The Interplay of Communication and Decisions in Electronic Negotiations: Communicative Decisions or Decisive Communication?

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Abstract Whilst much research has been conducted on decision support for electronic negotiations and some research has been done on communication support in this area, there is a lack of research on the interplay between these two elements of negotiations. The questions whether both are equally important, whether one effects the other, or whether they show counter-effects are important both for negotiation training (i.e. what should be the focus for becoming a good negotiator) and for system research (i.e. which system support elements need to be developed). The current paper presents results of a controlled laboratory experiment with negotiators that were provided with decision support and communication support and negotiators that had only communication support available. The impact of decision support on the communication process and on outcome dimensions as well as the impact of communication behaviour on the negotiation process and the qualitative dimensions of the outcome will be discussed.

Keywords Electronic negotiations · Negotiation support systems · Communication support · Decision support

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1 Introduction

Negotiations form an essential part of business interactions. Nowadays, they are often conducted electronically. Electronic negotiations can be defined as iterative communication and decision making processes between at least two actors jointly motivated by the fact that none can fulfil their interdependent tasks without interaction using an electronic system that provides additional value through offering communication support, decision support (DS), document management, or conflict management (based on Bichler et al. 2003; Stroebel and Weinhardt 2003; Schoop 2010). From these support mechanisms, communication support and DS stand out as negotiation is mainly about communicating requests, offers, and information clearly, convincingly and in a structured manner and to make the right decisions about accepting or rejecting what is currently on the negotiation table, about one's own concessions, about one's strategy, or about the next negotiation step. An electronic system supporting negotiations is called negotiation support system (NSS) and must thus consist of at least communication support or DS.

Historically, negotiation support systems were DS systems (e.g. Jarke et al. 1987; Jelassi and Foroughi 1989). Even now, almost 25 years after the first NSSs, the decision theoretic perspective is the predominant one in system design. For example, Inspire is an established NSS firmly rooted in this perspective viewing negotiation as "a form of decision-making with two or more actively involved agents who cannot make decisions independently, and therefore must make concessions to achieve a compromise." (Kersten et al. 1991 p. 1269; Kersten and Noronha 1999). The outcome of a negotiation is measured in terms of utilities and thus based on purely quantitative data. Communication is supported by providing a means of sending a message which does not have to be related to the offer.

Following the argument that there is a need for a communication perspective in e-negotiation research (Weigand et al. 2003) and that an NSS must provide communication support as well as decision support, document management, and conflict management (Schoop 2010), the relation between the two most important elements of negotiation, namely communication and decision making, must be analysed. Consequently, the aim of this paper is to research the interplay between communication and decisions, i.e. whether one supports the other, whether both are equally important, and whether they have countering effects. In other words, do we find communicative decisions and/or decisive communication?

The paper is structured as follows. Section 2 discusses the research question and the related hypotheses in detail. Section 3 introduces the setting including the NSS Negoisst, the experiment we conducted for testing the hypotheses, and the method of analysis. Section 4 discusses the results while Section 5 concludes the paper with a summary and an outlook to future research.

2 Research Questions

Following the definition of e-negotiations as cited above, the importance of communication and decision making as the prime elements of negotiations is obvious. Whilst

separate research has been conducted on decision support (DS) (e.g. Kersten and Lai 2010; Kersten and Noronha 1999; Vetschera and Filzmoser 2009; Gettinger et al. 2012a) and on communication support (CS) (e.g. Duceck 2010; Schoop et al. 2010), there has not been much integrative work based on a holistic point of view. We argue that this is vital as all elements of e-negotiations are interwoven. We concentrate on the two most important aspects and consequently analyse the interplay between communication and decision making in electronic negotiations. To this end, we need to answer the following research questions:

1. Which effect does decision support have on the communication?
2. Which effects does decision support have on subjective and objective outcomes of the negotiation?
3. Which effect does communicative behaviour have on subjective and objective outcomes of the negotiation?

2.1 Hypotheses

To answer the research questions, we propose 16 hypotheses to be tested. The first set of hypotheses treats the impact of DS on communication and thus deals with research question 1. The second set evaluates the impact of DS on negotiation objective and subjective outcome dimensions and thus deals with research question 2. The third set of hypotheses investigates the impact of communicative behaviour on objective and subjective outcome dimensions and thus deals with research question 3.

Decision support (DS) is implemented in NSSs in order to improve the efficiency of negotiations by providing support during all phases, i.e. the preparation phase, the actual conduct of the negotiation, and the post-settlement phase. In the preparation phase, issues and attribute values of the negotiation problem are defined. The negotiators' preferences for alternatives are elicited and formally represented in the form of a utility function. In the second phase, NSSs provide protocols for the exchange of offers and support negotiators providing evaluation and graphical illustration of offers and counteroffers according to the negotiators' preferences. Therefore, DS is implemented to help negotiators make decisions that represent their individual preferences in the best way. During negotiations, decision support gives immediate feedback about the utility of each exchanged offer and counteroffer for the focal user. This enables negotiators to compare different alternatives directly. The so-called history graph (cf. Fig. 2), presents the process of exchanging offers in a graphical way. All exchanged offers are displayed according to the focal user's own utility (Gettinger et al. 2012b).

We can expect the characteristics of DS to have an impact on the way negotiators communicate during the negotiation. Weber et al. (2006) found that negotiators communicated less when they were provided with a history graph. Since DS clarifies procedures and helps to manage the task at hand, it leads to a higher task focus (Poole et al. 1992; Russo and Schoemacker 1992). The focus on the task in turn may reduce dysfunctional affective behaviour (Koeszegi et al. 2006).

The constant awareness of one's own preferences compared to what the partner offers might lead to more negative talk when the partner does not make sufficient concessions. It could also lead to more logrolling steps because one can easily see the

consequences of logrolling. On the other hand, the immediate feedback negotiators receive on offers and counteroffers might lead to less need for the exchange of priority information (Koeszegi et al. 2006).

Weingart et al. (1990) and Koeszegi et al. (2006) found three types of communication behaviour in electronically supported negotiations: (1) integrative behaviour, (2) distributive behaviour, and (3) social or relationship building behaviour. Integrative behaviour is sometimes referred to as a 'win-win strategy' aiming at creatively finding a compromise suitable for both parties by revealing the different preferences or by adding new negotiation items and thus 'enlarging the pie'. With distributive behaviour, each party aims to get the biggest share of the pie rather than to find a good joint agreement. Distributive behaviour is also called a 'win-lose strategy' and is often linked to negotiators being reluctant to make concessions and instead acting strategically. It is also linked with showing negative emotions such as threats or anger. Social behaviour focuses on the social aspects of the negotiations and considers negotiation as a social interaction between two or more individuals. However, these behavioural patterns are not mutually exclusive and can be used in combination (Lewicki et al. 2010). We expect DS to help negotiators follow their aspiration levels and incorporate their reservation levels. The steps needed to reach these levels, however, require negotiators to make more positional offers (insisting on one's prior own offer without making a concession), reject the offers of the counterpart, and make fewer concessions or concessions of lower value than the counterpart. We thus formulate the following hypotheses linking decision support to communication patterns:

H1a. Negotiators provided with decision support communicate more than negotiators that do not have decision support.

