



## SCHOOL OF MANAGEMENT

### WORKING PAPER SERIES

01-13

### STRUCTURING ELECTRONIC DISCOURSE FOR INTER-ORGANISATIONAL DECISION MAKING

ISSN 2324-349X (Online)

ISBN 978-0-473-26691-2

**Jim Sheffield**

Tel: + 64 4 463 5085

Email: [Jim.Sheffield@vuw.ac.nz](mailto:Jim.Sheffield@vuw.ac.nz)

School of Management  
Victoria University of Wellington  
PO Box 600  
Wellington 6140  
New Zealand

For more information about the School of Management Working Paper Series:

Web: [www.victoria.ac.nz/som](http://www.victoria.ac.nz/som)

Email: [wps@vuw.ac.nz](mailto:wps@vuw.ac.nz)

**ABSTRACT**

Electronic technology is increasingly used to support inter-organisational decision making groups in situations where the objectives of participants are divergent and power diffused. This creates conceptual and practical difficulties for participants and sponsors alike. How should the problem be structured? How should success be measured? What type of model should drive the problem structuring process? While the literature on electronically-supported inter-organisational decision making raises issues such as these it does not provide a solution. The current research draws on the problem structuring literature to fill this gap. A conceptual problem structuring model is developed from the theoretical perspectives of pluralism and communicative action. The model is applied to structure strategically important electronically-supported inter-organisational decision making meetings sponsored by government organisations. The focus question is: 'Does electronic discourse increase the success of inter-organisational decision making? If so, what problem structuring principles and processes were employed, and what level of participant satisfaction was achieved?'

**Keywords**

Communicative action, electronic discourse, inter-organisational decision making, problem structuring, theoretical pluralism in systemic action research.

## INTRODUCTION

Inter-organisational decision making typically addresses strategic issues that require extensive consultation among a large number of stakeholders. In many situations the context is *pluralistic* – the objectives of social actors are divergent and power is diffused (Jarzabkowski and Fenton 2006; Denis *et al.* 2007). A modern information and communication technology - electronic meeting systems - has been found useful in supporting organisational groups engaged in strategic planning activities within an established power structure (Fjermestad and Hiltz 2001; Shaw *et al.* 2003). Yet research on electronic support in the context of inter-organisational meetings suggests that the role of electronic meeting systems is unclear. For example, if electronic technology is employed in a meeting sponsored by one organisation but attended by members of other organisations, whose interpretation of the ends served by the electronically-supported meeting should determine success? Who is the client? (Ackermann *et al.* 2005). What roles and responsibilities will be recognised? (Franco 2008). Is it sensible to expect powerful stakeholders to use collaborative technologies when these introduce unwanted accountability and make the exercise of power more difficult? (Schultze and Leidner 2002; Lewis *et al.* 2007). What type of model should drive the problem structuring process? (Morton, Ackermann, and Belton, 2003). By what concept(s) of rationality or validity should the facilitator be held accountable for a positive outcome? (Kolfschoten *et al.* 2007). The literature on electronically-supported inter-organisational decision making focuses on conceptual difficulties such as these but, as yet, does not offer models for success. It is this gap that motivates the current research.

This article develops a model to structure problems associated with electronic discourse for inter-organisational decision making. The application of the model to a series of strategically important electronically-supported meetings sponsored by government organisations is reviewed. The focus question is: ‘Does electronic discourse increase the success of inter-organisational decision making? If so, what problem structuring principles and processes were employed, and what level of participant satisfaction was achieved?’

The remainder of the article is structured as follows. Section 2 develops a theoretical framework. Section 3 describes the methodology for gathering empirical evidence. Sections 4–6 review three applications of the problem structuring model. Section 7 discusses the findings. Section 8 concludes the article.

## THEORY DEVELOPMENT

Theory development draws heavily on the problem structuring literature. Aspects of this literature which embrace pluralism include: creative holisms for systems thinking (Jackson 2003), critical heuristics (Ulrich 2005, 2006; Sheffield and Guo 2007a), ethical inquiry (Sheffield and Guo 2007b), organisational sensemaking (Snowden and Boone 2007), and systemic development (Sheffield 2008; Midgley and Pinzo´ 2011).

Inter-organisational meetings require the surfacing and testing of assumptions from opposing perspectives (Mitroff & Linstone 1993). *In dialectical terms a pair of opposing perspectives is seen as a Hegelian thesis and antithesis (Millet & Gogan 2006)*. Ignorance is reduced via active engagement with the conflict and confusion that accompany surfacing and reconciling opposing (multiple or pluralistic) perspectives, and giving birth to a new, more current synthesis.

Habermas (1984) provides a theory about how claims to pluralistic knowledge should best emerge from the communicative process. In Habermas's theory of communicative action, an ideal speech situation is defined as one in which all participants are free to question any utterance on the basis of its claims to objective truth, rightness for the context, and sincerity of the speaker. The speaker must be open to hearing and rationally responding to the questions that are asked. Power relations, that in other circumstances might allow some participants to ignore the perspectives of others, are set aside in favour of genuine dialogue.

