UNPACKING THE CONNECTIONS BETWEEN NETWORK AND STAKEHOLDER MANAGEMENT AND THEIR APPLICATION TO ROAD INFRASTRUCTURE NETWORKS IN QUEENSLAND

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Abstract

Since the late twentieth century, there has been a shift away from delivery of infrastructure, including road networks, exclusively by the state. Subsequently, a range of alternative delivery models including governance networks have emerged. However, little is known about how connections between these networks and their stakeholders are created, managed or sustained. Using an analytical framework based on a synthesis of theories of network and stakeholder management, three cases in road infrastructure in Queensland, Australia are examined. The paper finds that although network management can be used to facilitate stakeholder engagement, such activities in the three cases are mainly focused within the core network of those most directly involved with delivery of the infrastructure often to the exclusion of other stakeholder groups.

INTRODUCTION

It has long been considered that investment in public infrastructure can have a significant positive impact on economic growth (Munnell 1992) and has been recently used as a nation-building strategy in an effort to mitigate the impacts of the global financial crisis. Decisions made about roads management, for example, can therefore have a critical impact on the social, economic and environmental well-being of citizens and communities. As with many other jurisdictions, Queensland has experienced a step-change in the way in which infrastructures are delivered. Single agency approaches are being replaced or supplemented with multi-jurisdictional networks of organizations working together with the assumption that this leads to more complete information, access to a wider set of resources, and therefore better decision making, planning and implementation (Ryan and Walsh 2004).

Adopting a network approach extends the array of people and organizations involved in infrastructure decision-making to include organizations and people previously excluded from or on the periphery of decision processes. The term stakeholder has been used to describe this extension of actors involved in decision-making. Straus (1999: 293–4) notes that stakeholders are the 'people or organizations who are responsible for a decision or a problem, will be affected by the outcome of an agreement, have the power to block it, or have information or expertise relevant to the discussions'. However, not all stakeholders have equal status: some are core members of the network and are directly involved in decision-making action, others may have their interests represented on that core group, and still others may choose to or be relegated to the decision-making peripheries. Susskind *et al*. (1999: 13) thus identifies 'circles of stakeholders', individuals or groups that want or ought to be involved in decision-making but at different levels of intensity. Network stakeholders are considered to be essential to the achievement of effective goals as they bring resources,

funds, knowledge and expertise to the table thus creating value-add by ensuring projects are completed in time and on budget.

The ability to optimally engage stakeholders in infrastructure networks is complicated by several factors, including the staged length and complexity of projects (Yang and Yuan 2009 and the shifting stakeholder interest at different stages. The differing levels of interest by stakeholders in projects can also lead to shifting levels of commitment and contribution to projects and their outcomes (Newcombe 2003).

Dealing with these dynamics through stakeholder engagement, however, offers the possibility that potential project risks associated with stakeholders can be more effectively managed (Bourne and Walker 2008). As El-Gohary, *et al*. (2006: 604) note: the 'involvement with stakeholders can be a decisive factor that can "make or break" a project'. Accordingly, managing stakeholders' engagement within the context of a governance network has been identified as a critical issue.

Within the context of road infrastructure delivery, Yang and Lim (2008: 2) have also identified that there is a need to establish new approaches that integrate and synthesize the different perspectives of multiple stakeholders and within new frameworks of local governance (Tavares and Camões 2010). This is not a straightforward matter given that road infrastructure may be planned, constructed and managed through arrangements that involve the public and private sectors working jointly within networks (Chinyio and Olomolaiye 2010). Furthermore, the scale of infrastructure projects may also impact on stakeholder engagement. While large infrastructure projects may stretch across many local government areas and communities, smaller scale annual works programs are likely to be more localized.

This distinction may impact on the scale and scope of stakeholder engagement activities required.

Although governance networks have come to the fore as mechanisms for road infrastructure delivery, little is known about the role that network management plays in facilitating engagement of often diverse and potentially disconnected stakeholders. It could be argued that stakeholder management is an integral part of network management rather than two distinctive realms that require bridging. However the relationships between stakeholder and network management remain unclear. Specifically, the concept that stakeholder engagement could fit within the framework of network management has not been previously considered.

This paper therefore makes an original contribution to the literature of stakeholder engagement and network management, both by more explicitly integrating these two overlapping literatures to show the relationships between them, and then using road infrastructure delivery networks in Queensland as an example through which to explore the applicability of the resultant analytical framework.

To build an analytical framework against which case study networks can be assessed, the next section outlines the major concepts of stakeholder and network management. From this a synthesis of the literatures of stakeholder and network management is used to present a Preliminary Framework for Network and Stakeholder Management. Following a description of the methodology for the case studies, findings are highlighted, and key lessons distilled from the parallels between stakeholder and network management and how they apply to road infrastructure delivery networks, are discussed in the conclusions.

