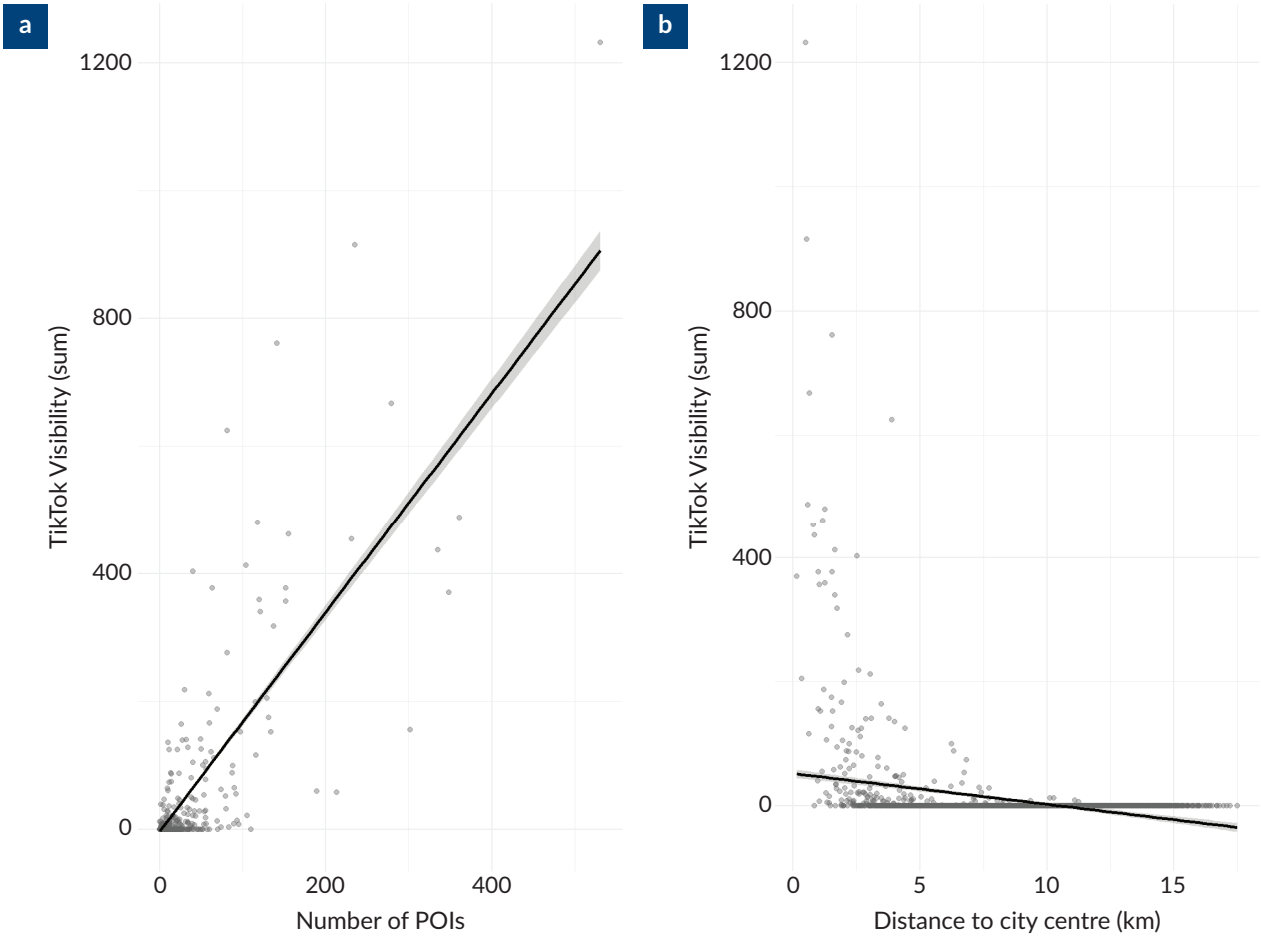

Figure 4. Spatial and statistical patterns of TikTok place visibility across the city: Relationship between TikTok place visibility and POI density (a) and relationship between TikTok place visibility and distance to the city centre (b).

concentrations rather than uniform outward diffusion. Table 2 shows that POI density is the strongest predictor ($\beta = 1.748$, $p < 0.01$), while distance to the centre has a small but significant positive effect ($\beta = 0.001$, $p < 0.01$), indicating some peripheral locations achieve higher visibility than central locations with similar POI density. The combined model explains approximately 65% of the variance (Adjusted $R^2 = 0.645$), showing that while functional density drives most TikTok activity, attention is redistributed to select non-central areas, creating unexpected hotspots beyond traditional cores.

