

Network Cliques and Organizational level of Influence among Managers: A Social Network Analysis

Lokhman Hakim Osman

School of Management, Fakulti Ekonomi dan Perniagaan, Universiti Kebangsaan Malaysia, 43000
Bangi, Selangor, Malaysia
lokhman@ukm.edu.my

Abstract: Responding to demands for transformed networking practices requires new forms of knowledge. Given their scale and complexity, networking problems can no longer be solved by way of extending intermediaries. Recent research on alternative approaches has focused on the understanding network structures formed by interactions between heterogeneous actors. Rather than linear extensions, network theory highlights cliques structure as a major determinant of performance derives largely from the frequent finding that managers that are embedded with influential connections are at increased likelihood of becoming influential themselves thus opening rooms for new knowledge and innovative technology and practices. It is suggested that the strong and consistent cliques are at least partially responsible to managing network complexity. This paper contributes to our understanding of such facilitation by investigating the networks in which managers exchange information. We report findings based on the study of managers in a maritime industry. Network surveys identified who the managers contacted for inputs and who they had talked to about the information by 6 months earlier. Snow-balling interviews collected former statements about their most valuable contacts and these statements have been analysed. The network analysis shows that managers with densely tied and occupationally homogeneous contacts grew their networks more than did managers with contacts that are loosely tied and diverse. The network analysis reveals an important principle: managers's value knowledge delivered by persons of homogenous connections rather distance ones. It is argued that social network analysis is an appropriate method for studying influence development use in the context of networked organizations.

Key words: *network; organizational behavior; social network*

Introduction

In a network structure, formal authority has relatively little role in determining selection of actions [1]. In a network underpinned by multiple decision points, most actions and changes are driven by the nuance of influence [2]. The reputation for great influence is a valuable commodity in a network of diverse managers [3]. Because of its value, network and organizational behavior scholars have long sought to capture the essence behind the development of influence among managers and its impacts on performance.

One of the particular concerns of the scholars and managers alike relate to the understanding of the distribution of influence in, managers network structure. Because managers, embedded in a network, have neither formal power nor formal authority, they rely largely on their level of influence for their goal attainments [4]. As

a result, sharing of information about which managers are more influential often took place. Studies by social network scholars have insisted regarding the emergence of the more influential managers as a result of information sharing consensus [4, 5]. As a result of the seminal findings, scholars have attempted to model the influential level of managers as a single quantity [6]. According to this school of thought, the degree of influence that managers may possess would depend on stability of the managers as well as its position in the network structure.

In a network structure, it is common to find managers who are well known as influential (or at the core), and those who are considered to be irrelevant (or on the periphery) [7, 8]. However, it was found that the reputation for influence in a network is diverse and fragmented throughout the different level of network structure. What this entail is that, managers may be

Corresponding Author: Lokhman Hakim Osman, School of Management, Fakulti Ekonomi dan Perniagaan, Universiti Kebangsaan Malaysia, 43000 Bangi, Selangor, Malaysia, lokhman@ukm.edu.my

considered to be influential in one sub-network structure, and a weaker level of influence in another. Is it possible to consider this variation in the network structure? Can the variation of managers' influence degree be assessed?

In this research we argue that the embeddedness of managers in clique structure is an important explanation for the differences in the level of influence. Managers evaluate and involve in selections of actions through their relations and communication for information, referral activities as well as contractual obligations [9]. As managers are involving or embedded in information sharing activities, its multiple roles and the resulting performance will be visible and shared to the other members of the network [10]. Evaluation and judgment of the managers' performance are shared among the managers resulting in the heighten managers' reputation in the network structure [11]. As a result, evaluating the different ways that managers may be connected or disconnected in a network structure may help to account for how managers evaluate and observe other managers degree of influence.

This research is based on network survey interview with managers of organizations in a maritime industry whom are aspired environmentally-conscious manufacturers and suppliers for the production of Rigid Hull Inflatable Boat (RHIB) in East of Malaysia. This research models the influence in the network structure as function of clique structure using the Social Network Analysis (SNA) approach. The findings of this study state that high level of influence in a network and sub-networks would depend on the type of relations and pattern of clique embeddedness of the managers in the network and sub-network structures. This research concludes by explaining the impact of the research findings upon the industry and by suggesting future research direction on network embeddedness and network dynamics.

