

# Classification Social Network Theory

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## **ABSTRACT:**

The structure, patterns, and dynamics of social networks and interactions are examined through the lens of social network theory, a theoretical framework. An overview of Social Network Theory, its fundamental ideas, and its uses in comprehending social phenomena are given in this abstract. According to social network theory, people are seen as being part of a network of social relationships rather than as independent individuals. It investigates how these ties affect people's actions, social interactions, and the communication of ideas and power within a network. The abstract digs into the core ideas of social networks, such as nodes (people or other things), ties (relationships or connections), and the general structure and properties of networks. Key metrics for social network analysis are also covered, including centrality, density, and network cohesiveness. Numerous applications of social network theory may be found in many disciplines, including communication, psychology, organisational behaviour, and sociology. It has been used to explore a variety of phenomena, including the transmission of attitudes and behaviours, social influence, organisational cooperation, and information dispersion. Researchers may better understand the social fabric of human relationships by using Social Network Theory. They can also recognise important people, comprehend network dynamics, and create interventions to enhance social outcomes. This summary emphasises how crucial it is to comprehend social networks and how they affect both individual and group behaviour. It also lays the groundwork for future investigation and application of social network theory in numerous circumstances.

## **KEYWORDS:**

Connection, Information, Network, Research, Social.

## **I. INTRODUCTION**

A theoretical framework called social network theory looks at the patterns and dynamics of social interactions between people or institutions. It focuses on comprehending how these social ties affect different behaviours, the flow of information, social influence, and the general social structure. According to social network theory, people are seen as linked nodes within a wider network rather than as discrete, unconnected entities. Since people have always developed social ties and networks throughout history, the study of social networks is not a recent development. To analyse and comprehend these networks, however, Social Network Theory offers a methodical methodology, revealing the underlying dynamics and patterns that influence social interactions. The understanding that social ties have a considerable influence on people's behaviours, attitudes, and access to resources is the basis of social network theory. These connections may be made via friends, family ties, professional contacts, or internet encounters, among other things. The structure of these connections, the links that bind people together, and the significance of these connections for both individual and group outcomes are all examined by social network theory [1], [2].

The idea of nodes and linkages is the foundation of social network theory. Ties indicate the links or relationships between nodes, which might be persons, businesses, or any other kind of entity inside the network. Researchers may comprehend the dissemination of behaviours or ideas, identify important people, investigate the flow of information, and analyse the general structure and dynamics of the

network by looking at the connections and linkages between nodes. Numerous disciplines, including sociology, psychology, organisational behaviour, and communication, have used social network theory. It offers insightful information on how social networks influence group dynamics, decision-making, and the dissemination of knowledge. Examining network properties like centrality, density, and network cohesion may assist identify important actors, subgroups, and the network's overall connection. Researchers employ network analysis tools and metrics to do this[3], [4].

Numerous practical applications of social network theory exist. Through the identification of important influencers and the facilitation of efficient communication channels, it may help organisations with management strategies, team dynamics, and collaborative initiatives. It may inform the design of interventions in public health by using already-existing social networks for behaviour modification and health promotion. It may be used to find prominent persons in social media and online groups and to comprehend how information spreads. A framework for examining and comprehending social interactions, their structures, and their effects on both individual and group behaviours is provided by social network theory, in conclusion. It has many applications across a range of industries and provides insightful information on the dynamics of social networks. Researchers and practitioners may better understand human relationships, create useful solutions, and enhance social outcomes by investigating social networks and implementing Social Network Theory. A comprehensive viewpoint on social interactions and ties is provided by social network theory. It acknowledges that people are a part of social systems and that their relationships with other people have an impact on their behaviours and attitudes. Researchers may find hidden patterns, pinpoint powerful people, and learn how information, resources, and influence move across social networks by analysing social networks[5], [6].

The structure and traits of social networks are important, according to social network theory. Information sharing, social support, and cooperation may all be impacted differently by various network topologies, such as dense networks with numerous interwoven links or sparse networks with further connections. The theory also looks at how network links like friendship, trust, or affiliations with certain professions affect how ideas, norms, and behaviours spread within the network. With the growth of internet platforms and social media, the research of social networks has accelerated significantly. Online social networks provide a wealth of information for studying how relationships emerge and change over time, as well as how knowledge and power circulate within virtual groups. The dynamics of online social networks, the function of prominent users, and the methods of information dissemination in digital settings are all better understood by academics thanks to the social network theory[7], [8].