H1b. Negotiators provided with decision support are less geared towards establishing a social relationship than negotiators that do not have decision support.

H1c. Negotiators provided with decision support show more distributive behaviour than negotiators that do not have decision support.

H1d. Negotiators provided with decision support show less integrative behaviour than negotiators that do not have decision support.

As mentioned before, we expect negotiators provided with DS to take their reservation levels seriously and aim to reach their aspiration levels. In line with this, prior research found that DS has a positive impact on the likelihood of reaching an agreement. However, a central element for successful negotiations are concessions. First of all, the likelihood of reaching an agreement depends not only on the concessions made by one side but on the interaction of concession patterns of both sides. Moreover, not only the number or total extent of concessions affect the effectiveness, the efficiency, or the fairness of negotiation results. In order to reach efficient agreements, negotiators have to make the 'correct' concessions (Gettinger et al. 2012a), i.e. minimising the decrease of one's own utility while maximising the increase of the counterpart's utility in situations with integrative potential. Similarly, fairness of agreement can only be reached by both negotiators making symmetric concessions. In contrast, asymmetric concessions will also result in an asymmetric agreement. Although DS treats both parties in the same way, it could still trigger asymmetric reactions (if parties simply react

differently to the same stimulus) and is, therefore, no guarantee for more agreements to be reached, higher joint outcomes, or fairer agreements.

Besides objective outcome measures, we also want to investigate subjective outcome measures. If negotiators are not satisfied with decision support per se, they will probably not use it again. Therefore, satisfaction with DS also needs to be analysed. Negotiators using DS have a higher degree of control over the process which should make them more satisfied with the process. On the other hand, they are expected to engage in more distributive behaviour (see H1c) and therefore to show inter alia more negative emotions which could counterbalance these effects. Because negotiators using decision support are supposed to have better outcomes of the negotiation, we hypothesise that they would also be more satisfied with the results. However, as they are more focused on the task and engage in more distributive and less integrative behaviour (see H1c and H1d), they will probably be less satisfied with the social aspects of their negotiation. Depending on what a negotiator considers to be more important, (s)he could either be more satisfied with decision support because of the outcomes or less satisfied because of the social aspects of the negotiation. This leads to the following hypotheses linking decision support to outcome and satisfaction:

H2a. Negotiators provided with decision support do not reach more agreements compared to negotiators that do not have decision support.

H2b. Negotiators provided with decision support do not reach a higher joint utility of an agreement compared to negotiators that do not have decision support.

H2c. Negotiators provided with decision support do not reach more fair agreements compared to negotiators that do not have decision support.

H3a. Negotiators provided with decision support are as satisfied with the process of the negotiation as negotiators who have no decision support.

H3b. Negotiators provided with decision support are more satisfied with the outcomes of the negotiation than those negotiators that do not have decision support.

H3c. Negotiators provided with decision support are less satisfied with the social aspects of the negotiation than those negotiators that do not have decision support.

Not only do we expect decision support to have a direct influence an outcome measures, we also expect the type of communication in the negotiation to influence the outcome. Previous research has shown that integrative behaviour leads to an increase of the joint utility, i.e. 'enlarging the pie', while distributive behaviour is linked to 'dividing the pie' (e.g. Weingart et al. 1990; Olekalns and Smith 2000). Similarly, the emphasis on social aspects of negotiations has a positive impact on negotiation outcomes (Koeszegi et al. 2006), because negotiations are considered to be a joint effort of two individuals. In the following hypotheses, we directly relate communicative behaviour to the outcome dimensions discussed above (see H2a–H2c).

H4a. Establishing a social relationship in the negotiation process has a positive influence on the outcome of the negotiation.

H4b. Integrative behaviour has a positive influence on the outcome of the negotiation.

H4c. Distributive behaviour has a negative influence on the outcome of the negotiation.

Since integrative behaviour is related to 'enlarging the pie', it is reasonable to expect a higher satisfaction with the outcome. In contrast, distributive behaviour, linked to 'dividing the pie' and to showing negative emotions, would be associated with a lower satisfaction with the outcome. Social behaviour is expected to have a positive effect on satisfaction. We thus hypothesise:

H5a. Establishing a social relationship in the negotiation process has a positive influence on the satisfaction with the negotiation.
H5b. Integrative behaviour has a positive influence on the satisfaction with the negotiation.
H5c. Distributive behaviour has a negative influence on the satisfaction with the negotiation.

3 The Setting

To research the interplay of communication and decision making and their influence on process, outcome, and satisfaction, we conducted a controlled laboratory experiment. An asynchronous electronic bilateral multi-issue negotiation was conducted in November 2010 between students from three European countries (Austria, Germany, and the Netherlands). The original experiment included four treatments; only the two relevant treatments for our research questions are discussed in this paper. Negotiations were conducted using the negotiation support system Negoisst but varied in the functionalities Negoisst offered to the different groups.

3.1 The System Negoisst

Negoisst is an asynchronous web-based NSS that has been developed in the course of more than a decade and is constantly improved and extended by new modules (Schoop et al. 2003; Schoop 2010). It is the only NSS based on an integrative approach offering three different types of sophisticated support, namely *decision support*, *communication support* and *document management* of which the first two are of special interest concerning the focus of this paper.

Decision support in Negoisst essentially consists of a representation of the negotiators' preferences concerning the items to be negotiated. Based on concepts from multi-attribute utility theory, the user has the possibility to explicate his/her preferences on each issue to be negotiated. The resulting self-explicated preference model (see Fig. 1 for an example) is used by the system to evaluate offers and counteroffers made with a utility value between 0 and 1, making different offers comparable for a negotiator and thus leading to a cognitive simplification of the negotiation task. For partial offers (i.e. offers in which not all agenda items are specified), a possible utility range is displayed. To support the negotiator further, information on the concession path can be obtained from a history graph displaying the development of the utility values of each offer based on the focal negotiator's preferences (see Fig. 2). Furthermore, it is possible to apply more elaborate methods of preference elicitation, such as, for example, a realisation of Conjoint Analysis (Green and Srinivasan 1978, 1990)
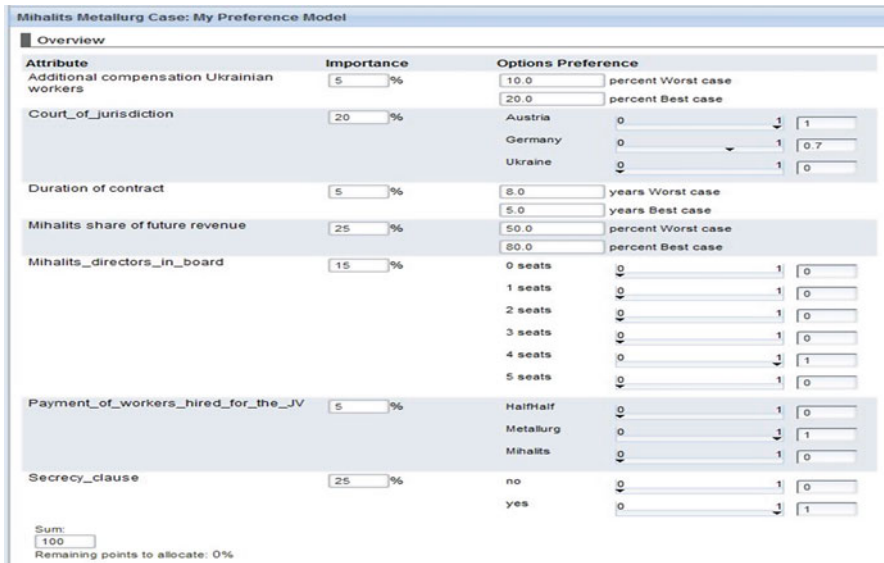
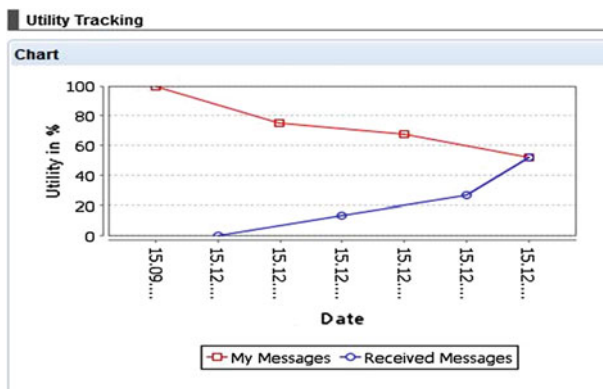**Fig. 1** Self-explicated preference model in Negoisst