Literature Review

The Nature of Network Embeddedness

Within a network structure, managers seek for inputs to determine which member of the network those exert influence over others in network decisions making. However, network complexity often sends mix signal creating uncertainty upon which managers actually exerts influence within the network structure.

The source of complexity in the network comes the diversity in attributes among the embedded managers [15]. Diversity is attributes among the embedded managers can be the results of individual capacity, size, geographical locations, resource, leadership's culture and operations [16-18]. Decisions and actions made in a network structure may not only be the results of good network relations but also the diverse attributes of the managers. Thus, even if an managers may seems to exert influence over a decision or actions within the network structure, it is difficult to ascertain that, it is, the

fundamental reasons why such particular actions were taken. In such condition, organizations rely on the social capital to facilitate and protect their interests against unintended acts from other managers [25]. For example, opportunist action by an organization amid dealings with different organizations may result in the opportunistic organization picking up an awful notoriety as news on its corrupt actions. This action will certainly be imparted to different other organizations that are legitimately or by implication associated with the exploited organization. Therefore, the terrible notoriety of the organization may cost it to lose potential customers, as its guarantees and goals are presently seen with less trustworthiness by others. In this specific situation, influence works as the administration instrument in embedded relationship.

Because the reputation for influence spread in network structural voluntarily in network structure, some managers embedded in a network become already known as being more influential than others (Kwahk and Park 2016). For example, the Green Peace, EcoKnights and Grameen Bank are widely known to be influential sustainability proponents even by other organizations or individuals who are not a close observer of sustainability. Nevertheless, there are managers of a network who build their influence in a much smaller and close-knit of a network of relations. In a social network setting, the continuum of influence development from one end of close-knit relations to another of a universally known reputation is a commonly observed outcome of network embeddedness. Hence, is it fair to make claims that one manager is truly influential because it portrays possession of a high level of network reputation for influence while another managers is not because its degree of reputation for influence is low? The main concern is that, at times, reputation can be a misleading judgment of network embeddedness (Ozdemir, Moran, et al. 2016). This is because, an influential manager in a network structure can sometimes be easily identified, but at times, these influential managers may also be undetected (Woodall, Zhao, et al. 2017). Thus, at a minimum, there is loose connectivity between what is reputed as influential and the actual influence. As long as the loose connectivity persists, managers of the network will continue to make an inconclusive judgment about influence, based on the noise of reputation. This gap between the reputation for influence and actual influence of the embedded managers presents itself as a worthy subject of investigation.

A Theory of Network Cliques and Influence

A clique is a sub-set of a network in which the actors are more closely and intensely tied to one another than they are to other members of the network [32]. In this investigation, we argue that clique is seen as a sub-network of relations over the formal network of relations that the organizations are embedded in. Its sub-network would incorporate relations, for example, kinship, and unselfish connections, advance trust, fine-grained data

exchange, and joint critical thinking action between accomplice organizations [5, 13, 25, 33, 34]. The principle debate of this research is that network members embedded in network, values cliques in a sub-network as a key tool to remove the uncertainty of influence. Two premises form the basis of this debate. First, network members use cliques as guides to remove uncertainty in its decision making of which network member is more influential. This is because cliques members are more likely to pay attention to information obtained from the connected network members rather than the disconnected. Thus sub-network members are more likely to think of their cliques (directly and indirectly connected network members) as influential as that the isolates (disconnected network members).

Under normal network relations, long term commitment between firms or associations is manufactured to guarantee future responsibilities and participation. Instances of this formal network coordination incorporated between firm relations, include, contract ties and joint programs [7, 17, 36]. An essential norm for the network coordination between firm connection is the presence of a various leveled of cliques to deal with the administration of the network. In this article, we posit that clique members are less uncertain about the activities of the network, giving them a better estimate of the network member level of influence.

