

FACILITATING NEGOTIATIONS THROUGH ELECTRONIC DECISION SUPPORT SOFTWARE

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ABSTRACT

The objective of this paper is to summarise the potential applications of selected user-friendly, state of the art electronic negotiation support software to promote more successful negotiations outcomes within complex public management networks.

Various specialised niche software packages have been developed over the last few years to support negotiations processes as a result of the complicated nature of these processes and the different, frequently contradictory variables that need to be taken into account in the preparations for such negotiations. The knowledge explosion in this regard and the recent expansion in electronic hardware and software applications in government, have, however, taken place so fast that these tools are either still relatively unknown or have not yet been integrated in mainstream negotiations planning exercises in public management processes in many developed countries.

In lesser developed countries, the current state of affairs with regard to the use of such electronic support software is not good. In order to improve the positive impact of general public policy outputs, the success of public policy-related decisions in government need to be significantly increased. The experiences of different nations where electronic decision support tools have been used or are in use, to achieve a better success rate with public policy design and implementation, are important in this regard. This is especially relevant for decisions in negotiation situations within complex public management related networks. Complex policy decisions with multiple policy objectives that may be contradictory, need to be prioritised in terms of different, potentially also contradictory decision criteria. The interests, preferences, resources, constraints, personality profiles and negotiations styles of the negotiations parties need all to be considered in a systematic way and factored into decisions about the contents of negotiations proposals, strategies and tactics.

The adoption and use of more user-friendly but effective electronic decision support systems for this purpose, has the potential to maximise more successful results if they are applied appropriately and effectively. However, these tools will not necessarily guarantee success in negotiations, because they do not take a decision out of the hands of the decision maker. They only allow such a person to take better informed decisions, hopefully more aware of the main implications of those decisions.

Selected new negotiations support software packages are identified, and the application of one very elementary electronic decision support tool for this purpose, the **WinSquared** negotiations support software package, is illustrated in this paper. It can be used to increase the systematic nature and scope of **qualitative information** available to negotiators about strategic choices regarding issues, problems, options, strategies, costs, benefits, risks, probabilities and/or priorities. The package deals systematically with the main variables that can influence negotiations outcomes, and prompts negotiators for assessments of those variables, allowing the negotiator to devise the most appropriate negotiations strategies and tactics on the basis of those assessments. Its quantitative capabilities are, however, weak and it does not provide effective issue analysis and negotiations outcome support.

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INTRODUCTION

Recent international research findings on requirements for good governance indicate *inter alia* the following trends :

- A general acceptance that a strategic management approach focused on pro-active planning and implementation actions to achieve policy objectives, is needed to improve public policy outcomes;
- this necessitates *inter alia* effective information use and management ;
- a dramatic world-wide increase has taken place in the availability of digitised policy related data and high power capacity computer systems to manipulate such data;
- a resultant dramatic increase in the reliance on electronic management information systems in well developed and relatively successful policy systems to monitor, support, co-ordinate, implement and assess the effectiveness of policy processes and outcomes, and
- an increasing availability of more user-friendly & less technically complicated & more visual and command driven electronic decision support systems to optimise multi-criteria policy decision-making and implementation in order to promote effective policy outcomes.

In line with the above trends, various specialised niche software packages have been developed over the last few years to support negotiations processes as a result of the complicated nature of these processes and the different, frequently contradictory variables that need to be taken into account in the preparations for such negotiations. The knowledge explosion in this regard and the recent expansion in electronic hardware and software applications in government, have, however, taken place so fast that these tools are either still relatively unknown or have not yet been integrated in mainstream negotiations planning exercises in public management processes in many developed countries.