STAKEHOLDER AND NETWORK MANAGEMENT

Stakeholder Management

The literature has suggested a number of steps that are important in effectively managing stakeholders (Freeman 1984) and for networked infrastructure projects stakeholder engagement may occur through iterative movement through a series of five interlinked activities. The starting point, stakeholder identification (Friedman and Miles 2006), focuses on how the stakeholders of an infrastructure project are defined by the network. Stakeholder identification incorporates two steps. Firstly, based on criteria established by the network, relevant stakeholders are specified. Subsequently an opportunity would be provided for stakeholders to identify themselves and consequently participate in network processes.

A second step by the network would be to classify and prioritize stakeholders according to one of the many schemas suggested in the literature (Friedman and Miles 2006; Gomes *et al*. 2010a; Gomes *et al*. 2010b). Following the allocation of priorities to various stakeholders, the strategy development phase (Freeman 1984) centres on building stakeholder relationships that are strategically important and buffering projects against spiralling conflict. Based on such a strategy, stakeholder engagement that involves a structured approach to connecting with stakeholders (Thomson and Bebbington 2005) may be enacted with stakeholders. The final step would be the maintenance or de-activation of stakeholder relationships (Crane and Livesey 2003) depending upon their continuing strategic importance to project outcomes.

Applying a stakeholder management framework translates into the challenge of satisfying 'the needs and interests of stakeholders at network and organization levels, while

emphasizing the broader needs of the community and the clients the network must serve'
(Provan and Milward 2001: 422). Further, it could be argued that deciding how to include
stakeholders in decision-making processes about projects delivered through networks is an
essential activity driven by the need to manage the significant impacts that stakeholders can
have on project success.

Network Management

Governance network management has as its primary goal the successful completion of
projects within scope, time and budget. An important aspect of the process is effectively
engaging with and managing actors in network processes, so as to improve outcomes by
incorporating a range of diverse ideas, insights, responses and solutions (Agranoff and
McGuire 1999). This concept is supported by Koppenjan and Klijn (2004), who contend that
engaging with actors in network processes is a fundamental aspect of network management.

Keast and Hampson (2007) in a recent study of an inter-organizational innovation
network, noted that network relationships need to be strategically managed by networks to
obtain the best possible results. In contending that management 'must happen for networks to
be effective', McGuire (2003: 6) also supported this position. Despite acknowledgement
that networks and therefore the interconnecting relationships through which they operate
(Klijn and Skelcher 2007) need to be managed, there are ongoing debates in the literature
about the conceptualization of network management and activities that might be undertaken
under the auspices of network management. Specifically, a wide range of non-traditional
management strategies have been proposed as mechanisms for guiding network interactions.
Table 1 summarizes the major activities undertaken at the different phases of network
management.

Insert Table 1 about here

The following synthesis of the extant literature of network and stakeholder management demonstrates the close fit between network management functions and stakeholder management activities.

SYNTHESIS OF LITERATURES

Activating

Activating refers to the identification of network members and the strategic assessment of the skills, knowledge and resources that they can bring to the network (Agranoff and McGuire 2001). Securing the 'buy in' of these members is critical to network success (Agranoff and McGuire 2003). For some theorists, there is little differentiation between network actors/members and stakeholders (Koppenjan and Klijn 2004).

Given that Gray (1989) has supported the need for networks to identify stakeholders it could be argued that the task of identifying stakeholders, who may be affected by or affect (Freeman 1984) the achievement of network outcomes, is encompassed within the activating function of network management. De Bruijn and Ten Heuvelhof's (2008) contention that actor analyses need to be undertaken to determine who would be affected by network decisions also supports this position.

Klijn's (1996) argument that an element of selectivity is required when bringing new actors into networks, points to a parallel process in the stakeholder literature: classification of stakeholders and the subsequent attribution of priorities. Prioritizing stakeholders is fundamentally a process of selectively making choices between stakeholders based on a range

of attributes including access to resources (Frooman and Murrell 2005). The similarity between these processes adds weight to the argument that stakeholder prioritization could be aligned with the network activating function.

Framing

Framing is defined as establishing and influencing the operating system of the network through the development of rules and norms and altering the perceptions of network participants by creating 'a sense of interdependency and the need for collective action' (Keast and Hampson 2007: 368). Through a process of iterative discussions and negotiations, framing shifts the orientation of members from a single organization to a collective approach (Mandell and Keast 2007).