The theory of communicative action evaluates knowledge from three perspectives (Habermas 1984: 100):

- *Personal perspective* ('*why I feel, and would be*'). The personal or subjective world that is the totality of the experiences to which the speaker or actor has privileged access (because it is the speaker or actor that experienced them). Claims to subjective truth are evaluated in terms of the *sincerity* of the speaker or actor.
- *Interpersonal perspective* ('*what we say, and should be*'). The totality of interpersonal relations legitimately regulated by contextual expectations or norms. Claims to interpersonal norms are evaluated in terms of the *rightness* of the speakers or actors.
- *Technical Perspective* ('*how it is, and could be*'). The technical world of material fact that is the totality of all entities about which objectively true statements are possible, or could be bought about by purposeful intervention. Claims to facts and technical expertise are evaluated in terms of objective truth.

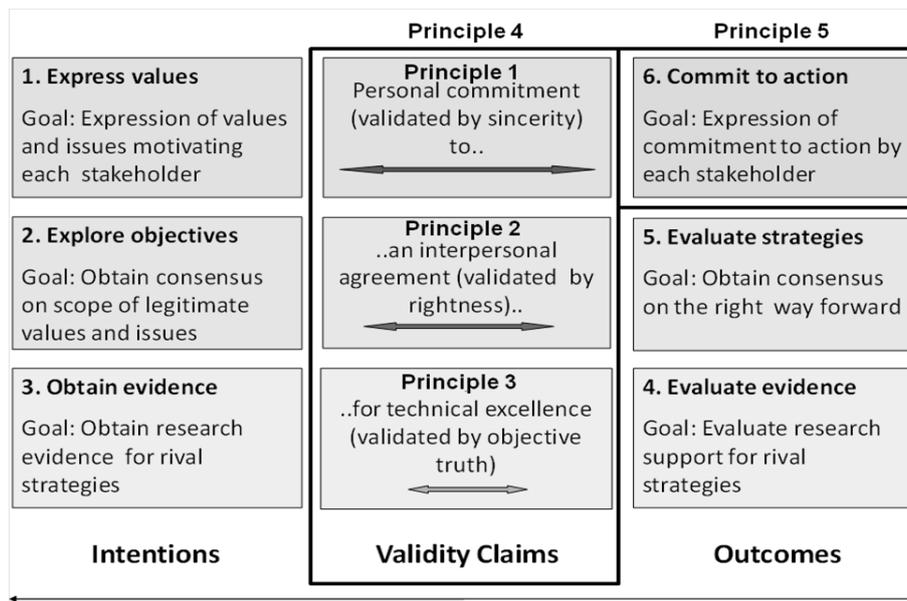
The ideal speech situation described by Habermas provides a standard of excellence for the reflective communicative action undertaken by two or more stakeholders in order to stabilize mutual understanding. Similarly group decision is seen as a collaborative process that seeks 'rightness' in the fit (coherence) between personal values, interpersonal objectives and technical decision criteria (Shakun 2003). This requires participants to develop and integrate perspectives from generic roles that Churchman terms *system designer* (more technical/task oriented), *decision maker* (more interpersonal/consensus oriented) and *client* (more subjective/value oriented) (Churchman 1971: 200). Five problem structuring principles based on pluralism and communicative action are presented in Table 1.

Table 1

**Five problem structuring principles for inter-organisational decision making.**  
**Adapted from Churchman 1971; Habermas 1984.**

<p><b>Principle 1. Personal commitment</b></p> <p>Express claims to <b>sincerity</b> by free and open disclosure of participants' subjectivity (identity, experience and values)</p> <p>Ensure that participants give voice to their personal commitments and multiple identities and that periods of silence are provided as an aid to ethical self-reflection</p> <p>The procedure for evaluating the evidence should be validated by expressing beliefs and aspirations, voices and images ('story telling') that are unconstrained by technical issues and unrestrained by the inter-personal context</p>
<p><b>Principle 2. Interpersonal agreement</b></p> <p>Enact claims to <b>rightness</b> via discussion among all those who are entitled to be represented</p> <p>Ensure that the discussion addresses the role-based needs of stakeholders</p> <p>The procedure for evaluating the evidence should be validated by full participation in a debate conducted under the norms of established legitimate inter-personal relationships</p>
<p><b>Principle 3. Technical excellence</b></p> <p>Present claims to <b>objective truth</b> via research evidence</p> <p>Ensure that the findings by technical experts are examined critically and the findings documented</p> <p>The procedure for evaluating the evidence should be validated by a willingness to adopt a cognitive, objectivating attitude towards the facts. <i>Listen to the evidence, look at the facts – avoid partisan delusions</i></p>
<p><b>Principle 4. Coherence</b></p> <p>Assuming that claims for valid personal, interpersonal and technical knowledge have been surfaced, ensure that they are <b>coherent</b>. An apparent contradiction (thesis and antithesis) should serve as a precursor to a <b>Hegelian</b> synthesis. <i>Oh my God, I was wrong! We were all wrong!</i></p> <p>The procedure for evaluating coherence should be validated by a willingness to probe the evidence from all three perspectives, to identify strengths and weaknesses in the evidence, and to identify tradeoffs</p>
<p><b>Principle 5. Overall Success ☺</b></p> <p>Success is conceptualised in <b>Churchmanian</b> terms as a meeting of the minds about intertwined relational and task issues that creates the capability of choosing the right means for one's desired ends</p> <p>This requires participants to develop and integrate perspectives from generic roles that Churchman terms <b>system designer</b> (more technical/task oriented), <b>decision maker</b> (more interpersonal/consensus oriented) and <b>client</b> (more subjective/value oriented)</p> <p>More specifically, success is indicated by insight leading to a consensus model that provides decision makers with a rationale for action</p>