In lesser developed countries, the current state of affairs with regard to the use of such electronic support software is much worse : The main problems that are experienced in those countries are :

- basic low levels of policy decision-making-related knowledge, experience and skills, especially with regard to electronics and management information systems;
- a low appreciation of utility and potential of such aids;
- information gaps and uncertainties that cause a general policy paralysis which should be transformed into policy activism in order to improve policy implementation and service delivery results;
- frequent incidences of policy failure, attributed primarily to ineffective or bad policy implementation; and
- weak policy implementation capacity and service delivery results;

In order to improve the positive impact of general public policy outputs, the success of public policy-related decisions in government need to be significantly increased. The experiences of different nations where electronic decision support tools have been used or are in use, to achieve a better success rate with public policy design and implementation, are important in this regard. This is especially relevant for decisions in negotiation situations. Complex policy decisions with multiple policy objectives that may be contradictory, need to be prioritised in terms of different, potentially also contradictory decision criteria. The interests, preferences, resources, constraints, personality

profiles and negotiations styles of the negotiations parties need all to be considered in a systematic way and factored into decisions about the contents of negotiations proposals, strategies and tactics.

The adoption and use of more user-friendly but effective electronic decision support systems for this purpose, has the potential to maximise more successful results if they are applied appropriately and effectively (see Foroughi, Jelassi & Perkins 1991). However, these tools will not necessarily guarantee success in negotiations, because they do not take a decision out of the hands of the decision maker. They only allow such a person to take better informed decisions, hopefully more aware of the main implications of those decisions.

For the purposes of this paper, it is assumed that policy decision-makers are committed to achieve specific policy objectives (in some cases explicitly stated, and in other cases in the form of hidden agendas that are pursued. It is further assumed that such decision makers would therefore in negotiations situations like to take decisions that have the best potential to achieve those objectives. It is also assumed that the availability of more as well as more accurate data and information about policy-related costs, benefits, risks, probabilities and priorities, and the user-friendly electronic capacity to analyse, assess and integrate different sets of data for this purpose at various levels, will maximise the potential of successful negotiations outcomes. The reason for this last assumption is that the self-confidence of negotiators can in principle be enhanced if they have access to user-friendly tools to provide them with more accurate and reliable policy relevant information on which they can base their decisions and actions. This will reduce uncertainties and perceptions of risk, and will allow for more confident assessment of negotiations related decisions.

ELECTRONIC DECISION SUPPORT TOOLS

General electronic decision support tools can be used in different ways and in different stages of the negotiations process. Such toolkits can be especially useful in the following different functional ways :

- **Guiding individual decision-makers** step by step through transparent, standardised processes to reach decisions without their relinquishing control over those processes (www.infoharvest.com).
- **Guiding small groups** of decision-makers step by step through transparent, standardised processes to reach collective decisions, again without losing control over those processes. In this case the groups are taken through strategic policy or implementation strategy planning processes that culminate in collective decisions (www.ventana.com , www.groupsystems.com).
- **Prompting** decision-makers to consider important variables like alternative objectives, solutions, costs, benefits, risks and priorities before making choices, and providing technical assistance on how to do it (www.logicaldecision.com).
- Providing specialised technical electronic research **tools for modelling** or determining objectives, scenarios, costs, benefits, probabilities, priorities, etc (Workbench).
- Providing decision-makers with pull-down menus or hot links leading to **background information** or templates of standardised formats for useful information like
 - definitions,
 - policy requirements,
 - provisos,

- documentation like contracts, forms, legislation, etc (Workbench).
- **Drafting automatic reports, tables (including budgets), graphs or graphics** containing the above information in a user-friendly written or even visual presentation format that can be integrated into other administrative and secretarial office automation toolkits (<http://www.avantos.com/>).