Clique as Alternative Explanation

In order to determine the impact of network embeddedness in shaping network member level of influence, it is also important to account for an alternative reason for how network members foresee influence. In this article we argue that an important alternative explanation is network cliques. A clique is a sub-set of a network in which the actors are more closely and intensely tied to one another than they are to other members of the network [32]. Network members who have more connections to different network members might be in better positions. Since they have numerous ties, they may have multiple approaches to fulfill needs, and henceforth are less subject to different people. Since they have numerous ties, they may approach, and have the capacity to approach a greater amount of the assets of the system. Because of the numerous ties, they are regularly become the middle man in trades among others, and can profit by these positions [37-42]. Thus, an exceptionally basic, yet frequently compelling proportion of a network member influence potential is their cliques.

In network, in the event that a network member receives numerous ties, they are regularly said to be prominent. That is, numerous network members try to make connections to them, and this may demonstrate their level of importance. Network members who have uncommonly high cliques overlap can trade with numerous others, or make numerous others mindful of their perspectives. Network members who show high

cliques are frequently said to be highly influential. Thus, this study will test the hypothesis that as clique members think of a network member as influential the likelihood that the network members reputation influence increases as strength of the clique member ties with the other network members in the network relation increases.

Research Method

The focus of this research is situated on cliques' network members' embeddedness in a network structure. As indicated by [32], standard analysis and investigation are not adroit at estimating relations. This is since typical measurable examination repudiates the presence of connections between firms in a network through its supposition of autonomy of perception. Be that as it may, the network approach, all the more explicitly the Social Network Analysis (SNA), centers around the relations between firms, as well as the relations and the ramifications of the connections.

Because of the above condition, the research sample for this investigation comprises of the all the organizations working in the upstream supply network of APMMHQ-1 identifying with the sustainable production and supply of parts and materials for the creation of Rigid Hull Inflatable Boat (RHIB) to the APMMHQ-1. In APMMHQ-1 sustainable production network, the RHIB is a little, quick specialty that got the most noteworthy interest from the market. Since its intense interest and high use adrift, there is a requirement for activities towards manageable structure and creation of the RHIB. In this manner, the upstream supply network for the RHIB item is a standout amongst the most dynamic network of firms in the APMMHQ-1 huge network.

The initial step of inter-organizational network investigation is to decide the number of inhabitants/network members in the examination to be overviewed. There are two inspecting units in this examination, to be specific: the organizations that embedded the APMMHQ-1 upstream supply network for the item RHIB and the ties or connection between them. The sampling frames for the organizations and for the connections between them are nested. In network studies, the method used to sample relations is part of the survey instrument.

In light of this finding, the reaction rate was 97.3 percent. Of the 37 firms drew closer, the researcher got returned reviews from 36 respondents. Broad follow-up systems added to the high level of reaction.

Albeit a few system specialists, for example, [35] supported the gathering of network information from the entire system populace, [22] expressed that a level of reaction of higher than 90 percent is adequate with the non-respondents to be incorporated into the examination as the confines.

Results and Discussions

Using the network analysis program i.e. UCINET and the spring embedding algorithm, the following results were found regarding cliques and influence in

network structure. Table 1 shows the dendrogram of the cliques that exist in the network. It is the visual description of the connectivity of the managers through their respective cliques.