Fig. 2 Utility tracking in Negoisst

or Analytic Hierarchy Process (Saaty 1980) techniques to alleviate the complexity of explicating one's preferences. This is done by presenting the users with different contract alternatives and asking the users to rank those according to their preferences

Historically, the provision of some kind of decision support is the main contribution of an NSS to improve negotiation processes and results. Nevertheless, it has been pointed out that it is also desirable to enhance the communication between the negotiators to counteract typical problems when using a low-richness medium for a highly complex task, such as oversimplification and misunderstandings (Weigand et al. 2003). In Negoisst, this has led to the development of the communication support component. Its elements are predicated on ideas from Speech Act Theory (Searle 1969) as well as from the Theory of Communicative Action (Habermas 1985).

The idea is to enrich the negotiators' communication through the provision of support on all three levels of semiotics (Morris 1971). Almost all of the elements used to fulfil this task aim to reduce ambiguities and misunderstandings.

On the *syntactic* level, a clear and correct interaction process is ensured through the prohibition of retrospective changes in already sent negotiation messages by the system. Furthermore, a negotiation protocol only allows the partners to act in a strictly alternating manner. This prevents a negotiator from creating ambiguities by sending multiple messages, potentially with contradictory content.

On the *semantic* level, the focus is on creating a common understanding between the negotiators in every step of the negotiation, especially concerning the meaning of single terms in the agenda. Therefore, a concept based on ontologies clearly defining each issue is applied. These explanations and definitions are easily accessible by the negotiators via the system. The thus created negotiation agenda is strongly linked to each offer exchanged in the system. A negotiator can directly link elements of the natural language message to the agenda so that the meaning of these message elements is explicated. Therefore, *semi-structured* messages with *semantic enrichment* (unstructured message content enriched with formal explanations for some parts) are exchanged. The text elements linked to the agenda are highlighted and dynamically adjusted when the agenda is changed during the creation of a message. Figure 3 shows the editor interface with an example negotiation agenda on the right and a semantically enriched text element in the message window on the left.

It also shows the message type concept, which is the most important part of Negoisst's communication support on the *pragmatic* level. Here, the aim is to remove ambiguities about the intended consequences of single negotiation steps. Therefore, the meaning of a message (its *illocutionary force*) is explicated by the choice of a message type. Negoisst distinguishes between formal message types (such as Offer, Counteroffer or Final Accept) and informal message types (such as Question or Clarification). Whilst the formal types mark a committal step of a negotiator, the informal types are used to exchange information or to discuss alternatives without directly
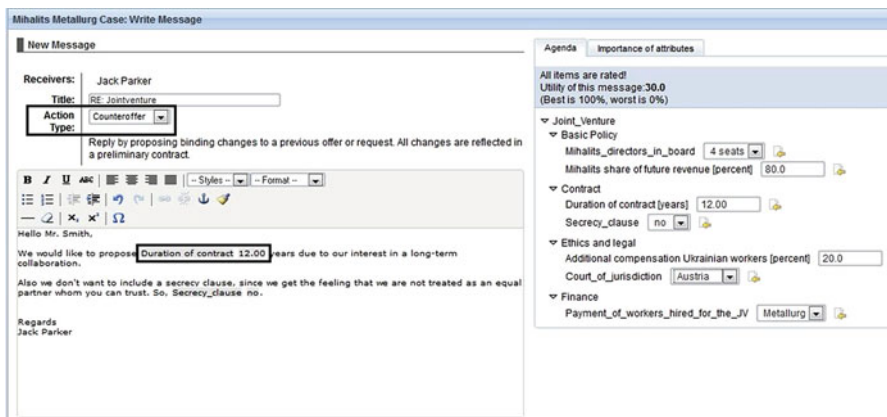

Fig. 3 Message types and semantic enrichment in Negoisst

offering them. The concept of message type explicate ideas from speech act theory as the message types can be directly related to different speech acts (Schoop 2010).

Together, these three layers make up the communication support component in Negoisst. It has been shown in various experiments that this kind of support improves communication quality for electronic negotiations, resulting in enhanced mutual trust between negotiators, higher agreement rates, and higher satisfaction of the negotiators with process and outcome of the negotiation (Duckek 2010; Schoop et al. 2010).

The third kind of support, i.e. document management, ensures traceability and non-repudiation of the offer exchange during the negotiation. This is realised via the automatic creation of contract versions with each negotiation message and also via storing all contract versions on the web server, acting as a trusted third party (Schoop 2010). However, since document management is not the focus of this paper, it will not be discussed any further. The interested reader is referred to (Schoop and Quix 2001; Schoop et al. 2003; Schoop 2010) that provide a more detailed explanation of the system and its underlying ideas.

3.2 The Case

The case used for this analysis describes negotiations between two European companies (an Austrian company providing a revolutionary engine technology and a Ukrainian company bringing in the production capacities for the engine) discussing the creation of a joint venture project. The case description consists of (1) general information about both companies as well as their prior interactions and (2) private information including predefined preferences for both parties. The case was designed to constitute a highly conflicting bargaining situation including seven issues to be discussed. Among them there are crucial issues (with a very small zone of possible agreement) such as the distribution of the revenue generated by the joint venture between the companies or the constitution of the five-seat board of directors. Another interesting issue reflects security concerns of one of the parties concerning the technological knowledge they brought into the cooperation, potentially creating feelings of distrust between the parties. Further issues consider the coverage of the payment of additional workers that have to be hired for the joint venture, additional wage increases for the Ukrainian workers participating in the joint venture and the location of the court of jurisdiction in case of arising difficulties between the two joint venture partners. The case indicates that profitable long-term partnerships between the parties are possible and desirable. Nevertheless, it is also indicated that there are alternatives to the current negotiation so that a settlement does not have to be reached at all costs.

