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CONFERENCE PAPER

Analysing stakeholder advice networks: an Australian integrated healthcare project

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Synopsis

This paper contributes to stakeholder engagement analysis through social network theory and analytics. An integrated healthcare project was implemented in New South Wales (NSW), Australia, to improve integration and advice sharing between stakeholders of a healthcare system. The aim of this paper is to use social networks theory and methodology to examine how stakeholders (healthcare services) interact and provide professional advice to one another after the implementation of an integrated care project and to identify the correlation between social network variables and integration.

Research design

A whole network design was conducted, where 56 participants were asked to complete a survey questionnaire that aimed to collect information on advice relationships and examine perceived service integration in the health system.

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Relevance for education and practice

This study demonstrates how social network methodology can inform stakeholder analysis by exploring stakeholders' relational attributes and identifying key and marginal stakeholders. The results will assist practitioners in their interventions and strategies towards improving integrated care efforts.

Main Findings

The Pearson correlation results show no correlation between social network properties and perception of integration (integrated care). However, key and marginal stakeholders are identified, and the advice network structure is explored.

Research Implications

This information will help project leaders to engage stakeholders and identify gaps in healthcare integration projects.

Keywords

Social Network, Stakeholder Management, Integrated Care, Stakeholder Analysis, Healthcare Services

Introduction

Many authors acknowledged the importance of managing stakeholders in projects (Missonier & Loufrani-Fedida 2014; Rajablu, Marthandan & Yusoff 2014; Yang, Shen & Ho 2009) because of stakeholders' ability to positively or negatively impact project performance and completion (PMI 2013). It is the human aspect in projects, particularly how stakeholders communicate and interact, more than the technical elements, that determines, to the larger extent, project success or failure (Doloi 2012). In Freeman's (1984) stakeholder theory concept, the foundation for all stakeholder scholars, he defined a stakeholder as "any group or individual who can affect or is affected by the achievement of the organization's objective." An integral part of stakeholder management is stakeholder analysis, which aims to find answers on how stakeholders contribute to an organization or a project, by studying their characteristics such as influence, interest, network, position and relations, and so on (Blair & Fottler 1990; Freeman 1984; Lindenberg et al. 1981).

The first step in stakeholder analysis is to identify the issue or phenomena that need to be investigated in a certain project or environment, which leads to identifying the stakeholders (Bryson 2004; Reed et al. 2009; Varvasovszky & Brugha 2000). Several methods have been used to identify stakeholders, such as semi-structured interviews, focused interviews, snowballing, sampling, and expert opinion and workshops (Bryson 2004; Cova & Salle 2005; El-Gohary, Osman & El-Diraby 2006; Karlsen 2002).

After identifying stakeholders, the next step is to categorize stakeholders based on personal attributes such as interest and influence (Lindenberg et al. 1981); cooperation and competition (Freeman 1984); power, legitimacy and urgency (Mitchell, Agle & Wood 1997); and power-interest matrix (Eden & Ackermann 1998). However, the methods used for stakeholder analysis are limited in what they measure because they only capture stakeholder attributes and

overlook how stakeholders communicate and how the structure of their relationship impacts projects (Prell, Hubacek & Reed 2009). None of these formal stakeholder analysis tools are able to identify key stakeholders according to their relationships and the local social capital that each bears within its immediate personal network.

In 2014, the NSW Ministry of Health released an integrated care strategy (Health 2014) that aimed to improve integration of care between health services. In response to this strategy, one local health district undertook an integrated care initiative that endeavoured to improve integration of care within a defined geographical area in order to improve patient experience and outcomes as well to reduce duplication of services and improve efficiencies.

An integrated health system requires the collaboration of its different healthcare providers in order to provide the best possible care for patients (Strandberg-Larsen & Krasnik 2009). Nelson et al. (2002) describe the health system as a network of clinical providers working together to cure patients' illness. Therefore, Goodwin (2010) proposed using social network analysis to study how health providers communicate where this has been considered to be a detriment for successful care integration. On the other hand, Browne et al. (2004) stated that the success of an integrated care project is determined by how different stakeholder groups, such as healthcare services and providers, perceive integration. Therefore, integrated care requires a multi-stakeholder and project management approach with the application of social networks.

The purpose of this paper is to use social network analysis to capture a snapshot of how stakeholders (healthcare services) interact and provide professional advice to one another after the implementation of an integrated healthcare project. By exploring how healthcare services are connected, we aimed to identify:

- areas of strength to be capitalized on and areas of weakness to be improved in the integrated network; and
- key and marginal stakeholders that need to be engaged in order to increase communication and facilitate the integration of services to provide efficient ongoing care for patients.

Therefore, the following questions were addressed:

1. What is the actual structure of the stakeholder network?
2. Who are the key stakeholders that have a brokerage position and are therefore considered influential?
3. What is the inherent nature of the relationship between social networks and healthcare integration?

