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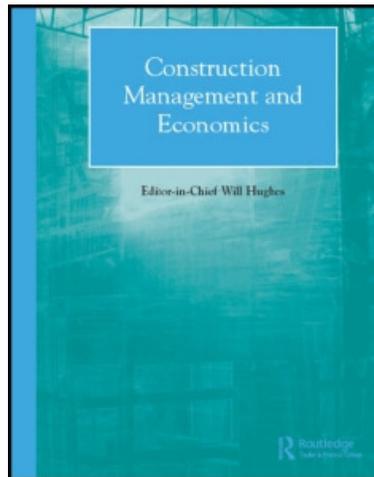
A TYPOLOGY OF OPERATIONAL APPROACHES FOR STAKEHOLDER ANALYSIS AND ENGAGEMENT:
FINDINGS FROM HONG KONG AND AUSTRALIA

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Introduction

Stakeholders are individuals and organisations "who are actively involved in the project, or whose interests may be positively or negatively affected as a result of project execution or successful project completion" (Project Management Institute, 1996). Since the nature of construction projects is uncertain and complex, stakeholder analysis and engagement in this environment is extremely challenging for project teams. To achieve project objectives, it is essential to formulate a process for stakeholder management and to identify effective approaches for stakeholder analysis and engagement (Chinyio and Akintoye, 2008).

Several scholars (e.g. Karlsen, 2002; Young, 2006; and Bourne and Walker, 2006) have studied the framework of stakeholder management and proposed different methods for stakeholder analysis. However, few have attempted to consolidate the range of practical approaches that can be used for stakeholder analysis and engagement (Reed et al., 2009), except Chinyio and Akintoye (2008), and Reed et al. (2009). Both of these studies had limited scope: Chinyio and Akintoye (2008) focused on stakeholder engagement methods in construction in the United Kingdom, and Reed et al. (2009) discussed the methods for stakeholder analysis used within natural resource management research activities. These studies identified and proposed a range of approaches that have helped the practitioners to manage stakeholders. However, their limited scope means that they do not represent the complete picture. It is thus necessary to expand Chinyio, Akintoye and Reed et al.'s work. The aim of this paper is to identify practical approaches and measure the effectiveness of these approaches, and propose a typology of approaches for stakeholder analysis and engagement. It should be noted that since the findings in this paper are based on a literature review, interviews in Hong Kong & Australia, and a survey in Hong Kong they may also be considered limited in scope. Nevertheless, it contributes to the body of knowledge about stakeholders, especially the practical methods for stakeholder management.

To achieve its purpose, this paper is organized in the following manner: Section 2 provides definitions of 'stakeholder management', 'stakeholder analysis' and 'stakeholder engagement', and also clarifies the interrelationship among these three terms. Section 3 sets out the methodology followed to investigate the practice approaches for stakeholder analysis and engagement in construction: six interviews and a questionnaire survey conducted in Hong Kong in 2008, and fifteen interviews held in Australia in 2009. Section 4 sets out the findings from the interviews and the survey. Section 5 describes a typology of approaches, based on the findings in empirical studies and a literature review. Finally, Section 6 presents two case studies to illustrate the application of the methods for stakeholder analysis and engagement, and discusses and summarizes the outcomes in the case studies.

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Terminologies

A practical working definition is that a stakeholder is any individual or group who has an interest in the project or is impacted by the project (Bourne, 2005). Based on this understanding of 'stakeholder', a large number of stakeholder studies have been conducted. However, during literature review, different scholars used various terminologies in their studies, for example, Jergeas et al. (2000), and Karlsen (2002) used 'stakeholder management'; Elias et al. (2002), and Olander (2006) applied 'stakeholder analysis' in their papers; and Greenwood (2007), and Mathur et al. (2008) stated issues related to 'stakeholder engagement'. These terms may cause confusion to practitioners, and it appears that these scholars not only did not provide clear definitions but also failed to distinguish between the terms. In an attempt to make sense of this confusion, this section defines 'stakeholder management', 'stakeholder analysis' and 'stakeholder engagement', and also clarifies the interrelationship between the three.

In terms of 'stakeholder management', while the scholars (Karlsen, 2002; and Bourne and Walker, 2006) used different statements, they all focused on the management activities related to stakeholders. Though a formal approach has not yet been developed fully for the construction industry (Chinyio and Akintoye, 2008), these activities include, but are not limited to: identifying stakeholders, gathering information on stakeholders, analysing the influence of stakeholders, communicating with stakeholders and developing strategies. The definition of

'stakeholder management' can be synthesized as: the process of identification, analysis, communication, decision making and all other kinds of activities in terms of managing stakeholders.

Regarding 'stakeholder analysis', the main question is whether 'developing strategies/ways to deal with/engage stakeholders' is part of 'stakeholder analysis' or not. Varvasovszky and Brugha (2000), and Reed (2008) identified two separate steps, namely: identifying stakeholders and their interests; and assessing stakeholders' influence and relationships. Comparatively, Gupta (1995) appended 'strategies/ways' as part as the final step for stakeholder analysis. That is, these scholars consider decision making as part of stakeholder analysis. Thus decision making is can be an essential aspect of stakeholder management. But the question is should it be included in stakeholder analysis? According to the Merriam-Webster Dictionary (2009), analysis is "an examination of a complex, its elements, and their relations". In the context of this definition, decision making should not be included in 'stakeholder analysis'. To clarify the concept, in this paper, stakeholder analysis is considered as a process of identifying stakeholders and their interests, and assessing stakeholders' influence and relationships. Based on literature review, a variety of tools and approaches, such as snowball sampling (Varvasovszky and Brugha, 2000), Power/Interest matrix (Olander, 2006), can used for stakeholder analysis in different areas (Reed, 2008). To categorize the approaches, Reed (2008) separated the stakeholder analysis process into three steps, namely, (1) identifying stakeholders; (2) differentiating between and categorising stakeholders; and (3) investigating relationships between stakeholders. Similar to Reed's study, during the interviews and survey (described in Section 3), approaches for stakeholder management were also collected following three steps of stakeholder analysis: (1) identifying stakeholders and their interests, (2) assessing stakeholders' influence; and (3) analyzing stakeholders' relationships.

Comparing to stakeholder analysis, stakeholder engagement is to communicate with, involve, and develop relationship with stakeholders (Greenwood, 2007; and Chinyio and Akintoye, 2008). Stakeholders should be engaged as early as possible, and this has been considered as essential for high quality and durable decisions (Chess and Purcell, 1999; and Reed et al., 2006). Many scholars categorize stakeholders into different groups, such as Blair and Whitehead's (1998) 'potential for collaboration' and 'potential for threatening', Goodpaster's (1991) 'fiduciary' and 'non-fiduciary', and Clarksons' (1995) 'primary' and 'secondary'. However, before this can be done, it is necessary to involve some of the stakeholders to identify others or do analysis (Reed, 2008), especially in the context of complicated environment, such as construction projects. Therefore, stakeholder engagement can contribute to stakeholder analysis, and some of the approaches for stakeholder engagement, such as workshop, and interviews (Ballejos and Montagna, 2008), could be used as stakeholder analysis methods. In terms of the relationship among 'stakeholder management', 'stakeholder analysis' and 'stakeholder engagement', both 'stakeholder analysis' and 'stakeholder engagement' are parts of the activities for 'stakeholder management'. Since the interrelationship exists between 'stakeholder analysis' and 'stakeholder engagement', methods of 'stakeholder engagement' can be applied for communications with stakeholders during analysing stakeholders.