Participants were made familiar with Negoisst via a briefing by the course instructors one week before the start of the experiments as well as via test accounts. Participants received the case description one day before the negotiations started. The first time participants entered the system, they had to answer a quiz including questions about the case and their preferences. Furthermore, they answered a pre-negotiation questionnaire consisting of demographic data and their prior experience with (electronic) negotiations. There was a time frame of two weeks to conduct the negotiations. However, the participants could terminate negotiations with an agreement or with a

Table 1 Experimental design

Treatments n = Number of dyads	
Decision support	
Yes	No
37	19

rejection at any time. After terminating the negotiations, participants were required to answer a post-negotiation questionnaire including inter alia their satisfaction with the negotiations. All exchanged messages as well as the replies to the questionnaires were documented.

The majority of the participants naturally came from the countries of the four universities participating in the experiment (i.e. 90 students from the Netherlands, 28 students from Germany, and 28 students from Austria). Other nationalities included a variety of European and non-European countries such as France (7 students), Romania (6 students), Finland (5 students), Hungary, Iran, and Slovakia (4 students each). The age of the participants was 24.5 years on average. 80 of the participants were male, 135 were female while 9 students failed to reveal their gender.

The two experimental groups differed in their access to decision support tools implemented in Negoisst, while both groups were provided with communication support implemented in Negoisst. In total, 224 undergraduate and graduate students of negotiation courses from four different European universities participated in 112 negotiations. The two groups being of interest for the present analysis include 56 negotiation dyads (see Table 1). Students received course credits for their participation in the experiment, while the amount of credits was not linked to a particular negotiation outcome. Subjects were paired into dyads from different universities to minimise transmission of information between subjects due to personal contact.

3.3 Methods

Before we started our analyses, data cleansing was performed to exclude negotiations that invalidate data sets (e.g. participants did not continue their negotiations, did not reply to their partner, wrote in a language other than English etc.). This resulted in a reduction of the subsamples to 37 dyads for the experimental and 19 dyads for the control group. Content analysis was applied to the negotiation transcripts following procedures developed for the analysis of written negotiation transcripts (Srnka and Koeszegi 2007). Seven coders were instructed in two sessions of two days each about the unitisation and the coding process. Coders were paired in a way that each negotiation transcript was unitised and coded by two independent coders and coders had to perform quality checks with two different coders after each stage. The quality checks for the unitising process were performed evaluating the reliability of the procedure as well as the textual consistency. The unitisation process resulted in the development of 24,354 units. All coders except one group reached a Guetzkow's U—showing the reliability of the unitisation process by measuring whether coders have identified the same number of communication units—below 0.0076 and a textual conformance

above 88 %. This one group had to engage in a second unitising round. Weighted average Guetzkow's U was equal to 0.03 and weighted average textual conformance of unitisation was equal to 87.75 % (Krippendorf 1995; Weingart et al. 2004; Srnka and Koeszegi 2007). Differing unitisations were eliminated through discussions. For categorisation, a category scheme including 11 main and 77 subcategories was developed referring to an inductive-deductive approach (see appendix for the category scheme). The scheme was based on (Koeszegi et al. 2006) and has been further elaborated and validated (Gettinger et al. 2012b). The inter-coder reliability, Cohen's κ—measuring whether coders have labelled the same thought units with the same category—reached a weighted average of 0.86. This presents an excellent result considering the large number of categories used for the analysis (Lombard et al. 2002; Srnka and Koeszegi 2007). Differences between coders were discussed and eliminated resulting in one common data file. To evaluate the influence of decision support on the communication, a subsample was used including 12,662 communication units.

4 Discussion of Results

In the following, we evaluate the impact of decision support on the communication process of electronic negotiations. Moreover, we directly link the communication process to subjective as well as objective outcome measures.

4.1 Effects of Decision Support on Negotiation Communication

Negotiators supported with DS overall exchange more communication units ($M = 271.65, SD = 122.90$) than those without DS ($M = 153.59, SD = 51.71$). This is also reflected in most main categories (see Table 2). Overall, negotiators showed most often positional bargaining behaviour by exchanging positional information and

Table 2 Mean and standard deviations of the absolute frequencies for the main communication categories for DS group and non-DS group

Main communication categories (absolute frequencies)	DS M (SD)	Non-DS M (SD)
Make concession*	17.81 (7.70)	13.59 (5.62)
Ask or give priority information	14.14 (8.90)	11.24 (6.23)
Social relationship**	42.38 (24.76)	22.88 (13.57)
Positional offer**	30.41 (17.21)	17.18 (13.58)
Request concession	1.24 (1.54)	0.82 (1.24)
Give positional information**	40.38 (20.56)	18.47 (8.85)
Show negative response**	17.54 (11.30)	7.65 (5.76)
Use tactics and contention	11.14 (7.34)	9.12 (5.90)
Substantiate position	11.62 (7.64)	8.59 (3.83)
Process variables**	83.86 (41.15)	43.82 (13.15)
System issues*	1.14 (2.03)	0.24 (0.56)

$* p < 0.05$ value, $** p < 0.01$ value (2-tailed)

offers. Additionally, they communicated about the negotiation process and their social relationship. System issues were rarely discussed. Thus, hypothesis 1a is supported.

Negotiators provided with DS used more communication about social relationships than those without DS (see Table 2). Thus, hypothesis 1b has to be rejected.

Negotiators talked about seven issues such as the share of future revenues and number of directors in board. The secrecy clause was the only issue with only two alternatives (secrecy clause yes/no). Interestingly, for this issue only, comparisons of mean values show that DS users made more unconditional concessions, $t(52) = 2.42$, $p = 0.019$, and bottom-line offers, $t(36) = 2.09$, $p = 0.044$, slightly more positional offers, $t(52) = 1.95$, $p = 0.056$, and also requested slightly more concessions, $t(36) = 1.96$, $p = 0.058$, than negotiators without DS. Regarding hypotheses 1c and 1d, these results show a mixed picture of integrative and distributive behaviour and thus lead to a rejection of these hypotheses.

As negotiators supported by DS overall used more communication units, in the following also relative frequencies are analysed. The use of relative frequencies allows controlling for the effect of the amount of communication units written by each user. In general, one third of the relative communication units were used to coordinate and structure the negotiation process, e.g. timely coordination, text structuring, addressing the counterpart etc. About 1 % of all exchanged communication units focused on social aspects of negotiations. This main category includes aspects such as showing concern for the counterpart, positive emotions, expressing apologies and regrets etc. Negotiators invested a similar amount of communication in positional information. This main category includes general information about the company, products, services etc., but also statements intended to support the position with facts as well as persuasive behaviour. 11 % of all communication units were used to make positional offers, including opening offers, sticking to prior offers, and bottom-line offers. Slightly less than 8 % of communication units represented concessions. In more detail, we also distinguished between conditional concessions (part of logrolling steps) and unconditional concessions (no concession is directly requested in exchange). Negotiators invested almost 6 % of their communication in negative statements including rejections of offers, proposals etc. and showing negative emotions. A similar amount of information was used for the exchange of priority information. Less than 5 % of relative communication units represented soft and hard tactics. A similar relative amount of communication was used to make normative statements to substantiate the own position, including aspects of fairness and common ground. Only less than one per cent of the communication units were used to request concessions from the counterpart directly and to discuss the Negoisst system.