Framing is reflected in stakeholder management in two ways. Firstly, framing activities extend beyond the network boundary to establish the terms of engagement for interactions with stakeholders in the surrounding web of relationships (Rowley 1997). This may involve establishment of core/periphery roles (Nordin and Svensson 2007) based on the priorities allocated to stakeholders. Secondly, framing can be used to establish how the network engages with stakeholders as a means of building interdependency and increasing the level of commitment to collective outcomes over self interest. In this way, relationships with stakeholders can be leveraged to create the collaborative advantage necessary to achieve network outcomes.

Mobilization

Mobilization is concerned with inducing individuals to make a commitment to the joint action and to keep that commitment, by motivating, inspiring and building commitment by

bringing together separate entities into a collective unit through alignment of interests and building a sense of common purpose (Mandell and Keast 2007). Key mobilization tasks include developing new coalitions and building support both within and beyond the network (McGuire 2006). It could be argued, therefore, that these activities can be directly related to processes associated with stakeholder engagement. Mitchell *et al*. (1997) have confirmed that stakeholder identification may be undertaken with the objective of coalition building, whilst Bryson (2004) asserts that stakeholder analysis is an important factor in coalition building.

Mobilizing behaviours are also used to develop support for network processes from participants and stakeholders. Mobilizing external support for the network may, for example, involve bringing key stakeholders into the network. When viewed as a catalyst for stakeholder engagement, mobilization provides a means of building support beyond network boundaries through deliberative relationship development strategies designed to ensure stable resource flows (Keast and Hampson 2007), a strong motivation for stakeholder engagement.

As shown previously, mobilization may extend to stakeholder engagement through building coalitions to achieve network outcomes and facilitating access to resources or capabilities to achieve specific objectives.

Synthesizing

The synthesizing activity of network management focuses closely on developing the environment and conditions that engender productive relationships among members and leveraging collective benefit from relationships (Keast *et al*. 2006), thus preventing, minimizing or removing blockages to interaction. One of the key activities in maintaining these relationships is 'checking levels of engagement and contribution' (Keast and Hampson

2007: 370). Monitoring of engagement levels also has currency in the stakeholder management literature (Freeman 1984). Synthesizing provides the opportunity for networks to recalibrate engagement processes and contact levels to build more effective relationships.

By extending synthesis beyond network boundaries and into the surrounding web of stakeholder relationships, additional resources and capabilities can be tapped to achieve stakeholder and network outcomes. Such relational leveraging works by networks and stakeholders coming together and cooperating 'to improve everyone's circumstance' (Freeman *et al*. 2004: 364). For such relational leveraging to work effectively, value needs to be created for stakeholders

The preceding discussion has therefore demonstrated that the relational tasks associated with stakeholder management align to varying degrees with the activating, framing, mobilizing and synthesizing functions of network management. The interrelationships between network and stakeholder management activities are outlined in the framework proposed in Table 2.

Insert Table 2 about here

Given the relational tasks embedded in both network (Keast and Hampson 2007) and stakeholder management (Maak and Pless 2006), it could be argued that there is an alignment between the two concepts particularly within the activating, mobilizing and synthesizing functions. Although preliminary in nature, this framework provides an indication of how stakeholder engagement might be conceptualized and applied in a networked situation.

Infrastructure and road infrastructure networks as 'special cases'

Infrastructure delivery networks exhibit a number of factors that often add a level of complexity to the issues discussed above. These can alter the timing and weighting given to particular elements within the framework presented, though without changing the basic framework itself.

First, stakeholder engagement in infrastructure decision making is a complex undertaking, most often addressed in the planning and construction phases. Infrastructure, however, is also long lived and follows a long and complex lifecycle (Yang and Yuan 2009), which reaches well beyond the construction phase itself, into maintenance and divestment. Secondly, stakeholder engagement most likely occurs in two phases: short term and long term with different sets of issues arising at each phase. Further complicating this issue, stakeholder groupings are unlikely to remain stable over the lifetime of a piece of infrastructure due to factors such as population movements. Finally, decisions made at earlier lifecycle stages e.g. planning, create fixed non-negotiable factors that will impact on engagement undertaken in future phases of the lifecycle. As a result, stakeholder engagement may be required at a greater number of stages, and over longer timeframes, than for non-infrastructure projects.

The nature of road construction as a specific infrastructure also raises a number of almost unique challenges for stakeholder engagement. Road projects may cover considerable distances, traverse different local government boundaries and have different types of impact on property owners. Lacking a geographical community of place or common interests (Hustedde 2009), stakeholder concerns may therefore vary significantly, requiring specialized

and highly time consuming responses. A further complication is the lack of differentiation between infrastructure projects which may stretch across many local government areas and communities and annual works programs which mainly address road repair and maintenance in a more confined area. As a result, different intensity and types of stakeholder engagement processes may be required.