Research methodology

This research aims to identify the approaches employed in stakeholder management practice and combine them with those proposed by other scholars to develop a typology of approaches for 'stakeholder analysis' and 'stakeholder engagement'. The research began with six semi-structured interviews with an aim of identifying practical approaches in Hong Kong. The six experts were selected because they all had more than 10 years' experience in stakeholder management on the construction projects, had different roles in projects (Client, Consultant and Contractor), and were from different types of organizations (Government, Education, and Company). A semi-structured approach was adopted in the interviews. Questions used in the interviews include but were not limited to:

- How do you identify project stakeholders and their interests?
- How do you identify which stakeholders are more important than others?
- How do you analyse the interrelationship among stakeholders? and
- What methods do you use to engage project stakeholders?

Content analysis was used for "extracting and corroborating meaning from the interviews" (Chinyio and Akintoye, 2008). An initial list of approaches for stakeholder analysis was synthesized, and the first version of the survey questionnaires was developed after these interviews.

Prior to sending questionnaires, a pilot study was conducted to pre-test the suitability and comprehensibility of the questionnaire. Two project managers, one a client representative and the other a contractor, were asked to complete the preliminary questionnaire. Their suggestions were incorporated into the final version of the questionnaire. The main part of the questionnaire rated the effectiveness of each approach identified for stakeholder analysis and engagement according to a five-point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree). The full-scale survey was conducted in Hong Kong in August 2008, and its respondents were project managers selected randomly from different organisations in the construction industry. A total of 183 completed questionnaires were received consisting of 81 respondents from client organisations, 45 from contractor companies, and 57 from consultant organisations. The response rate was 28%, which was consistent with "the norm of 20-30% with most questionnaire surveys in the construction industry" (Akintoye, 2000). The outcome of this survey is rankings of the effectiveness of the identified approaches.

In order to identify practical approaches in a place with a different culture from Hong Kong, and compare & improve the results with those obtained in Hong Kong, fifteen interviews were conducted in Melbourne, Australia. The fifteen experts, whose experiences on stakeholder management ranged from 11 to 20, worked for governments, education organizations, companies or Non-Government Organizations. They were not only from the construction industry, but working for general management, community relationships, and business. Experts from different areas were chosen because stakeholder management in construction is high related to general management and community engagement; this would be useful for identifying more effective approaches than if the focus was only on construction. The same questions were used during the fifteen interviews as those in Hong Kong, but all the identified approaches were listed under each question for the interviewees' comments and references. Several additional approaches and suggestions for stakeholder analysis and engagement were synthesized to revise the list of practical approaches. Based on the revised list and a literature review, a typology of approaches for stakeholder analysis and engagement in construction is developed.

Research findings

4.1 Findings from the empirical studies in Hong Kong

Several approaches for analysing and engaging stakeholders were identified during the interviews and the questionnaire survey in Hong Kong (Table 1). The effectiveness of the identified approaches was explored based on the mean values of the responses. Kendall's Coefficient of Concordance was calculated for measuring the agreement of respondents on their rankings of the approaches.

In terms of 'identifying stakeholders and their interests', 'personal past experience' is ranked higher. This indicates that the experience of project managers is important. This finding is in line with the study conducted by Chinyio and Akintoye (2008), as they identified 'intuition' as an important method for stakeholder management.

It is interesting that 'asking the obvious/identified stakeholders to identify others' is also considered an effective method for identifying stakeholders. This method is also called 'snowball sampling' (Patton, 1990). Its aim is to make use of stakeholders' knowledge about those who have skills or information in particular areas. 'Focus group meeting' is ranked highest for identifying stakeholders' interests. Focus groups aim to discover the key issues of concern for selected groups (Dawson et al., 1993), and may also be used to discover preliminary issues that are of concern in a group or community (Victorian Government Department of Sustainability and Environment, 2005). Methods for stakeholder identification also include: 'guidelines in the organisation, professional services, directed by higher authorities, interviews, public consultation, formal memos, and questionnaire'. Though these methods are not ranked high, the results of the surveys show the mean values of 3 (Neutral) or larger calculated by SPSS.

Purposes			Methods	Mean	Kendall's W [a]
Stakeholder analysis	Identifying stakeholders and their interests	Stakeholder list	Personal past experience	4.15	0.094
			Asking the obvious/identified stakeholders to identify others	3.70	
			Guidelines in the organisation	3.61	
			Professional services	3.55	

		Directed by higher authorities	3.52	
	Stakeholders' interests/ information	Focus group meetings	4.28	0.197
		Personal past experience	3.80	
		Interviews	3.78	
		Public consultation approaches	3.75	
		Formal memos	3.45	
		Questionnaires	3.23	
Assessing stakeholders' influence		The stakeholders' power	4.17	0.184
		The directives from higher authorities	4.08	
		The urgency of the stakeholders' requests	3.77	
		The stakeholders' proximity	3.60	
Analyzing stakeholders' relationships		Personal past experience	3.91	0.067
		Workshops	3.90	
		Interviews	3.79	
		Public engagement approaches	3.71	
		Surveys	3.47	
Stakeholder engagement		Meetings	4.31	0.202
		Workshops	3.96	
		Negotiations	3.92	
		Interviews	3.86	
		Social contacts	3.67	
		Public engagement approaches	3.63	
		Surveys	3.26	

a Kendall's Coefficient of Concordance   Level of significance = 0.000.

Table 1: Practical approaches for analysing and engaging stakeholders in Hong Kong

Regarding 'assessing stakeholders' influence', many scholars have proposed different kinds of methods, such as Olander and Landin's (2005) 'Power/Interest matrix', Mitchell et al.s' (1997) 'Power, Urgency and Legitimacy' model, and Bourne's (2005) 'Stakeholder Circle methodology'. However, during the six interviews in Hong Kong, none of the interviewees used, nor had heard of these methods. These interviewees implied that they prioritized stakeholders based on their experience and the directives from higher authorities. This finding indicates the low level of stakeholder evaluation in construction. In order to identify the important stakeholder attributes for prioritisation, stakeholders' power, urgency, legitimacy and proximity, which are identified by Mitchell et al. (1997) and Bourne (2005), were introduced to the interviewees. The interviewees confirmed the importance of stakeholders' power and the urgency of their requests, and they recognized that they do consider these attributes in practice, but in an unstructured way. In terms of 'legitimacy' and 'proximity', the interviewees thought that the attribute of legitimacy is imprecise and difficult to operationalize, and they all preferred using the attribute 'proximity', which is easier to explain. In addition, the interviewees, especially those working as contractors in projects, insisted that 'the directives from higher authorities' is important for their decision making. Therefore, 'stakeholders' power, the directives from higher authorities, the urgency of the stakeholders' requests, and stakeholders' proximity' are included in the questionnaire to evaluate their importance for stakeholder estimation. According to the results in Table 3, 'stakeholders' power', which means the ability to "control resources, create dependencies, and support the interests of some organisation members or groups over others" (Mitchell et al., 1997), is considered to be the most important. This finding is in line with many previous studies, such as Newcombe (2003), and Bourne and Walker (2005). 'The directives from higher authorities' are ranked second as the results. The reason for this may be because more than half of the respondents (102 of 183) were contractors and consultants, and their clients' requirements were important for them. Since the mean values of the four factors are larger than 3 (Neutral), they all are important for 'assessing stakeholders' influence'.