Integration of the Habermasian perspectives on knowledge is an exercise in sensemaking (Weick 1979). Themes are detected both prospectively and retrospectively and emerge from communicative acts in a somewhat unpredictable manner. Nevertheless it is common for discourse on *intentions* to proceed from the personal to the technical, followed by discourse on *outcomes* that proceed from the technical to the personal (Shakun 2003). Each pair of discourses (intention and outcome) in the same knowledge perspective develops mutual understanding via one of the principles in Table 1 and evaluates rationality via the relevant Habermasian knowledge claim (Sheffield 2005). *The standard of excellence for inter-organisational decision making can be stated as follows: personal commitment (validated by sincerity) to an interpersonal consensus (validated by rightness) for technical excellence (validated by objective truth)*. Each aspect of excellence is associated with Principle 1, 2 or 3 and the collective value of all three principles is evaluated in terms of Principle 4 and Principle 5 (Table 1). In the current research the efficacy of electronic discourse is evaluated via qualitative measures of the impact of the problem structuring principles (Table 1) and associated framework on overall success (Fig. 1).



**Fig. 1. A framework for structuring problems associated with inter-organisational decision making. Adapted from Sheffield (2004, 2009)**

In inter-organisational decision making pluralism can be viewed as a consequence of intertwined relationship and task issues, and intertwined divergent and convergent thinking. The electronic discourse and supporting technology employed in the current research supported pluralism via two key attributes. Firstly, the technology provided a degree of anonymity that reduced the anxiety about surfacing opposing perspectives. This reduced participants’ conflict about personal (emotional) commitments and interpersonal (moral) issues. Secondly, the technology reduced confusion by providing automatic recording of all electronic discourse (‘group memory’). This enhanced participants’ technical (reasoning) capabilities. Together these attributes allowed procedures for idea generation (divergent thinking) to be separated in time from procedures for information analysis (convergent

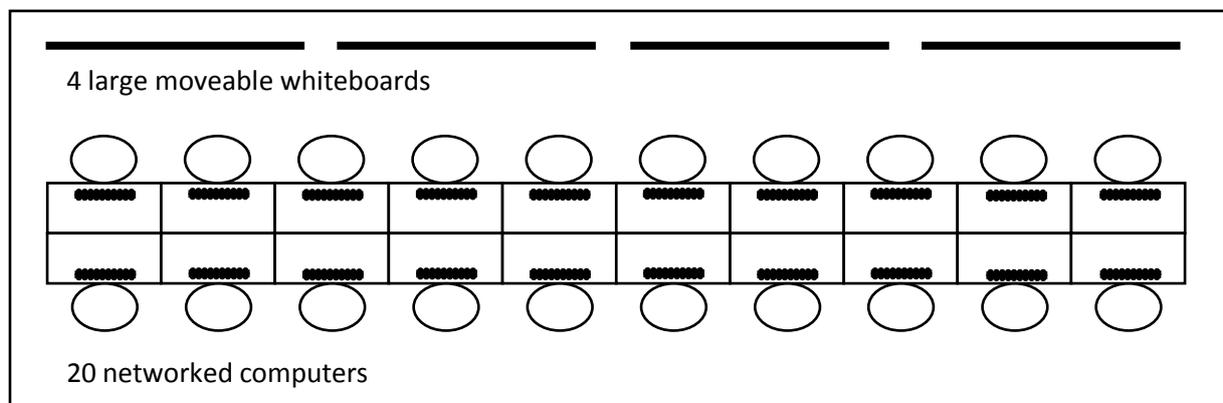
thinking). This in turn enabled a separate focus on interlocked issues about relationships (trust) and cognition (understanding). In the current research quantitative measures of all of these concepts are included in the evaluation of satisfaction with electronic discourse (Fig. 2).

Local solutions in a global environment	Procedure	
Focus	Divergent	Convergent
<u>Personal and interpersonal knowledge</u> Relationship issues ➤ Reduce conflict ➤ Increase trust	1. Absence of perceived conflict	4. Consensus for cooperative action
<u>Technical knowledge</u> Task issues ➤ Reduce confusion ➤ Increase understanding	2. Participation	3. Information exchange

**Fig. 2. Evaluation of participant satisfaction with electronic discourse**

**METHODOLOGY**

Empirical research was conducted to investigate the impact of the problem structuring model - that is, the problem structuring principles (Table 1), framework (Fig. 1), and satisfaction with electronic discourse (Fig. 2) - on overall success. A multiple case study approach was adopted. The unit of analysis was a meeting (or series of meetings) sponsored by the New Zealand government. The facilitator was not part of the research team. The research team consisted of two academics and two assistants. The role of the research team was primarily one of data gathering and analysis. The data gathering techniques that were used included direct observation, interviews with the facilitator and his staff, interviews with meeting participants, analysis of meeting reports and computer files, and a questionnaire that was administered to participants at the end of their meeting.