Table 2. OLS Regression of TikTok visibility.

OLS Regression of TikTok Visibility		
Predictors	**Estimate (Std. Error)**	***p*-value**
Distance to Centrum	0.001*** (0.0003)	0.0004 ***
POI Count	1.748*** (0.033)	0.009 ***
Intercept (Constant)	−8.973*** (2.510)	< 0.001 ***
Model Statistics		
Observations	1,820	
R^2	0.645	
Adjusted R^2	0.645	
Residual Std. Error	36.237 ($df = 1817$)	
F-statistic	1650.327*** ($df = 2$; 1817)	

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Overall, these findings highlight the interplay between physical urban structures—represented by OSM POIs—and digital social media, where place visibility is shaped by user behaviour and platform algorithms. TikTok visibility is strongly associated with functional urban density, while distance to the city centre exerts a small but significant influence, indicating that selected peripheral areas can achieve unexpectedly high visibility. While central areas dominate in absolute terms, attention is conditionally redistributed, with some non-central neighbourhoods emerging as new digital hotspots.

4.2. Understanding Unexpected Hotspots

To explore digital visibility patterns, we examined three neighbourhoods with relatively high TikTok visibility, including Zuid, De Pijp, and Jordaan. Zuid stands out as the most prominent hotspot, while the others also exhibit elevated visibility compared to surrounding areas. The analysis focused on the types of locations and hashtags associated with posts, providing insights into spatial attention distribution. Most content in these neighbourhoods is produced by younger users, the majority of TikTok's Amsterdam user base. Based on a preliminary, internal assessment of user profiles of the Jordaan neighbourhood (authors' unpublished data), approximately 68.3% of these users appear to be residents, indicating that digital hotspots primarily reflect younger local activity and interests. The analysis does not assess whether non-local users discover these places, and no causal claims about visitation are made.

De Pijp, outside the historic core, appears prominently on the TikTok visibility map. This visibility is not solely produced by social media; De Pijp has long had dense urban amenities, including Albert Cuyp Market, lively streets, and historic sites, attracting residents and visitors. In the hashtag–place bipartite network (Figure 5), posts are frequently linked to hashtags related to food, street markets, cafés, and everyday leisure, showing

that the neighbourhood's existing visual richness and social vibrancy are strongly represented. These findings suggest digital visibility is associated with, rather than generative of, urban qualities such as visual appearance, social interaction, and everyday consumption. De Pijp illustrates how neighbourhoods with established cultural and symbolic capital are more readily amplified on platforms, without implying causal effects or social media-driven temporal shifts.

