Influence and power are used in social networks by actors that are connected with many powerless actors according to Bozzo and Franceschet. Zang provided a targeting mechanism (in essence leveraging weaker nodes) 'potentially interested in the interacting with focal brands.'

These network analysis and targeting ideas are highly relevant in current strategic events from an information operations (IO) perspective (S.94, JP 3-13). Researchers have identified how weaker power nodes (termed vulnerable populations) are targeted for influence as a tool of war (Svetoka, 2016). Others claim that nation-actors have long ago realized connectivity as a weapon and started exploiting it (Giles, 2017) as pointed out over 15 years ago in a public DoD IO doctrine (JP 3-13):
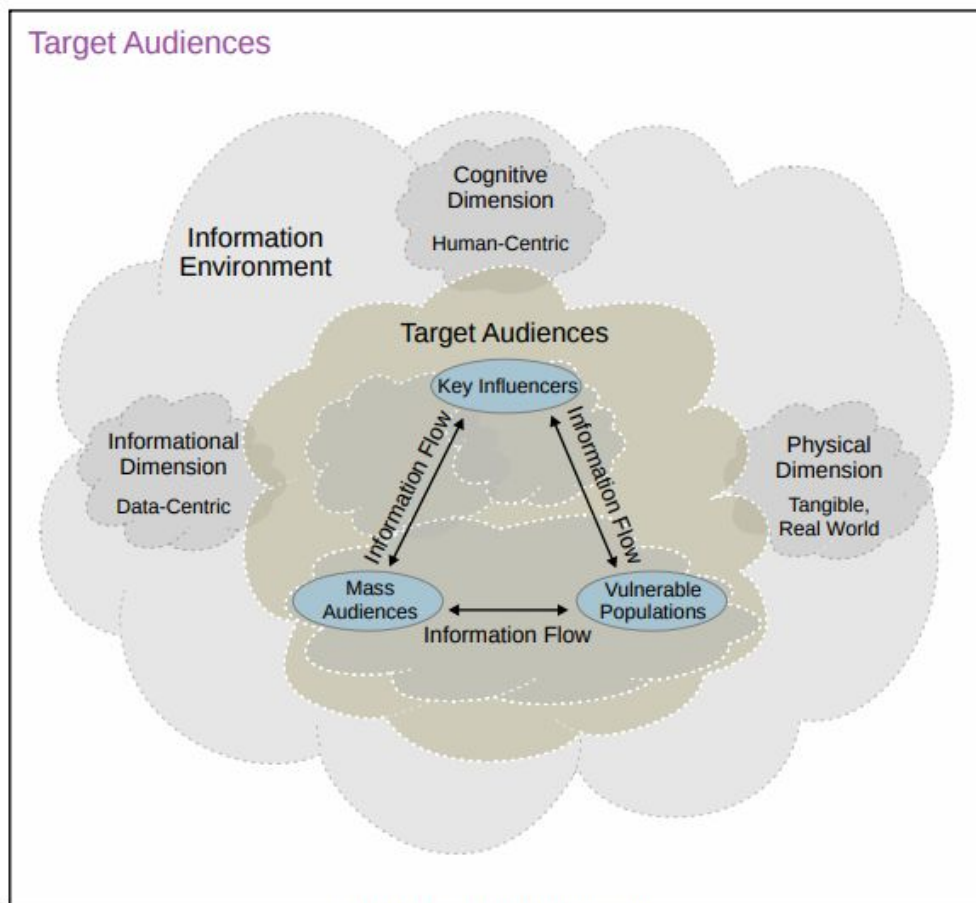

Figure I-2. Target Audiences

Commonalities between the two papers include the concepts of neighbors, correlation, eigenvector centrality. For eigenvector centrality, Zhang uses these concepts for the development of Brand Rank and while Bozzo confirms support through gas network bargaining analysis.

Unfortunately, it is not hard for me to imagine the type of users that will 'Like/Follow brand X's page for a chance to win Y,' reshare fake news, accept apps that require lots of permissions, and unknowingly host political rallies seeded by foreign nation actors. The term vulnerable seems more appropriate to me than 'low-power,' but either way, my guess is the correlation between the two is high.

I also observed strong similarities between these techniques with IO based network analysis (Brown, 2012 and Marcellino, 2017). Information sharing is valuable, and the connections between populations on either side are telling. This information can be prescriptive to influence perceptions, decisions, or behaviors of individuals.

I liked reading how the authors scraped 2.1TB of user data using Facebook's Graph API. I tried reproducing the data extraction process outlined in the methods section, but it now seems this approach is no longer valid. The site's recent developer message status indicates these functions are under review and currently restricts geographic location, post text, and user id extraction without individual user acceptance of application-level permissions.

These papers triggered a question on if recent research has examined how subgroup homophily impacts one's ability to stay informed. The results from Norbou, 2016, suggest that homophily tends to limit information sharing and that only a few key individuals dominate information sharing. I'm curious to know if others have seen research indicating different homophily effect findings.

References:
Bozzo, E. and Franceschet, M., 2016 A Theory on Power in Networks, retrieved from
(https://uwli.courses.wisconsin.edu/d2l/le/content/4058766/viewContent/24907351/View)

Zhang, K. et al., 2016 Large-Scale network Analysis for Online Social Brand Advertising, retrieved from
(https://uwli.courses.wisconsin.edu/d2l/le/content/4058766/viewContent/24907352/View)

S.94 Counteracting Russian Hostilities Act of 2017, United States Congress website, retrived from
(https://www.congress.gov/bill/115th-congress/senate-bill/94)

Joint Publication 3-13, Information Operations, Joint Doctrine for the Planning, Preparation, Execution, and Assessment of Information Operations Across the Range of Military Operations, 2014, retrieved from
(https://dod.gov)

Svetoka, S. et al., 2016 Social Media as a tool of Hybrid Warfare, NATO Strategic Communications Centre of Excellence, retrieved from
https://www.stratcomcoe.org/download/file/fid/5314

Giles, Keir, 2017, Countering Russian Information Operations in the Age of Social Media,, retrieved from Council on Foreign Relations website
(https://www.cfr.org/report/countering-russian-information-operations-age-social-media)

Brown, J., 2012, Improving nonlethal Targeting: A Social Network Analysis method for Military Planners, Naval Postgraduate School retrieved from
(http://www.dtic.mil/dtic/tr/fulltext/u2/a573815.pdf)

Marcellino, W. et al., 2017, Monitoring Social Media: Lessons for Future Department of Defense Social Media Analysis in Support of Information Operations, RAND Corporation retrieved from
(https://www.rand.org/content/dam/rand/pubs/research_reports/RR1700/RR1742/RAND_RR1742.pdf)

Buchler, et al., 2016 Mission Command in the Age of Network-Enabled Operations: Social Network Analysis of Information Sharing and Situation Awareness, Front Psychol, retrieved from PubMed.gov
(https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4916213/)