Social network theory also has applications in a variety of sectors. Understanding social networks in organisational contexts may enhance cooperation, communication, and creativity by pointing out people who act as information brokers or resource gatekeepers. By using current connections to encourage healthy behaviours and stop the spread of illnesses, social network analysis may help in the design of interventions in the field of public health. Social networks provide useful information on customer behaviour, word-of-mouth marketing, and social impact in marketing and advertising. Researchers may better grasp the intricate network of social ties and interactions that mould people's lives and have an impact on societal outcomes by using Social Network Theory. It enables a more detailed study of social events and emphasises the interaction between social structure and human activity. The continuous study of social network theory has the possibility of bringing new insights into the complexity of human social dynamics and aiding in the creation of successful interventions and tactics across a variety of fields [9], [10].

## II. DISCUSSION

A multidisciplinary approach to analysing social events, social network theory is focused on the connections and divisions that actors' interactions produce when viewed as a whole. Organisations typically exist for the express purpose of establishing interaction and exchange with other entities, whether that exchange is economic (for example, corporations), social influence (for example, nongovernmental organisations), humanitarian (for example, charities), or another currency. They do

this by binding and coordinating the inward and outward flows of information and resources. Social network theory is a branch of organisation and management theory that sparks a number of productive research areas. Before discussing some of the particular difficulties of doing research in this tradition, this section first summarises the basic aspects of social network theory and the various research streams in this field. It then outlines some significant contributions social network theory has made to organisation theory in general by highlighting ideas that are shared by those study areas. Finally, a brief bibliography of publications and books that reflect social network research in the management and organisational management fields is given [11], [12].

## Fundamentals

The twin claims made by social network theory that connections and structure matter distinguish the social network viewpoint from the majority of other management research methodologies. Relationships are important because they operate as the conduits via which social interactions and exchanges take place between different players (people, groups, organisations, etc.). Structure is important because it generates possibilities and limits for players holding certain positions in the network as well as for the network as a whole and for various areas within the network.

A group of actors and the connections between them make up social networks. Typically, a single sort of connection (such as a relationship, piece of advice, or transaction) represents a single network, however research often takes into account simultaneous use of various networks (relationships). Theories focus on the results for the actors as people (What are the repercussions? Do companies with more social interaction perform better than those with less? ), outcomes for each pair of actors in the network (Does having a friendship tie lead to creating a business tie? ), for groups of actors within the network (Do departments with more internal trust ties perform better? ), or for networks as a whole. In each of the aforementioned examples, the "actors" in the network were specific individuals, but the study questions in each case looked at them alone, in pairs, in groups, or as a single collective.

However, actors may also be aggregated into collectives (such as teams or organisations). For instance, in a network where the participants are organisations, the industry may be thought of as a single collective that responds to external shocks more or less fast depending on the sector's alliance network density. The vast majority of well-known social network studies that are connected to management theory may be categorised as belonging to one of three schools of thought: relatedness and topology, embeddedness, or egonet composition. However, a comprehensive list of all such studies would probably need a book of its own. Following is a short explanation of each strategy along with some representative results, constructs, and operationalized variables.

## Relatedness and topology

Although topology relates to the form of the network when regarded as a whole and relatedness refers to the direct connections between individual players in the network, they are often taken into account concurrently. The most fundamental strategy is, however, to look at the influence of direct connections between actors. The behaviours of organisations and the individuals that make them up are impacted by possibilities and restrictions that are created by being or not being linked. Physical proximity between people (closer proximity increases the likelihood of information sharing), board interlocks (companies with shared board members exhibit similar governance behaviours), and a host of other relationships that range from offering the potential for interaction (such as physical proximity or demographic similarity) through realised exchanges (such as the flows of personnel among companies) are all organizationally relevant relationships.

Since each individual link contributes to the formation of a structural pattern (a social system), the way a single player is positioned within the network as a whole also generates possibilities and restrictions. As a result, although some research focuses on direct interactions (those with more connections inside an organisation report better job happiness), a large body of research examines the structural consequences of those connections (having a bridging role in a friendship network lowers job satisfaction). These assessments take into account certain players, particular groups, or the whole

network. For instance, differences in people flows between organisational players in two distinct areas (two networks) inside the networks provided insight into the relative success of each region.