Conceptual framework

SOCIAL NETWORKS

A social network is a set of actors (individuals, organizations or countries) that are connected through ties in the form of relationship (Friendship, social support, etc.). Chung and Crawford (2015) demonstrated how social network theory and methodology could be applied to stakeholder analysis and engagement. In the following section, we discuss how the stakeholder advice network can be examined according to the following three network levels:

1. The network level
2. the actor level
3. The tie levels

Network level

Density is the most basic network measure and is a characteristic of the whole network (Rowley 1997). Density refers to the number of actual ties present in a network compared to the total number of ties that can be present if all members are connected to one another (Prell 2012). Scott (2012) mentioned that density explains the social activity present in a network that is represented by the number of ties present. Bavelas (1950) and Leavitt (1951) highlighted an important concept for network analysis called “centrality,” also referred to as “centralization” (Freeman 1979; Wasserman & Galaskiewicz 1994). Networks that have high network centralization have central actors who hold the majority of ties in the network.

Actor level (centrality)

Centrality is described from a point’s position in a network. The most prominent centrality measures are degree, betweenness and closeness (Freeman 1979). Degree centrality is considered the simplest concept of centrality, where it refers to the number of ties an actor has to others (Wasserman & Faust 1994) and represents communication activity (Freeman 1979). Betweenness centrality measures the extent to which an actor lies on the shortest path between actors (Borgatti 2005). Closeness centrality “is based upon the degree to which a point is close to all other points in the graph” (Freeman 1979). Burt (1992) proposed a theory of structural hole presenting the importance of having “holes” in the network, or what is referred to as the absence of ties between actors that can reshape the performance of a network. Burt used the term *structural hole* to represent the non-redundancy between two contacts. Actors that seek to acquire novel non-redundant information and benefit from competitive advantage must rationally establish ties with groups of people with whom they, or anyone within their groups, are not connected.

Tie level (tie strength)

Granovetter’s (1973) theory on “strength of weak ties” argues that information is disseminated faster through weak ties than through strong ties. People who are strongly tied to one another share common characteristics and are more likely to share information within their own cliques rather than transferring it to other people. This leads to redundant information. In contrast, a person can be connected to a wider range of people through “weak ties” and still have access to different sources of information. Granovetter (1973) described a weak tie as “a bridge” that links different people together and facilitates information flow between them. Following the significant work on the theory strength of weak ties, Krackhardt, Nohria and Eckles (1992) highlighted the importance of strong ties in creating trust, dealing with organizational change and shortening project completion times.

CONTEXT OF STUDY

Gillies et al. (1993) described integrated care as the coordination of activities between different functioning units for the purpose of providing efficient health services to patients. From a public health perspective, primary care is the hub of many integrated healthcare systems where it has been considered as the means to achieving integration (Albrecht 1998; Cumming 2011; Robinson & Casalino 1996; Van Lerberghe 2008). Valentijn et al. (2013) considered that primary care, defined in terms of accessibility of services, continuity of care, availability of services and health service coordination, is the establishment of integrated care. On the other hand, integration can occur at different levels of a healthcare system: the micro level (between

physicians), the meso level (between teams) and the macro level (between organization) (Lamontagne 2013). Gillies et al. (1993) and Suter, Hymean and Oelke (2007) identified three types of integration which are clinical (horizontal and vertical integration), physicians-system and functional integration. Valentijn et al. (2013) combined the different dimensions of integrated care mentioned above and presented an integrated care framework, or what is known as the Rainbow Model of Integrated Care (RMIC). Therefore, here we explore the relationship between social network properties and integration as it is described in RMIC.

Case study

Integration of care has been considered a major priority in Australia (Health 2014). The NSW Integrated Care Strategy is a state-wide ministry of health initiative which has been locally interpreted. This case study examines one local health district's focus for integrated care, which is a project that aims to improve integration of care between all health services within a defined end geographical area, in order to improve patient experience and outcomes as well as to reduce duplication of services and improve efficiencies.

Who are the stakeholders?

The first step of stakeholder analysis was to identify the issue to be examined in order to identify who the stakeholders are and which stakeholders should be included in the analysis (Bryson 2004; Varvasovszky & Brugha 2000; Reed et al. 2009). The matter to be investigated was the level of integration among healthcare services, which is not known and for which there has been no evaluation undertaken to date. After identifying the issue, the next step was to identify the stakeholders. According to Freeman (1984), stakeholders are defined as "any group or individual who can affect or is affected by the achievement of the organization's objective." Therefore, the stakeholders that can affect or are "affected by" the integrated care project are the physical and mental healthcare services that operate within the valley. Eight stakeholder groups were identified: hospital-based services, community-based services, services that outreach to the valley, local health district (LHD) Aboriginal health services, LHD mental health and alcohol and drug services, non-LHD health services, general practitioners (some with visiting specialists) and private allied health services.