The two treatments resulted in several differences regarding the relative usage of particular communication behaviour (see Table 3). Negotiators supported by DS implemented in Negoisst used relatively more communication to provide their counterparts with positional information and showed also more negative emotions. However, these negotiators addressed their counterparts relatively more often personally. In contrast, negotiators without DS made relatively more concessions and used relatively more normative statements. In more detail, they focused more on fairness aspects in negotiations. However, negotiators in this condition addressed their counterparts relatively more often impersonally, i.e. in a formal way.

Table 3 Mean and standard deviations of relative occurrences of communication units for DS group and non-DS group

Communication categories (relative frequencies)	DS M (SD)	Non-DS M (SD)
Main category positional information*	0.15 (0.05)	0.12 (0.04)
Subcategory negative emotions**	0.03 (0.02)	0.02 (0.02)
Subcategory personal address*	0.01 (0.02)	0.00 (0.00)
Main category make concession*	0.07 (0.02)	0.09 (0.04)
Main category substantiate position**	0.04 (0.02)	0.06 (0.02)
Subcategory fairness*	0.01 (0.01)	0.02 (0.01)
Subcategory impersonal address**	0.11 (0.04)	0.14 (0.04)

Only significant differences are reported

$*\ p < 0.05$ value, $**\ p < 0.01$ value (2-tailed)

4.2 Strategies in Electronic Communication

To analyse the relationship between communication behaviour and subjective as well as objective outcome measures, the communication subcategories are clustered w.r.t. negotiation behaviour. Prior studies considering communication in electronic negotiations have identified three main types of negotiation behaviour, namely integrative, distributive, and social or relationship building strategies (Weingart et al. 1990; Koeszegi et al. 2006). In order to study the communicative strategies used by the negotiators, a factor analysis of absolute frequencies of the communication units was carried out. As different types of negotiation behaviour are not mutually exclusive (see above), we used an oblique rotation (direct oblimin) which yielded a three-factor solution accounting together for 57 % of the total variance. Cronbach Alphas for all three items show satisfying results above 0.7 (Hair et al. 2006). This model suggests that the factors could be labelled as social support, distributive tactics, and integrative tactics. Consequently, the behavioural patterns found in prior studies as discussed above can be confirmed. The final item structure is depicted in Table 4. The first factor is related to social aspects of communication. The first three items comprise subcategories of social communication from the coding scheme. Similarly, the fourth item is used to create a common ground for the negotiations. The use of persuasive statements might seem counterintuitive in a relationship building strategy. However, negotiators following this strategy also tried to reach their objectives, i.e. exceed their reservation levels. Rather than referring to tactics (as in the case of distributive behaviour), negotiators following this strategy try to persuade the negotiation partners to make concessions. Last, this strategy is closely linked to a more coordinated negotiation process, which is typically a sign of more effective negotiations.

The second factor, namely distributive behaviour, consists of items that have the potential to influence the opponent's perception and behaviour (Koeszegi et al. 2006). The first two items represent tactical behaviour. The third subcategory represents negative emotions including sarcastic statements. Negative emotions are used in (electronic) negotiations to exert pressure on the counterpart. Last, these items are often used in combination with a request for understanding one's behaviour.

Table 4 Factor loadings of communication strategies

Loadings > 0.4, (n = 54)	Allocated in coding scheme	Factors		
		Social behaviour	Distributive behaviour	Integrative behaviour
Apology	(Social relationship)	.594		
Show positive emotion	(Social relationship)	.663		
Express hope	(Social relationship)	.776		
Common ground	(Substantiate position)	.613		
Persuasive statements	(Positional information)	.726		
Time or process coordination	(Process)	.761		
Refer to alternatives	(Tactics & contention)		.590	
Make promises	(Tactics & contention)		.619	
Show negative emotions	(Negative response)		.620	
Request understanding	(Substantiate position)		.756	
Trust and relationship	(Substantiate position)			.843
Refer to fairness	(Substantiate position)			.532
Unconditional concessions	(Make concessions)			.528
Self-supporting statements	(Positional information)			.503
Cronbach Alpha (std.)		.879	.813	.786

Note KMO = .85, $\chi^2(91) = 386.686$ ($p < .000$)

The third factor consists of communication units that have an integrative character. The first two items focus on the relationship with the counterpart. The third item represents unconditional concessions. In contrast to conditional concessions, where negotiators directly ask for reciprocating the concession, integrative negotiations are characterised by mutual trust between individuals. Therefore, negotiators can rely on their relationship and their mutual trust when making concessions, instead of directly asking for a counter concession. Last, instead of using tactics or persuasive statements, individuals try to foster their positions by providing facts in integrative negotiations.

Follow-up tests reveal that these behavioural patterns are not mutually exclusive. In contrast, social as well as integrative behaviour is highly correlated (r = 0.457). Similarly, even distributive behaviour can be combined with social aspects of communication (r = 0.361). In contrast, integrative and distributive negotiation behaviour are less likely to be used together (r = 0.204).

T-tests comparing the three negotiation strategies over the experimental treatment show that negotiators supported by DS have higher positive loadings on the social strategy. Similarly, factor loadings are higher for the integrative strategy, while there is no difference in the use of distributive behaviour due to the treatments. These results imply that negotiators provided with DS engage more in social and integrative negotiations strategies, while both use similarly often distributive strategies. Therefore, these results show that DS does not lead to more distributive behaviour and, therefore, they confirm again that H1c has to be rejected. In contrast, our results show that DS leads to more integrative behaviour (contrary to our prediction), thus rejecting H1d.

Treatments	DS	Non-DS
Agreements	21	11
Agreement rate	57 %	65 %
For dyads that reached an agreement		
Joint utility	1.06	1.06
Contract imbalance	0.096	0.108

Table 5 Objective outcome measures

4.3 Role of Decision Support on Negotiation Outcome

In Table 5, the impact of the treatments on various objective outcome measures is shown. The objective outcome measures include (1) the agreement rate, (2) the joint utility (JU), and (3) the contract imbalance (CI). The agreement rate is a measure of negotiators' effectiveness. Furthermore, joint utility and contract imbalance are displayed for the dyads that reached an agreement. Joint utility is defined as the sum of the utility values of both negotiators within one dyad and is used as a measure for outcome efficiency. The contract imbalance shows the absolute difference between individual utilities of both negotiators within one dyad in the final agreement and thus shows the fairness of the negotiation outcome with a lower contract imbalance indicating fairer agreements.

Analysis shows that there is no significant difference in the number of agreements reached between negotiations with and without decision support, $\chi^2(1) = 0.305$, $p = 0.581$. Furthermore, there is no difference in the joint utility, $t(30) = -0.42$, $p = 0.677$ nor in the contract imbalance, $t(59) = -0.38$, $p = 0.710$, due to the provided support. Thus, hypotheses 2a–2c are supported.