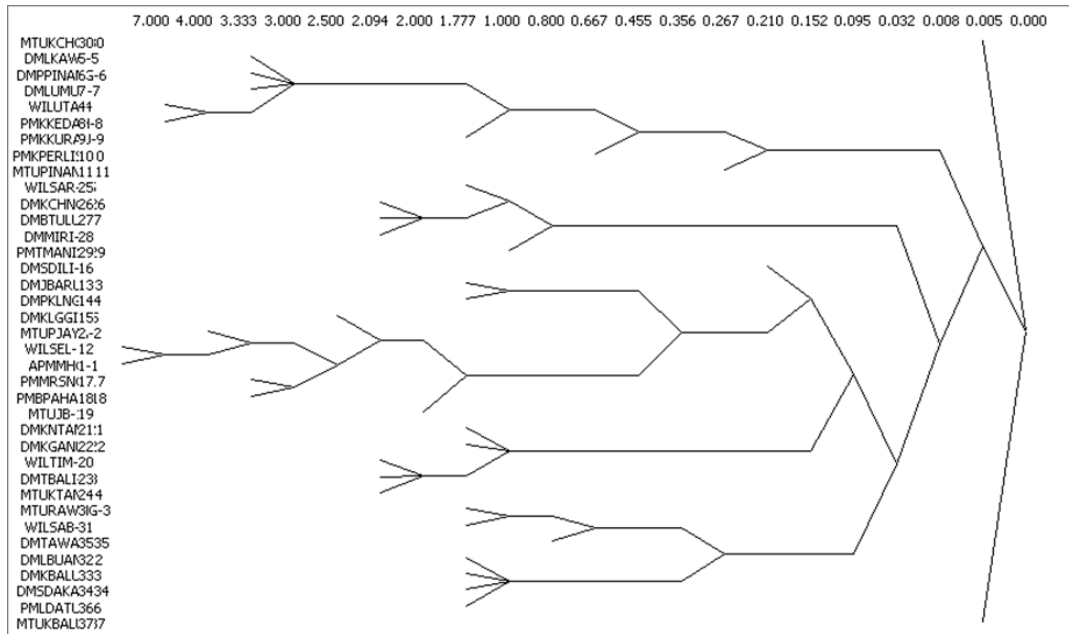


Fig. 1. Dendrogram of cliques in the RHIB network Example of a figure caption.

Table 1 shows how "adjacent" each actor (row) is to each clique (column). Actor APMMHQ-1, for example, is adjacent to all of the members of RHIB network. On

the other hand two network members i.e. MTUKCHG30 and MTUKBALU37 are not adjacent to any of the network member.

