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Social Network Analysis of the Save the Malayan Tigers Campaign on Instagram

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ABSTRACT
Instagram has emerged as a vital platform for wildlife conservation campaigns, offering broad reach and visual interactivity. This study aims to map and analyse the interaction patterns, user engagement, and social structure surrounding the @save_the_malayan_tigers Instagram accounts. This study employed a quantitative descriptive approach using Social Network Analysis (SNA) with NodeXL Pro. Data were collected from 500 recent posts and 100 comments per post. The findings revealed a highly centralised network with the main account acting as a dominant hub in a star-shaped network structure. Several secondary nodes from media, conservation communities, and government accounts extended the campaign to segmented audiences. However, engagement patterns remain largely one-directional, with minimal horizontal interaction. These insights provided strategic recommendations to enhance participatory communication, especially for Generation Z audiences, and emphasise the importance of influencer collaboration and interactive digital features. This study reinforced the role of SNA as a powerful tool for evaluating and improving digital conservation strategies in the social media era.

INTRODUCTION

Wildlife conservation has a positive impact on biodiversity protection, environmental quality improvement, and ecosystem balance (Langhammer et al., 2024; Saputra et al., 2023). The same is true of the conservation of the Malayan tiger (*Panthera tigris* Jacksoni), a subspecies typical of Peninsular Malaysia that is a symbol of the Malaysian Government and cultural pride (Department of Wildlife and National Parks Peninsular Malaysia, 2008)

The current population of the Malayan tiger is estimated to be less than 200 and was designated endangered by the IUCN in 2015 (Goodrich et al., 2022; Ten et al., 2021). In the wild, the results of the 1st National Tiger Survey reported that the population was even below 150 (PERHILITAN, 2022). Various threats have led to a drastic reduction in the Malayan tiger population. Ten et al. (2021) stated

that these threats are in the form of poaching, environmental disturbances, being hit on the road, and arrests during human-wildlife conflicts.

Ecologically, the existence of the Malayan tiger functions to maintain the balance of the food chain in the pattern of interaction between predators, herbivores, and plant diversity in rainforest ecosystems (Gani et al., 2024; Ten et al., 2021). As a cultural symbol, the Malayan tiger has lived in legendary stories in Peninsular Malaysia for centuries (Ten et al., 2021). In this context, the existence of the Malayan tiger represents the identity of the Malay nation in Peninsular Malaysia.

Various conservation initiatives have been carried out by stakeholders, both domestic and international (Mzek et al., 2022). However, threats to the Malayan tiger population continue to be caused by anthropogenic factors. Therefore, supporting efforts are needed that can increase public participation through continuous advocacy and education. The group that has the potential to be targeted is Generation Z. This generation has a high level of environmental awareness and wants to participate in conservation actions (Kumari & Thakur, 2023). In addition, this generation group will inherit a symbol of Malaysian pride in the future.

However, there are still obstacles to their participation, such as a lack of information, community support, and understanding of environmental issues (Harmuningsih & Saleky, 2019). Efforts to overcome obstacles to Generation Z participation can be done through strategic communication. Strategic communication is a continuous communication process between various communication actors that aims to create a common understanding of the desired goals (Estaswara, 2021).

Through strategic communication, opportunities to increase Generation Z's participation in Malayan tiger conservation can be escalated. Currently, communication is believed to be the main instrument that can simultaneously move the public into concrete action (Reza et al., 2025). Their proximity to the internet and social media opens the gates of great involvement in conservation actions. Through optimising the use of social media, the reach of environmental campaigns can be expanded and the effectiveness of the campaign process (Reza et al., 2025).

Social media users in Malaysia were recorded at more than 25.1 million (70.2%) at the beginning of January 2025, up 4.1% from the beginning of 2024 (We Are Social & Meltwater, 2025). Based on the report, the number of Instagram users in Malaysia by early 2025 will be 15.5 million, consisting of 45.9% women and 54.1% men. Of the total internet users in Malaysia, as many as 78.5% use Instagram, which is dominated by the age range of 18-44 years.

Instagram is a social media platform with a large active users. The platform has a variety of interactive features and forms unique visuals through uploading photos, videos, and text (Irawati et al., 2024). These features provide ease of campaign activities for institutions engaged in environmental issues in advocating, gathering support, and increasing public awareness (Fadli & Sazali, 2023).