**Fig. 3. Electronic meeting technology**

All meetings were conducted in an electronic meeting facility at the University of Auckland. This facility, called the Decision Support Centre (DSC), consists of a large room containing 20 computers set out on an elongated table. In addition, the DSC contains a set of four large, moveable whiteboards for more traditional methods of recording the group’s activities. The purpose of the computer facilities is to run Ventana Corporation’s GroupSystems, a text-based electronic meeting support system (Fjermestad and Hiltz 2001; Ackermann *et al.* 2005) (Fig. 3). GroupSystems supports processes that include the anonymous and simultaneous individual generation of ideas and the prioritisation and brief discussion of key findings (Van de Ven and Delbecq 1971). GroupSystems also supports the anonymous and simultaneous individual allocation of budget amounts and the amalgamation of these to create a group budget. Analysis of individual allocations sampled from the tails of the group distribution provides an effective method for the surfacing and testing of assumptions from opposing perspectives (Mitroff & Linstone 1993).

In the following sections three problem structuring cases are reviewed (Table 2).

Table 2

**Inter-organisational decision making – 3 cases**

<p><b>Science funding</b>  <i>Sponsor:</i> New Zealand Ministry of Research, Science and Technology  <i>Task:</i> Allocation of the US(2014)\$2 Billion Public Good Science Fund across all 40 areas of NZ science  <i>Problem to be structured:</i> A 5-day group decision process to close out a 5-year planning and budgeting period. Implementation of the process with the national Science and Technology Expert Panel  <i>Goal:</i> Legitimacy in science governance. A national consensus on priorities and transparency in funding</p>
<p><b>Economic development</b>  <i>Sponsor:</i> New Zealand Trade Development Board  <i>Task:</i> To upgrade New Zealand’s competitive position in global markets  <i>Problem to be structured:</i> 70 1-day industry-wide strategic planning interventions conducted in conjunction with a project directed by Prof. Michael Porter. Implementation with 1,250+ industry leaders  <i>Goal:</i> Improved relationships among industry stakeholders and formation of joint action groups</p>
<p><b>Regional planning</b>  <i>Sponsor:</i> Auckland Regional Council  <i>Task:</i> Strategic evaluation of long-term plans for the Auckland region, NZ’s main growth area  <i>Problem to be structured:</i> A 1-day group decision process to close out a 7-year planning cycle. Implementation with representatives of the 7 territorial authorities and the Auckland Regional Council  <i>Goal:</i> Improved trust and understanding among decision makers. Support for a consensus spatial plan</p>

## CASE 1: SCIENCE FUNDING

The clashing point of two subjects, two disciplines, two cultures of two galaxies, so far as that goes ought to produce creative chances. (*Snow 1959: 16*)

There was such a huge diversity of people on the panel, from “pure research” oriented scientists to hard-headed business people, that significant political differences were inevitable. (Electronic discourse) put the politics in a black box, to be dealt with later. (*Participant in a science funding meeting*)

This section reviews the application of the problem structuring model to a series of science funding meetings sponsored by New Zealand Ministry of Research, Science and Technology (Table 2). The structuring of problems associated with science funding starts with the theoretical perspective that objective facts, societal norms, and personal values are intertwined. Objectivism, social constructionism and subjectivism are viewed as emergent perspectives in a broader and more critical discourse. The chief scientist of New Zealand, Sir Peter Gluckman, emphasises that science is no longer linear, authoritative and definitive, provided only by a domain-specific expert. Rather science is increasingly characterised by complexity, where multiple perspectives on knowledge are required to address the asymmetric payoffs associated with various policy options (Gluckman 2011).

Bednarek (2011) analyses the strategizing process in New Zealand’s science sector. She found that the context was pluralistic – the objectives of social actors were divergent and power was diffused. In this context institutions found legitimacy to be a powerful determinant of success. Legitimacy was found to comprise aspects which included the cognitive, normative/moral/regulative and socio-political. Organisations in New Zealand’s science sector were characterised by multiple embedded tensions and complex diffused power structures. The author’s analysis demonstrated both the creative potential and challenges in strategizing for legitimacy amidst pluralism.

The chief executive of New Zealand’s Ministry of Research, Science and Technology (MORST) and staff spent four days in the Decision Support Centre at the University of Auckland with the panel appointed to allocate the Public Good Science Fund. The panel distributed US(2014)\$2Billion across all 40 areas of New Zealand science. This is by far the largest contestable fund in New Zealand and funding decisions directly or indirectly impact most of the New Zealand economy. The technical (cognitive) issues were complex – each of the twenty panel members had received approximately 1,000 pages of briefing papers. A group memory device would clearly be required to support deliberation. The personal and interpersonal (socio-political) issues were perhaps more difficult to ignore – many of the panel were scientists, and nobody wanted reductions in areas dear to them. A key goal of problem structuring is the reduction in politics about divergent objectives to a manageable level, so that sufficient attention could be directed to the more technical, task-oriented aspects of the decision process.

One member of the panel was the chief executive of the New Zealand Trade Development Board, Rick Christie. He reported that electronic discourse “tends to be fairer – more

objective – it draws on a different range of skills. But there’s no question of not being heard – which can be a problem in meetings where there’s just verbal interaction...If you are seeking ideas on something not identified with the contributor, then it’s a great leveller...” Another member of the panel was John Butcher, director of the Forest Research Institute’s Wood Technology Division. He reported that there was such a huge diversity of people on the panel, from “pure research” oriented scientists to hard-headed business people, that significant political differences were inevitable, and that “(electronic discourse) put the politics in a black box, to be dealt with later”.