Electronic decision support tools can also be used at different stages of the policy process, to consider more systematically how one can facilitate the process to reach a rational decision, and what variables could be considered. This include :

- **Situation analysis, problem identification and structuring** (<http://www.banxia.com/>, www.winXwin.com).
- **Options analysis and assessment** (<http://www.vanguardsw.com/>, <http://www.decisivetools.com>, <http://www.staff.uiuc.edu/~s-nagel/>, www.u-reform.org/, <http://www.visualt.com/>).
- **Option selection / choice Expertchoice** (www.expertchoice.com, www.jointgains.hut.fi, www.kickstart.com , www.negotiation.com)
- **Implementation strategies & tactics** (MSProject, www.mysap.com).
- **Evaluation & impact assessment** (<http://www.banxia.com>, <http://www.vu.nl/ivm/research/defenite.htm>)
- **Process and product analysis, assessment and support** (www.corvu.com)
- **Network and on-line web-based support systems** (<http://interneg.carleton.ca/inspire/>, www.hut.fi/units/sal/, www.smartsettle.com, www.mcn.org/c/rsurrat/conflict.html, <http://webNS.mcmaster.ca/>)

DSS SELECTION CRITERIA

Criteria for comparing and selecting decision support tools could include the following objectives (some are inevitably contradictory):

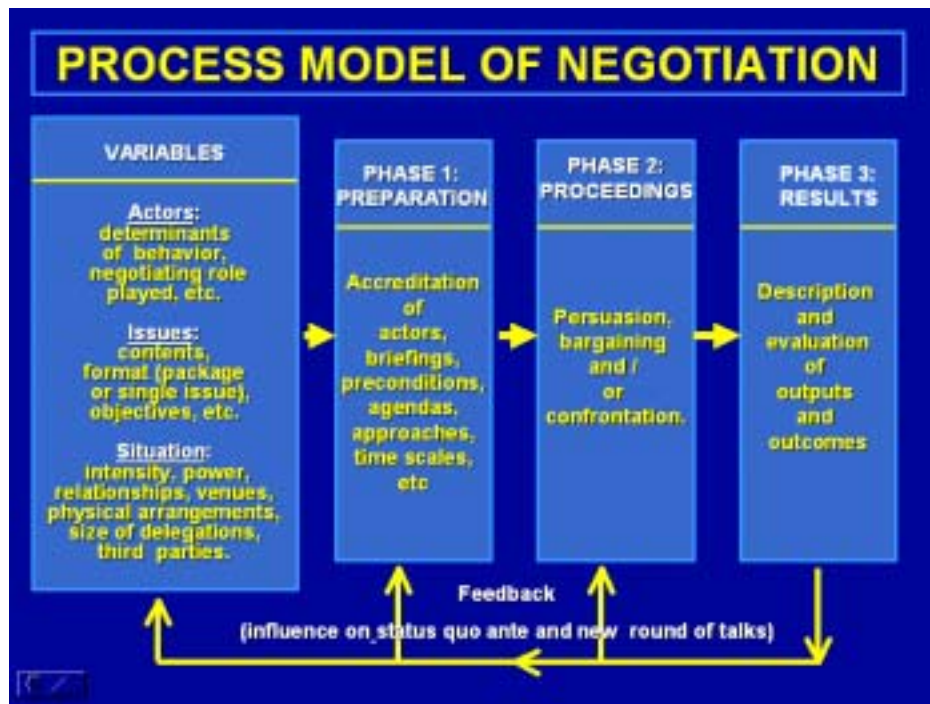
- **Simplicity** : because of the frequently low levels of electronic literacy among decision-makers especially in developing countries, the simpler the user interface is, the better;
- **Cost** : inexpensive DSS tools will for obvious reasons be more popular;
- **Hardware requirements**: computer memory and general capacity are perpetual constraints on decision support systems. The less capacity needed, the more application potential the DSS tool will have, especially in developing countries.
- **Access & maintenance** : access to DSS tools, training opportunities and the maintenance and upgrading of those tools are essential in order to apply the tools concerned optimally. Off-the-shelf software are therefore potentially more useful than specially designed software that needs specialist maintenance and upkeep.