Save The Malayan Tigers is one of the initiatives of the Malayan tiger conservation campaign. This initiative was established by the Crown Prince of Pahang, HRH Tengku Hassanal Ibrahim Alam Shah. The Save The Malayan Tigers campaign aims to raise public awareness, educate the public on the importance of Malayan tiger protection, and raise funds for the conservation of this unique subspecies (Save The Malayan Tiger, 2022). HRH Tengku Hassanal Ibrahim Alam Shah has taken various steps to amplify the Save The Malayan Tigers campaign, both offline and online. One of the online actions is through the Instagram platform, and the campaign is carried out creatively with the publication of various content. This digital communication effort is a continuation of the Save The Malayan Tigers campaign goal.

As a social media platform, Instagram forms a virtual community through the social networks it creates (Suratnoaji et al., 2019). Social networks are concepts, methods, theories, or systems that are

interconnected in certain social aspects (Pranaya, 2023). The social networks formed on the Instagram platform can be analysed using *Social Network Analysis* (SNA). SNA is a method used to analyse social communication networks by describing social networks and their structure (Pranaya, 2023). SNA can visualise the relationships created between individuals in a network group to facilitate the analysis (Andiani et al., 2025; Rahmahrini, 2021).

SNA can identify the actors who exert influence, the influence they create on a social network, and the pattern of information dissemination carried out (Andiani et al., 2025; Suratnoaji et al., 2019). The use of SNA in social media monitoring will provide strategic recommendations for more effective digital campaign management. This study will provide new insights into the effectiveness of social networks in the Save The Malayan Tigers campaign. The novelty of this study lies in applying SNA to a digital conservation campaign for the Malayan tiger on Instagram, with a focus on secondary nodes and Generation Z engagement. Therefore, this article aims to analyse the structure of social networks and interaction patterns in the Save The Malayan Tigers campaign on Instagram using SNA. The findings of this study are expected to provide strategic recommendations for campaign managers, environmental organisations, and policymakers in designing more effective digital communication strategies for the conservation of the Malayan tiger.

METHOD

This study used a quantitative descriptive method with a digital approach through Social Network Analysis (SNA). Through SNA, the relationships between actors in a social network structure can be analysed so that information can be obtained about the structure, patterns, and strength of relationships that occur (Andiani et al., 2025; Bakry & Kusmayadi, 2021). The software used in this study was NodeXL Pro. NodeXL Pro is an open-source extension to *a spreadsheet* application that has basic network analytics and visualisation features that analyse social relationships and interactions quantitatively and visually (Suratnoaji et al., 2019). This tool is easy to use because it is a *plug-in* installed in Microsoft Excel 2007, 2010, 2013, and 2016 (Alamanda et al., 2021; Hansen et al., 2019).

The data source in this study was secondary data in the form of social interaction networks pulled from the Instagram platform on July 12, 2025. The data collection process through NodeXL Pro used the NodeXL > Import > From Instagram User's Network feature. The data source came from a network of friends on the Save The Malayan Tigers (@save_the_malayan_tigers) Instagram account, resulting in vertex (user nodes) and edges (interaction relationships between users). The total number of followers on the @save_the_malayan_tigers Instagram account is 10,763 (Fig. 1).