4.4 Role of Decision Support on Satisfaction with the Negotiation

To evaluate the negotiation outcomes holistically along distinct dimensions, we also consider subjective outcome measures based on the data gathered via the post-negotiation questionnaire. These constructs measure the negotiators' post-negotiation satisfaction with the negotiation process (SATPRO), with the outcome (SATOUT), and with social aspects of the negotiation (SATSOC). All psychometric constructs used in our research were measured using multi-item scales on a five point Likert-scale. Although these scales were already used for the entire data set (Druckman et al. 2010; Gettinger et al. 2012a), a principal factor analysis with oblimin rotation was performed to test construct validity (see Table 6). Considering the small sample size, all three constructs show satisfying convergent and discriminant validity as well as sufficient Cronbach alpha values above 0.79 (Hair et al. 2006) and explain in combination 72.5 % of the total variance. The cross loading of the item SATPRO1 could be seen as problematic, but is most probably a result of the smaller sample size considering prior studies with these items.

Analyses of the factor indices show that there is a positive relationship between the satisfaction with the negotiation process and the outcome as well as between the

Table 6 Pattern matrix of satisfaction measures

Items	SATOUT	SATPRO	SATSOC	Questions
SATOUT1	0.911			I am satisfied with the results I achieved
SATOUT2	0.805			I am satisfied with the results as compared to my expectations
SATOUT3	0.885			I am satisfied with the results when considering my initial objectives
SATOUT4	0.849			I am satisfied with the results as being favorable for me
SATPRO1	0.652	0.459		I am satisfied with my performance in the negotiation
SATPRO2		0.473		I was confident in engaging in my tasks
SATPRO3	0.429	0.508		I was effective in accomplishing my tasks
SATPRO4		0.829		I represented my client adequately
SATSOC1			0.843	My counterpart listened to my concerns
SATSOC2			0.761	A good foundation was set for a future relationship with my counterpart
SATSOC3			0.874	My counterpart was sincere
SATSOC4			0.838	I enjoyed working with my counterpart
Cron.A.(std).	0.951	0.790	0.916	

Loadings reported (> 0.4), KMO$=0.79$, $\chi^2(66) = 372.514$ ($p < 0.000$)

satisfaction with social aspects and the satisfaction with the negotiation outcome. However, the satisfaction with social aspects shows a higher correlation with outcome satisfaction ($r = 0.453$) than the satisfaction with the negotiation process and the outcome satisfaction ($r = 0.340$). In contrast, post-negotiation satisfaction with the process and the social aspects seem not to be related ($r = 0.051$). Furthermore, negotiators of both treatments revealed the same level of post-negotiation satisfaction with the process, $t(35) = -1.101$, $p = 0.279$ (thus supporting H3a), and their outcomes, $t(35) = -0.269$, $p = 0.789$ (i.e. H3b must be rejected). Negotiators not provided with DS are more satisfied with the social aspects of the negotiations, $t(35) = -1.701$, $p = 0.049$, 1-tailed. Thus, H3c is supported.

4.5 Role of Communication Process on Outcome Measures with the Negotiation

The three factors found in the communication data (see Table 4) were not a good model to predict whether negotiators reached an agreement or not. A forward (LR) logistic regression with condition (DS or no DS) as constant and the main communication categories as possible predictors yielded the following results. With only condition as a predictor in the model, the model correctly classifies in 59.3 % of the cases ($b_0 = 0.38$) whether negotiators reached an agreement or not which is in fact just above chance. With the inclusion of negative response and social relationship, this model correctly classifies 77.8 % of the negotiations (see Table 7). Negative response is negatively related to a successful negotiation, while social relationship is positively

Table 7 Logistic regression model

	95 % CI for exp b			
	$B(SE)$	Lower	exp b	Upper
Included				
Constant	−0.32 (0.68)	0.89	0.94	1.00
Negative response	−0.23 (0.06)	0.71	0.80	0.91
Social relationship	0.12 (0.04)	1.05	1.12	1.21

Note $R^2 = .08$ (Cox & Snell), .35 (Nagelkerke). Model $\chi^2(2) = 22.89$, $p < .001$

Table 8 Regression scores (beta) of subjective and objective outcome measures

Variable	SATOUT	SATSOC	SATPRO	JU	CI	DEF
(Constant)		**		***	**	***
Control(0)/DS(1)	−0.176	−0.354 **	0.215	−0.381**	0.040	0.393**
Social behaviour	0.199	0.407**	0.067	0.467**	−0.253	−0.477**
Distributive behaviour	−0.443**	−0.557***	−0.373**	−0.429**	0.376*	0.447**
Factor integrative	0.398**	−0.162	0.050	0.392*	−0.126	−0.395*
R^2	29.5 %	41.3 %	15.2 %	39.6 %	13.8	41.2 %
N	37	37	37	32	32	32

As the independent and the dependent variables are based on different measures, beta terms are used for easier interpretation of results

$*** p < 0.01, ** p < 0.05, * p < 0.1$

related to a successful negotiation. Therefore, Table 7 shows that the more negotiators used negative responses, the lower the likelihood of reaching an agreement was. In contrast, the more negotiators referred in their communication to social aspects of negotiations, the higher the likelihood of reaching an agreement was. The latter result support H4a.

In the following, we combined the three identified negotiation strategies (social, distributive, and integrative behaviour, see Table 4) and linked them directly with the presented subjective (satisfaction, see Table 6) as well as objective outcome measures (joint utility, contract imbalance, distance to efficiency frontier (DEF)). Therefore, regression analyses were performed including a constant, the experimental treatment groups as a dummy variable, and the three identified negotiation strategies (see Table 8).

Results presented in Table 8 show that the support of negotiators with DS and the communication strategies explain in total almost 30 % of the variance of users' post-negotiation satisfaction with the outcome (SATOUT). Moreover, distributive negotiation behaviour has a negative impact while integrative behaviour shows a positive impact on the satisfaction with the outcome, supporting H5c and H5b. Around 41 % of the total variance in users' post-negotiation satisfaction with the social aspects of the negotiation (SATSOC) is explained by the four factors used. The use of DS leads to a lower satisfaction with the social aspects and, therefore, confirms the results presented

above. In contrast, the communication units subsumed under the term 'social behaviour' show a positive impact on the satisfaction of the social aspects (confirming H5a). However, the strongest influence is exerted by distributive communication behaviour. Distributive behaviour leads to a significant reduction of the post-negotiation satisfaction with social aspects about the negotiation. The post-negotiation satisfaction with the process (SATPRO) is only significantly influenced by distributive behaviour. This indicates that the use of tactics, showing negative emotions etc. leads to a lower satisfaction with the negotiation process.