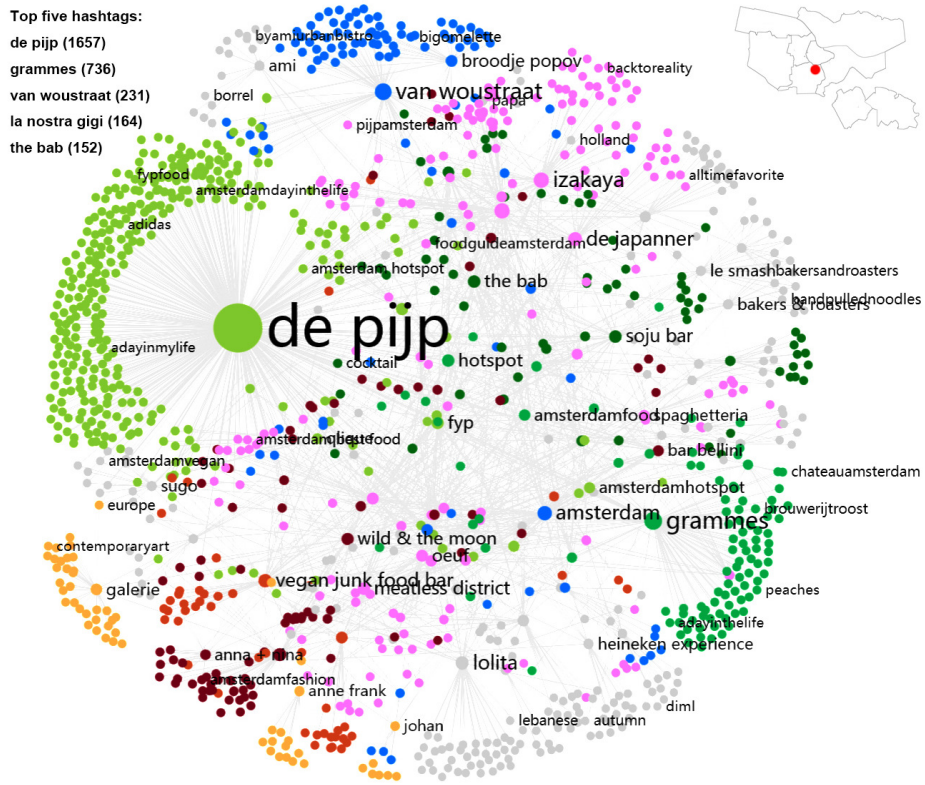

Figure 5. The hashtag–place bipartite network with community detection of De Pijp.

Zuid is located in the peripheral area of Amsterdam. Its network connections emphasize spatial landmarks like Amstelpark, Zuidas, and Oud-Zuid (Figure 6). Zuid has a more diverse mix of landscapes centred on "urban green space–high-end office–historic housing." The visibility of Zuid relies more on the aesthetic value of the space itself than on the interaction between people and objects. For example, the greenery and symmetrical horticultures of the Amstelpark are often used as places for walks, tranquillity, and nature-related videos.

Jordaan, at the edge of Amsterdam's Centrum, stands out in the bipartite network for its thematic richness, with hashtags linked to vintage, museums, tourism, and aesthetics (Figure 7). Its visibility is driven not by a single identity but by a convergence of cultural, visual, and tourist-oriented narratives. Content often features antique shops, art galleries, street performances, and canal walks, frequently filtered through a nostalgic or stylized lens, creating a hybrid storytelling that resonates with local charm and global appeal, connecting with Jordaan's strong TikTok visibility. Its visibility emerges from the interaction between pre-existing cultural appeal and platform-mediated representation, with TikTok amplifying rather than generating popularity. Jordaan thus serves as a digitally mediated symbolic hub where multiple urban imaginaries intersect, showing how social media visibility is shaped by feedback loops between spatial attractiveness, user activity, and platform affordances rather than by social media alone.