NETWORK MEMBER	CLIQUE NO.	Adjacency values (0 to 1)																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
APMMHQ-1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MTUJAJA-2		1	1	1	1	1	1	0.333	0.667	0.667	0.667	0.667	0.429	0.429	0.429	0.667	0.4	0.5	0.833	0.667	0.4	0.4	0.333	0.667
MTURAWNG-3		0.333	0.5	0.25	0.4	0.667	0.5	1	1	1	1	0.286	0.286	0.286	0.333	0.4	0.5	0.333	0.333	0.4	0.4	0.333	0.667	
WILUTA-4		0.333	0.5	1	0.4	0.667	0.5	0.667	0.333	0.333	0.333	1	1	1	0.167	0.2	0.25	0.167	0.167	0.2	0.2	0.167	0.333	
DMKAWI-5		0.167	0.25	0.75	0.2	0.333	0.25	1	0.667	0.667	0.667	0.667	1	1	1	0.167	0.2	0.25	0.167	0.167	0.2	0.2	0.167	0.333
DMPPINANG-6		0.167	0.25	0.75	0.2	0.333	0.25	0.667	0.333	0.333	0.333	1	1	1	0.167	0.2	0.25	0.167	0.167	0.2	0.2	0.167	0.333	
DMLUMUT-7		0.167	0.25	0.75	0.2	0.333	0.25	0.667	0.333	0.333	0.333	1	1	1	0.167	0.2	0.25	0.167	0.167	0.2	0.2	0.167	0.333	
PMKKEDAH-8		0.333	0.5	1	0.4	0.667	0.5	0.667	0.333	0.333	0.333	1	1	1	0.167	0.2	0.25	0.167	0.167	0.2	0.2	0.167	0.333	
PMKKURAU-9		0.167	0.25	0.75	0.2	0.333	0.25	0.667	0.333	0.333	0.333	1	0.857	0.857	0.167	0.2	0.25	0.167	0.167	0.2	0.2	0.167	0.333	
PMKPERUS-10		0.167	0.25	0.75	0.2	0.333	0.25	0.667	0.333	0.333	0.333	0.857	1	0.857	0.167	0.2	0.25	0.167	0.167	0.2	0.2	0.167	0.333	
MTUPINANG-11		0.167	0.25	0.75	0.2	0.333	0.25	0.667	0.333	0.333	0.333	0.857	0.857	1	0.167	0.2	0.25	0.167	0.167	0.2	0.2	0.167	0.333	
WILSEL-12		1	1	0.5	0.6	0.667	0.75	0.667	1	0.667	0.667	0.667	0.143	0.143	0.143	1	1	1	1	0.333	0.2	0.2	0.167	0.333
DMJBARU-13		0.667	0.5	0.25	0.2	0.333	0.25	0.333	0.667	0.333	0.333	0.333	0.143	0.143	0.143	1	1	1	0.833	0.167	0.2	0.2	0.167	0.333
DMPKING-14		0.333	0.5	0.25	0.2	0.333	0.25	0.333	0.667	0.333	0.333	0.333	0.143	0.143	0.143	0.667	1	0.75	0.5	0.167	0.2	0.2	0.167	0.333
DMKGGI-15		0.833	0.5	0.25	0.2	0.333	0.25	0.333	0.667	0.333	0.333	0.333	0.143	0.143	0.143	1	1	0.75	1	0.167	0.2	0.2	0.167	0.333
DMSDILU-16		0.333	0.5	0.25	0.2	0.333	0.25	0.333	0.667	0.333	0.333	0.333	0.143	0.143	0.143	0.5	0.6	1	0.333	0.167	0.2	0.2	0.167	0.333
PMMRNSG-17		1	0.75	0.5	0.4	0.667	0.5	0.333	0.667	0.333	0.333	0.333	0.143	0.143	0.143	1	0.8	0.75	1	0.167	0.2	0.2	0.167	0.333
PMBPAHAT-18		1	0.75	0.5	0.4	0.667	0.5	0.333	0.667	0.333	0.333	0.333	0.143	0.143	0.143	1	0.8	0.75	1	0.167	0.2	0.2	0.167	0.333
MTUJB-19		1	0.75	0.5	0.4	0.667	0.5	0.333	0.667	0.333	0.333	0.333	0.143	0.143	0.143	0.833	0.6	0.5	1	0.167	0.2	0.2	0.167	0.333
WILTIM-20		0.5	1	0.5	1	0.667	1	0.333	0.667	0.667	0.333	0.667	0.143	0.143	0.143	0.333	0.4	0.5	0.333	1	0.2	0.2	0.333	0.667
DMKNTAN-21		0.167	0.5	0.25	0.8	0.333	0.5	0.333	0.333	0.667	0.333	0.333	0.143	0.143	0.143	0.167	0.2	0.25	0.167	1	0.2	0.2	0.167	0.333
DMKGANU-22		0.167	0.5	0.25	0.8	0.333	0.5	0.333	0.333	0.667	0.333	0.333	0.143	0.143	0.143	0.167	0.2	0.25	0.167	1	0.2	0.2	0.167	0.333
DMTBALI-23		0.333	0.75	0.5	1	0.667	0.75	0.333	0.333	0.667	0.333	0.333	0.143	0.143	0.143	0.167	0.2	0.25	0.167	1	0.2	0.2	0.167	0.333
MTUKTAN-24		0.333	0.75	0.5	1	0.667	0.75	0.667	0.667	1	0.667	0.667	0.143	0.143	0.143	0.167	0.2	0.25	0.167	1	0.2	0.2	0.167	0.333
WILSAR-25		0.167	0.25	0.25	0.2	0.667	0.25	0.333	0.333	0.333	0.667	0.333	0.143	0.143	0.143	0.167	0.2	0.25	0.167	0.167	1	0.8	0.167	0.333
DMKCHNG-26		0.333	0.5	0.5	0.4	1	0.5	0.667	0.667	0.667	1	0.667	0.143	0.143	0.143	0.167	0.2	0.25	0.167	0.167	1	1	0.167	0.333
DMBTULU-27		0.167	0.25	0.25	0.2	0.667	0.25	0.333	0.333	0.333	0.667	0.333	0.143	0.143	0.143	0.167	0.2	0.25	0.167	0.167	1	1	0.167	0.333
DMMIRI-28		0.167	0.25	0.25	0.2	0.667	0.25	0.333	0.333	0.333	0.667	0.333	0.143	0.143	0.143	0.167	0.2	0.25	0.167	0.167	1	1	0.167	0.333
PMTMANIS-29		0.167	0.25	0.25	0.2	0.667	0.25	0.333	0.333	0.333	0.667	0.333	0.143	0.143	0.143	0.167	0.2	0.25	0.167	0.167	0.8	1	0.167	0.333
MTUKCHG-30		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WILSAB-31		0.333	0.75	0.5	0.6	0.667	1	0.667	0.667	0.667	0.667	1	0.143	0.143	0.143	0.167	0.2	0.25	0.167	0.333	0.2	0.2	1	1
DMLBUAN-32		0.167	0.25	0.25	0.2	0.333	0.5	0.333	0.333	0.333	0.333	0.667	0.143	0.143	0.143	0.167	0.2	0.25	0.167	0.167	0.2	0.2	1	0.667
DMKBALU-33		0.167	0.25	0.25	0.2	0.333	0.5	0.333	0.333	0.333	0.333	0.667	0.143	0.143	0.143	0.167	0.2	0.25	0.167	0.167	0.2	0.2	1	0.667
DMSDAKAN-34		0.167	0.25	0.25	0.2	0.333	0.5	0.333	0.333	0.333	0.333	0.667	0.143	0.143	0.143	0.167	0.2	0.25	0.167	0.167	0.2	0.2	1	0.667
DMTAWAU-35		0.167	0.25	0.25	0.2	0.333	0.5	0.333	0.333	0.333	0.333	0.667	0.143	0.143	0.143	0.167	0.2	0.25	0.167	0.167	0.2	0.2	0.333	1
PMLDATU-36		0.167	0.25	0.25	0.2	0.333	0.5	0.333	0.333	0.333	0.333	0.667	0.143	0.143	0.143	0.167	0.2	0.25	0.167	0.167	0.2	0.2	1	0.667
MTUKBALU-37		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 1. Actor-By-Actor Clique Co-Membership Matrix.