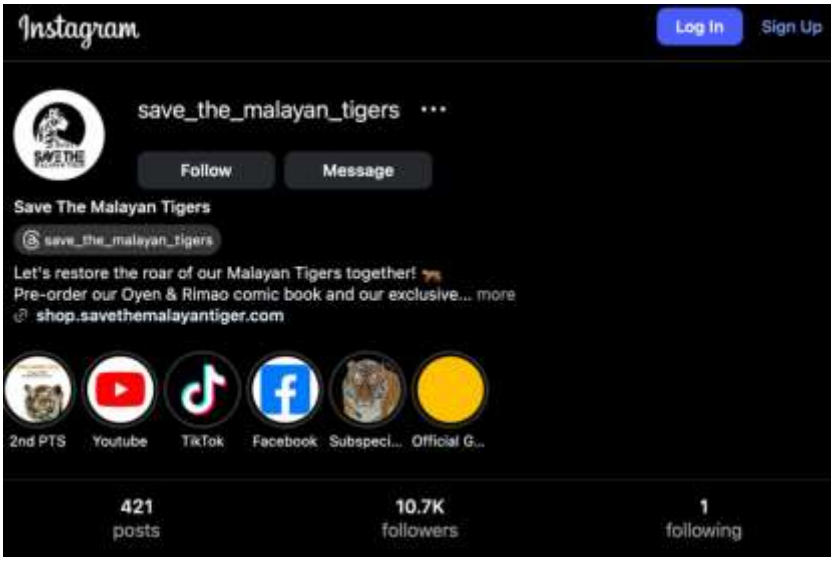

Fig. 1 *The Instagram account Save The Malayan Tigers*

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The focus of this study was to utilise the SNA method to analyse and understand the structure of social networks on the Save The Malayan Tigers Instagram account. The data collection in the study used features owned by the Microsoft NodeXL Pro software. The amount of data taken was 500 recent posts and 100 comments on each post (Fig. 2).

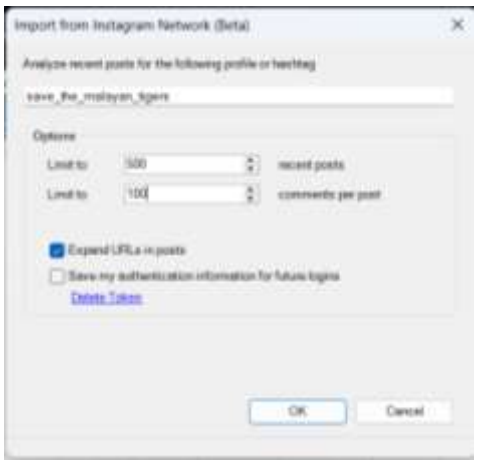

***Fig. 2** Amount of data used in the study*

The collected data was analysed using Microsoft NodeXL Pro through quantitative metrics generated from this software (Andiani et al., 2025). The results obtained were degree centrality, closeness centrality, betweenness centrality, eigenvector centrality, and clustering coefficient (Suratnoaji et al., 2019).

RESULTS AND DISCUSSION

Results

Network Structure and Nodes

The analysis of social networks against the Instagram account @save_the_malayan_tigers results in a centralised star-shaped network structure. This account is the main node that is directly connected to most other nodes in the conversation about the Malayan tiger on the Instagram platform (Fig. 3).

As illustrated in Fig. 3, NodeXL Pro identifies the @save_the_malayan_tigers account as the node with the most influence. The social network pattern that has formed indicates a strong narrative control by @save_the_malayan_tigers accounts regarding Malayan tiger conservation. Moreover, the colours that appear at each node indicate the automatic formation of community clusters by the modularity algorithm. These clusters show the existence of sub-communities that tend to interact within their own groups, yet still rely on the main node as the source of communication. For instance, nodes like @this.7, @pantheracats, @gomalaysia, and @tv3 form micro-clusters representing specific community affiliations – governments, tourism, media, conservation communities, and the private sector.

The arrow direction shown in the visualisation shows that most of the connections flow from the peripheral node to the @save_the_malayan_tigers account, that is, the centre. This indicates a dominant one-way interaction, such as comments, tags, or mentions directed at a central account. The distribution of tight nodes around the central node shows a high intensity of the relationship, but the interaction between the nodes still seems minimal.