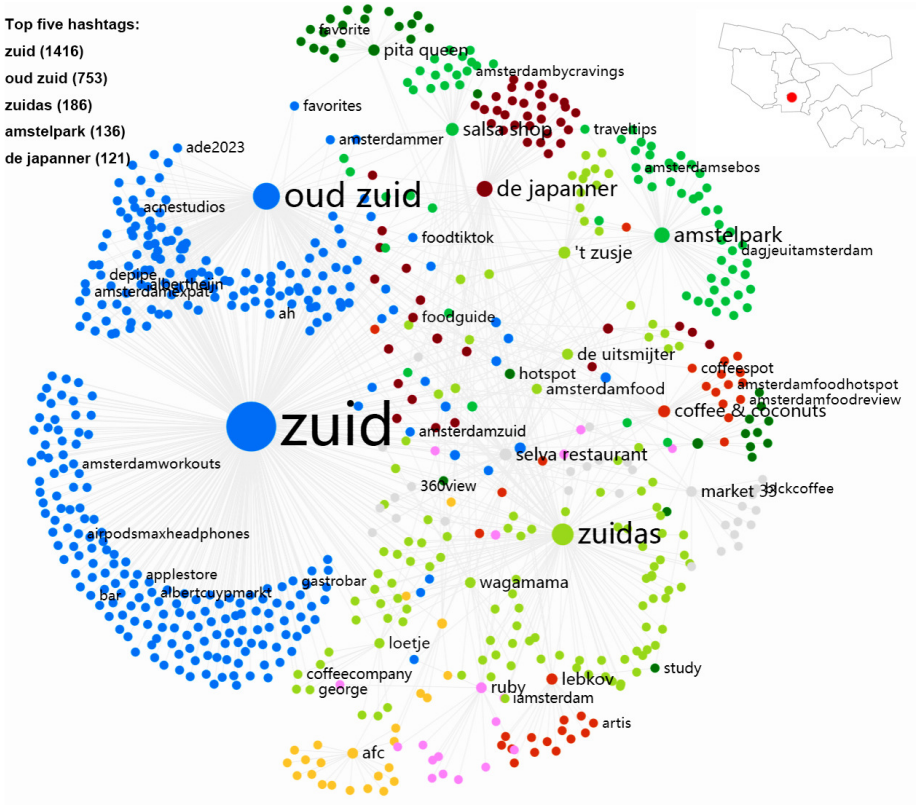

Figure 6. The hashtag–place bipartite network with community detection of Zuid.

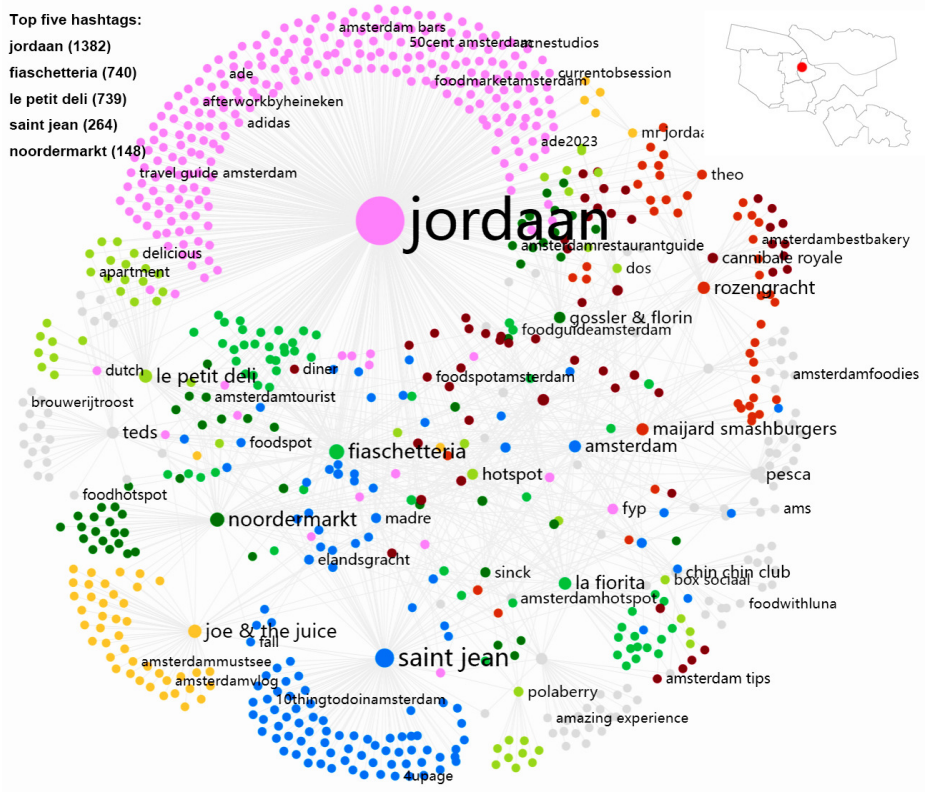

Figure 7. The hashtag–place bipartite network with community detection of Jordaan.

Analysis of De Pijp, Jordaan, and districts like Zuid shows that several areas outside or at the edge of Amsterdam's historic centre achieve high TikTok visibility. Compared with their functional prominence (POI density) and centre–periphery position, De Pijp and Zuid display disproportionately high digital visibility, highlighting a divergence between physical urban structure and digital engagement. Jordaan is more ambiguous: Although its functional intensity is lower than that of some central zones, it remains well-known and frequently visited. Its high digital visibility reflects both established cultural prominence and continued resonance in platform-mediated representations, rather than an entirely unexpected outcome.