Acknowledging the need to engage with directly affected stakeholders such as those facing loss of amenity due to factors such as noise, pollution and reduced property values, there are also likely to be 'hard to reach' (Brackertz *et al*. 2005: 6) or reluctant stakeholders who are difficult to identify and connect with. Furthermore, the significance of citizen involvement in decision making cannot be under estimated (Edelenbos and Klijn 2006), though the 'silent majority' in the community are often not heard directly. This does not preclude possible proxy representation by representative bodies such as voluntary or community organizations.

While acknowledging that road planning and construction can be highly context specific, it is argued that the issues resulting from road delivery by networks still fall into the categories incorporated within the general framework posited above. It could be argued, for example, that in the context of road infrastructure projects, framing is still important, though likely to be emphasized more at the planning and construction phases because of issues such as property resumptions, noise concerns, loss of access and environmental problems.

Mobilizing is also especially critical to road infrastructure networks because of the propensity of stakeholders with conflicting objectives to consume significant amounts of time while differences are resolved (Olander and Landin 2005). Therefore effective mobilization

of stakeholders could reduce the incidence of road infrastructure projects becoming embroiled in negative spirals of controversy and conflict. Like activation, it could be argued that mobilization is a cyclical process that occurs at various road infrastructure lifecycle phases to ensure that resource flows are not interrupted by unresolved conflicts.

Synthesis may also represent a pathway for engaging with stakeholders who are on the periphery (Rowley 1997) of road infrastructure networks. Indeed network synthesis activities could be considered a key activity for infrastructure networks seeking to engage with stakeholders as a means of reducing project risks that could result in project failure. It could also be argued that synthesizing will come to the fore during project planning and construction phases, which are likely to have the greatest impact on stakeholders due to factors such as uncertainty about proposed routes, noise problems and traffic disruptions. In the case of road construction projects, synthesis could therefore be more complex as a result of the multiple activation cycles that are likely to take place in projects that span long periods of time.

METHODOLOGY

To examine the extent to which stakeholder engagement overlaps with or is incorporated into network management, three regional road groups (RRG) networks at different geographic locations in Queensland were selected as case studies. The primary role of these networks is to manage a regional program of works that are largely situated within the maintenance stage of the infrastructure lifecycle. Project implementation is primarily undertaken by regional councils who are members of the networks. As part of a larger study, a series of interviews was undertaken with key informants of each of the three networks.

A purposeful sample (Patton 2002) of key informants was selected using three criteria. Firstly, key informants were drawn from each of three major occupational categories in the networks: technical, political and managerial. Secondly, key informants were selected to get a spread across the nineteen organizations and groups represented in the networks' thirteen regional councils, the state road construction authority, two regional organizations of councils, the Local Government Association of Queensland and engineering consultants. Finally a mix of both long-standing and 'new' key informants was selected from each network. In total forty seven interviews were undertaken. Key informants who representative of the following groups; senior engineers, managers, consultants, mayors and councillors, agreed to participate in initial and follow up interviews.

Questions focused on the identification and classification of stakeholders, the processes for engaging stakeholders in network activities and managing relationships between stakeholders and the networks. Interviews were undertaken by phone or in person at the convenience of the interviewee. An interview protocol was used to ensure that all questions were completed, thus reducing interviewer bias (Patton 2002). Documentary evidence was used as an additional source of information and to confirm interviewee accounts and identify inconsistencies. Triangulation across data sources enhanced the validity of the results (Miles and Huberman 1994). By tapping into the participants' 'lived experience' (Yin 2003) of the networks, the relationships between network actors and with stakeholders, and the processes that facilitated stakeholder engagement, an in-depth understanding of network processes and activities was developed.

The next section uses empirical data from the case studies, particularly respondents' comments, to test the fit and relevance of the Preliminary Framework for Network and Stakeholder Management with the complex reality of road infrastructure networks.

CONNECTING STAKEHOLDERS WITH NETWORKS

This paper proposes that stakeholder and network management undertaken by governance networks is linked; a concept not previously addressed in the literature. Figure 1 shows the proposed interlinkages and provides the context for the forthcoming discussion.

Figure 1 about here

Activating

In their recruitment phase, the combined RRG networks identified seventy seven stakeholders across several groups: state, federal and local government, approval bodies, industry and interest groups and elected representatives. In focusing on inter-governmental and institutional representative (elected representatives, authorizing) bodies, the RRGs provided a clear departure from Chinyio and Olomolaiye (2010), who stressed the importance of a much wider community involvement including project owners, contractors, funding bodies, property owners and citizens.