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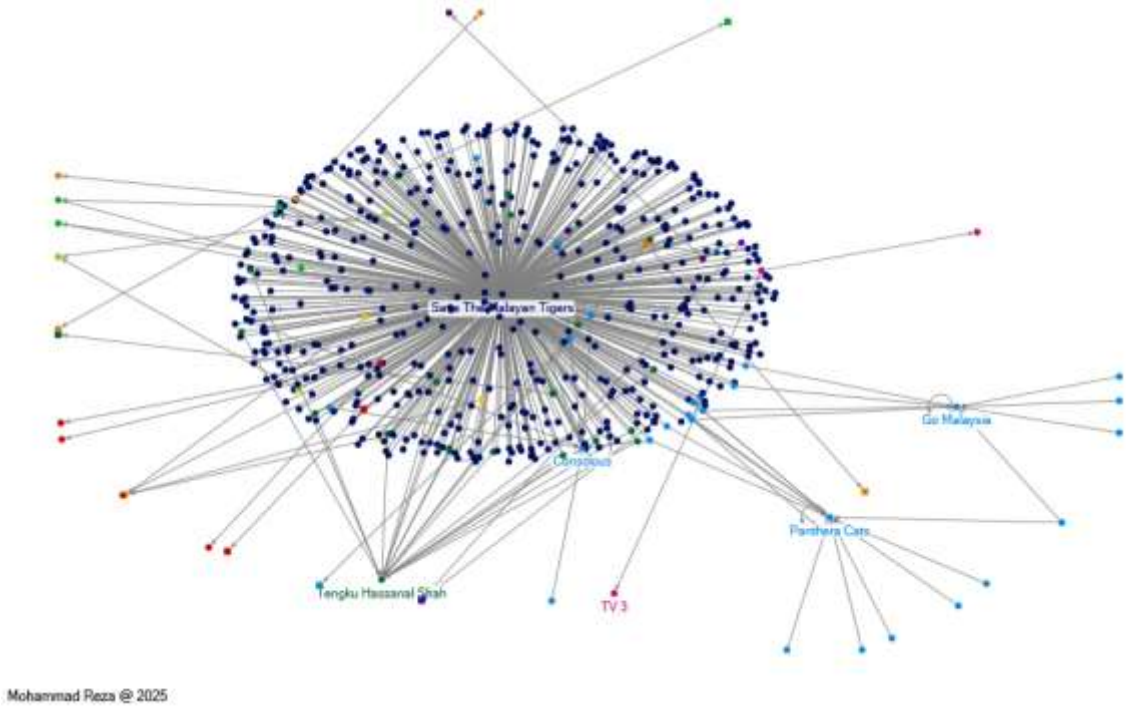

Fig. 3 *Network visualisation showing modular clusters and central-peripheral structure of the @save_the_malayan_tigers campaign*

Social Network Metrics

The NodeXL Pro software also displays the value metrics of each node's influence and connectedness in the @save_the_malayan_tigers Instagram campaign in detail. This metric reflects the engagement of each interacting account and has a strategic position in the flow of communication that is formed. In addition, these metrics help identify key actors and connecting nodes in the social networks that are formed. The indicators analysed in this study consist of in-degree, betweenness centrality, closeness centrality, and eigenvector centrality. The measurement results of the five main nodes present the value of each indicator (Fig. 4).

2	Vertex	In-Degre	Out-Degree	Betweenness Centrality	Closeness Centrality	Eigenvector Centrality
3	save_the_malayan_tigers	540	20	347964,805	0,931	0,706
4	this.7	18	0	170,000	0,335	0,023
5	pantheracats	13	1	6613,011	0,335	0,008
6	_gomalaysia	9	1	4012,370	0,333	0,005
7	getconsciousco	8	3	1292,592	0,489	0,040

Fig. 4 *Social Network Metrics of Top Nodes in the Campaign Network*

The role of the @save_the_malayan_tigers account as the main node is indicated by its values that dominate each indicator. The high values of betweenness centrality (347964.805) and eigenvector (0.931) indicate that these accounts are connected to important nodes in the network and are most frequently connected.

Discussion

The findings of this study reveal that the Save The Malayan Tigers digital campaign on the social media platform Instagram utilises a highly centralised network structure to control the spread of information. The main account acts as a centre for distributing information and attracting the attention of the

audience. This shows the methods used to build public awareness at large.

However, the pattern of engagement shown still indicates the dominance of one-way communication. This is supported by a high betweenness centrality value (437,964.805), indicating central dependency on the main node. The lack of horizontal interaction between users in social networks indicates that most engagement is reactive and has not yet morphed into collective participation. In the context of strategic communication targeting Generation Z, this condition is a challenge because this age group tends to favour participatory, dialogical, and collaborative engagement (Reza et al., 2025). The two-way interaction created in the communication model can flow information that complements each other between the source (communicator) and the receiver (communicant) so that mutual awareness and understanding are built (Mukhamediyarov & Bekaryssova, 2024; Muslim et al., 2022).

This becomes especially relevant given that Generation Z, defined as individuals born between 1997 and 2012, is inherently digital-native and actively engages on visual-first platforms like Instagram (Hazari & Sethna, 2023). Their preference for authentic, visually stimulating content that includes interactive features such as polls, challenges, and peer endorsement indicates the necessity for campaigns to move beyond information transmission into co-creative digital engagement.