The last step for stakeholder analysis is 'analyzing stakeholders' relationships'. Jergeas et al. (2000) consider that "efficient management of the relationship between the project and its stakeholders is an important key to project success". Similarly, Hartmann (2002) considers that successful project relationships are vital for successful delivery of projects and meeting stakeholder expectations. Several methods for relationship analysis were identified in the interviews. According to the results of the questionnaire, 'personal past experience' is ranked highest, followed by 'workshops', 'interviews', and other 'public engagement approaches'. On one hand, this finding confirms the importance of project managers' experience; on the other hand, it seems that there is no effective method which has been used in practice to help project managers analyse stakeholder relationships.

Some of the methods identified for 'stakeholder analysis', such as workshops, interviews, and surveys, constitute communication with and engagement of stakeholders. The interviewees in Hong Kong were asked to summarize their methods for 'stakeholder engagement'. Seven methods (Table 1) were identified with all mean values larger than 3 (Neutral). All kinds of meetings and workshops are regarded as the most common methods for engaging stakeholders. Negotiations can also be categorised as communication with stakeholders, especially settling disputes and problems. Similar studies in UK, Chinyio and Akintoye (2008) also emphasized the importance of workshops, meetings and negotiations. An interesting finding is that the interviewees in Hong Kong proposed not only formal engagement methods (e.g. interviews and surveys), but also an informal method, i.e. 'social contacts'. As the interviewees acknowledged, this method is usually used in the private sector, but it is an effective method for establishing and maintaining relationships with some stakeholders.

To examine whether the respondents ranked the methods in a similar order, Kendall's Coefficient of Concordance was calculated (Table 1). The Kendall's Coefficients of Concordance are statistically significant at 1% level, which indicates that there is a general agreement among the 183 respondents on ranking of these methods. However, when looking at the values of the last column in Table 1, all of the Kendall's Coefficients of Concordance are relatively small. This implies that though the respondents consider all the methods to be important, the methods for stakeholder analysis and engagement may vary depending on different situations. As Reed et al. (2009) stated, "choice of methods will depend on the purpose of the stakeholder analysis, the skills and resources of the investigating team, and the level of engagement". This finding is also confirmed during the interviews in Australia, which will be discussed in the next section.

4.2 Findings from the interviews in Australia

Although most of the interviewees agreed that the identified methods from the empirical studies in Hong Kong were critical and comprehensive, they also shared their valuable experiences in stakeholder analysis and engagement. Some interviewees suggested a software tool (Darzin) and a methodology (Stakeholder Circle) for stakeholder management, and two suggestions for stakeholder engagement were synthesized based on the interviewees' comments.

Darzin, which was suggested by three interviewees, is a data analysis software solution, created specifically for stakeholder engagement and community consultation (Darzin, 2009). This web based software was used to record project communications, stakeholder contact details and issues, and analyse this information qualitatively and quantitatively. The 'centralised' nature of the database ensures project team members can work from a range of locations to enter information about specific engagement activities and stakeholders. This software also has an automated reporting function to map issues throughout the project, ensuring all information is managed consistently and can be shared across a large project team. The interviewees consider this software acts as a register to monitor emerging issues, which can provide a historical log on key stakeholders, their issues over the course of the project and how they have been managed / resolved during this time.

The Stakeholder Circle methodology developed by Bourne (2005) provides a means for the project team to identify and prioritise a project's key stakeholders, and to then develop an appropriate engagement strategy and communications plan to ensure that the needs and expectations of these key stakeholders are understood and managed, with a fifth step (identify, prioritise, visualise, engage, and monitor) that allows the team to measure the effectiveness of the communication. This software tool supports changes in stakeholder community membership and stakeholder influence throughout the life of the project and holds historic data to enable the team to measure the effect of their efforts of stakeholder engagement. The interviewee thought that the software implemented a

straightforward methodology that allowed her team to make a meaningful assessment of the stakeholders and understand their relative power and influence.

Both the Darzin and Stakeholder Circle software tools are recommended by the interviewees. While Darzin focuses on recording and analysing stakeholder engagement activities, Stakeholder Circle offers a mechanism for assessing the relative influence of each stakeholder and tracking the progress of the relationship over time. They will be explained in details in the case study section. Besides the Darzin and Stakeholder Circle, two other important suggestions were raised by the Australia interviewees.

First, several interviewees proposed that 'public engagement approaches' is a broad term and include different kinds of methods. One interviewee (third in the fifth interviewees), who works for government in sustainability and environment area, introduced about seventy methods for stakeholder consultant and engagement. In order to identify the public engagement methods in construction, the interviewees were asked to specify the public engagement methods in the following interviews, and emails were also sent to the first two interviewees to ask for their answers. Twenty three engagement and consultant methods, including but being not limited to newsletters, forums, fact sheets, and walking tours, were proposed by the interviewees. The interviewees also indicated that there is no single, most effective method to involve stakeholder; the selection of methods depends on situations and stakeholders; and usually a number of alternative methods are combined to engage stakeholders. This comment confirms the finding in Hong Kong, which is implied by the small values of the Kendall's Coefficients of Concordance. Since many methods for stakeholder analysis and engagement are identified, the interviewees also suggested that a list, interpreting the use of the methods, as well as their constraints, should be made and form criteria for project managers' information.

Second, two interviewees, one from the construction sector and one working on community relationships, suggested that the stakeholder engagement methods need to match the level of engagement. This suggestion is in line with Reed's finding (2008). Reed (2008) conducted a literature review, and suggested that for best practice of stakeholder participation, "methods should be selected and tailored to […] appropriate level of engagement". The interviewees also recommended an engagement spectrum, which is developed by the International Association for Public Participation (IAP2). Five engagement levels, viz. inform, consult, involve, collaborate, and empower, are comprised in the engagement spectrum (Victorian Government Department of Sustainability and Environment, 2005). Though several scholars, such as Pretty (1995), Rowe and Frewer (2000), and Richards et al. (2004), have proposed different engagement levels, the five levels are used in this paper, because the interviewees in Australia agreed with them, and one of the interviewees from the construction sector had applied this spectrum in his work and proved its effectiveness. As one interviewee stated, "this spectrum can be used to ensure a common understanding of 'stakeholder engagement' ". According to this suggestion, the identified methods for stakeholder engagement are matched to the IAP2 spectrum in the typology section.

The findings in Australia, namely the Darzin software tool, the Stakeholder Circle methodology and the two suggestions above, are used to enhance the findings in Hong Kong. A typology of approaches for stakeholder analysis and engagement in construction is developed by synthesizing the findings from Hong Kong and Australia with some outcomes in previous studies.

A typology of approaches for stakeholder analysis and engagement

While the findings from empirical studies help to define and authenticate methods for stakeholder analysis and engagement in construction, a literature review was also conducted to develop a relatively complete typology. Two more methods, i.e. power/interest matrix and Social Network Analysis (SNA), are considered by scholars in the construction sector to be useful despite these methods are not referred to by the interviewees in this study. Therefore, they are included in the typology and explained in following statements.

The power/interest matrix is a common means proposed or improved by many scholars (Newcombe, 2003; and Olander and Landin, 2005). In the power/interest matrix, stakeholders are categorized by their levels of power and interest on the project. With each type of stakeholders, the project management team needs to pay different attention and apply different engagement methods (Newcombe, 2003). Although this matrix provides quantitative information about the relative influence and interest of stakeholders, it is hard to assess power (Olander, 2006).