The degree of relatedness in social networks may be measured in a variety of ways. The idea of centrality is the most popular and succinct technique to quantify them at the actor level. There are many ways to measure centrality, but most of them operationalize one of four concepts: (1) the number of direct or immediate connections an actor has (degree centrality), (2) the degree to which the actor is linked to other highly connected actors (eigenvector centrality and Bonacich power), (3) the degree to which the actor can access other actors in the network (e.g., closeness centrality), and (4) the degree to which the actor serves as an intermediary between other actors in the network. Although several of these have group-level equivalents, density (the proportion of potential linkages that actually exist) is a popular way to assess relatedness at the group and network levels.

Other research focuses on the topologies of players' local networks, even if certain centrality metrics (such as betweenness) capture aspects about the actor's location in the global network structure. Ron Burt has found many benefits to becoming a broker by filling in what he deems a structural hole in an established body of literature. Particularly, when two additional players (referred to as alters) are linked to the primary actor (referred to as ego) but are not connected to one another, ego has considerably more autonomy, control, and knowledge than if the alters are connected to one another. According to research, filling structural gaps may have a variety of beneficial effects on a person. Effective size (sometimes referred to as effective size) is operationalized as the main concept in this line of study. Constraint (the degree to which links among ego's alters restrict ego's capacity to withdraw from the network) and degree centrality discounted to account for connections among ego's alters. Other structural research (such as finding abstracted social roles based on patterns of structural positions) has also significantly contributed to management theory, even if the structural holes approach is likely the most prominent stream of management based on network topology.

### **Embeddedness**

Although both techniques are employed with individual and collective actors, the structural hole viewpoint often focuses on individual players, while another school of study that focuses more on interorganizational network structures highlights the significance of embeddedness. According to the embeddedness theory, interactions and exchanges—particularly economic ones—typically take place in the framework of a wider social environment. Multiplicity and cohesion are two effects of this. Multiplexity refers to the fact that trading partners often engage in a variety of interactions. For instance, social interactions frequently accompany business transactions, and these interactions may have an impact on how those transactions are handled. Cohesiveness is the propensity to forge new connections or fortify existing ones inside a predetermined group as opposed to making connections outside. Organisations may minimise risk, build trust, and communicate information more effectively by being embedded with one another in various ways. As a result, transaction costs are reduced due to less monitoring and formalised contracts. As a result, being a part of a more tightly knit community exerts normative restraints on behaviour, allowing a kind of network governance that both generates economic value for community members while restricting exploitation. Embeddedness is operationalized through tie strength (evaluating the quantity of transactions or degree of trust rather than just determining whether a relationship exists or not) and multiplexity (the number of various types of ties between any two actors), in addition to density and the identification of these communities with cliques and clusters.

### **Egonet composition**

Social network theory acknowledges that actors also bring certain traits with them and that these characteristics interact with and may impact or be influenced by patterns of links, while the work discussed above concentrates on relationships and their aggregated structure. For instance, research consistently demonstrates that in a variety of circumstances, friendship bonds are more common inside than between certain demographic groups (such as gender and ethnicity). The selection of new connections based on existing similarity is explained by the phenomena known as homophily. Through

influence, the process may also operate in the other way, as when one adopts beliefs or methods that are similar to their own. To model the concept in either direction, methods testing for autocorrelation (such as Moran's I) or adoption and other changes in state (such as logistic regressions and survival analyses) are frequently used. When influence causes autocorrelation, the network linkages are seen of as conduits via which influence travels from alters to the ego. This metaphor drives a lot of the study in this field, where an actor's (or ego's) relationships operate as a conduit for the ego to access the material and immaterial resources of its alter. Ego has access to the same technology as its alters, but it can also buy things, profit from experiences, and take on their status. So, at least in part, the characteristics of the ego's alters may be used to describe it. Therefore, an entrepreneur who has \$100,000 accessible in total for investment may be separated from one who only has \$5,000 available. This viewpoint is used in research on egonet composition, which assigns ego characteristics based on the distribution or aggregation of its alters' attributes, including measures of qualitative variation (such as heterogeneity) as well as aggregates of quantitative data (such as sums or averages).

### **Importance**

Social network theory has made numerous significant contributions to organisation and management theory in general, in addition to the particular theoretical contributions mentioned above.