- **Visual images** : DSS tools with strong visual and graphic capabilities, will have a better impact for presentation purposes in developing countries where the levels of literacy are traditionally low.
- **Specificity** : DSS tools that can be applied to achieve specific decision-making objectives are preferred to tools that can only indirectly resolve specific questions of concern;
- **Versatility / flexibility** : DSS tools that are able to address more than one problem, can be applied in different settings for different purposes, and that do not need specialised training, are preferable to tools that don't conform to these requirements;
- **Compatibility** : the level of compatibility and integration of DSS tools with other programmes is essential to optimise application potential. Compatibility with existing mainstream business applications is therefore essential
- **Transparency** : the desire of decision-makers to keep control of the decision-making process, necessitates tools that are relatively transparent and simple, in order to achieve legitimacy in the perception of the decision-maker;
- **Scientific rigour** : the more rigorous the scientific base of the tool, the more reliable it would be.

In order to assess the nature of management network operations and the utility of electronic support tools for these processes, the complexity of the negotiations process will first be summarised below. This will be followed by a summary of how the main features of the **WinSquared** software package can contribute to reducing that complexity, by providing a systematic user-friendly qualitative analysis and assessment of various elements of this process, and thereby facilitating more successful negotiations outcomes by prompting negotiation planners to consider selected fundamental variables before taking (hopefully !) better informed decisions.

THE COMPLEXITY OF THE NEGOTIATIONS PROCESS :

Political negotiation is a process whereby parties to a conflict jointly try to reconcile their conflicting political interests or viewpoints in a compromise solution mainly through peaceful discussions (Nieuwmeijer 1988:7). Selected classic and recent texts on negotiations include Fisher & Ury 1981, Nierenberg 1986, Calero & Oskam 1983, Lewicki, Hiam & Olander 1996, Brams 1999, Burgess & Burgess 1997, Susskind, McKernan & Thomas-Larmer 1999 & Tipler 2000. The negotiations process can be conceptualised as follows (Cloete 1991) :



This process of reaching a decision, frequently is cumbersome, expensive, time consuming and labour intensive. If it is correct to assume that the main business of governing networks rely heavily on negotiations among the respective network partners as well as with external stakeholders, it is clear that the processes through which traditional bureaucracies conduct their business, can no longer be effective in this new, fluid environment of network governance. New approaches to and strategies for good governance must therefore be employed in order to meet the escalating demands of citizens and consumers for quality public services. One logical direction for such innovations in the new knowledge and information age, is the optimal use of electronics, as has been motivated at the start of this paper.

ELECTRONIC NEGOTIATION SUPPORT SOFTWARE

Electronic negotiation support systems can for purposes of this paper be classified in two general categories :

- **Category 1 : negotiation preparation and planning support systems** that are normally found in the form of distinct software products that can be run either on stand alone workstations or on local electronic networks. These products are normally used outside the negotiations chambers; and
- **Category 2 : negotiation proceedings support systems** that are frequently based on category 1 systems, and can also consist of stand alone or network-based versions, but are increasingly expanded to include online, web-based negotiations management systems. In addition to rudimentary preparation and planning support functions, these systems also have a more important facilitating, communications and record-keeping function, to capture all data relating to the negotiations. They are therefore also used as negotiation management tools during the negotiations proceedings, which adds another dimension to an already complicating phenomenon.

In order to be effective, these products have to be very broad-based, sophisticated, legitimate and accepted by all participants.

Current commercial systems include **Ventana™**, **Inspire™** (Kersten & Noronha 1999, Madanmohan, Kersten, Noronha, Kersten & Cray 2000), **Smart Settle™**, **Joint Gains** (Ehtamo, Kettunen & Hamalainen 2001) and **WebNS™** (see Foroughi, Jelassi & Perkins 1991 for an interesting experimental study in this regard, linked to a prototype of WebNS). The above products are in different stages of development. None constitutes at this stage a comprehensive negotiations support tool, because their primary foci are mostly on the facilitation or management of the proceedings itself. They constitute, however, the logical future of negotiation support systems, and will probably become increasingly popular as they are developed into more effective and comprehensive systems based on the already better developed category 1 negotiation and general decision analysis, preparation and planning systems that they are based on.