Furthermore, Ward and Chapman (2003), and Bourne and Walker (2005) consider assessing the level of a stakeholder's interest is the same sense with assessing the potential impact of stakeholder interest. Accordingly, they proposed the impact/probability matrix and the vested interest/impact index. One of the prominent outcomes of these methods is stakeholders' priority. Bourne (2005) further developed these concepts into the Stakeholder Circle methodology. Stakeholders' power, proximity and urgency are the three attributes for prioritising the current stakeholder community. Therefore, in Stakeholder Circle, not only stakeholders' power, but also their level of urgency (potential impact of their interests) and proximity to the project are considered. Because of the limitations of the power/interest matrix, instead of using it in case studies (the following section), the Stakeholder Circle methodology and supporting software was applied.

In contrast to the power/interest matrix and other traditional social science focusing on the attributes of stakeholders, the information used in Social Network Analysis focuses on the relationships between pairs of stakeholders in a network. A construction project is a non-linear, complex, iterative and interactive project system environment (Bourne and Walker, 2006; and Pryke, 2006), so it is likely that the relationships among stakeholders will be complicated and dynamic, and they take the shape of a network but not spokes in a wheel. Traditional research only analyzes the relationship between project managers and stakeholders (Pryke, 2006). This ignores the interaction among stakeholders. Since social network is defined as a specific set of linkages among a defined set of persons (Mitchell, 1969), the stakeholders in the network can be viewed as "interdependent rather than independent, autonomous units" (Wasserman and Faust, 1994). Social Network Analysis interprets the project environment as a system connected by various relationships, and can be used for mapping the interrelationship among stakeholders and the social behaviours of the persons involved. Social Network Analysis can also used to identify 'hidden/invisible stakeholders', who may have little apparent influence, but could cause major disruption to the project development through unseen power and influential links (Bourne and Walker, 2006). The social network approach is useful for examining how the pattern of stakeholder relationships in a project system influences an organisation's behaviour. It investigates the forces which form these patterns. Therefore, Social Network Analysis can be used to unlock the implications of both the causes and the results of the relationship network. For these reasons, this method is used in the case studies.

A typology of approaches for stakeholder analysis and engagement is synthesized in Table 2. It should be reiterated that the thirty methods, their descriptions, strengths, and considerations in Table 2 are developed based on not only the findings of the empirical studies in Hong Kong and Australia, but also several previous studies, including Patton (1990), Newcombe (2003), Bourne (2005), Foster and Jonker (2005), Victoria Government Department of Sustainability and Environment (2005), Olander (2006), Pryke (2006), Darzin (2009) and Reed et al. (2009). It also needs to be reiterated that there is no stand-alone method, and most of the methods should be combined with other methods. For example, the Stakeholder Circle must be accompanied by workshops, meetings or other means of joint data collection to identify and assess the nature of relationships with stakeholders; Social Network Analysis usually collects information with the help of surveys, emails, or interviews. The methods selection should take into consideration not only the social and cultural context of the analysis but also the time limits and resources that can be reasonably allocated to this activity. To discuss how the approaches for stakeholder analysis and engagement were applied, and to illustrate the rationale behind the choice of approaches, two projects in Australia were used as case studies and are explained in the next section.

Methods	Strengths	Considerations	Levels of engagement	Application
Construction advice letters	• Can keep stakeholders informed; • Can include details such as date of delivery, and date of works.	• Can be time consuming; • May not send to all stakeholders due to information scarcity.	• Inform	SE
Darzin (A software tool)	• Easy to create custom fields for contacts and communications; • Record and manage restricted access to confidential communications; • Easy distribution of data with built-	• Can be time consuming to input the data; • Costly.	• Inform	SAIS SE

	in mail merge; • View all contacts from an organisation and communications with them on one screen; • Integrated qualitative, quantitative and spatial analysis; • Chart issue trends over time; • Easy to create sophisticated, meaningful reports.			
Directed by higher authorities	• Provides advices for project managers.	• Not suitable for all issues.	N/A	SAIS SAAI SAAR
Displays and exhibits	• Focus stakeholders attention on the project; • Can create interest from media.	• Stakeholders must be motivated to attend; • Can damage the project's reputation if not done well.	• Inform • Consult	SAIS SE
Door knocks	• Face-to-face contact ensures stakeholders understand issues and information can be elicited about opinions they express;	• Can be time consuming; • Work better if informing the stakeholders earlier.	• Inform • Consult	SAIS SE
Email/mail/fax/ phone	• Easy and convenient to communicate; • Can solve problems quickly.	• Difficult to document.	• Inform • Consult • Involve • Collaboration • Empower	SAIS SAAR SE
Feedback bulletins	• Keep stakeholders informed; • Opportunity to satisfy stakeholders.	• Can be time consuming to prepare; • Not all feedback can be included in bulletins.	• Inform	SE
Focus groups	• Provide opportunity for a wider range of comments; • Good for identifying the reasons behind stakeholders' likes/dislikes; • Highly applicable when a new proposal is mooted and little is known of stakeholders' opinions.	• Requires careful selection to be a representative sample; • Skilled facilitators should be hired; • Can be costly; • Groups may not represent the majority opinion.	• Consult	SAIS SAAI SE
Formal memos	• Provides detailed information about stakeholders.	• Can be time consuming to document the information.	N/A	SAAI
Forums	• Encourage discussion between stakeholders; • Opportunity for exchanging ideas.	• Some stakeholders may not have time to join; • May cause dispute.	• Consult • Involve • Collaboration	SAIS SAAR SE
Guidelines	• Easy to follow; • Includes stakeholder management as duties.	• Takes time to formulate; • Stakeholders can change depending on situations.	N/A	SAIS
Information hotline	• Offers an inexpensive and simple device for publicity, information and	• Must be adequately advertised to be	• Inform • Consult	SAIS SE

	public input; • It is easy to provide updates on project activities.	successful; • Designated contact must have sufficient knowledge of the project to be able to answer questions quickly and accurately; • May limit a project officer from performing other tasks.		
Interviews	• Allow in depth discussion and understanding of issues; • Individual contact means that the location of the meeting is flexible; • Able to explain points in own language; • Usually low cost and easy to arrange.	• Can be time consuming for project team; • Can be expensive; • May not have sufficient time; • Requires skilled interviewers; • Little quantitative information gathered and not majority opinion.	• Consult	SAIS SAAI SAAR SE
Listening post	• Provides an engagement opportunity for those stakeholders who may never attend a formal engagement opportunity.	• Stakeholders may not have time at the listening post session; • Team members should arrange a regular time for it.	• Consult	SAIS SAAR SE
Media management	• Opportunity for promoting the project; • Opportunity for informing a broad range of stakeholders.	• Can be costly.	• Inform	SE
Meetings	• Cheap and relatively easy to organize • Makes use of existing networks and allows specific stakeholders to be targeted; • Face-to-face contact ensures attendees understand issues and information can be elicited about opinions they express.	• Unknown issues and previous relationships between the stakeholders may drive responses; • Opinions might not be representative of the wider community.	• Inform • Consult • Involve • Collaboration	SAIS SAAI SAAR SE
Negotiations	• Cheaper and faster to solve problems.	• Project team should well prepared; • Concessions should be made sometimes.	• Consult • Involve • Collaboration	SE
Newsletters/Postcard series/Fact sheets	• Can provide regular updates on progress giving a sense of momentum; • Opportunity for stakeholders to get familiar with project issues; • Can give positive impression of desire to keep stakeholders informed.	• Many stakeholders may never read them; • Can be time consuming to prepare well on regular basis.	• Inform	SE
Open house/open day	• Useful when a large number of stakeholders exist; • Builds credibility;	• It is important to advertise in a number of ways;	• Inform • Consult	SAIS SAAR SE