As an objective measure of negotiators efficiency, we use the joint utility to investigate outcome efficiency. For the evaluation of economic outcome measures, only those dyads are used that completely filled out the questionnaire and reached an agreement. The treatment groups and the identified communication patterns explain almost 40 % of the variance of the joint utility. Surprisingly, negotiators without DS reached higher joint outcomes than negotiators with DS. This result, however, has to be treated with caution as the overall sample of these two treatments does not reveal any differences in terms of joint utility (see above). While social and integrative behaviour lead to an increase of the joint utility and thus to an 'enlargement of the pie', distributive behaviour reduces the joint utility of the final agreement. A close look at the negotiation outcome reveals that all dyads reached agreements that are dominated by at least one alternative solution. This result indicates that no negotiation dyad has reached a Pareto efficient agreement. Therefore, we consider the minimum distance to the efficiency frontier indicating how much value negotiators left at the virtual bargaining table. While in general a maximisation of the joint utility leads to efficient agreements, efficient agreements do not per se result in a maximisation of the joint utility (Tripp and Sondak 1992). Regression analyses show that the use of DS and distributive behaviour lead to higher distance to the efficiency frontier, supporting H4c. In contrast, integrative as well as social behaviour leads to a reduction of the distance between negotiators' final agreement and the Pareto frontier, confirming H4a and H4b. Concerning the contract imbalance and therefore the fairness of the final agreement, distributive behaviour leads to an increase of the contract imbalance. Therefore, the use of tactics, negative emotions etc. leads to more unbalanced and therefore less fair agreements.

Table 9 summarises the results.

5 Conclusion

The aim of this paper is to research the interplay between communication and decisions. We used content analysis to compare classes of communicative acts of negotiators and contrasted more complex communication patterns (i.e. negotiation strategies) of subjects who were provided with decision and communication support with subjects who were provided with communication support only.

Communication and decision making are taken by researchers to be the prime elements of (electronic) negotiation and our research shows that they indeed play a vital role and are interwoven. In terms of systems supporting electronic negotiations, our research shows that systems must offer communication support as well as decision support. Furthermore, the support must not be separated but integrated.

Table 9 Summary of the tested hypotheses

Treatment	Dependent	Hypothesis	Results
Impact of DS	Communication process	H1a	Confirmed: DS leads to more overall communication
		H1b	[a]Rejected: DS leads to a greater focus on the relationship between negotiators
		H1c	Rejected: DS does not lead to more distributive behaviour
		H1d	[a]Rejected: DS leads to more integrative behaviour
	Objective outcome dimensions	H2a	Confirmed: DS does not lead to more agreements
		H2b	Confirmed: DS does not lead to a higher joint utility
		H2c	Confirmed: DS does not lead to more balanced agreements
	Subjective outcome dimensions	H3a	Confirmed: DS does not have an impact on the post-negotiation satisfaction with the process
		H3b	Rejected: DS does not lead to a higher post-negotiation satisfaction with the outcome
		H3c	Confirmed: DS leads to a lower post-negotiation satisfaction with the social aspects
Impact of communication behaviour	Negotiation process	H4a	Confirmed: Social behaviour leads to a higher agreement rate, higher joint utility and agreements closer to the efficiency frontier
		H4b	Confirmed: integrative behaviour leads to a higher joint utility and agreements closer to the efficiency frontier
		H4c	Confirmed: distributive behaviour leads to a lower joint utility and agreements with a higher distance to the efficiency frontier
	Quality of outcome	H5a	Confirmed: social behaviour leads to a higher post-negotiation satisfaction with the social aspects
		H5b	Confirmed: integrative behaviour leads to a higher post-negotiation satisfaction with the negotiation outcome
		H5c	confirmed: Distributive behaviour leads to a lower post-negotiation satisfaction with the social aspects, the process and the outcome

[a] Contrary to prediction

The impact of decision support on the communication process and behaviour has been analysed in hypotheses 1 and 3. It was shown that decision support leads to more communication. This is in contrast to prior research by Weber et al. (2006) who showed that (the visualisation of) decision support decreased the amount of communication. Comparing those seemingly contradictory results, they can be explained. Weber and

colleagues used a negotiation support system that is geared towards decision support. The communication support is rudimentary by offering the possibility of writing a message without linking it to the offer in question. Thus, the negotiators can be expected to focus on the numbers and not to spend much time on the communication which is not propagated to be a major part of the negotiation. Negoisst, on the other hand, offers sophisticated communication support and decision support in equal measures and thus opens the field for this type of research. The negotiators are presented with the ratings of all offers and explain their arguments, rejections, acceptances, counteroffers etc. in messages. They do not simply send a counteroffer but feel the need to ask for concessions, to explain their concessions, to ask for more information but also to show positive or negative emotions etc. Decision support does not decrease social interaction. On the contrary, it was shown to lead to a greater focus on relational aspects between the negotiators. We expected more distributive behaviour in the group provided with decision support as DS focuses negotiators on reaching their own goals. We have to state that the quantitative support does not lead to more distributive behaviour. Instead, it even leads to more integrative behaviour which manifests itself in the communicative utterances referring to joint goals, alternatives, concerns for the partner etc. Reflecting on these findings, negotiators provided with DS directly see that the partner makes concessions and moves towards them. Thus, they will be more willing to concede and to find joint gains as the behaviour of the partner is mirrored in their own behaviour. Thus, this leads to integrative behaviour. At the same time, the negotiation partner sees his/her own concession path and thus can directly assess whether or not (s)he acts in a distributive way. As distributive negotiations have a high risk of ending in a rejection, this transparency means that there is a low incentive to act in a distributive manner.

The impact of decision support on the satisfaction is non-existing. Negotiators provided with decision support are less satisfied with the social aspects although decision support leads to a greater focus on relational aspects. If more effort is spent on relational aspects during the negotiation, it might show the negotiators which aspects were or still are problematic. In other words, the explication or focus on such aspects might decrease the post-negotiation satisfaction with exactly those aspects. As decision support does not lead to more agreements or a higher joint utility or to more fairness (although DS leads to more integrative behaviour), it is easily explained why negotiators provided with DS are not more satisfied with the outcome. To summarise, decision support has a significant effect on communication in negotiations and consequently, we find decisive communication, i.e. rich communication that manifests itself in decision strategies.

Looking at the impact of communication on decisions, we can confirm that what is deemed to be "good" communicative behaviour in negotiations has the intended effects. In particular, social behaviour geared towards forming a long-lasting relationship with the partner and integrative behaviour geared towards achieving a high joint gain leads to a higher satisfaction with the social aspects and the outcome. Likewise, distributive behaviour geared towards maximising one's own gain leads to a low satisfaction with all aspects of the negotiation, i.e. the process, the outcome, and social aspects. We must bear in mind that social, distributive, and integrative behaviour is uttered through communication and manifests itself in the offers that are sent.

To summarise, communication has a significant effect on decision making and, consequently, we find communicative decisions, i.e. decisions that need communication to be made, transferred, and understood.