PROPOSITION

Integration between organizations outside the health field, such as in traditional corporate settings, can take place through the management hierarchy level, where there exists a line of authority (top-down integration), or through market competition characterized by contractual agreements between organizations in the form of partnerships and joint ventures (Axelsson & Axelsson 2006). However, organizations in public health are neither a part of a hierarchy or market competition. Therefore, in this study, we discuss another platform for integration that happens to take place through networks of organizational relationships. In the network mode, integration is mainly achieved when different actors, outside the boundaries of a specific hierarchy, collaborate with one another through intensive communication (Axelsson & Axelsson 2009; Child & Faulkner 1998; Powell 1990). Mur-Veeman et al. (2003) highlighted the importance of building networks across the formal boundaries of private and public care in order to develop and achieve integrated care through the use of social network theory and methodology.

In a study of collaboration and integration among health providers, Provan, Milward and Isett (2002) investigated the referral network of nonprofit providers, to assess service

integration after the implementation of a managed care system that aimed to improve funding and cost control. The results showed an increase in integration between the providers reflected by the increase in density and betweenness centrality scores of the referral network. Similar findings were reported by Fliervoet et al. (2016), where they conducted social network analysis to examine whether integration among stakeholders occurred in managing floodplain along the Wall River in The Netherlands. The results showed that stakeholder collaboration had been achieved, reflected by the high density and high betweenness and degree centrality. In light of the above discussion, we can hypothesize the following:

Proposition 1: Ego-density is positively correlated with perceived integration.

Proposition 2: In-degree centrality is positively correlated with perceived integration.

Proposition 3: Out-degree centrality is positively correlated with perceived integration.

Proposition 4: Betweenness centrality is positively correlated with perceived integration.

Several studies showed that integration is also dependent on central actors who occupy central positions (Nicaise et al. 2013), especially a brokerage position (Freeman 1979) that can span the structural holes and bridge different groups (Berardo & Scholz 2010; Burt 1992, 2004). Scholz, Berardo and Kyle (2008) examined whether density or actor centrality is more comprehensive in explaining the observed patterns of collaboration between stakeholders. The results showed that when central actors are able to bridge across networks, this leads to more collaboration than when actors are embedded in dense networks. Therefore, we hypothesize the following:

Proposition 5: Efficiency of an ego's network position is positively associated with perceived integration.

There is an agreement among many researchers that collaboration in a health system requires trust relationships between its different entities. Trust relationships in social network literature are illustrated by strong ties (Krackhardt 1990). Provan et al. (2002) investigated the integration and collaboration of healthcare services in a health system located in Tucson/Pima country, Arizona, where they found opposing evidence on Granovetter's theory on the importance of weak ties. Rather, they capitalized on the importance of strong ties, where the results of the study showed that healthcare services leaned towards strengthening their relationships with each to achieve integration among services. It was also shown that strong ties in a team of scientists and engineers were essential for solving complex problems (de Montjoye et al. 2014) It has been evident that the absence of trust and strong relations between private and public health in Netherland and England is a barrier to achieve integrated care (Mur-Veeman et al. 2003). In light of these arguments, it is anticipated that:

Proposition 6: Tie strength is positively associated with perceived integration.

METHODOLOGY

Participant recruitment

The research team identified 68 healthcare services to be included in the study. An email that carried information on the integrated care project was sent to all the services identified. Out of the 68 services identified, 53 services consented for their name to be on the list in the social network survey. This list included the most relevant healthcare services that provide mental and physical services.

Study design

This study adapted a whole network design, or a full network study, where the boundaries of the network are well defined and the actors are known (Chung, Hossain & Davis 2005; Robins 2015). A survey questionnaire was undertaken with providers working in the healthcare services, in the form of an interview. The provider supplied information orally on the advice network relationship, and the researchers completed the survey instrument with this information. Each health service was represented by one or two providers (clinicians or professionals) working within the service. The survey questionnaire consisted of three sections. The first section consisted of demographic questions, such as the name of the healthcare service, whether the service provides physical or mental healthcare, number of years/months in current position, and so on. The second part collected information on advice relationships. It involved a complete list of 53 healthcare services. The respondents were asked to select, from the list of 53 services, the services whom they gave advice to in the last six months and then use a 4-point Likert scale (less often, quarterly, monthly compared to weekly) to capture the frequency of interaction that measured tie strength. The name generator question was as following:

Advice to: Please identify those services to whom you have given advice related to your work in the last six months; then identify the frequency of interaction.