	• Allows other team members to be drawn on to answer difficult questions.	• Difficult to document.	• Involve • Collaboration	
Personal past experience	• Clear understanding about the previous stakeholders; • Saves time for consultations.	• May have cognitive limitations; • Can be useless due to the unique nature of construction projects.	N/A	SAIS SAAR
Power/interest matrix	• Project team can pay different attentions and apply different engagement methods according to each types of stakeholders; • Cheaper and easy to do.	• Hard to assess power; • The assessment can not consider the interrelationship between stakeholders.	N/A	SAAI
Professional services	• Provide complete plans for stakeholder management; • Saves time for project managers.	• Can be costly; • May have bias on the project.	• Consult • Involve	SAIS SAAI SAAR SE
Questionnaires and surveys	• Respondents' anonymity can encourage more honest answers; • Can reach respondents who are widely scattered or live considerable distances away; • Provides information from those unlikely to attend meetings and workshops; • Allows the respondent to fill out at a convenient time. • Provide larger samples for lower total costs.	• Low response rates can bias the results; • Care must be taken that wording of questions is unambiguous to prevent skewed results; • Care is needed in sampling to make sure representative samples are taken; • Information gathered can be superficial and the reasons behind an opinion may not always be clear.	• Inform • Consult	SAIS SAAI SE
Snowball	• Helps to identify unknown stakeholders; • Reduces project risks; • Builds on resources of existing networks.	• Choice of initial contacts is most important; • Boundary of stakeholders should be decided properly.	• Consult • Involve • Empower	SAIS
Social contacts	• Build trust with stakeholders; • Maximises two-way dialogue.	• Only suitable for some stakeholders; • Requires creativity and resource investigation to reach a large number of people.	• Inform • Consult • Involve	SAIS SAAR SE
Social Network Analysis	• Views a specific set of linkages among a defined set of persons as a whole to analyze the interrelationship between stakeholders; • Can identify influential stakeholders and the way to engage them; • Can visualize the relationship network.	• Data collection is difficult; • Can be time consuming; • A specialist in SNA methods is needed.	• Involve	SAIS SAAI SE

Stakeholder Circle (A stakeholder management methodology)	• Allows project team to make a meaningful assessment of the stakeholders; • Visualises stakeholders' relative power and influence; • Project team can develop engagement strategies according to the current and target levels of stakeholders' interest and support.	• Costly.	N/A	SAIS SAAI
Walking tour/Site tour	• Provides stakeholders with an understanding about the project; • Can be most able to be remembered and understood.	• Can cause inconvenient in site; • Facilities are needed.	• Inform • Consult	SE
Website	• Provides access point for information that can be re-visited; • Can provide an opportunity for direct feedback to project team or sharing of issues; • Provides platform for regular updates for those who want to know more.	• Time consuming to set up; • Needs regular maintenance or will not have credibility; • May not be accessed by all stakeholders.	• Inform • Consult • Involve • Collaboration	SE
Workshops	• Ideal for looking at specific issues; • Excellent for discussion on criteria or analysis of alternatives; • Offers a choice of team members to answer difficult questions; • Builds ownership and credibility for the outcomes; • Maximises feedback obtained from participants.	• Not totally individualized discussion; • Needs to well facilitated with credible individuals who have the interpersonal skills to deal with challenging issues; • If actions not followed through can destroy trust.	• Consult • Involve • Collaboration • Empower	SAAI SAAR SE

Notes:
SAIS: Stakeholder analysis - Identifying stakeholders and their interests
SAAI: Stakeholder analysis - Assessing stakeholders' influence
SAAR: Stakeholder analysis - Analyzing stakeholders' relationships
SE: Stakeholder engagement

Table 2: A typology of approaches for stakeholder analysis and engagement in construction

Case studies

6.1 Project 1 – A school building project – T College

T College is a unique tertiary institution that provides a diverse range of high-quality academic and extra-curricular programs for talented students from across Australia and around the world. The project is the construction of a new building to provide new classrooms and facilities for the college's theological school. The project is relatively small with the contract price of AU$2 million, and the construction stage is the focus of this case study description. The project manager, who was also a T College employee for more than ten years, had direct responsibility for buildings, grounds and infrastructure projects in the campus. He reported to the Director of Finance & Administration, the chief financial officer who was also a member of the senior management team in the college. The financier/sponsor of this project was a large private company that finances ecclesiastical projects.

Since this project was small and the project manager and the Director of Finance & Administration had extensive experiences in campus development, the stakeholders and their interests were identified during a meeting with the project manager and the Director of Finance & Administration, and stakeholder profiles and the stakeholders'

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interests were developed during that meeting. The project manager and the Director of Finance & Administration were then asked to prioritize all the stakeholders using their knowledge of all the stakeholders identified and their experience in managing relationships in this environment. The Stakeholder Circle was used for this identification and prioritisation process. Stakeholders' power, proximity and urgency were evaluated according to the appropriate statements describing aspects of stakeholder relationships. The results are shown in Figure 1.
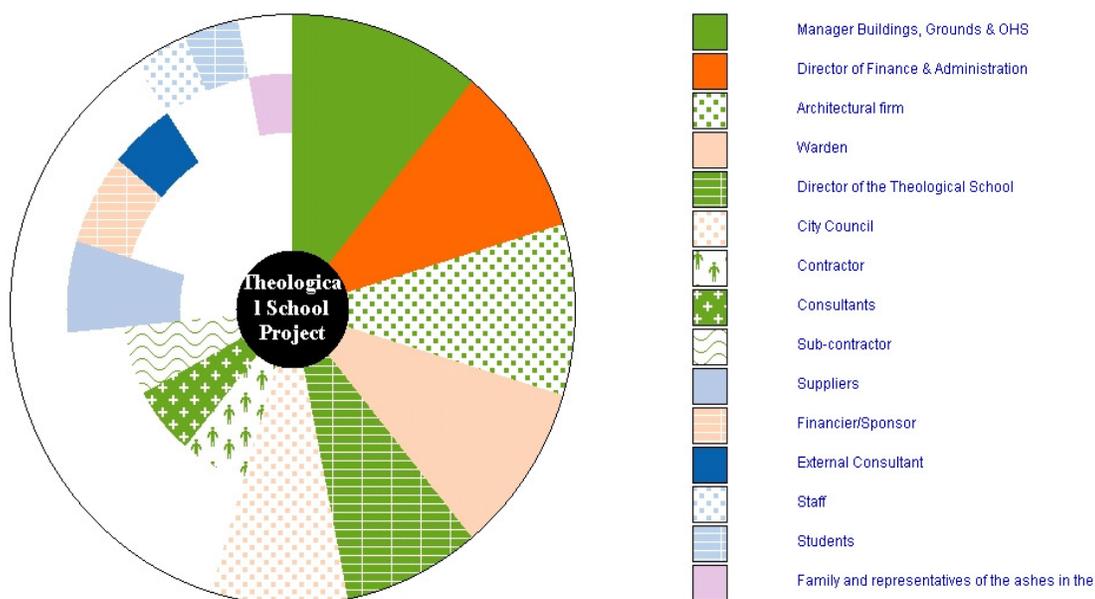
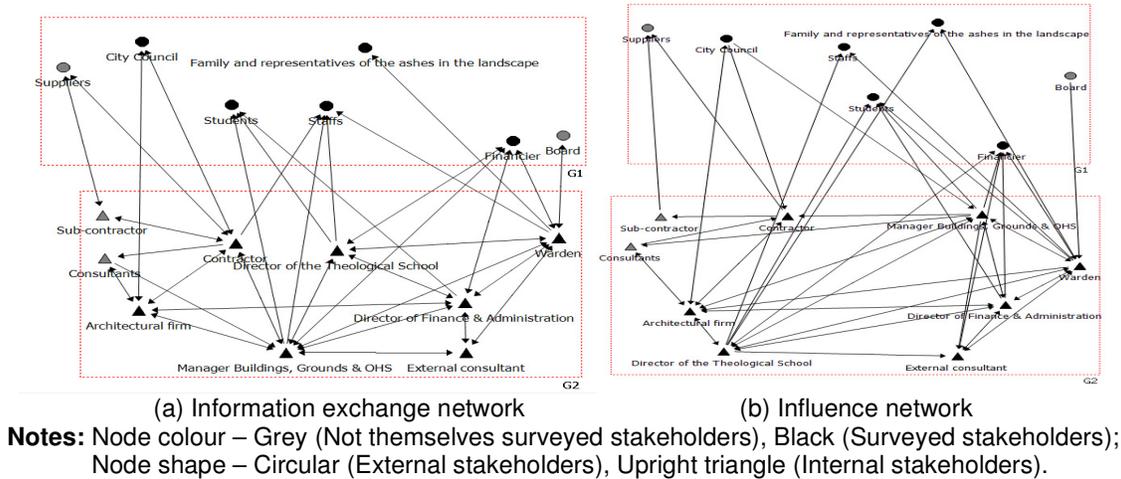**Figure 1: The Stakeholder Circle chart for the school building project**