Quantitative evidence on the efficiency and effectiveness of problem structuring in science funding was obtained via a survey instrument (Fig. 2 and Appendix). The instrument was administered to all participants at the end of the final day of the electronically-supported meetings. Participant satisfaction with electronic discourse averaged 5.9 on a 7 point scale (1 = low satisfaction, 7 = high satisfaction). Participants were very satisfied with the focus on personal and interpersonal knowledge and the management of relationship issues – absence of perceived conflict (6.1) and consensus for cooperative action (6.0) received the highest ratings. Participants were also satisfied with the focus on technical knowledge – ratings for participation (5.9) and information exchange (5.8) were also high. (Fig. 4). In summary, empirical evidence was found for the impact of the problem structuring model (Table 1, Fig. 1 and Fig. 2) on the success of electronic discourse in science funding.

Science funding Focus	Procedure	
	Divergent	Convergent
<u>Personal and interpersonal knowledge</u> Relationship issues ➤ Reduce conflict ➤ Increase trust	1. Absence of perceived conflict 6.1	4. Consensus for cooperative action 6.0
<u>Technical knowledge</u> Task issues ➤ Reduce confusion ➤ Increase understanding	2. Participation 5.9	3. Information exchange 5.8

**Fig. 4. Science funding. Participant satisfaction with electronic discourse averaged 5.9 (1 = Low satisfaction; 7 = High satisfaction)**

**CASE 2: ECONOMIC DEVELOPMENT**

This section reviews the application of the problem structuring model to a series of economic policy-making meetings sponsored by the New Zealand Trade Development Board (Table 2) (Sheffield and Gallupe 1994, 1995). The meetings were part of a national study aiming to upgrade New Zealand’s competitive position in global markets. They were held in Auckland, the main economic region of New Zealand, and were branded ‘Advantage Auckland’. The aim of the research was to determine if electronic meeting technology could support an economic development process where participants came from a variety of backgrounds (e.g., business

competitors, different ethnic groups) and where meeting urgency and efficiency were of prime importance.

The national study was implemented with the assistance of Harvard's Michael Porter and was framed by his book *The Competitive Advantage of Nations* (Porter 1990). It started with the application of Porter's Diamond Model of industry-based competitiveness to analyse the New Zealand economy and to develop recommendations for improvement. Case studies were completed on 20 economic sectors which in total comprised 85 percent of New Zealand's exports. The results were published in an influential book entitled *Upgrading New Zealand's Competitive Advantage* (Crocombe, Enright and Porter 1991). It was intended to serve as a basis for positive action by individuals, companies, unions, industry groups, and government.

A series of 70 meetings were attended by 1,250+ business leaders with a variety of backgrounds. The primary result for each participant from their meeting was a 50- to 80-page bound transcript. Quantitative evidence about meeting effectiveness and participant satisfaction was obtained via a survey instrument administered at the end of each meeting. The results of the questionnaire (Appendix) indicated that participants felt that the meetings were both very effective and efficient. Answers to questionnaire item 1 indicated that participants felt that if the meetings were held using conventional meeting support each would have taken three times as long. Participant satisfaction (measured via the average of items 3b-24) was 6.1 (1=Low satisfaction; 7=High satisfaction) (Fig. 5). In summary, empirical evidence was found for the impact of the problem structuring model (Table 1, Fig. 1 and Fig. 2) on the success of electronic discourse in economic development.

Economic development Focus	Procedure	
	Divergent	Convergent
<u>Personal and interpersonal knowledge</u> Relationship issues ➤ Reduce conflict ➤ Increase trust	1. Absence of perceived conflict 6.4	4. Consensus for cooperative action 6.2
<u>Technical knowledge</u> Task issues ➤ Reduce confusion ➤ Increase understanding	2. Participation 5.9	3. Information exchange 5.7

**Fig. 5. Economic development. Participant satisfaction with electronic discourse averaged 6.1 (1=Low satisfaction; 7=High satisfaction)**

Source: Adapted from Sheffield and Gallupe 1994, 1995.

### CASE 3: REGIONAL PLANNING

This section reviews the application of the problem structuring model to regional planning in Auckland, New Zealand's largest city and the major area for population growth (Table 2) (Sheffield 2009). At the time of this research study, the governance of the Auckland region was characterised by divergent objectives (politics) and diffuse power structures (decentralised governance) (Healey 1997). Electronic discourse supported planners from seven territorial

authorities and the regional council who met to evaluate a comprehensive growth plan for the region. The planners reported to eight different councils. Conflict among them had been exacerbated by a combination of divergent objectives and scarce resources. Confusion arose from the limited role of a single decision maker and the complexity of the substantive factual issues.

In the Auckland region inter-organisational planning meetings had become the exercise of technical skills on behalf of constituencies with a history of conflict, confusion, and the exercise of power. Yet, as indicated in Table 1 overall success required participants representing eight councils to develop and integrate perspectives from generic roles that Churchman terms system designer (more technical/task oriented), decision maker (more interpersonal/consensus oriented) and client (more subjective/value oriented). In the regional planning meeting, each participant was primarily a designer of an urban area for which the elected council was the decision maker, and those who lived in the area were clients (Churchman 1971: 200).