After identifying the services that the respondents gave advice to in the last six months and the frequency of interaction, the respondents were asked to give their own perception on the integration of services, using an integrated care instrument that is based on the Rainbow Model of Integrated Care (RMIC) (Valentijn et al. 2013). The integrated care instrument consisted of 29 questions and a 7-point Likert-scale ranging from “Strongly agree” to “Not applicable.” The first two sections of the survey were completed by the researcher, based on the information given by the respondent, while the third section on integrated care was filled out directly by the respondent.

Sample size and response rate

All interviews were conducted face-to-face during December 2016 and January 2017, and lasted between 15 minutes and 90 minutes. The interview involved a member of the research team and a healthcare provider who was a representative of the service that he or she worked in. Out of the 53 services that consented for their name to be on the list of services, 49 services participated in the study. The number of providers interviewed was 56.

Data analysis

The data collected were imported into an Excel file in a form of network matrix. Then the Excel file was imported into the social network software program (UCINET) (Borgatti, Everett & Freeman 2002) to visualize the network and calculate the social network properties for each of the nodes. For confidentiality purposes, each healthcare service in the network was assigned a code to make it unidentifiable. The social network data obtained were inputted into the Statistical Package for Social Sciences (SPSS) for proposition testing. The distribution of data was assessed using the Kolmogorov-Smirnov test for normality. The results showed that the data are normally distributed. Therefore, Pearson correlation was used to understand the direction and magnitude of the relationship between each social network property and its perceived integration.

Results

The results from the Kolmogorov-Smirnov test for normality indicated that the independent and dependent variables are normally distributed. Therefore, Pearson's product-moment correlation indices were adopted. The descriptive statistics of the social network properties are presented in Table 1.

Table 1 Descriptive statistics

	Mean	SD	Min	Max
Ego Density	0.31	0.13	0	0.67
In-Degree	7.38	5.27	1	20
Out-Degree	7.38	9.28	0	43
Betweenness	57.5	116.25	0	607.39
Efficiency	0.67	0.12	0.44	1
Tie Strength	2.47	0.53	1	3.74
Integration	108.1	20.57	54	150

Table 2 Pearson correlation between social network measures and integration

	1	2	3	4	5	6	7
Ego-Density (1)	–						
In-Degree (2)	0.006	–					
Out-Degree (3)	–0.333*	0.138	–				
Betweenness (4)	–0.221	0.346**	0.771**	–			
Efficiency (5)	–0.917	–0.06	0.277**	0.2	–		
Tie Strength (6)	0.119	0.114	0.182	0	0.232	–	
Integration (7)	0.2	0.09	0.188	0.6	–0.32*	–0.06	–

** Correlation is significant at 0.01 level (2-tailed).

* Correlation is significant at 0.05 level (2-tailed).

The results of the Pearson's product-moment correlation (see Table 2) show no significant relationship between ego-density and perception of integration ($r = 0.2$, $p = 0.14$). In-degree centrality is not significantly correlated with perception of integration ($r = 0.09$, $p = 0.5$). There is no significant correlation between out-degree and perception of integration ($r = 0.18$, $p = 0.4$).

There is a no significant correlation between betweenness and perception of integration ($r = 0.07$, $p = 0.6$). On the other hand, there is a significant negative correlation between efficiency and perception of integration ($r = -0.32$, $p = 0.017$). Finally, there is no significant correlation between tie strength and perception of integration ($r = -0.06$, $p = 0.662$) (see Table 3).

Locating central actors: out-degree, betweenness and stakeholder category

Two centrality measures can play an important role in identifying the most central stakeholders that are responsible for information flow and giving advice in an integrated care

setting. Out-degree centrality refers to the number of outgoing ties associated with the node. It identifies the stakeholders that are giving the most advice in the network. In Figure 1, the size of the node represents out-degree centrality. The bigger the size, the more advice the stakeholder is providing. On the other hand, betweenness centrality measures the extent to which an actor lies on the shortest path and has a brokerage position between other nodes in the network. These two centrality measures are used to identify the top five stakeholders (Table 4) who are responsible for advice sharing and who are considered to be the most influential.

Table 3 Results of proposition testing

Propositions	Description	Supported/Not Supported
Proposition 1	Ego-density is positively correlated with perceived integration	Not supported
Proposition 2	In-degree centrality is positively correlated with perceived integration	Not supported
Proposition 3	Out-degree centrality is positively correlated with perceived integration	Not supported
Proposition 4	Betweenness centrality is positively correlated with perceived integration	Not supported
Proposition 5	Efficiency of an ego’s network position is positively correlated with perceived integration	Not supported. A significant negative correlation
Proposition 6	Tie strength is positively correlated with perceived integration	Not supported.