In order to analyse stakeholders' relationships, a survey for Social Network Analysis was developed by one of the authors and the project team. Two questions to determine the nature of the information exchange and influence networks were included in the survey and the purposes of the questions are shown in Table 3.

The questions were sent out by the project management team via email. One additional stakeholder, i.e. College Board Members, not identified during the meeting was nominated by the warden. It should be noted that not all the sixteen stakeholders (including subcontractors, consultants and suppliers), were themselves surveyed due time and resource limitations. However, the project is a usual design-build case, and it can be assumed that the project management team had a good understanding of the relationships between these non-surveyed stakeholders and the others.

Questions	Extent	Purposes
Please nominate groups or individuals, or choose those from the following list (please refer to the list in Table 6) with whom you typically exchange information regarding the project.	• Direction: 1 = Provide information/advice to; 2 = Receive information/advice from; 3 = Both provide and receive. • Frequency: 1 = Seldom; 2 = Sometimes; 3= Often; 4 = Very often.	• To identify current or recent collaboration within a network; • To identify who bridge different stakeholder categories and bring together disconnected segments of the network.
Please nominate groups or individuals, or choose those from the following list (Please refer to the list in Table 6) who changed or influenced your activities related to the project in the construction stage and to what extent?	• 1 = To some extent; 2 = To a considerable extent	• To identify those primary influencers, and to compare the outcomes with those from Stakeholder Circle; • To breach cognitive limitations and discover new opportunities: e.g. To identify and communicate with those "latent" stakeholders who could help to promote and

| | | control the project activities. |

Table 3: The questions and purposes in the survey for Social Network Analysis

The data gathered from the survey was analysed by a Social Network Analysis tool, NetMiner (Cyram, 2009). Figure 2 is the map of the networks in the project. Three network indices are used for analysis: density, cohesion, and status centrality.

(a) Information exchange network   (b) Influence network

Notes: Node colour – Grey (Not themselves surveyed stakeholders), Black (Surveyed stakeholders);
Node shape – Circular (External stakeholders), Upright triangle (Internal stakeholders).

Figure 2 The networks and matrixes in the school building project

Density and cohesion are two network measures that are more descriptive of the entire network rather than of individual nodes. Density in the information network is defined as the ratio of existing information ties in a network to the maximum number of ties possible if everyone in the group shared information with everyone else (Wasserman and Faust, 1994; and Parise, 2007). Network density ranges between 0 and 1. The higher the density, the more frequent information sharing is in the network. The mean network density in Figure 3(a) is 0.667, which indicates a high frequent information exchange in the project (Parise, 2007). Cohesion measures the distance to reach nodes in a network, and it is based on the shortest path (Parise, 2007). For an information network, the lower the cohesion number, the better, because this indicates that there is a shorter distance for information to be disseminated in the network. Cross and Parker (2004) consider an average cohesion number of around 2 to be acceptable for an information network. The average cohesion in the information exchange network of this project is 2.596, which indicates the average distance to share information form one stakeholder to the others is between 2 and 3. As shown in Figure 4(a), the Warden was the person who brought together disconnected segments, i.e. Family and representatives of the ashes in the landscape and Board, in the network. Therefore, the Warden was an important person in the network.

To estimate the prominence of stakeholders in the influence network, several centrality measures are available such as degree, betweenness, closeness, status and power centrality (Cyram, 2009) in social network theory. In this paper, status centrality is used for analysis as this centrality considers every connection (even up to infinite length connections) between focus node and pair nodes (Cyram, 2009). If a focus node has more connections, it may have larger centrality value. As the length of a connection increases, so influence decreases exponentially by the attenuation factor (value is 0.5 in this study). The status centrality value for each node is shown in Figure 3. The in-status centrality indicates to what the extent a stakeholder is affected by others; whereas, out-status centrality indicates the extent that a stakeholder can affect others. Regarding the influence of a stakeholder, the out-status centrality is used as the outcome measures. The higher the out-status centrality values, the more important the stakeholders are.

		1	2
		In-Status Centrality	Out-Status Centrality
1	Warden	0.734575	1.862931
2	Financier	0.632899	0.419561
3	Director of Finance & Administration	0.639276	1.741418
4	Manager Buildings, Grounds & OHS	0.540423	1.905681
5	External consultant	0.637312	0.340341
6	Director of the Theological School	0.716409	1.705585
7	Architectural firm	0.774864	1.103764
8	Contractor	0.427531	0.513178
9	Sub-contractor	0.136258	0.121456
10	Consultants	0.242928	0.347407
11	Suppliers	0.244714	0.000000
12	Students	0.632899	0.000000
13	Staffs	0.329397	0.000000
14	City Council	0.084705	0.396106
15	Family and representatives of the ashes in the landscape	0.329397	0.173860
16	Board	0.000000	0.173860

Figure 3: The status centrality vector

The outcomes from the Stakeholder Circle and Social Network Analysis were shown to the project management team in a meeting. The team was satisfied with the current collaborations in the network (Network density is 0.0667, and Cohesion is 2.596). By comparing the outcomes of stakeholders' priority between Stakeholder Circle (SC) and Social Network Analysis (SNA), the main differences were identified as the priorities of 'Warden' (SC 4, SNA 2), 'Financier' (SC 11, SNA 7), 'Family and representatives of the ashes' (SC 15, SNA 11), and 'Board' (SC N/A, SNA 12). It can be found in Figure 3(a) that 'Financier', 'Family and representatives of the ashes', and 'Board' all share information with 'Warden', so a meeting was then conducted with the Warden by the project manger and one of the author. The warden indicated that he was friends with the financier and some benefactors (Family and representatives of the ashes), and communicates with them about the project periodically. Although these two groups are less involved in the construction stage than in the briefing stage, they do care about the status of the project, particularly the budget (for Financier) and the landscape (for benefactors). With respect to the data about the Board, the warden explained that it is his responsibility to report to the board members monthly and their satisfaction is important. Therefore, these three groups, namely, 'Financier', 'Family and representatives of the ashes', and 'Board', should be paid attention to. After the meeting with Warden, the project management team re-thought the order in Figure 1, and re-ordered stakeholder list is as shown in Table 4.