5. Discussion

5.1. Digital Place Visibility Both Mirrors and Reshapes Urban Structures

The spatial distribution of digital hotspots on TikTok both reflects and partially loosens the urban structure. Urban studies have long shown that spatial inequality in cities is tied to uneven distribution of infrastructure, services, and economic resources (Friedmann, 1970; Harvey, 1992). Social media research similarly shows that digital representations of places cluster in central and prominent areas (Lansley & Longley, 2016). Our findings are consistent with this literature: Areas with higher functional density attract greater digital attention. However, they extend prior work by showing that digital visibility is not a simple mirror of physical centrality. Some locations with modest functional roles achieve high TikTok visibility, supporting arguments that visibility has become a distinct dimension of urban prominence, shaped by platform-mediated attention rather than infrastructure alone (Barns, 2019; Zook & Graham, 2007).

This study also links visibility patterns to spatial structure using a grid-based approach and statistical analysis. While prior social media research focused on Twitter or Instagram, TikTok—despite rapid growth and unique algorithms—has received limited spatial urban research. Our analysis shows platform-driven attention is conditionally redistributed: POI density predicts visibility, yet distance to the city centre has an independent effect, allowing some non-central areas to emerge as digital hotspots. This supports calls to move beyond surface-level mapping toward analyses of platform mechanisms producing uneven visibility (Shelton et al., 2015; Sun et al., 2024).

Digital visibility redistributes symbolic and cultural capital across urban space, echoing but complicating discussions of symbolic power and mediated visibility (Neumayer et al., 2021; Thompson, 2005). On social media, attention and visibility of symbolic content matter more than infrastructure or centrality. Locations lacking physical centrality may become highly visible digital landmarks if they receive frequent engagement. This shows how algorithmic and user-driven processes intersect with, rather than dissolve, established urban structures.

5.2. Platform Mechanisms Drive Uneven Visibility and Attention Across Urban Hotspots

The emergence of digitally prominent neighbourhoods outside the traditional urban core aligns with research on algorithmic visibility and platform affordances. Social media platforms privilege content that is visually appealing, shareable, and aligned with dominant aesthetic norms, producing uneven exposure patterns (Boy & Uitermark, 2020; Chang & Spierings, 2023; S. Zhang & Zhang, 2025). Our findings show areas such as Zuid achieve high visibility through lifestyle-oriented, visually rich content rather than formal centrality or institutional importance.

This redistribution does not create a fully decentralised or egalitarian attention landscape. Platforms generate a new exclusivity: Only places effectively represented within platform logics—through visual aesthetics, everyday practices, and algorithmically amplified engagement—gain sustained visibility. Analysis of hashtags and hotspots shows that highly visible neighbourhoods often feature attractive environments and strong lifestyle associations, suiting TikTok's short-video format. Content on food, fashion, art, and daily experiences is frequently shared. High interaction—likes, comments, shares—and engagement from influential users further boost visibility. This echoes critiques from critical GIS and digital urban studies: Platform-mediated representations privilege certain urban forms while rendering others less visible (Boy & Uitermark, 2020; Degen & Rose, 2021). Digital platforms thus do not merely diversify urban representation but actively reshape spatial hierarchies through selective amplification.

5.3. Implications

These "unexpected hotspots" pose challenges for urban governance and city branding. Local authorities can no longer easily predict which places will gain digital attention, as viral trends often emerge outside formal planning logic. Residential areas, industrial sites, or small cafés can suddenly become tourist destinations from a single viral post, altering space use, daily rhythms, local identity, and sometimes public order. Platform-driven spatial consumption blurs public and private boundaries, everyday life and tourism, challenging social control and perceived liveability (Van Dorst, 2012). City branding is similarly affected: Urban images are no longer shaped solely by official narratives but constantly reshaped by UGC, raising questions for policy on responding to fluid algorithmic space.