The omission of these groups as stakeholders of the RRGs may be explained, in part, by the networks' primary function of managing a funding program rather than undertaking projects. As was explained by one respondent: *'The purpose of the RRG is to… identify projects and get money allocated to those projects on that group of roads'* (Case 2, Interviewee 10). Further, while the concept of treating road users as stakeholders has been

contemplated by one network, it has not been acted upon; '*the users are the big stakeholders*

in it as well. Our Roads Group has discussed it a couple of times, but we haven't moved

forward on it at the moment' (Case 2, Interviewee 8). In the second part of the recruitment

phase, the networks segmented stakeholders into three levels depending on the level of

interaction with the network: network members, actively engaged and potential stakeholders

as shown in Figure 2.

Insert Figure 2 about here

The segmentation between network members and actively engaged stakeholders may be a

result of the decision making capacity of some key stakeholders e.g. the state road

construction authority and regional councils who are regarded as the core of the network. At

the second level, the networks have contact with a number of actively engaged stakeholders,

e.g. economic development agencies and state and federal elected representatives, primarily

to obtain access to resources. A third grouping of potential stakeholders who are currently

outside the network boundary has also been identified. This third grouping of 'potential'

stakeholders is not activated by the networks. One interviewee conceptualized the link with

'potential' stakeholders in this way: '*I think it is important that at some stage they become*

stakeholders, but how we do that, or whether even initially it is just a matter of having

consultation with them and not being part of the group' (Case 2, Interviewee 8). Further

beyond the network boundary, a fourth grouping of stakeholders i.e. contractors, road users,

property owners and the citizenry as identified in the work of Chinyio and Olomolaiye

(2010) are not discussed at all by the road groups. As these nascent stakeholders were not on

the 'radar screen' of RRGs, they received no attention at all.

The analysis indicates that the networks recruit some stakeholders but also exclude others. However the core network members are drawn from a select group with technical expertise, a shared funding source and geography in common. While being able to discern both between network participants and stakeholders (Gray 1989), there is little interaction between core network members and the outer levels. Although having some insight into the value of stakeholder input: '... *sometimes those operators see a completely different aspect'* (Case 2, Interviewee 8), the networks appear to have largely chosen not to bring stakeholders into core decision making processes. As a result, 'activating the right players with the right resources' (Agranoff and McGuire 2001: 14) seems to stop largely at the network boundary. This demarcation may be indicative of an 'iron triangle' (Heclo 1978: 102) approach in which a small group controls network decisions thus minimizing external influences (Dredge 2006). This appears to be the case; that as the boundary between the networks and stakeholders solidifies; less and less activating is undertaken.

The previous discussion highlights how stakeholder engagement and network activation may be linked through selection and recruitment of stakeholders. However, it also indicated that the networks are not necessarily open to incorporating inputs from the broadest range of relevant stakeholders.

Framing

Network framing activities essentially involve negotiation of roles both within the network and beyond into bordering networks of relationships (Rowley 1997) including those with stakeholders. The interview data indicates that network managers limit framing to the core group of network members. Indeed, it was considered that the network managers were in a constant process of framing and reframing issues to achieve '*the long term aims and goals of*

the RRG' (Case 3, Interviewee 4). One interviewee described how framing helped to provide the common vision and purpose for the core membership to work together:

> *he (*network manager*) coordinates and pulls together the technical staff from all of the regions and he provides a link between the discussions at a technical level and the discussions at a political level in the RRG, so …we don't have one group of political people going off on one tangent, in a direction that can't be supported on the ground, and vice versa, we don't want engineers rushing off in a direction that is not going to supportive of the community (*Case 2, Interviewee 7).

This sense of shared purpose is evident among network members in the development of the annual works program. In this instance, the network manager drew upon conventional co-ordination strategies such as regular meetings, clear assignment of tasks and active follow up to secure agreement about project funding requirements, as a foundation for subsequent action. In this way, the framing activities of the network appeared to be restricted to core membership, and were not used to negotiate terms of engagement with wider stakeholders.

Operating rules appear to be implicit and seem to indicate that stakeholder engagement is mainly the domain of member organizations undertaking projects endorsed by the network rather than the collective responsibility of the network. A further example that operating rules pertaining to stakeholder engagement are implicit and mediated rather than explicit, is the tacit agreement between the technical and political actors that community input will be provided indirectly by mayors and councillors whereby '*feedback or the feed through is coming from the people through the council to the RRG… and the Council would have other stakeholders feeding them as well'* (Case 2, Interviewee 9). As a result the input from community is mediated through political representatives rather than obtained directly.

Obtaining community input in this manner appears to be based on an implicit assumption that the councils involved will have effectively functioning feedback systems which incorporates feedback from both the organizational and political levels. The following comment on the veracity of the feedback system illustrates the fundamental problem with such a mediated feedback system:

> *I have to go through the professional engineering avenue and bring that back as reports to Council and then I have to argue it then on a political level. It's really quite demanding of a councillor elected person's role who is closest to the people to be so distanced from the actual commonsensical decisions that are being made on behalf of the community* (Case 2, Interviewee 11).