The rest of this paper will be devoted to an assessment of one example of the first type of negotiation support systems, namely the existing preparation and planning support systems. As far as can be determined, there are currently only four off-the-shelf dedicated negotiation planning support software packages generally available on the international commercial market. They all have their roots in the USA. They are **The Mediator** (www.mcn.org/c/rsurrat/conflict.html), **The-art-of-negotiating** (www.kickstart.com), **Negotiator Pro** (www.negotiatorpro.com), and **Win² (or Win Squared)** (www.winxwin.com).

The Mediator is commercially available for US\$265, but a more restricted academic version is available for US\$ 20. It is aimed at maximising win-win outcomes by focusing virtually exclusively on the design of compromise proposals. It is therefore primarily an issue-focused support system. It has been created by C Surrat, an IT specialist. Its scope is not as comprehensive as the other products in this range.

Nierenberg's **The-art-of-negotiating** package is based on his model of negotiations expounded in his book *The Complete Negotiator* (Nierenberg 1986, www.negotiation.com). This book is widely regarded as one of the classic international texts on negotiations. The package is at the moment only available in a DOS version (US \$29.95), and is not yet available in Windows format. The developers intend migrating the package to a windows platform but has no fixed date scheduled for this purpose. It is therefore somewhat outdated in terms of current levels of technology and is not as user-friendly as other windows-based programmes. Nevertheless, the programme is an excellent negotiation support tool, designed by one of the acknowledged experts in this field. The programme is well-balanced in that it takes into account all the main variables in the negotiations process, and attempts to strike a balance among them. If this programme can be upgraded to a windows platform, it will be an extremely competitive product.

The **NegotiatorPro** package is available in 2 versions, a comprehensive professional one (US \$ 149.95) and a more restricted academic version (US\$ 19.95). In addition to a negotiation planning tool, the package contains a CD-ROM disk with background information in the form of references to literature about different negotiation types and settings. The programme is mainly based on the Fisher and Ury model of integrative negotiations outcomes, and can be customised for different negotiations contexts. A fully operational copy of the programme did not reach the author at the expiry of the deadline for the completion of this written text.

The fourth package, **WinSquared**, is available for US \$ 49.95, with a discount of \$10 if used for academic purposes. It was developed by an American lawyer, Dave Ferguson, and is mainly used for

bilateral legal and business negotiations, although it is perfectly suitable for other types of bilateral negotiations. It is probably the most user-friendly and cost-effective package of the three available products that were assessed, although its issue analysis support function is relatively weak. It will be briefly summarized and its main features supporting the practice of negotiations will be illustrated in the powerpoint presentation accompanying this paper. The power point presentation is an expanded version of the promotional demonstration that is available on its website (www.winxwin.com).

In addition to these commercial packages, a few more technical support programmes are in different stages of development, mostly in academic environments. They are not as comprehensive as the commercial packages, and also not as user-friendly yet, but they are in most cases based on proven mathematical approaches. They include **Joint Gains** (www.jointgains.hut.fi), **RAMONA** (Kuula 1990 & 1998, Teich, Wallenius, Kuula & Zionts 1995), **NEGOTIATOR** (Bui & Shakun 1996) and **MCBARG** (Bronisz, Krus & Lopuch 1988).

MAIN FEATURES OF WIN²

The programme provides two distinct analytical negotiation support functions.

The first function allows the user to analyse and assess the negotiation situation, providing a tool to identify the main variables in the negotiation situation as well as the main negotiation problems, strengths and weaknesses and the creation of profiles of the negotiating parties. It allows the user to build model profiles for him/herself and the negotiating opponent, according to the user's own perceptions of personality styles, attitudes, levels of aggression, etc. It then elicits background information about the negotiation issues, problems, bottom lines, constraints, resources and time frames concerned, according to the user.