The visibility of neighbourhoods on social media links to broader processes of transformation and gentrification. Platforms like Instagram amplify aestheticized urban imagery, enhancing symbolic attractiveness and accelerating cultural and commercial upgrading (Bronsvoort & Uitermark, 2022). Studies of "Instagrammable" spaces show visually appealing cafés, streets, and neighbourhood scenes that become markers of emerging consumption landscapes (Boy & Uitermark, 2017; Chang & Spierings, 2023). Mediated urban images circulating on platforms can reshape reputations and attract visitors, investment, and cultural attention (Speake et al., 2023; Törnberg & Uitermark, 2022). Increased digital visibility can bring symbolic capital and economic opportunities, but also reinforce selective representation, cultural stereotyping, and uneven transformation. Excessive visibility may intensify surveillance and digitization of everyday spaces. Visibility thus represents a paradoxical form of spatial power, fostering identity while generating new inequalities in urban life.

5.4. Limitations and Future Research

This study advances understanding of how digital platforms reshape urban hotspot patterns through analysis of place visibility, but several limitations apply. TikTok's trending data primarily reflect young, socially active users, so observed patterns may not represent the broader urban population, especially older or less digitally engaged groups. Consequently, TikTok-derived hotspots tend to correspond to areas offering lifestyle experiences, leisure activities, and visually appealing environments, aligning with this user group's preferences. While TikTok provides insights into visibility, attention, and representation, it does not directly measure material practices such as consumption, mobility, or service use—a limitation common to social media–based urban research (Hargittai, 2020; Sanderson et al., 2024). Platform data are shaped by

algorithmic filtering, content moderation, and commercial logics, which privilege certain places and user groups while marginalising others, limiting direct applicability for urban governance without careful contextualisation (Olteanu et al., 2019).

This study focuses on a single platform and city. Although Amsterdam is suitable for exploring digitally mediated visibility, platform effects, and mechanisms likely vary across urban contexts due to demographic, cultural, tourism, and digital infrastructure differences. Comparative studies across platforms and cities, integrating complementary sources such as Instagram, Google Maps reviews, mobility data, or surveys, could triangulate findings and improve robustness.

Future research should further examine how platform-mediated visibility interacts with urban redevelopment, gentrification, and platform governance. Future research could differentiate between POI categories to examine how specific types of urban functions relate to digital visibility. More work is needed on how algorithmic bias and commercial incentives shape which places become visible, for whom, and with what consequences, and to critically assess the role of social media data in informing urban policy and planning.

6. Conclusion

This study investigates how social media platforms redistribute visibility within existing urban hierarchies, focusing on TikTok in Amsterdam. Unlike most previous research that has primarily examined Instagram or Twitter (Boy & Uitermark, 2020; Lansley & Longley, 2016), this article provides an empirical analysis of TikTok, which has not yet been extensively studied in the context of urban digital visibility.

The article makes three main scientific contributions. First, it is based on previous research on social media visibility (Sun et al., 2024) and develops a quantitative indicator of TikTok PLVS, capturing the relative attention that urban places receive on TikTok through user interactions such as views, likes, comments, shares, and hashtag use. This indicator provides a systematic and replicable measure for studying digitally mediated urban prominence. Second, by linking TikTok place visibility to POI density and distance from the city centre, the analysis demonstrates that digital attention is partially aligned with, yet also diverges from, existing urban hierarchies. While areas with high POI concentration tend to attract more attention, those located on the edge of the city centre—such as De Pijp and Zuid—achieve unexpectedly high visibility relative to their functional status. Centrally located neighbourhoods like Jordaan remain highly visible, but the emergence of peripheral hotspots highlights a conditional redistribution of attention, shaped by platform algorithms and user behaviour. Third, this study illustrates the mechanisms by which social media platforms contribute to uneven spatial visibility, showing that digital prominence is not only determined by the physical or functional characteristics of urban space but also by the algorithmic amplification and interaction patterns of platform users.

These findings contribute to the literature by confirming that digital visibility partly mirrors traditional urban structures while also creating new layers of attention that may diverge from physical hierarchies, supporting recent calls to move beyond surface-level mapping toward analysing the mechanisms that produce uneven digital attention (Shelton et al., 2015). Overall, this study demonstrates how digital platforms have become new actors in the representation of urban space, emphasising that in the age of social media, understanding urban spaces must go beyond the physical to a deeper focus on algorithmic power and the politics of visibility.

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Data Availability

The data that has been used is confidential.

Supplementary Material

Supplementary material for this article is available online in the format provided by the author (unedited).

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