The danger in such an approach that substitutes technical and political judgements for direct public input is the potential for distorted outcomes such as inappropriate road location. In addition to failing to meet the needs of road users this could also disadvantage communities. As a result, the absence of direct public input into RRG decision could be problematic.

Ideally, framing activities could be used to negotiate roles and rules for both network operations and broader stakeholder engagement. However, framing is not extending to engagement of stakeholders as would be anticipated. The underlying narrative of the networks that stakeholder engagement is a peripheral issue and is undertaken '*as an issue pops up'* (Case 1, Interviewee 2) shows how framing is creating a barrier (Termeer 2009) to stakeholder engagement.

Mobilization

Two important objectives of mobilization are to build support within and beyond the network and establish new coalitions to undertake specific activities. However as the following statement indicates, the roads networks are primarily internally focused and have built internal support, which was described by one interviewee in this way;

> *You've got the guys sitting down and talking about issues on a regular basis. They have got that opportunity to bounce things off different people…They know they can ring one another and talk to one another about any number of issues* (Case 2, Interviewee 4).

Engaging with stakeholders is considered to be primarily the responsibility of *'individual council reps'* (Case 2, Interviewee 2). One interviewee described such a situation; '*If we have implications with some state policies I will get on the phone and speak with...* ' (Case 1, Interviewee 6). On occasions, a more collective approach is taken to stakeholder engagement as a means of building support. For example, in an effort to ensure that a particular stakeholder group which was considered to be withholding project approvals '*could understand the issues*' (Case 1, Interviewee 6), they were invited to participate in a two day road inspection trip with network members.

However, stakeholder engagement is also used to achieve instrumental outcomes rather than build support. For instance, in an effort to break a deadlock with a state agency about access to gravel, a network member threatened the closure of important roads if an agreement could not be reached with government (Elks 2010). To resolve the disagreement, government approved temporary access to gravel pits. Using such aggressive tactics with

stakeholders demonstrates that mobilization activities are not necessarily used to build relationships.

Although external coalition building has not been a deliberate strategy, the networks do have the ongoing support of government as evidenced by the continued funding commitment until at least 2013 (The Roads Alliance 2008). However, it is not apparent that development of coalitions occurs with stakeholders and thus the benefits of mobilization in this way are unable to be leveraged to achieve network outcomes.

It is evident that network members value and continue to build internal support. However, the individualist approach to stakeholder engagement appears to be largely substituting for stakeholder mobilization activities. As a result, the benefits of leveraging stakeholder relationships are suboptimal; with mobilization restricted to network member level, rather than flowing through to the wider stakeholder group.

Synthesizing

The main focus of network synthesizing is to build and maintain relationships by checking levels of engagement and leveraging resources to create value for the network. The interview data revealed that two of the networks check the internal levels of engagement, although this is primarily in relation to the management of funding rather than participation levels more generally. This finding points to a somewhat 'instrumental' orientation. Overall, it appears that the monitoring role is generally the domain of the network managers who '*get around the councils and talk to them regularly and make sure they are up to speed. They help them with submissions and the assessment process, explaining the processes*' (Case 2, Interviewee 1). A network manager member described this role as '*being that conduit to them, making*

sure we are doing the right thing, what are we missing, how are we going.' (Case 2, Interviewee 2).

Although it is evident that the network members undertake synthesizing activities, it is not, however, apparent that monitoring of external stakeholder participation is actively undertaken. This may be because stakeholder engagement is largely ad hoc and undertaken on individual basis by network members. Furthermore there is confusion about who is responsible for stakeholder engagement; technical or political network members. One elected representative commented that '*probably the technical side do the major stakeholder engagement because it is on technical issues*' (Case 2, Interviewee 12). This position was contradicted by a technical network member who commented that stakeholder engagement '*is more within the realm of the elected members… more the role of the elected member to reflect stakeholder needs and interests*' (Case 2, Interviewee 7). This contradiction may suggest that stakeholder engagement is not a high priority for the networks.

Two of the networks (Cases 1 and 2) put considerable effort into creating value for network members. In 2010 one of the networks undertook a joint purchasing initiative for termite control on timber bridges and bitumen reseals, which resulted in significant savings for the participating councils (The Roads Alliance 2010). In another instance, the network (Case 1) developed a regional asset management strategy that adds value to the network by 'Reducing costs by strategically managing the utilization of important community assets' (Irvine 2010: 1).