The second function of the programme is a more applied and difficult one, consisting of the capability to identify the most appropriate negotiating strategies and tactics for the given set of both objective data and subjective preferences and views provided by the user him/herself as summarised above. It also attempts to predict a set of potential counter strategies and tactics to be expected from the negotiating opponent, on the basis of an assessment of the opponent's situation, interests and preferences as perceived by the user. This provides the user with an opportunity to prepare for those potential eventualities that seem to be the most realistic ones. More than 600 different negotiation strategies and tactics are allegedly captured in the programme. The theoretical assumptions underlying **Win²**, are summarized in **Annexure 1**. This document was provided by the developer himself, and is also available on his website (www.winxwin.com).

The package also provides various model strategies and functions that can be loaded and adapted as needed from the existing lists of strategies and tactics that have been pre-programmed. It also has a comprehensive and detailed report-writing function that can be customized to the needs of the user, from the pre-programmed list of strategies and tactics. The end result is a printed negotiation profile and plan or plans containing various customised packages of potential strategies and tactics to be considered in alternative scenarios identified by the user self. These plans can be changed at any stage as the situation develops at any time before or during the negotiations proceedings, and as new variables come into play.

ASSESSMENT

Assessed against the criteria summarized above, Win² is in the opinion of this reviewer at this stage probably the most useful of the three available dedicated negotiations support packages that were assessed for purposes of this paper. It integrates most of the elements of the negotiations model explained above, although it is stronger in certain areas of the model (eg analyzing and assessing personality factors, strategies and tactics during the preparatory and proceedings phases of the negotiations process) than in others (eg analyzing and assessing the negotiation setting, the logic, merits and demerits of the issues and the proposals concerned, and the whole aftermath phase of the negotiations). It is interesting to note that one of WinSquared's potential competitors, The Mediator, focuses virtually exclusively on issue analysis and assessment, ignoring the other elements referred to above. It is also interesting to note that Gerald Nierenberg supports the WinSquared software package and even markets it on his website. The theoretical approach underlying the programme, is spelt out in the brief summary in Annexure A, as summarised by Ferguson himself (2001).

The software is applicable to bilateral negotiation settings only. Ferguson's legal background, and the fact that the conceptual difficulties inherent in writing scientifically valid algorithms to capture the dynamics of multilateral negotiation situations are numerous, probably lead him to restrict the programme's focus to bilateral negotiations. This means that one literally has to fall back on a pairwise comparison of opponents in multilateral negotiations settings, but this is probably the most cost-effective way out for a DDS of this nature and scope.

An obvious question of critics will be how the negotiation strategies and tactics have been conceived and how they are hard-wired into the different sub-routines of the programme. The programme never pretends to attempt to take a decision out of the hands of the negotiator, but explicitly provides guidance, suggestions and predictions based on the best information provided by the user as well as the experience of the developer. Clearly, if one does not agree with the hard-wired free market orientated mental model summarized in **Annexure 1**, the legitimacy of the programme will be suspect.

In this reviewer's opinion this is the main criticism that one can level at this programme, namely that it does not provide the user with an opportunity to customize and expand the programme to add the personal experiences and preferences of the user. The developer's response to this issue is that that this was a feature in the first version of the package, but that the complexity of the negotiations process lead to a decision to simplify and hard-wire the programme in order to make it more user-friendly. It was therefore a deliberate market-related decision. The downside of this argument is that the implicit market-related bias contained in the programme may make users that do not share these views, wary of using the programme. This defect will be overcome by again allowing the user to customize his/her own ideological or other biases in later versions of the programme, although, admittedly, this may again be detrimental to the criteria of simplicity and user-friendliness.

Another criticism relates to the fact that this programme does not provide more rigorous quantitative decision support for example to prioritise issues, objectives or options, and to attach weights to them in order to reduce the qualitative nature of perceptions and generally to increase the quantitative nature of negotiations decisions, compared to more general commercially available electronic DSS software like Expert ChoiceTM (see the interesting recent paper by Metcalfe & Metcalfe 2001), LogicalDecisionsTM, CriteriumDecision⁺TM, DecideRightTM, Prime DecisionsTM and other similar or related software packages (see for example Zapatero, Smith & Weistroffer 1997, Wyatt 1999, and OR/OM TODAY 2000). The reason for this is probably also attributable to market forces, especially in terms of user-friendliness and cost.