Thus for an efficient management of network, this research propose a hybrid networking arrangement which combines arm-length control and laissez-faire techniques. This research suggests a mix of formal and informal coordination mechanisms in business arrangements in the context of supply networks. The hybrid form can be a new addition to the mode or form of organization in the context of inter-organization network relations. Theoretically, the outcomes of Social Network Analysis found in the exploratory network investigation with respect to the relationship of firm embeddedness and the convention or familiarity of the tie coordination component demonstrate an alternate position contrasted with the customary perspective of embeddedness theory. As the researcher mentioned in earlier segment, the customary point of view of the influence reputation in network relies upon the structural positions of network members' embeddedness (Uzzi 1996, Uzzi 1997). And yet, this study found that degree of influence is also related to the typed of sub-network relations and the intensity of the connections.

CONCLUSION

In conclusion, while addressing research question of this study, the researcher found that, in inter-organizational network relations, organization level of influence is dependent upon the type of network relations that it is embedded or involved in. Moreover, the network analysis indicates that the level of influence matters differently in the formal and informal networks structure. The implication of these discoveries is critical to the theory of embeddedness just as the management of network. In the first place, this examination adds to the theory of network embeddedness by affirming the actualities that sub-network exist and has impact upon the general network management. Through the use of exploratory network analysis the network embeddedness of firms in the network is identified with the idea of the sort of ties or firm connections that are being considered.

Furthermore, in a progressively formal type of firms' connections, the organizations are less involve in the network structure. All the more significantly, on the grounds that the meaning of embeddedness identifies with the level of involvement of firms in the network relationship, this research recommends that organizations are less active inside the network of formal binds contrasted with the informal firm relations. This may provide ground for judicious resource management for potential form of network commitment. Figuring out which association is progressively influential over another will help streamline the resources put into the network and keeping up great network connections. In sum, this research isn't without its constraints, in particular, requesting further empirical and exploratory undertaking. What this examination recommends is a network investigation that breakdown at least two network together and examinations the effect on firm execution.