### **Informal networks**

The role it has played in establishing the significance of informal networks in organisations and offering a systematic framework to represent them and analyse their influence is one contribution that goes across the many theoretical perspectives discussed above. For instance, in a widely referenced research, David Krackhardt shows that a tiny high-tech company's unionisation effort failed, at least in part because the union representative felt quite alone in the informal (friendship) network. Despite playing a key role in more official networks (reporting, advising), the union representative felt quite alone in the informal (friendship) network. Rob Cross, Stephen Borgatti, and Andrew Parker found that although a virtual team was put together within a large consulting organisation, it did not function as a team because there were numerous structural holes in the informal information-sharing network and one person mediated information between two informal groups that emerged among two different skill sets. This study on topology was also widely cited. Disconnects of this kind between official and informal networks typically account for unanticipated organisational results. However, in actuality, comprehending both kinds of networks is often necessary to comprehend such results.

### **Perception and reality**

Social network theory has significantly advanced our knowledge of the relative significance of perception in social systems, even if it is far from being the only champion. This area of network research has demonstrated that perception has distinct effects on actors, both as the perceiver and as the object of perception (for example, people who are perceived to be close friends with powerful people are known to perform well). Again, the study is expanding our knowledge of why, when, and how perceived and real networks affect behaviours and results. It also relates to the many methodologies described above.

### **Structure and agency**

Finally, social network research has advanced the discussion of structure and agency in organisational theory. Despite having its roots in a structural approach, social network theory has long acknowledged the role that individual variations play in the formation of social institutions. The tradition around gender impacts across a variety of theoretical concepts may be the most rich (for example, gender homophily has a long history, while Ron Burt's work on structural holes discovered gender mitigated the consequences of occupying structural holes). Ajay Mehra and others have more recently strengthened the argument for individual agency by demonstrating that other personality traits (self-monitoring, for instance, affects not just the places people sit in the network (high self-monitors occupy more structural voids), but also how they behave).

Hold those various positions as a result of their conscious decisions. Furthermore, back in 1985, Mark Granovetter, who is perhaps best known for his "strength of weak ties" theory (which belongs to the relatedness and topology category and is connected to Ron Burt's work on structural holes), proposed that social network theory could bridge the gap between actors in social systems who are under- and oversocialized. By presenting examples that separate actors' individualistic agency from systemic and structural impacts, network research has made significant contributions in this area. Last but not least, it's crucial to remember that the three fundamental approaches mentioned above (and the distinct theories they stand for) and the three broader contributions represent a larger body of work that has advanced our understanding of organisational phenomena and had an impact on managers on a practical level.

In reality, managers have used social network theory in a number of contexts to enhance a range of organisational results. For instance, the organisation was able to undertake structural and policy adjustments to effectively foster better cohesiveness in the virtual group, as obvious when examined 9 months later, thanks to the efforts of Rob Cross, Steve Borgatti, and Andrew Parker, who were previously highlighted. Similar to the above, Ron Burt's research on the moderating influence of gender on structural gaps has practical ramifications for how senior managers can use various networking strategies when mentoring both men and women. Additionally, David Krackhardt has shown that managers who are familiar with their organisational networks reap significant advantages. As a result, managers who take the time to examine their networks and learn how to do so effectively have been able to boost their influence inside the company. These three instances only serve as a small sample of the power of social network theory as it is applied to management and organisations.

### III. CONCLUSION

Understanding the structure, patterns, and dynamics of social connections and interactions may be done with the help of social network theory. Researchers may learn more about how people are related to one another, how information and power are distributed throughout the network, and how social structure affects both individual and group behaviour by studying social networks. The importance of social relationships in shaping people's views, behaviours, and access to resources is highlighted by social network theory. It emphasises how people are a part of a greater social environment rather than being in isolation. The theory acknowledges the importance of network links and how they affect the propagation of ideas, behaviours, and information as well as social support. Learning about social networks has applications in many different fields. By identifying key players and communication routes, it may help organisations with management strategies, team dynamics, and cooperation initiatives. By using already-existing social networks for behaviour modification and health promotion, it may direct initiatives in public health. It may assist in understanding information distribution procedures in online communities and identifying prominent members.

Technology has advanced along with social network theory, notably with the emergence of online social networks. Researchers have access to abundant data from the analysis of digital networks to study the emergence, development, and effect of virtual communities. The idea helps us comprehend the intricacies of online social interactions and their repercussions on a deeper level. In general, Social Network Theory provides insightful information on how relationships, social structure, and individual behaviours interact. Researchers may discover hidden patterns, pinpoint powerful people, and comprehend how information, resources, and influence are distributed throughout networks by analysing social networks. The use of social network theory enlightens interventions and tactics for social change and better results while also contributing to a better knowledge of human social dynamics.

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