As stated above and elsewhere (Cloete 2001), one is always faced with much needed compromises in the application of the potentially contradictory assessment criteria for DSS software. Nevertheless,

the utility of this programme will be dramatically improved if the user can be given access to additional relevant descriptive, visual interactive, quantitative and presentation features contained in some of the software referred to above (see again the suggestions made in Cloete 2001). This can be done in different ways:

- by incorporating such algorithms in new subroutines of the programme,
- by providing interactive web-based hot links to such tools, or even
- by bundling different software packages in the form of a more comprehensive toolkit if the respective suppliers agree to such an idea, like Wyatt has recently attempted (Wyatt 2000).

Overall, the programme is an extremely useful negotiation support tool that has the potential to improve the negotiations process and outcomes if it is used correctly and optimally in its current format. The enhancements suggested here, will not only empower potential negotiation trainers, advisors, planners and practitioners even more, but will also serve as a much needed, more general management capacity development tool, especially in developing societies.

CONCLUSIONS

Various specialised niche software packages have been developed over the last few years to support negotiations processes as a result of the complicated nature of these processes and the different, frequently contradictory variables that need to be taken into account in the preparations for such negotiations. The knowledge explosion in this regard and the recent expansion in electronic hardware and software applications in government, have, however, taken place so fast that these tools are either still relatively unknown or have not yet been integrated in mainstream negotiations planning exercises in public management processes in many countries.

In order to improve the positive impact of general public policy outputs, the success of public policy-related decisions in government need to be significantly increased. The experiences of different nations where electronic decision support tools have been used or are in use, to achieve a better success rate with public policy design and implementation, are important in this regard. This is especially relevant for decisions in negotiation situations within complex public management related networks. Complex policy decisions with multiple policy objectives that may be contradictory, need to be prioritised in terms of different, potentially also contradictory decision criteria. The interests, preferences, resources, constraints, personality profiles and negotiations styles of the negotiations parties need all to be considered in a systematic way and factored into decisions about the contents of negotiations proposals, strategies and tactics.

The adoption and use of more user-friendly but effective electronic decision support systems for this purpose, has the potential to maximise more successful results if they are applied appropriately and effectively. However, these tools will not necessarily guarantee success in negotiations, because they do not take a decision out of the hands of the decision maker. They only allow such a person to take better informed decisions, hopefully more aware of the main implications of those decisions.

The application of the **WinSquared** negotiations support software package, is illustrated in this paper. It can be used to increase the systematic nature and scope of **qualitative information** available to negotiators about strategic choices regarding various elements of the negotiations process. The package deals systematically with selected variables that can influence negotiations outcomes, and prompts negotiators for assessments of those variables, allowing the negotiator to devise the most appropriate negotiations strategies and tactics on the basis of those assessments. It is stronger in some areas than in others, but this is a general feature of all the existing tools in this niche area. All commercial negotiation support tools suffer from a lack of sufficiently rigorous quantitative methods.

This paper illustrates in a very practical way the complexities inherent in even a simple bilateral negotiations situation. This conclusion has significant implications for the operation and management of networks. It leads to the conclusion that, in contrast to the nature of a traditional bureaucratic organization with its fixed structure, operational culture, values, rules and control mechanisms with which it operates, the dynamics of even a simple network that does not have such traditionally fixed characteristics, is much more complex, difficult and time consuming to manage effectively. This has further consequences for strategic management processes in such networks, in order to provide sustainable, effective and efficient public services in an increasingly volatile environment.