While it could be argued that the types of initiatives highlighted above indirectly create value for stakeholders more widely, through more efficient management of assets, this

is not an explicitly designed outcome for the networks but rather a by-product of network

operations. Any value that is created for stakeholders is incidental to the main objective of

the networks, which is to secure funds to '*improve our road network across the region*' (Case

2, Interviewee 8). Synthesizing activities, including checking levels of engagement and

creating value through leveraging resources, are being undertaken by two of the networks.

However there is little evidence that these types of activities are extended to stakeholders.

Thus network outcomes are largely based on technical expertise rather than incorporating a

broader range of perspectives.

Table 3 provides a summary of the key findings of this study, in particular the extent

to which stakeholder management activities occur at the various stages of network

management.

Insert Table 3 about here

Analysing the relationships with stakeholders in these ways should mean that road

infrastructure delivery networks are better able to understand what stakeholders are seeking

to achieve from infrastructure projects, develop options that are mutually beneficial and

negotiate productive outcomes. By creating this type of platform for engagement with

stakeholders, networks will be able to improve their capacity to manage the constant process

of framing, reframing and negotiation that inevitably results from the extended time frames of

road projects.

DISCUSSION, LESSONS AND CONCLUSIONS

Given the capacity for stakeholders to mobilize public support in favour of or in opposition to infrastructure projects (Cleland and Ireland 2006), the challenge for road infrastructure delivery networks is to be able to effectively manage a wide range of stakeholder expectations while providing the best possible roads using limited resources. Although there are clear instances of the range of network management activities in operation in the three networks studied, the occurrence of network management activities that facilitate stakeholder engagement is uncommon and undertaken in an ad hoc manner.

Furthermore, network members appear not to separate their roles as RRG and organizational members. This situation creates some tensions but they tend to be buried and thus the issue of obtaining input from stakeholders does not tend to surface. Any tensions that do arise with stakeholders are dealt with by the network member responsible for a particular project, the focus being on keeping the network members on board. Although there is communication between network members, communication with stakeholders occurs at a project level, it not being seen as a network role. This approach, therefore, while good at sustaining relationships within the core group, does not extend beyond the network boundary as a collective effort, this being undertaken by councils undertaking projects.

By examining the relationships between network management and stakeholder engagement, this paper has, generated a number of insights. First, it has indicated that theoretically, the relational tasks associated with stakeholder engagement are embedded within the network management functions of activating, framing, mobilizing and synthesizing as indicated in Figure 1. This refocuses the analysis of network management activities on the implementation of "fit for purpose" stakeholder engagement in road infrastructure networks.

Secondly, as a result of strategically using the network management functions of activating, framing, mobilizing and synthesizing as an analytical framework, the paper has identified potential gaps in stakeholder relationships that need to be addressed by networks. While acknowledging that the work of road infrastructure networks in this case is to develop and oversee an annual works program that mainly addresses the repair and maintenance of roads within a confined geographic area; there is greater emphasis on efficiency over other public values, which could have driven a greater involvement with stakeholders.

Acknowledging that infrastructure projects will pose challenges that are common to all; each will also have challenges which may be unique to it, the analytical framework developed in this paper has the potential application to the management of road infrastructure networks specifically and governance networks more widely. Further empirical testing of an analytical framework for network and stakeholder management will need to be undertaken to determine its broad applicability across a range of contexts. Future research could include application of the framework to types of infrastructure, roads at different stages of the infrastructure lifecycle as well as broader public sector networks. It could also more fully consider the impact of power differentials and tensions between political and technical actors and the impact these have on stakeholder engagement.

ACKNOWLEDGEMENTS

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Table 1 Network Management Activities