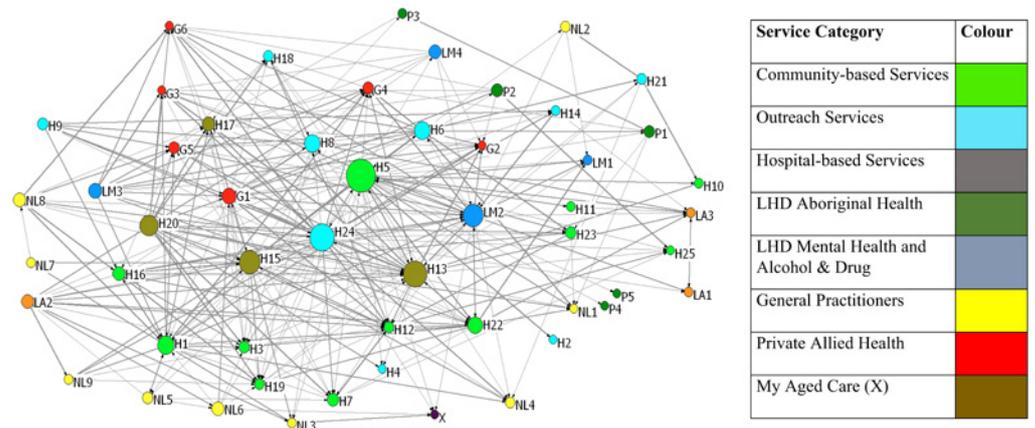


Figure 1 Stakeholder advice network

Table 4 Centrality measures for key stakeholders

Stakeholder ID	Stakeholder Group	Out-Degree Centrality	Betweenness Centrality
H5	Hospital-based services	39	540
H24	Services that outreach	29	63
H13	Hospital-based service	28	501
H15	Hospital-based service	23	196
LM2	LHD mental health and drug & alcohol	21	270

Discussion and conclusion

The social network construct (independent variables) that showed a significant relationship with the integration of services (dependent variable) was ego-network efficiency. In contrast, ego network density, in-degree centrality, out-degree centrality and tie strength showed no significant correlation with perceived integration. Although ego-network efficiency is claimed to be positively associated with collaboration and integration (Berardo & Scholz 2010), the results show that the direction of this association is negative. This means that a healthcare service that provides advice to other services to whom it itself is not connected would predict a low level of integration. As an example, in figure 1, if healthcare services such as H6 and H13, who have no advice relationship between each other, seek advice from H5, H5 would perceive integration as being low. Moreover, non-redundant novel information does not seem crucial for stakeholders providing physical and mental services for a patient. In terms of network structure, the network density is 13%, whereas centralization is 0.63. The advice network is highly centralized where very few actors (e.g. H5, H24, H13, H15, LM2) hold the majority of ties, while other services occupy a marginal position.

In this study, we presented how social networks can be used to understand the integration between stakeholders (healthcare services) by identifying which stakeholders or services are currently working together and which ones are not working with others. This information will enable the research team to identify areas and processes for improving integration by reducing the duplication of service and improving efficiencies. Moreover, we identified key and marginal stakeholders based on their position in the network that can be engaged during integrated care interventions. Central actors are considered important for the success of integrated care initiatives because they are able to promote certain ideas and create the required change within a network (Valente, 2010). We identified which properties of social networks are associated with the integration of services. At the domain level, key findings suggest that integration of services is not dependent on non-redundant novel information and the efficiency of a service's network position. Rather, integration can benefit from redundant relationships between healthcare services. Social network analysis can assist practitioners in their interventions and strategies towards improving integrated care efforts by conducting network sessions and seminars that reduce network gaps that exist between key central services and marginal ones. The results demonstrate how social network methodology can inform stakeholder analysis and identify key and marginal stakeholders based on their relationships. This information will help project leaders to engage stakeholders and identify gaps in healthcare integration projects.

A clear limitation of this study is that only mental and physical health services were included in this research and not other stakeholders. In future work, strong and weak ties will be used to thoroughly explore areas of strength and weakness for intervention. Moreover, further statistical tests such as the independent sample t-test and a regression model will be adopted to get more insights into the relationship between social network properties and perceived integration. In addition, we will be exploring the relationships between social network properties and different dimensions of integration listed in the RMIC model. Finally, we will investigate more types of stakeholder relationships such as referrals, socialize and team care arrangements in an integrated care setting.