ANNEXURE 1

Win² Theory (Ferguson 2001)

Negotiation is a *process* by which two or more parties seek to exchange *items* on the basis of *perceived value*. Negotiation leverage results from using the right *tactic*, during the right *activity*, to alter the other party's *perception of value*. Win² defines each of these terms as follows:

- **Items:** any action, inaction, money, object, or relationship that a party offers or demands as part of a negotiation.
- **Perception:** a party's views or opinions concerning the value of the items. Items are not exchanged on the basis of their actual value, but on the basis of their perceived value.
- **Value:** the price or importance of the items due to their supply and demand. Supply is the availability of an item and is based on alternatives, rules and resources. Demand is the desire or need for an item and is based on requirements, motivations and standards.
- **Tactics:** techniques and actions for altering the perception of an item's value.
- **Activity:** any of the six actions in that parties engage during a typical negotiation. The activities consist of Prepare, Exchange Information, Make Proposal, Debate Proposal, Sell Proposal, and Make Concession. Some negotiations don't include all six activities, but all successful negotiations include Make Proposal and Make Concession.

Definitions

Demand: the desire or need for an item. Demand is based on how well an item fulfills a party's requirements, how well an item fulfills a party's motivations, and how well the item complies with established standards. These factors are referred to as the item's usefulness, quality and worth. High demand drives value up. Low demand drives value down.

Usefulness: the degree to which an item will fulfill the motivations of the other party. Usefulness is measured by how subjectively important a motivation is to a party, and by how well the item will enable a party to achieve their underlying goal or objective. For example, if a party's motivation is to appear young and sporty, a luxury sedan will have low usefulness.

Quality: the degree to which an item will fulfill the requirements of the other party. Quality is measured by how important a party's requirements are to that party, and by how well an item will comply with those subjective requirements. For example, if a party were looking for a small sporty car, a luxury sedan would have low quality, no matter how well built.

Worth: the degree to which an item complies with established standards. Unlike the subjective natures of quality and usefulness, worth is measured objectively by societal criteria and measurements. For example, a beat-up old car would have low worth although its usefulness would be high to a stranded motorist.

Supply: the availability of an item. Supply is based on how many comparable alternatives there are to a party's item, how well an item can be obtained or withheld due to a party's resources, and how well an item can be obtained or withheld in accordance with applicable rules of conduct. These factors are

measured by scarcity, power and legitimacy. High supply drives value down. Low supply drives value up.

Scarcity: the degree to which there are comparable alternatives to a party's item. Scarcity is measured by how easy it is for the other party to obtain an alternative item, and by how well the alternative item compares to the item being negotiated. For example, there may be many houses that are better than the one being offered, but if the others are not currently for sale, the scarcity of the offered house would be high.

Power: the degree to which an item can be obtained or withheld due to the party's resources. Different negotiations may require different resources, but most involve money, influence, force or resolve. Power is measured by how much support is needed from a resource, and by how well the resource provides the support. For example, in a lawsuit the party with the most money would have a power advantage.

Legitimacy: the degree to which an item can be obtained or withheld in accordance with applicable rules of conduct. Legitimacy is measured by what rules apply, and by how much those rules advantage or disadvantage each party. Different rules apply to different negotiations. For example, legality may apply between businesspersons, fairness between friends, and morality between family members.

Style: the general priorities and methods that a party utilizes during a negotiation. In addition to being influenced by personality, a party's selection of tactics is also influenced by the party's aggressiveness and style. Aggressiveness is a measure of how accommodating or assertive a party or tactic is. Style reflects what factors a party emphasizes in determining value.

- **Principled** This style emphasizes objective criteria, stressing factors such as market value, legality and fairness.
- **Collaborative** This style emphasizes the interests and needs, stressing factors such as quality, benefits and usefulness.
- **Competitive** This style emphasizes "winning", stressing any factor that will give them an advantage.
- **Hard** This style emphasizes power and control, stressing factors such as resources, scarcity and alternatives.

Style arises from what is important to a party: abiding by principles, obtaining benefit, exploiting power, or winning. For example, a Collaborative negotiator will be concerned with the subjective satisfaction of the parties, while a Principled negotiator will be more concerned with the objective fairness or legality of the transaction.

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