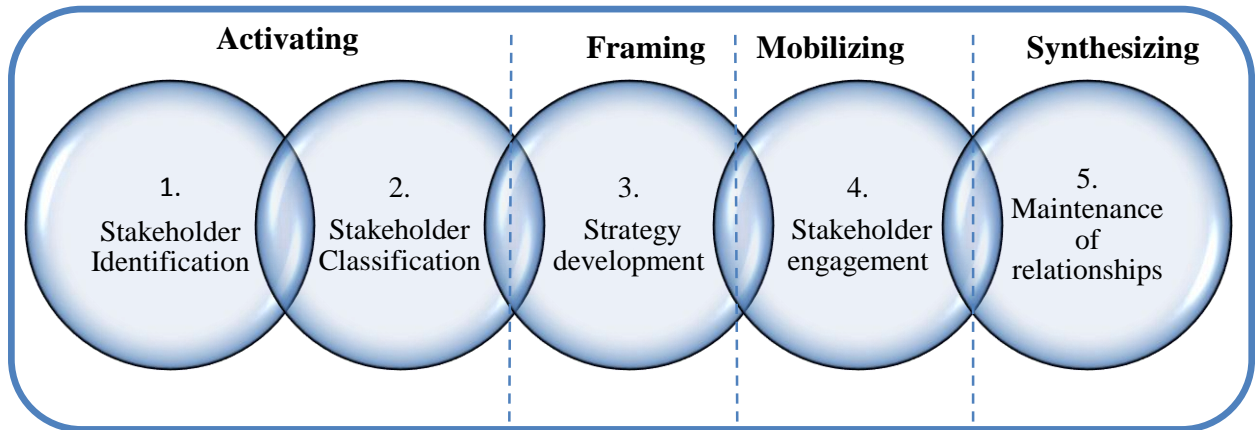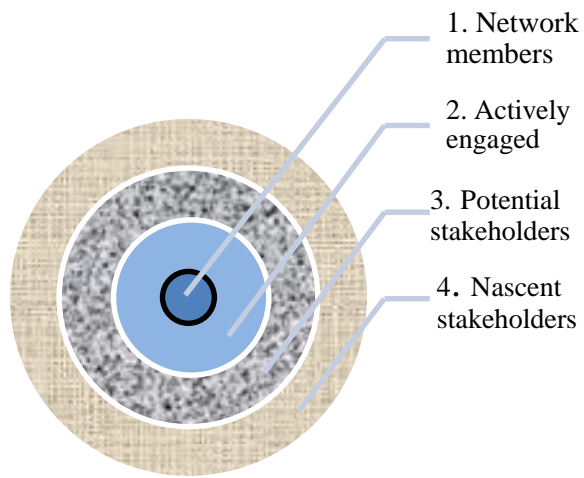| Network Management Phase	Network Management Activity
Activating: Recruiting members and resources	Identification of new network members Selecting new network members Disconnecting network members
Framing: Establishing the vision and rules	Negotiating network structure and roles Establishing terms of engagement
Mobilizing: Creating joint commitment	Obtaining support both within and outside the network Developing new coalitions to undertake specific actions
Synthesizing : Building and maintaining relationships	Checking levels of engagement and contribution Leveraging resources for the collaborative advantage

(McGuire, 2006)

Table 2

Preliminary Framework: Integrating Network and Stakeholder Management

Network Management Phase	Network Management Activity	Stakeholder Management Activity
Activating: Recruiting members and resources	Identification, selection and disconnecting network members	Stakeholder identification: • Identifying the stakeholders who may be affected or affect the achievement of network outcomes Stakeholder classification: • Attributing priorities to different stakeholders
Framing: Establishing the vision and rules	Negotiating network structure and roles Establishing terms of engagement	Establishing the role of stakeholders in the network: • Identifying core/periphery roles Establishing the terms for stakeholder interactions: • Deciding how stakeholder engagement is to be managed
Mobilizing: Creating joint commitment	Obtaining support within and outside the network Developing new coalitions to undertake specific actions	Building coalitions to achieve to network outcomes: • Undertaking engagement activities with stakeholders Obtaining access to resources or capabilities to achieve specific objectives: • Bringing key stakeholders into the network
Synthesizing : Building and maintaining relationships	Checking levels of engagement and contribution Leveraging resources for collaborative advantage	Monitoring changes in stakeholder participation levels • Determining if different processes or frequency of contact with stakeholders is required: Creating value for stakeholders: • Leveraging network and stakeholder resources and capabilities towards achievement of collective goals

Figure 1 Links between Stakeholder and Network Management

Activating   Framing   Mobilizing   Synthesizing

1.
Stakeholder
Identification

2.
Stakeholder
Classification

3.
Strategy
development

4.
Stakeholder
engagement

5.
Maintenance
of
relationships

Figure 2 Levels of Stakeholders

1. Network members

2. Actively engaged

3. Potential stakeholders

4. Nascent stakeholders

Table 3 Stakeholder Management in the Network Context

Stakeholder Management Activity	Finding
Activating: 1. Stakeholder identification 2. Stakeholder classification	1. Undertaken but a number of relevant stakeholders omitted 2. Ad hoc and targeted primarily at network member level
Framing 1. Establishing the role of stakeholders in the network 2. Developing the terms for managing stakeholder interactions	1. Core periphery roles are established with stakeholders remaining beyond the network boundary 2. Implicit rather than explicitly stated
Mobilizing 1. Building coalitions to achieve to network outcomes 2. Obtaining access to resources or capabilities to achieve specific objectives	1. No explicit strategy; largely undertaken by individual network members rather than collectively 2. Stakeholder resources are accessed and kept within the network
Synthesizing : 1. Monitoring changes in stakeholder participation levels 2. Creating value for stakeholders:	1. Not apparent that monitoring is undertaken outside of the core network group 2. Focus on internal value creation not extended to stakeholders