References

- Albrecht, D. 1998, 'Community health centres in Canada', *Leadership in Health Services*, vol. 11, no. 1, pp. 5–10. <https://doi.org/10.1108/13660759810202596>
- Axelsson, R. & Axelsson, S.B. 2006, 'Integration and collaboration in public health – a conceptual framework', *The International Journal of Health Planning and Management*, vol. 21, no. 1, pp. 75–88. <https://doi.org/10.1002/hpm.826>
- Axelsson, S.B. & Axelsson, R. 2009, 'From territoriality to altruism in interprofessional collaboration and leadership', *Journal of Interprofessional Care*, vol. 23, no. 4, pp. 320–30. <https://doi.org/10.1080/13561820902921811>
- Bavelas, A. 1950, 'Communication patterns in task-oriented groups', *Journal of the acoustical society of America*, vol. 22, no. 6, <https://doi.org/10.1121/1.1906679>.
- Berardo, R. & Scholz, J.T. 2010, 'Self-organizing policy networks: risk, partner selection, and cooperation in estuaries', *American Journal of Political Science*, vol. 54, no. 3, pp. 632–49. <https://doi.org/10.1111/j.1540-5907.2010.00451.x>
- Blair, J.D. & Fottler, M.D. 1990, *Challenges in healthcare management: strategic perspectives for managing key stakeholders*, Jossey-Bass, New York. <https://doi.org/10.1097/01445442-199105000-00019>
- Borgatti, S.P. 2005, 'Centrality and network flow', *Social Networks*, vol. 27, no. 1, pp. 55–71. <https://doi.org/10.1016/j.socnet.2004.11.008>
- Borgatti, S.P., Everett, M.G. & Freeman, L.C. 2002, UCINET 6 for Windows, vol. 185, Analytic Technologies, Harvard, MA.
- Browne, G., Roberts, J., Gafni, A., Byrne, C., Kertyzia, J. & Loney, P. 2004, 'Conceptualizing and validating the human services integration measure', *International Journal of Integrated Care*, vol. 4, no. 2. <https://doi.org/10.5334/ijic.98>
- Bryson, J.M. 2004, 'What to do when stakeholders matter: stakeholder identification and analysis techniques', *Public Management Review*, vol. 6, no. 1, pp. 21–53.
- Burt, R.S. 1992, *Structural holes: the social structure of competition*, Harvard University Press, Cambridge, Mass. <https://doi.org/10.2307/2393644>
- Burt, R.S. 2004, 'Structural holes and good ideas', *American journal of sociology*, vol. 110, no. 2, pp. 349–99. <https://doi.org/10.1086/421787>
- Child, J. & Faulkner, D. 1998, *Strategies of cooperation: managing alliances, networks, and joint ventures*, Oxford University Press, Oxford, New York. <https://doi.org/10.2307/2667078>

- Chung, K.K., Hossain, L. & Davis, J. 2005, 'Exploring sociocentric and egocentric approaches for social network analysis', *Proceedings of the 2nd International Conference on Knowledge Management in Asia Pacific*, Victoria University: Wellington, pp. 27–29.
- Chung, K.S.K. & Crawford, L. 2015, 'The Role of Social Networks Theory and Methodology for Project Stakeholder Management', paper presented to the IPMA 29th World Congress, Panama, September 28–30. <https://doi.org/10.1016/j.sbspro.2016.06.201>
- Cova, B. & Salle, R. 2005, 'Six key points to merge project marketing into project management', *International Journal of Project Management*, vol. 23, no. 5, pp. 354–59. <https://doi.org/10.1016/j.ijproman.2005.01.006>
- Cumming, J. 2011, 'Integrated care in New Zealand', *International Journal of Integrated Care*, vol. 11, no. 5, <<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3226018/>>. <https://doi.org/10.5334/ijic.678>
- de Montjoye, Y.-A., Stopczynski, A., Shmueli, E., Pentland, A. & Lehmann, S. 2014, 'The strength of the strongest ties in collaborative problem solving', *Scientific reports*, vol. 4, p. 5277. <https://doi.org/10.1038/srep05277>
- Doloi, H. 2012, 'Assessing stakeholders' influence on social performance of infrastructure projects', *Facilities*, vol. 30, no. 11/12, pp. 531–50. <https://doi.org/10.1108/02632771211252351>
- Eden, C. & Ackermann, F. 1998, *Making strategy: the journey of strategic management*, Sage Publications, Thousand Oaks. <https://doi.org/10.4135/9781446217153>
- El-Gohary, N.M., Osman, H. & El-Diraby, T.E. 2006, Stakeholder management for public private partnerships, *International Journal of Project Management*, vol. 24, no. 7, pp. 595–604. <https://doi.org/10.1016/j.ijproman.2006.07.009>
- Fliervoet, J.M., Geerling, G., Mostert, E. & Smits, A.J.M. 2016, 'Analyzing collaborative governance through social network analysis: a case study of river management along the Waal River in the Netherlands', *Collaborative Governance Through Social Network Analysis: A Case Study of River Management Along the Waal River in The Netherlands*, *Environ Manage*, vol. 57, no. 2, pp. 355–67. <https://doi.org/10.1007/s00267-015-0606-x>
- Freeman 1984, *Strategic management: a stakeholder approach*, Cambridge University Press, Cambridge, UK. <https://doi.org/10.1017/cbo9781139192675>
- Freeman, L.C. 1979, 'Centrality in social networks conceptual clarification', *Social Networks*, vol. 1, no. 3, pp. 215–39. [https://doi.org/10.1016/0378-8733\(78\)90021-7](https://doi.org/10.1016/0378-8733(78)90021-7)
- Gillies, R.R., Shortell, S.M., Anderson, D.A., Mitchell, J.B. & Morgan, K.L. 1993, 'Conceptualizing and measuring integration: findings from the health systems integration study', *Hospital & Health Services Administration*, vol. 38, no. 4, pp. 467–90.
- Goodwin, N. 2010, 'It's good to talk: social network analysis as a method for judging the strength of integrated care', *International journal of integrated care*, vol. 10, no. 4. <https://doi.org/10.5334/ijic.647>
- Granovetter, M.S. 1973, 'The strength of weak ties', *American Journal of Sociology*, vol. 78, no. 6, pp. 1360–80. <https://doi.org/10.1086/225469>
- Health, N. 2014, *Integrated Care Strategy 2014–2017*, NSW Health, <<http://www.health.nsw.gov.au/integratedcare/Documents/integrated-care-info-summary.pdf>>.
- Karlsen, J.T. 2002, 'Project stakeholder management', *Engineering Management Journal*, vol. 14, no. 4, pp. 19–24. <https://doi.org/10.1080/10429247.2002.11415180>