Acknowledgment

This paper was funded from the research fund provided by Universiti Kebangsaan Malaysia under the grant title: EP-2017-033

References

- [1] Marlow, C. Audience, structure and authority in the weblog community. in International Communication Association Conference. 2004.
- [2] Yi, X., et al. Persuasion driven influence analysis in online social networks. in 2016 International Joint Conference on Neural Networks (IJCNN). 2016. IEEE.
- [3] Johanson, J. and L.-G. Mattsson, Internationalisation in industrial systems—a network approach, in Knowledge, networks and power. 2015, Springer. p. 111-132.
- [4] van de Kaa, G., et al., Strategies in network industries: The importance of inter-organisational networks, complementary goods, and commitment. 2015. 27(1): p. 73-86.
- [5] Epskamp, S., et al., Personalized network modeling in psychopathology: The importance of contemporaneous and temporal connections. 2018. 6(3): p. 416-427.
- [6] Akaka, M.A., S.L. Vargo, and H.J.J.J.o.S.M. Schau, The context of experience. 2015. 26(2): p. 206-223.
- [7] Rombach, P., et al., Core-periphery structure in networks (revisited). 2017. 59(3): p. 619-646.
- [8] Zhang, X., T. Martin, and M.E.J.P.R.E. Newman, Identification of core-periphery structure in networks. 2015. 91(3): p. 032803.
- [9] Matinheikki, J., et al., Managing inter-organizational networks for value creation in the front-end of projects. International Journal of Project Management, 2016. 34(7): p. 1226-1241.
- [10] Karoui, M., A. Duzert, and D.E.J.T.J.o.S.I.S. Leidner, Strategies and symbolism in the adoption of organizational social networking systems. 2015. 24(1): p. 15-32.
- [11] Kwahk, K.-Y. and D.-H. Park, The effects of network sharing on knowledge-sharing activities and job performance in enterprise social media environments. Computers in Human Behavior, 2016. 55: p. 826-839.
- [12] Moore, C.B., et al., Project complexity and bonding social capital in network organizations. 2018. 43(6): p. 936-970.
- [13] Arena, M.J., M.J.P. Uhl-Bien, and Strategy, Complexity leadership theory: Shifting from human capital to social capital. 2016. 39(2): p. 22.
- [14] Bozarth, C.C., et al., The impact of supply chain complexity on manufacturing plant performance. 2009. 27(1): p. 78-93.

- [15] Choi, T.Y. and D.R.J.J.o.o.m. Krause, The supply base and its complexity: Implications for transaction costs, risks, responsiveness, and innovation. 2006. 24(5): p. 637-652.
- [16] Holck, L.J.O., Unequal by structure: Exploring the structural embeddedness of organizational diversity. 2018. 25(2): p. 242-259.
- [17] Cho, S., et al., Does diversity matter? Exploring workforce diversity, diversity management, and organizational performance in social enterprises. 2017. 11(3): p. 193-204.
- [18] Lu, C.-M., et al., Effect of diversity on human resource management and organizational performance. 2015. 68(4): p. 857-861.
- [19] Hui, Z., et al., Factors Affecting On Network Relation Dissimilation for Family Firms' Succession. 2016(8): p. 18.
- [20] Carter, C.R., D.S. Rogers, and T.Y.J.J.o.S.C.M. Choi, Toward the theory of the supply chain. 2015. 51(2): p. 89-97.
- [21] Kim, Y., Y.-S. Chen, and K.J.J.o.o.M. Linderman, Supply network disruption and resilience: A network structural perspective. 2015. 33: p. 43-59.
- [22] Borgatti, S.P. and X.J.J.o.S.C.M. Li, On social network analysis in a supply chain context. 2009. 45(2): p. 5-22.
- [23] Granovetter, M.J.A.j.o.s., Economic action and social structure: The problem of embeddedness. 1985. 91(3): p. 481-510.
- [24] Farrell, J., Network structure and influence of the climate change counter-movement. *Nature Climate Change*, 2016. 6(4): p. 370.
- [25] Klein, P.G., et al., Organizational governance adaptation: Who is in, who is out, and who gets what. *Academy of Management Review*, 2019. 44(1): p. 6-27.
- [26] Jia, P., et al., Opinion dynamics and the evolution of social power in influence networks. 2015. 57(3): p. 367-397.
- [27] Sacchetti, S. and E. Tortia, The extended governance of cooperative firms: inter-firm coordination and consistency of values. *Annals of Public and Cooperative Economics*, 2016. 87(1): p. 93-116.
- [28] McIntyre, D.P. and A. Srinivasan, Networks, platforms, and strategy: Emerging views and next steps. *Strategic Management Journal*, 2017. 38(1): p. 141-160.