Priority	Stakeholder	Their interests about the project [a]	Levels of engagement	Methods
1	Manager Buildings, Grounds & OHS	All	Collaborate	E-mail, directed by higher authorities, focus groups, formal memos, interviews, meetings, personal past experience, site visit, Stakeholder Circle, surveys, telephone conversations.
2	Warden	P1, P2, P4, P5, P6, E3, CS1 and CS2.	Empower	E-mail, focus groups, guidelines, interviews, meetings, site visit, social contact, surveys, telephone conversations.
3	Director of Finance & Administration	P4, P5, P6, P8, E3, E4, CS1 and CS2.	Collaborate	E-mail, directed by higher authorities, focus groups, interviews, meetings, personal past experience, site visit,

				Stakeholder Circle, surveys, telephone conversations.
4	Architectural firm	P1, P2, P3, P4, P5, P6, P7, P8, E3 and CS2.	Collaborate	E-mail, focus groups, meetings, site visit, surveys, telephone conversations.
5	Director of the Theological School	All	Involve	E-mail, focus groups, interviews, meetings, site visit, surveys, telephone conversations.
6	Contractor	P4, P6, P9, E1 and E2.	Collaborate	E-mail, focus groups, meetings, site visit, surveys, telephone conversations.
7	Financier	P2, P4, P5, E3, E4 and CS2.	Involve	E-mail, focus groups, meetings, site visit, social contact, surveys, telephone conversations.
8	City Council	P3, P9 and CS2.	Consult	E-mail, meetings, guidelines, telephone conversations.
9	Consultants	P4, P6, P9, E1 and E2.	Involve	E-mail, focus groups, meetings, site visit, surveys, telephone conversations.
10	External consultant	All	Consult	E-mail, focus groups, meetings, site visit, surveys, telephone conversations.
11	Family and representatives of the ashes in the landscape	E3.	Involve	E-mail, meetings, site visit, social contact, surveys, telephone conversations.
12	Board	P1, P4, P5, P6, P9, E3, E4 and CS2.	Consult	Meetings.
13	Sub-contractor	P6 & P9	Involve	E-mail, focus groups, meetings, site visit, surveys, telephone conversations.
14	Suppliers	P4, P6 and P9.	Inform	E-mail, meetings, site visit, telephone conversations.
15	Students/Staffs	P1, P2, P3, P5, P6, P7, E1, E2, E3, E4, CS1 and CS2.	Inform	E-mail, meetings.

a P1 Improved services, E1 Noise, CS1 Parking,
P2 Interior space, E2 Dust, CS2 Heritage & streetscape.
P3 Mobility, E3 Landscape,
P4 Budget, E4 Sustainability practices.
P5 Quality,
P6 Time,
P7 Connectivity,
P8 Storage,
P9 Occupational Health & Safety.

Table 4: The stakeholder engagement profile for the school building project

Comparing with the order in Figure 1, the Warden was ranked from fourth to second because as seen in Figure 2(a) he was the only one person who communicated with the Board and the Family and representatives of the ashes in the landscape, and also he communicated with relatively extensive stakeholders in the network. Contrarily, the City Council was ranked lower (from sixth to eighth) in the re-ordered list; this is reasonable as the project manager

stated that the responsibilities of the City Council were to approve the construction of the project and monitor the construction under the legal requirements; as the project had been approved and was being constructed regularly, the City Council had less influence on the project at that time. In addition, according to the Warden's suggestions (in the last paragraph), the rankings of the Financier and the Family and representatives of the ashes in the landscape were higher in Table 4 than in Figure 1. It should be noted that no method for identification and prioritization is perfect and that the use of the Social Network Analysis is to help the project team to see anomalies and make the necessary corrections.

The project management team then assessed the current communication with all stakeholders (Step 4 in Stakeholder Circle). The results showed the attitudes of all stakeholders were satisfactory. For example, as shown in Figure 4, the current and target levels of the Architectural firm are the same (four degree for support level, and five degree for receptiveness level); this indicated the attitude of this stakeholder was satisfactory. Finally, the project developed an engagement plan for further application, based on the typology in Table 2. The engagement levels and methods for each stakeholder were developed (Table 4). It can be seen that the engagement level basically increases along with the stakeholders' priority.
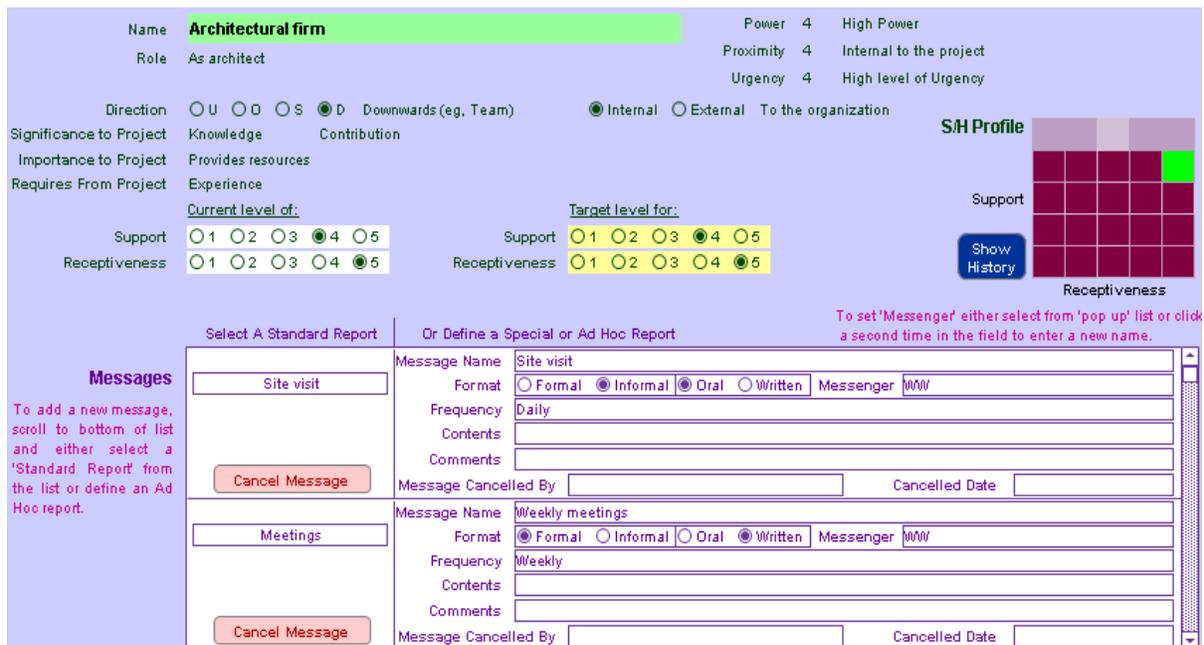
Figure 4: An example of stakeholder engagement and communication profile

6.2 Project 2 – Urban renewal (CI) – Council 1

The CI project represents the potential for as much as AU$1 Billion in new investments in a district of the city over the years leading up to 2020. The district is located 8 km north of the city CBD and is a vibrant and diverse community that includes a busy central retail hub. The study area for the CI project is approximately 35 hectares in size, of which Council 1 controls 12 hectares. The CI project evolved from a government plan, itself the product of five years' consultation with associated communities, traders, landowners, state government agencies and other stakeholders. It focuses on new connectivity between people and their places of work, culture, sport and leisure. The main goal of this project is the reinvigoration and renewal of the district.

