



# UTILIZING SOCIAL MEDIA FOR SOCIAL NETWORK ANALYSIS OF A DISINTEGRATE INTERNET

<sup>1</sup>L.Dharmaraj, <sup>2</sup>J.Fajul Rahuman, <sup>3</sup>P.Logeshwaran, <sup>4</sup>T.Vijaysankar  
<sup>1,2,3,4</sup>II MCA, Paavai Engineering College, Namakkal, Tamil Nadu

**Abstract :** Due to the lack of accessibility to international data, services, and media, the fragmented internet, also known as cyber-balkanization, has gained attention in recent years. While limiting access to the internet has helped the government impose restrictions on online activities in accordance with local laws and regulations, doing so completely isolates the mini network, which causes problems with interoperability, business exchanges, and collaborative storages. As a result, certain global markets, such as those for cryptocurrencies, cloud vendors, gaming companies, and advertising industries, suffer. To comprehend the information flow on the topic in the form of tweets, posts using hashtag networks, and find people's influence and perspective on the internet, a Twitter analysis using NodeXL on fragmented web was conducted.

**Keywords:** Social Media, Internet, Great Firewall, Twitter.

## I. INTRODUCTION

A global computer network that uses standardised protocols to enable communication and information sharing was first given the name "Internet" in 1974 . Some nations reject the idea of "Data for All," despite the global ecosystem's intentions to build an effective platform for consumers to access data from across the world. This position was influenced by a number of factors, including external threats, political clarity, forceful national policies, censorship, and trade conflicts, to name a few . As a result, the "Fragmented Internet" has developed in various regions of the world. To put it another way, the Global Internet is separated into small networks based on geography, and users can only access information and services that are authorised by their national governments .

One notable case study is the 'Great Firewall', which China implemented to control internet usage domestically. This collection of legal rules was put into place to control cross-border internet traffic as well as to restrict access to particular foreign websites that might hurt or incite hatred in society.

In the continuing conflict between Russia and Ukraine, fragmentation of the internet is a major factor in Russia . Since March 2022, Twitter and Facebook have been limited in Russia by the Federal government in an effort to stop the propagation of false information and anti-war propaganda.

This essay intends to investigate the public's perception of adding borders to the otherwise borderless online and the effects of web fragmentation on the ongoing conflict between Russia and Ukraine. In this study, the hashtags #FutureOfTheInternet, #splinternet and #GreatFirewall are used to analyse tweets on the splintering of the internet. Using the NodeXL tool, a study of the amount of tweets, users, and influencers was conducted.

## II. LITERATURE REVIEW

Anderson [1] came to the conclusion that despite the fact that The Great Firewall has cut off China from the global internet, the Chinese government is constantly faced with the dilemma of whether to embrace rapidly emerging new technologies or to shun them because they pose a threat to their long-standing censorship laws.

Nothing different from cutting off their network from the global internet is what the new "Sovereign Internet Law" in Russia that will be in effect from 2019 to 2021 does. These changes were implemented to protect against external threats, maintain border security, and provide a centralised internet system that can be

controlled by the state authority. Evangelinova [2]

however urges Germany and the EU to properly promote the benefits of the internet and integrate important stakeholders and corporate strategies to protect and, if possible, improve its future. Ideally, they should promote a standard long-term strategy for preserving the internet as it exists today—unfractured and truly global—which would involve expanding the scope of existing forums like the Internet Governance Forum of the United Nations.

The M2M or H2H applications of the Internet of Things are significantly hampered by the fragmented internet, according to M.Aly [3], which causes the IoT industry to confront interoperability challenges. Integration challenges with the various IoT applications and services. Additionally, with weakly connected networks, the reuse of data is called into question.

### **III. SOCIAL MEDIA HASHTAG ANALYSIS**

Network analysis can be performed using NodeXL (Network Overview for Discovery and Exploration in Excel), an engaging and user-friendly interactive visualisation tool [9]. A network graph is designed to be represented by this well-organized word and excel workbook template. One of SNA's important traits is finding significant "players" in social media networks. In a network graph, the term "centrality" is used to identify prominent vertices in line with ranking, which is produced by values [4]. The number of nodes or accounts that point inward to a node under examination is known as the in-degree centrality. In-degree is employed as a popularity statistic in this situation [5]. Out-degree centrality is the number of directed linkages specified from the Tweeter. Those Tweeters with a high out-degree value are the main network influencers. From the perspective of social network theory, betweenness centrality is an additional centrality metric to investigate. The frequency with which a vertex appears on the shortest path connecting two other vertices is referred to as "betweenness centrality" [6]. The Tweeters in the network with the highest betweenness centrality are the bridges. The term "closeness centrality" refers to how far apart each vertex in a social network is from each other on average [7]. According to the assumption that vertices

can only send messages to or affect their present connections (vertices), low closeness centrality occurs when the Tweeter is immediately linked to, or "just a hop away" from, the majority of other vertices in the graph network [6]. The connections of the vertex are taken into account while calculating the eigenvector centrality network measure [8], in addition to the degree metric. The three most popular hashtags on the splintered internet—#FutureOfTheInternet, #splinternet, and #GreatFirewall—were used to collect data from Twitter.