- Krackhardt, D. 1990, 'Assessing the political landscape: structure, cognition, and power in organizations', *Administrative Science Quarterly*, pp. 342–69. <https://doi.org/10.2307/2393394>
- Krackhardt, David. 1992. 'The Strength of Strong Ties: The Importance of Philos in Organizations.' In *Networks and Organizations: Structure, Form, and Action*, eds Nitin Nohria and Robert Eccles. Cambridge, MA: Harvard Business School Press.
- Lamontagne, M.-E. 2013, 'Exploration of the integration of care for persons with a traumatic brain injury using social network analysis methodology', *International Journal of Integrated Care*, vol. 13, Oct–Nov. <https://doi.org/10.5334/ijic.1055>
- Leavitt, H.J. 1951, 'Some effects of certain communication patterns on group performance', *Journal of Abnormal and Social Psychology*, vol. 46, no. 1, p. 38. <https://doi.org/10.1037/h0057189>
- Lindenberg, M., Crosby, B., Martínez Nogueira, R., Borja, T., Masís, G., Serrano, C., Yáñez, C., Pachano, A., Jordán de Romero, R. & Peñaherrera, E. 1981, *Managing development: the political dimension*, Asociación Argentina de Economía Agraria, Buenos Aires, Argentina.
- Missonier, S. & Loufrani-Fedida, S. 2014, 'Stakeholder analysis and engagement in projects: From stakeholder relational perspective to stakeholder relational ontology', *International Journal of Project Management*, vol. 32, no. 7, pp. 1108–22. <https://doi.org/10.1016/j.ijproman.2014.02.010>
- Mitchell, R.K., Agle, B.R. & Wood, D.J. 1997, 'Toward a theory of stakeholder identification and salience: defining the principle of who and what really counts', *Academy of Management Review*, vol. 22, no. 4, pp. 853–86. <https://doi.org/10.5465/amr.1997.9711022105>
- Mur-Veeman, I., Hardy, B., Steenbergen, M. & Wistow, G. 2003, 'Development of integrated care in England and the Netherlands: managing across public–private boundaries', *Health policy*, vol. 65, no. 3, pp. 227–41. [https://doi.org/10.1016/s0168-8510\(02\)00215-4](https://doi.org/10.1016/s0168-8510(02)00215-4)
- Nelson, E.C., Batalden, P.B., Mohr, J.J., Godfrey, M.M., Headrick, L.A. & Wasson, J.H. 2002, 'Microsystems in healthcare: Part 1. Learning from high-performing front-line clinical units', *Joint Commission Journal on Quality and Patient Safety*, vol. 28, no. 9, pp. 472–93. [https://doi.org/10.1016/s1070-3241\(02\)28051-7](https://doi.org/10.1016/s1070-3241(02)28051-7)
- Nicaise, P., Tulloch, S., Dubois, V., Matanov, A., Priebe, S. & Lorant, V. 2013, 'Using social network analysis for assessing mental health and social services inter-organisational collaboration: findings in deprived areas in Brussels and London', *Administration and Policy in Mental Health and Mental Health Services Research*, vol. 40, no. 4, pp. 331–39. <https://doi.org/10.1007/s10488-012-0423-y>
- PMI 2013, *A guide to the project management body of knowledge (PMBOK guide)*, vol. Fifth, Project Management Institute, Newtown Square, PA. <https://doi.org/10.1002/pmj.21345>
- Powell, W. 1990, 'Neither market nor hierarchy', *The Sociology of Organizations: Classic, Contemporary, and Critical readings*, vol. 315, pp. 104–17. <https://doi.org/10.1590/s1415-65552003000200019>
- Prell, C. 2012, *Social network analysis: history, theory and methodology*, Sage, Thousand Oaks, CA.
- Prell, C., Hubacek, K. & Reed, M. 2009, 'Stakeholder analysis and social network analysis in natural resource management', *Society and Natural Resources*, vol. 22, no. 6, pp. 501–18. <https://doi.org/10.1080/08941920802199202>
- Provan, K.G., Milward, H.B. & Isett, K.R. 2002, 'Collaboration and integration of community-based health and human services in a nonprofit managed care system', *Health Care Management Review*, vol. 27, no. 1, pp. 21–32. <https://doi.org/10.1097/00004010-200201000-00003>