Participant satisfaction with electronic discourse averaged 6.0 on a 7 point scale (1 = low satisfaction, 7 = high satisfaction). Participants (some of who were initially unwilling to attend the meeting) were particularly satisfied with participation (6.2) and the management of relationship issues - absence of perceived conflict (6.1) and consensus for cooperative action (6.1) also received high ratings. The relatively lower rating for information exchange (5.5) reflects participants' familiarity with the issues. Both the observations during the meeting and the satisfaction reported by participants demonstrated that the electronically-supported meeting had increased participant trust and understanding. (Fig. 6).

Analysis of decision making performance against the principles and processes in the problem solving model provided qualitative evidence suggesting that the observed levels of guarantors (objective truth, rightness and sincerity) immediately before the focal electronically-supported meeting were low. Intense participation in electronic discourse resulted in extensive documentation of claims to objective truth, rightness, and sincerity. During the meeting participants found no difference between the strategies on the basis of technical knowledge, a moderate preference for one strategy on the basis of interpersonal knowledge, and a strong preference for the same strategy on the basis of personal knowledge. By the end of the meeting, electronic discourse had produced 80 pages of text. Reflection after the meeting produced sudden insights that dissolved the perceived lack of coherence. *In Hegelian terms, the dialectical logic (synthesis) of this interpretation was initially lost on the regional planners because they were so firmly wedded to their decision framework (thesis) that they experienced profound difficulty in recognising that the framework was flawed (antithesis).* The final analysis integrated technical, inter-personal, and personal perspectives into a consensus model that provided a rationale for action. In summary, empirical evidence was found for the impact of the problem structuring model (Table 1, Fig. 1 and Fig. 2) on the success of electronic discourse in regional planning.

Regional planning Focus	Procedure	
	Divergent	Convergent
<u>Personal and interpersonal knowledge</u> Relationship issues ➤ Reduce conflict ➤ Increase trust	1. Absence of perceived conflict 6.1	4. Consensus for cooperative action 6.1
<u>Technical knowledge</u> Task issues ➤ Reduce confusion ➤ Increase understanding	2. Participation 6.2	3. Information exchange 5.5

**Fig. 6. Regional planning. Participant satisfaction with electronic discourse averaged 6.0 (1 = Low satisfaction; 7 = High satisfaction)**

Source: Adapted from Sheffield (2009).

## DISCUSSION

The meeting made it easy to lay your thoughts out without putting your neck on the line. (*Participant in an economic development meeting*)

The current research developed a model for structuring discourse for inter-organisational decision making meetings. The model was comprised of three elements - problem structuring principles (Table 1), an associated framework (Fig. 1), and satisfaction with electronic discourse (Fig. 2). An empirical study was conducted to test the impact of the model on the success of strategically important meetings. These meetings were sponsored by agencies of the New Zealand government in the domains of science funding, economic development and regional planning. For all three meetings a key goal of problem structuring was to reduce politics about divergent objectives to a manageable level so that sufficient attention could be directed to the more technical, task-oriented aspects of the decision process. The impact of the model on the success of the meetings was evaluated via qualitative and quantitative measures.

Evidence from quantitative measures indicated that a high level of participant satisfaction was obtained. Averages of participant satisfaction across all three cases are reported in Fig. 7. Participants were particularly satisfied with the focus on personal and interpersonal knowledge and the management of relationship issues – across all three cases absence of perceived conflict (6.2) and consensus for cooperative action (6.1) received the highest ratings. Participants were also satisfied with the focus on technical knowledge – ratings for participation (6.0) and information exchange (5.7) were also high. *This suggests that the anonymity provided by electronic meeting technology was perceived as more important than the efficiency associated with the simultaneous use of keyboards.* This was particularly apparent in the economic development meetings which were attended by business competitors at a time when the economy was in recession.

All three cases Focus	Procedure	
	Divergent	Convergent
<u>Personal and interpersonal knowledge</u> Relationship issues > Reduce conflict > Increase trust	1. Absence of perceived conflict 6.2	4. Consensus for cooperative action 6.1
<u>Technical knowledge</u> Task issues > Reduce confusion > Increase understanding	2. Participation 6.0	3. Information exchange 5.7

**Fig. 7. All three cases. Participant satisfaction with electronic discourse averaged 6.0 (1 = Low satisfaction; 7 = High satisfaction)**

Evidence from the qualitative measures indicated that, in all three cases, the application of the problem structuring principles and framework were effective in reducing to a manageable level conflict and confusion associated with divergent objectives and complex power relationships. In all three cases the inter-organisational decisions were made in meetings attended by a relatively large number (15-20) of stakeholders with divergent objectives. Because each participant was very busy meeting the demands of their own organisation it was imperative that the inter-organisational meetings were efficient and effective. In traditional inter-organisational meetings, even when participants desire to work in a relatively democratic way, the limited airtime creates conflict. In a one hour meeting of 15 people, each must compete to get more than four minutes of airtime. Quite literally it is the sender not the message that is visible. Critical analysis invites interpersonal conflict. But in the electronic meetings reviewed here all participants could input and read information at the same time. Because everyone could ‘talk’ at once and still be heard the work was completed two to three times faster. Because it was difficult to identify who had proposed a particular idea, rank and personality differences among participants were less pronounced. Advocacy, coalitions and infighting were less necessary. According to participants, electronic discourse provided an efficient and effective method of generating informed consensus for action.