#### **III.I Splinternet**

The concept of the "splinternet" refers to the splitting of the internet into several fragments. The following factors may contribute to the partition of the internet: Religion, Politics, Government, trade, and national interests.

Because each fragment is governed by a different set of rules, there are numerous alternative internets that are not interconnected. When this happens, the internet transforms into a walled-off infrastructure that divides into geopolitical sections that resemble physical regions.

#### **III.II. Great Firewall**

The Transmission Control Protocol (TCP) packets that the Great Firewall examines for keywords or sensitive terms. Access will be blocked if sensitive words or keywords are found in TCP packets. The Great Firewall will block additional links from the same system if one link is closed. The results include limiting access to foreign information sources, prohibiting foreign internet services and mobile apps (such as Google Search, Facebook, Twitter, Wikipedia, and others), and requiring international businesses to comply with local laws.

#### **III.III. Future of Network**

Communication technologies, by increasing efficiency and enabling both heightened network usage and more informed judgements, are more than ever offering creative solutions to assist address social, environmental, and economic concerns. The capacity of digital infrastructure to span gaps and make it simpler to effectively meet societal needs in terms of resource utilisation, collaboration, competence transfer, status verification, privacy protection, security, and safety is one of its most crucial

qualities. By enabling them to supply digital goods and services like health care, education, banking, commerce, governance, and agriculture, the communications industry helps other industries.

#### IV. CONCLUSION

As was previously said, betweenness centrality refers to how frequently a vertex, in this case a user, appears on the shortest path between two other vertices/users in a network. With betweenness centrality as the key parameter and their influence on other nodes being inferred using the eigenvector centrality value, the highly linked users for each hashtag are found using a twitter network analysis. The investigation reveals that social media has not yet taken a position supporting or opposing internet fragmentation, despite the fact that the fragmented internet is thriving in the current environment of initiatives to privatise network infrastructure. The primary contributing factor is thought to be a lack of knowledge of the underlying framework and the advantages and disadvantages of a fragmented web.

#### REFERENCES

- [1] Daniel Anderson, "Splinternet Behind the Great Firewall of China: Once China opened its door to the world, it could not close it again", *ACM Queue*, Vol. 10, Issue 11, November 2012
- [2] Epifanova, A. "Deciphering Russia's "Sovereign Internet Law": Tightening Control and Accelerating the Splinternet", *Deutsche Gesellschaft für Auswärtige Politik e.V. (DGAP Analysis*, 2), 2020
- [3] M. Aly, F. Khomh, Y. Guéhéneuc, H. Washizaki and S. Yacout, "Is Fragmentation a Threat to the Success of the Internet of Things?", *IEEE Internet of Things Journal*, vol. 6, no. 1, pp. 472-487, Feb. 2019
- [4] Wang, Z., Tan, Y., Zhang, M.: Graph-based recommendation on social networks. In: 2010 12th International Asia-Pacific Web Conference, pp. 116–122. IEEE, April 2010
- [5] Miller, P.R., Bobkowski, P.S., Maliniak, D., Rapoport, R.B.: Talking politics on Facebook: network centrality and political discussion practices in social media. *Polit. Res. Q.* 68(2), 377–391, 2015
- [6] Hansen, D.L., et al.: Do you know the way to SNA? A process model for analyzing and visualizing social media network data. In: 2012 International Conference on Social Informatics, pp. 304–313. IEEE, 2012
- [7] Struweg, I.: # Liberty breach: an exploratory usage case of NodeXL Pro as a social media analytics tool for Twitter. In: *ICMBD Conference Proceedings*, pp. 153–163, 2018
- [8] Lohmann, G., et al.: Eigenvector centrality mapping for analyzing connectivity patterns in fMRI data of the human brain. *PLoS One* 5(4), e10232, 2010
- [9] NodeXL, <https://www.smrfoundation.org/nodexl/>, Accessed on 9th May 2022 at 20.00 IST