The project started in 2006, and now is at the design stage. More than 400 stakeholders have been identified in the project based on all kinds of engagement methods. Since the project manager has been involved in the project from the start, he was asked to review the typology in Table 2 and indicate the methods for stakeholder analysis and engagement in the CI project. The main methods were:

  Inform: newsletters, postcard series, feedback bulletins, displays, Darzin, media management, fact sheets;
  Consult: focus groups, surveys, walking tour, website, online community forum, listening posts, interviews;

Involve: community champions, community forums/speak out, meetings;
Collaborate and empower: communication café, workshops, community infrastructure reference group.

Most of the methods were identical to those in Table 2 though some had different names. Since there was a large number of stakeholders and their interests in the project, Darzin is high regarded by the project manager. About 80 stakeholders' interests were classified in Darzin by the project manager team based on the engagement with stakeholders. Stakeholders' information and all kinds of communications can be documented in the Darzin software. Figure 5 is an example of a stakeholder profile and meeting minutes. As shown in Figure 5(a), all communication activities, actions, and issues related with the stakeholder can be easily identified; and in Figure 5(b) the content of the meeting can be indexed according to the classification of interests (the bottom in Figure 5(b)). These profiles and indexes are used to analyse the stakeholders and activities statistics (Figure 6(a)), and the top concerned issues in a particular period (Figure 6(b)).

| (a) A stakeholder profile | (b) Meeting minutes |

Figure 5: An example in Darzin

Name	Count
Contacts	1145
Organisations	442
Properties	2
Communications	108
Actions	4
Meetings	22
Complaints	0

(a) Stakeholder and activities   **(b) Issues (interests)**
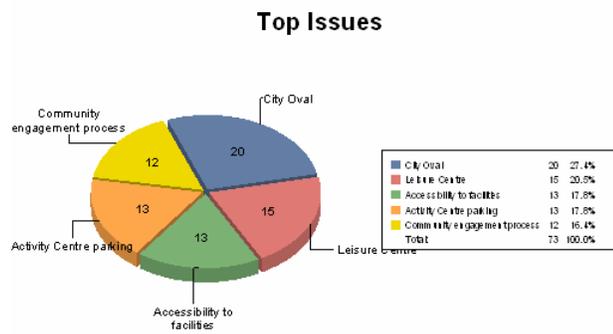
Figure 6: Statistics in Darzin

In order to prioritise the stakeholders, the Stakeholder Circle software was used during a workshop with the project management team. A sample of 29 individuals or groups was chosen from the full list for analysis due to the limited time available. The stakeholders in order of priority are listed in Table 5.

Priority	Stakeholders
1	Director of Vic Roads
2	Director of Vic Track
3	Councillors
4	Internal management executive group
5	Chief Executive Officer (Local community health service)
6	CEO of Tram company
7	Director of Public Transport Department - Bus
8	President of Local traders' association
9	Financiers
10	CEO of Affordable housing association
11	CEO of Local energy foundation
12	CEO of a major retail store
13	Local activist (Coach of Under 16 football club)
14	President of Primary School Council
15	Convenor (Save the Olympic Outdoor Pool Group)
16	Coordinator (Local child care centre)
17	Convenor of Disability Advisory Group
18	Hudson Street residents
19	President of Local residents' association
20	Chairman of Library advisory committee
21	Small business owners in local mall
22	CEO of Cinema group
23	Convenor (Local bicycle users group)
24	President of Uniting Church Council
25	President of Local historical society
26	Residents of Local retirement village
27	Director of Small local investment group
28	Convenor of Youth Advisory Group
29	Lebanese women's group

Table 5: The selected stakeholders and their priority in the CI project

The project director and manager thought that the use of Stakeholder Circle for analysing stakeholders' influence added value to their organisation, and said that they would like to apply the outcomes to their communication process.

6.3 Discussions

A wide range of methods for stakeholder analysis and engagement were used in these two case studies, which have proved the applicability of the typology proposed in this paper to some extent. The case studies confirm the findings in previous empirical studies that the selection of methods should be suitable for a particular situation and depend on resources of the project, the nature of the project and the aims and objectives of the engagement.

In the first project, Social Network Analysis is shown to play a valuable role as an evaluation tool for the estimation of 'whole-of system' stakeholder relationships. However, in the second project, the project management team preferred not to use it with two considerations: (1) the project includes numbers of sub-projects, and involves substantial stakeholders, so it would take a very long time to collect data for Social Network Analysis; (2) most of the stakeholders were external stakeholders, and the respondent rate, if a SNA survey was conducted, could not be guaranteed. Although these considerations are reasonable, the authors consider the main reason that the project management team hesitated to use Social Network Analysis in the project is this technique is in its infancy in the construction industry, and the practitioners have not fully understood the its significance.

Similarly, because of the different resources and natures of the two projects, the Darzin software may not be appropriate for the first project. The first project was a relatively small project with less than 20 stakeholder groups, so the methods for stakeholder analysis and engagement are simplistic and conventional. It may waste time and money for the project management team to use the software. However, a formal memo like Table 4 would be more useful for the team's information.

Besides the considerations in the method selection, the case studies also confirm that there is no single, most effective method, and usually a number of alternative methods are combined to analyse and engage stakeholders. A more obvious example is the combination of the outcomes from Stakeholder Circle and Social Network Analysis for re-prioritizing stakeholders in the first project. This is also suggested by Chinyio and Akintoye (2008) in their studies in UK that "the respective approaches supplement each other and can be drawn or activated from a pool".

Conclusions

Stakeholder analysis and stakeholder engagement are the two essential elements of stakeholder management. The main finding in this research is a typology of approaches for these two elements. The typology is proposed based on literature review, and empirical studies in Hong Kong and Australia. Two case studies were conducted to illustrate the selection and application of the approaches. Findings from this study show that the success of a particular technique depends on internal and external factors, such as the nature of the project, the resources in the organisation, and the communication environments. No method for stakeholder identification and prioritization is perfect. The selection of the approaches is an art with extensive considerations of 'when, what, and how' to choose methods to achieve the project objectives. Each method has its own strengths and limitations. Combining several methods when necessary is the best way to manage stakeholders.

This paper aimed at developing a relatively complete typology of the methods for stakeholder analysis and engagement, and it attempts to contribute to the body of knowledge on current studies on stakeholder management. However, this study has also limitations in scope, and can be considered as a modest spur to induce others to come forward with valuable contributions to the stakeholder management methods.

Acknowledgements

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