In summary, in each of the three cases of inter-organisational decision making, empirical support was found for the problem structuring principles (Table 1), framework (Fig. 1), and high levels of participant satisfaction (Fig. 7). Taken together the findings suggest that the application of the problem structuring model produced the following benefits:

*Technical perspective:* Electronic discourse provided support for the development and documentation of validity claims about objective truth, rightness and sincerity, and the degree of coherence among them.

*Interpersonal perspective:* Electronic discourse provided support for discourse that interweaves evidence (experience and reflection, decision and action, theory and practice, individual feeling and objective fact) from multiple, intertwined, conflicting yet mutually supportive evaluative frames.

*Personal perspective:* Electronic discourse provided support for the ‘psychological safety’ and ‘trust’ needed for direct and unreserved expressions of multiple, conflicting individual perspectives.

In totality, the empirical evidence enables the focus question ‘Does electronic discourse increase the success of inter-organisational decision making?’ to be answered in the affirmative.

## CONCLUSION

Several lessons have been learned. *Firstly*, structuring problems associated with inter-organisational decision making was a pluralistic endeavour – the objectives of social actors were divergent and power was diffused. Often the goal was a legitimate consensus among diverse stakeholders so that scarce resources could be combined/leveraged for national advantage. *Secondly*, the theoretical perspective of communicative action was useful in separating out intertwined but quite different types of knowledge. The standard of excellence in communicative action can be stated as follows: personal commitment (validated by sincerity) to an interpersonal consensus (validated by rightness) for technical excellence (validated by objective truth). *Thirdly*, individual and institutional knowledge was inherently mediated and situated, provisional and pragmatic, aspirational and contested. In an environment of diffuse power relationships, inter-organisational meetings were essential in gaining legitimacy. *Fourthly*, electronic meeting technology has a raw power that leads to efficient and effective inter-organisational meetings. Excellent performance was observed in the application of electronic meeting technology in science funding, economic development, and regional planning meetings. *Fifthly*, the findings reported in the current research suggested that the problem structuring principles and framework developed in this article may be routinely applied in various other domains. Seen from a Hegelian perspective, the power of well-structured electronic discourse lies not in achievement of enlightenment, but in appreciation of the nature of three types of ignorance and the practical consequences of belief.

## REFERENCES

- Ackermann F, Franco LA, Gallupe B, Parent M. 2005. GSS for multi-organizational collaboration: Reflections on process and content, *Group Decision and Negotiation* **14** (4) : 307–331.
- Bednarek RS. 2011. Strategizing for legitimacy in pluralistic contexts: New Zealand's Science Sector, unpublished PhD, Victoria University Wellington.
- Churchman CW. 1971. *The Design of Inquiring Systems*. Basic Books: New York.
- Crocombe GT, Enright, MJ, Porter, ME. 1991. *Upgrading New Zealand's Competitive Advantage*. Oxford University Press: Auckland.
- Denis J, Langley A, Rouleau L. 2007. Strategizing in pluralistic contexts: rethinking theoretical frames. *Human Relations* **60** (1) : 179–215.
- Fjermestad J, Hiltz SR. 2001. Group Support Systems: A descriptive evaluation of case and field studies. *Journal of Management Information Systems* **17** (3) : 115–159.
- Franco LA. 2008. Facilitating collaboration with problem structuring methods: A case study of an inter-organisational construction partnership. *Group Decision and Negotiation* **17** (4) : 267–286.
- Gluckman P. 2011. Towards better use of evidence in policy formation: a discussion paper, Office of the Prime minister's Science Advisory Committee. URL: <http://www.pmcsa.org.nz/publications/>
- Habermas J. 1984. *The Theory of Communicative Action Volume 1: Reason and the Rationalization of Society*. Beacon Press: Boston.
- Healey P. 1997. *Collaborative Planning: Shaping Places in Fragmented Societies*. Palgrave: New York.
- Jackson MC. 2003. *Systems thinking: Creative holisms for managers*. Wiley: Chichester.
- Jarzabkowski P, Fenton E. 2006. Strategizing and organizing in pluralistic contexts. *Long Range Planning* **39**: 631–648.
- Kolfschoten GL, Den Hengst-Bruggeling M, De Vreede, GJ. 2007. Issues in the design of facilitated collaboration processes. *Group Decision and Negotiation* **16** (4) : 347–361.
- Lewis FL, Bajwa DS, Pervan G, King VLK, Munkvold BE. 2007. A cross-regional exploration of barriers to the adoption and use of electronic meeting systems. *Group Decision and Negotiation* **16** (4) : 381–398.
- Midgley G, Pinzo' LA. 2011. Boundary critique and its implications for conflict prevention. *Journal of the Operational Research Society* **62** : 1543–1554.
- Millet I, Gogan J. 2006. A dialectical framework for problem structuring and information technology. *Journal of the Operational Research Society* **57** : 434–442.
- Mitroff II, Linstone HA. 1993. *The Unbounded Mind: Breaking the Chains of Traditional Business Thinking*, Oxford University Press: New York.
- Morton A, Ackermann F Belton V. 2003. Technology driven and model driven approaches to group decision support: focus, research philosophy and key concepts, *European Journal of Information Systems*, **12** (2) : 110–126.
- Porter, ME. 1990. *The Competitive Advantage of Nations*. New York: The Free Press.
- Schultze U, Leidner DE. 2002. Studying knowledge management in information systems research: Discourses and theoretical assumptions. *MIS Quarterly* **26** (3) : 213–242.
- Shakun MF. 2003. Right problem solving: doing the right thing right. *Group Decision and Negotiation* **12** (6) : 463–476.