Each secondary node can act as an influencer or Key Opinion Leader (KOL) who disseminates information and invites audiences to each of their cluster. Since each influencer has a different audience and level of impact, it is necessary to adapt the style of conveying information carried out to support the campaign (Mukhamediyarov & Bekaryssova, 2024). Secondary nodes that sit around the primary nodes, such as @this.7, @pantheracats, @gomalaysia, and @tv3, act as a bridge between the central account and the community outside the network core. Although the number of interactions is not as large as the primary account, the value that each secondary node has shown is the strategic potential to strengthen campaigns in different sectors and thematic communities.

In digital campaigns, social media influencers have the power to drive trust among Generation Z that they find relevant and credible (Choi et al., 2024). These influencers act as trust-builders, influencing behaviours such as sharing, donating, or volunteering for a cause. Therefore, involving influencers more actively through storytelling, campaign challenges, and user-generated content could dramatically improve campaign resonance.

Further activation of secondary nodes can be done through content collaboration or shared campaigns so that it can open a wider avenue of cross-community interaction. A supporting step that can also be taken is to encourage influencers/KOLs to strengthen their interaction with their followers on the campaign so that the public's trust can be further aroused (Lee et al., 2022). These findings also confirm that the position of nodes in the network greatly determines the success of message dissemination, and the effectiveness of campaigns does not only depend on the number of followers, but also on the patterns and quality of social relationships formed in the digital space.

Moreover, participatory trends among Generation Z, especially in eco-political spheres, reveal a desire not only to observe but to co-shape narratives (Seyfi et al., 2023). Campaigns like Save The Malayan Tigers can leverage this by including co-creation tools such as Reels collaborations, hashtag contests, and local digital ambassadorships to make the audience a meaningful part of the movement.

The highly concentrated network structure shows that the campaign's digital branding has been successfully amplified through the main account. However, to ensure sustainability and long-term impact, a shift from a centralistic approach to a more distributed and participatory social networking model is needed. This can be done by leveraging the interactive features that the Instagram platform has – such as quizzes and polling, activating local community participation, and creating collaboration-based content spaces.

Visual campaigns that are designed with cause-related storytelling and platform-native aesthetics like vertical videos, interactive stickers, and localised Reels content are more likely to capture attention and emotional engagement among Generation Z (Singh et al., 2025). They not only drive reach but also foster a sense of belonging and shared identity within digital conservation movements.

Additionally, the presence of cause-related marketing, as noted by Venus et al. (2025), aligns well with Generation Z's value-driven media behaviour. Integrating donation-linked campaigns or ethical merchandise collaborations into the Instagram strategy could transform passive viewers into active contributors. Authenticity remains a pivotal factor. Campaigns perceived as honest, culturally grounded, and action-oriented are more likely to achieve positive responses among Generation Z audiences (Abbasi et al., 2023). This underscores the importance of transparent communication and behind-the-scenes storytelling, including real-time updates from conservation sites or volunteer activities.

CONCLUSIONS

The study revealed that Malayan tiger conservation campaigns through Instagram accounts @save_the_malayan_tigers had a centralised social network structure, with the main node dominating all metric dimensions. Primary accounts played a central role in disseminating information, shaping narratives, and attracting public nodes within the network. However, the study found that engagement between users was still limited and top-down. The lack of horizontal interaction showed that public participation had not developed into a more open, dialogical, and participatory collaborative space. In fact, for target groups such as Generation Z, the existence of an open and participatory media is the key to the success of a campaign.

Based on the results of the social network analysis carried out, the Save The Malayan Tigers campaign requires several strategic steps to increase the effectiveness of the campaign and expand engagement, especially Generation Z. These strategic steps are: *first*, encouraging horizontal interaction between users; *second*, optimizing the role of connecting node accounts as collaborative partners; *third*, adapting the communication format to the characteristics of Generation Z, such as using a visual, concise, and emotionally interesting approach; *fourth*, engaging local micro influencers to reach grassroots communities; and, *fifth*, implementing network-based evaluations regularly. By implementing these strategic measures consistently, campaigns can move from communication to action. The findings in this study are expected to be a reference for stakeholders in conducting digital campaigns for Malayan tiger conservation.

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