- Rajablu, M., Marthandan, G. & Yusoff, W.F.W. 2014, 'Managing for stakeholders: the role of stakeholder-based management in project success', *Asian Social Science*, vol. 11, no. 3, p. 111. <https://doi.org/10.5539/ass.v11n3p111>
- Reed, M.S., Graves, A., Dandy, N., Posthumus, H., Hubacek, K., Morris, J., Prell, C., Quinn, C.H. & Stringer, L.C. 2009, 'Who's in and why? A typology of stakeholder analysis methods for natural resource management', *Journal of Environmental Management*, vol. 90, no. 5, pp. 1933–49. <https://doi.org/10.1016/j.jenvman.2009.01.001>
- Robins, G. 2015, *Doing social network research: network-based research design for social scientists*, Sage, Thousand Oaks, CA. <https://doi.org/10.1007/s10588-016-9236-y>
- Robinson, J.C. & Casalino, L.P. 1996, 'Vertical integration and organizational networks in healthcare', *Health Affairs*, vol. 15, no. 1, pp. 7–22. <https://doi.org/10.1377/hlthaff.15.1.7>
- Rowley, T.J. 1997, Moving beyond dyadic ties: a network theory of stakeholder influences, *Academy of Management Review*, vol. 22, no. 4, pp. 887–910. <https://doi.org/10.5465/amr.1997.9711022107>
- Scholz, J.T., Berardo, R. & Kile, B. 2008, 'Do networks solve collective action problems? Credibility, search, and collaboration', *Journal of Politics*, vol. 70, no. 2, pp. 393–406. <https://doi.org/10.1017/s0022381608080389>
- Scott, J. 2012, *Social network analysis*, Sage, Thousand Oaks, CA.
- Strandberg-Larsen, M. & Krasnik, A. 2009, 'Measurement of integrated healthcare delivery: a systematic review of methods and future research directions', *International Journal of Integrated Care*, vol. 9, no. 1. <https://doi.org/10.5334/ijic.305>
- Suter, E., Hyman, M. & Oelke, N. 2007, 'Measuring key integration outcomes: a case study of a large urban health center', *Healthcare Management Review*, vol. 32, no. 3, pp. 226–35. <https://doi.org/10.1097/01.hmr.0000281624.43611.dd>
- Valente, T. W. (2010). *Social networks and health: Models, methods, and applications*: Oxford University Press.
- Valentijn, P.P., Schepman, S.M., Opheij, W. & Bruijnzeels, M.A. 2013, 'Understanding integrated care: a comprehensive conceptual framework based on the integrative functions of primary care', *International Journal of Integrated Care*, vol. 13, no. 1, pp. 655–79. <https://doi.org/10.5334/ijic.886>
- Van Lerberghe, W. 2008, *The world health report 2008: primary healthcare: now more than ever*, World Health Organization, Geneva, Switzerland.
- Varvasovszky, Z. & Brugha, R. 2000, 'A stakeholder analysis', *Health Policy and Planning*, vol. 15, no. 3, pp. 338–45. <https://doi.org/10.1093/heapol/15.3.338>
- Wasserman, S. & Faust, K. 1994, *Social network analysis: methods and applications*, vol. 8, Cambridge University Press, Cambridge, UK. <https://doi.org/10.1017/cbo9780511815478>
- Wasserman, S. & Galaskiewicz, J. 1994, *Advances in social network analysis: research in the social and behavioral sciences*, vol. 171, Sage, Thousand Oaks, CA. <https://doi.org/10.4135/9781452243528>
- Yang, J., Shen, Q. & Ho, M. 2009, 'An overview of previous studies in stakeholder management and its implications for the construction industry', *Journal of Facilities Management*, vol. 7, no. 2, pp. 159–75. <https://doi.org/10.1108/14725960910952532>