- Shaw D, Ackermann F, Eden C. 2003. Approaches to sharing knowledge in group problem structuring. *Journal of the Operational Research Society* **54** (9) : 936–948.
- Sheffield J. 2004. The design of GSS-enabled interventions: a Habermasian Perspective. *Group Decision and Negotiation* **13** (5) : 415–436.
- Sheffield J. 2005. Systemic knowledge and the V-model. *International Journal of Business Information Systems* **1** (1/2) : 83–101.
- Sheffield J. 2008. Does health care for systemic development? *Systems Research and Behavioral Science* **25** (2) : 283–290.
- Sheffield J. 2009. Design theory for collaborative technologies: electronic discourse in group decision, Proceedings of the 53<sup>rd</sup> meeting of the ISSS July 12-17, Brisbane, Australia.
- Sheffield J, Gallupe B. 1994. Using electronic meeting technology to support economic policy development in New Zealand: short term results. *Journal of Management Information Systems*. Winter 1993–94. **10** (3) : 97–116.
- Sheffield J, Gallupe B. 1995. Using group support systems to improve the New Zealand economy, part II: follow-up results. *Journal of Management Information Systems* **11** (3) : 135–153.
- Sheffield J, Guo Z. 2007a. Critical heuristics: a contribution to addressing the vexed question of so-called knowledge management. *Systems Research and Behavioral Science* **24** (6) : 613–626.
- Sheffield J, Guo Z. 2007b. Ethical inquiry in knowledge management. *International Journal of Applied Systemic Studies* **1** (1) : 68–81.
- Snow CP. 1959. *The Two Cultures*. London: Cambridge University Press.
- Snowden DJ, Boone M. 2007. A leader's framework for decision making. *Harvard Business Review*, November 2007 : 69–76.
- Ulrich W. 2003. Beyond methodology choice: critical systems thinking as critically systemic discourse. *Journal of the Operational Research Society*, **54** (4) : 325–342.
- Ulrich W. 2005. A brief introduction to critical systems heuristics (CSH), retrieved 8 October 2013 from [http://projects.kmi.open.ac.uk/ecosensus/publications/ulrich\\_csh\\_intro.pdf](http://projects.kmi.open.ac.uk/ecosensus/publications/ulrich_csh_intro.pdf)
- Van de Ven AH, Delbecq AL. 1971. The effectiveness of Nominal, Delphi, and interacting group decision making processes. *Academy of Management Journal* **17** : 605–621.
- Weick KE. 1979. *The social psychology of organizing*. New York: Random House.

**APPENDIX**

**Session Evaluation Questionnaire\***

**Decision Support Centre session for \_\_\_\_\_ (group) on \_\_\_\_\_ (date)**

\*Efficiency (Q1-2), effectiveness (Q3a-5), facilitator (Q6-7), technology (Q8-11), reduced barriers to communication (Q12-14), participation (Q15-17), information exchange (Q18-21), meeting outcomes (Q22-24)

**Directions:** Your opinions are important to us! Please take the time to answer the questions on the front of this sheet. We will use your responses to this questionnaire to upgrade future workshops in the Decision Support Centre. Thank you! Jim Sheffield, Research Director, Decision Support Centre.

1. You spent \_\_\_\_\_ hours in the Decision Support Centre to achieve this result. How many hours would you expect to spend to achieve the same result by conventional means? \_\_\_\_\_ hours
2. Using conventional means the process would most likely have spread over \_\_\_\_\_ days
- 3a. In the next three months I expect to use/study the report of this session for a total of \_\_\_\_\_ hours

**For questions 3b through 24 indicate your level of agreement with the statement using the following scheme:**

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Strongly Disagree	Mostly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Mostly Agree	Strongly Agree

All questions are answered by circling a number. There are no right or wrong answers.

- |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|
| 3b. Overall, I thought the workshop was excellent:                                  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. I enjoyed being a member of this group:  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. The report containing all contributions to this session will be highly valuable: | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. The way the session was run by the facilitator was excellent:                    | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. The facilitator's use of the whiteboards was highly effective:                   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. The computer facilities were easy to use:  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. The computer facilities were highly effective:                                   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. Typing enabled me to focus and refine my ideas before going public:             | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

- |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|
| 11. The Decision Support Centre technology is fun to use:   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 12. Internal politics were largely absent from today's meeting:   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13. The rank of participants did not inhibit the free flow of ideas:  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 14. The personality of participants did not inhibit the free flow of ideas:                                     | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 15. I felt actively involved throughout the session:  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 16. All group members participated equally:   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 17. Participants, both as individuals and as a group, were creative:  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 18. I was willing to give valuable information to others in the group:  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 19. I was able to give valuable information to others in the group:   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 20. I received valuable ideas from others on issues of significance to me:                                      | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 21. I received support from others on issues of significance to me:   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 22. The issues surfaced during the brainstorming are important:   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 22b I strongly recommend that this and similar groups use the Decision Support Centre for future planning tasks | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 23. The summary of key issues developed on the whiteboards are important:                                       | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 24. Participants, both as individuals and as a group, were productive:  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

**Please use the back of the sheet for further comments.**