While our study delivers important insights, the chosen research strategy using a laboratory experiment and a student sample might limit the generalisability of our findings. However, a recent meta-analysis of negotiation research confirms that student samples are used in the majority of experimental negotiation studies while experiments with experts and professional negotiators remain extremely rare (Buelens et al. 2008). Furthermore, a systematic comparison by Neale and Northcraft (1986) of expert negotiators with students reveals—despite performance differences—no significant difference in patterns of performance as influenced by experimental conditions. Nevertheless, we have been careful in increasing external validity of our experiments. Firstly, we used a student sample who has received prior negotiation training in class. Furthermore, most of the students major in business administration, management, or communication science and can thus be regarded as a sample of future managers dealing with NSSs in their upcoming careers. Secondly, the case has been designed to be as realistic as possible and pre-negotiation tests of case comprehension by subjects reveal highly satisfactory results. Finally, the careful content analysis of the negotiation transcripts provides researchers with deep insights into negotiation behaviour and does not reveal any indication that students have not been dedicated to their negotiation task.

As previously discussed, the focus in negotiation research has long been on decision support. Our approach is different by providing a system that offers decision support alongside communication support. This is based on experimental research such as the present one suggesting that the prime or sole focus on decision support in negotiation support is insufficient while the effect of additional support forms, in particular communication support and behavioural support, has been underestimated. Overall, current and previous findings show that decision support tools — as currently implemented — have not yet answered our expectations in helping to resolve the negotiation dilemma (Pruitt 1981). There is a need for a fundamental reconsideration of negotiation support approaches for the next generation of negotiation support systems. This paper has paved (some of) the way.

6 Appendix

See Table 10

Table 10 .

Create Value	Main Categories	Definition		Sub Categories	Description	Examples
	1 make concession	negotiation behavior that constitutes a concession or an agreement of an offer	1	concession *share of future revenues*	make or offer a concession (compared to own previous offer)	Ok, I will increase your share in the future revenue (40%).
			2	concession *directors in board*		
			3	concession *secrecy clause*		
			4	concession *duration of contract*		
			5	concession *payment of common workers*		
			6	concession *additional compensation of Ukr. workers*		
			7	concession *court of jurisdiction*		[if you agree on [Issue], **I increase your share of the future revenue**
			8	cond. concession *share of future revenues*	offer a conditional concession (logrolling; if - **then**)	
			9	cond. concession *directors in board*		
			10	cond. concession *secrecy clause*		
			11	cond. concession *duration of contract*		
			12	cond. concession *payment of common workers*		
			13	cond. concession *additional compensation of Ukr. workers*		
			14	cond. concession *court of jurisdiction*		
			15	acceptance		I accept your offer.
	2 ask or give priority information	statements requiring or providing information about needs or interests	1	request priority information or attribute information		How important is this issue for you?
			2	request product information		How many employees does your company have?
			3	give correct priority information (attribute related preferences)		The duration of the contract is most important for me.
			4	clarification/summary (no new information introduced)/ Phrasing prior message		If you look at your last offer, you can see that.
	3 social relationship	statements that constitute emphatic communication	1	show concern or express understanding (empathic com.)		I understand your argument.
			2	show positive emotion (incl. thanking & humor)		It is a great pleasure for me too./ :-)/ Thank you for your kind message!
			3	express apology or regret		I am very sorry about that.
			4	refer to trust & relationship		For me a good relationship is very important.
			5	express hope		We hope that you understand our position.
			6	other interpersonal relationship (extra role)		Can I have your email? I had a very tough meeting today and now I am tired

Table 10 continued

	Main Categories	Definition		Sub Categories	Description	Examples
Claim Value	4 positional offer	substantive negotiation behavior that constitute positional bargaining and value claiming	1	positional offer *share of future revenues*	make initial offer or repeat a previous offer/position (also **if** - then)	**if you agree on no security clause** [I increase your share of future revenue to 40%]
			2	positional offer *directors in board*		
			3	positional offer *secrecy clause*		
			4	positional offer *duration of contract*		
			5	positional offer *payment of common workers*		
			6	positional offer *additional compensation of Ukr. workers*		
			7	positional offer *court of jurisdiction*		
			8	bottom-line offer *share of future revenues*	offer a concession by using a bottomline or threat	The maximum share of future revenues I can give to you is…
			9	bottom-line offer *directors in board*		We can accept at max. 2 directos in the borad from your compnay
			10	bottom-line offer *secrecy clause*		
			11	bottom-line offer *duration of contract*		
			12	bottom-line offer *payment of common workers*		
			13	bottom-line offer *additional compensation of Ukr. workers*		
			14	bottom-line offer *court of jurisdiction*		
	5 request concession	substantive negotiation behavior that asks for concessions	1	request concession *share of future revenues*		I think you should go a step in my direction in the issue of share of future revenues
			2	request concession *directors in board*		
			3	request concession *secrecy clause*		
			4	request concession *duration of contract*		
			5	request concession *payment of common workers*		
			6	request concession *additional compensation of Ukr. workers*		
			7	request concession *court of jurisdiction*		
	6 give positional information	facts or statements intended to persuade	1	state facts about product/service/company		We have 2500 employees in our company.
			2	self-supporting statements		We have a lot of experience in engaging in such projects
			3	persuasive statements		Okay, I really like you and I make you a very special offer
	7 show negative response	rejecting offers/showing neg. emotions	1	reject proposals, offers or suggestions		We cannot lower the share of future revenues
			2	show negative emotions or sarcasm		… but I have to say, that I'm really angry! … You cannot be serious!

Table 10 continued

	Main Categories	Definition		Sub Categories	Examples
Process					
8	use tactics and contention	communication that is intended to influence the other party	1	make commitments	This is my very last offer!
			2	exert pressure (threaths)	If you send me another such bad offer.......
			3	make promises (incl. insubstantial promises)	I will guarantee a longer duration for the following contract.
			4	suggest sequential issue negotiation	We should discuss the price first.
			5	refer to alternatives	We have a better offer from a different company!
			6	use authority related tactics	My boss doesn't allow me to accept this offer.
			7	give incorrect priority information (attribute related preferences)	The duration of the contract is the most important issue for me. (if this is incorrect)
			8	request offer	Please make an offer in this issue. / What do you want?
9	substantiate position	normative statements to substantiate own position	1	stress similarities and common ground (normative)	Our success is also your success therefore …
			2	request understanding/accommodation (normative)	Please understand that we cannot go below this value
			3	refer to fairness (normative)	This is really a fair offer for both of us./Therefore, I think it is only fair for you to……
10	process variables	communication related to the negotiation process or specific for text-based, asynchronous communication	1	time related or process oriented	I cannot access Internet over the weekend.
			2	impersonal address, closing or signature	Yours sincerely, Mr.Koller
			3	personalized address, closing or signature	I wish you a very nice evening and all the best, Sissy Koller
			4	text structuring	My offer including all issues is:
			5	recall of unintended offer (system related)	My last offer was incorrect, I made a mistake in the offer settings.
			6	redundant units & anomalies	"jfnsdaDAJFjfsn"
	Main Categories	**Definition**		**Sub Categories**	**Examples**
Systems					
11	system issues	communication concerning the e-mediation program	1	request for VienNA	Do you want to use VienNA in this issue?
			2	accept use of VienNA	Let's use it.
			3	reject use of VienNA	I don't think it's a good idea to use VienNA.
			4	positive statement about VienNA	It was a good idea to use VienNA.
			5	negative statement about VienNA	VienNA was not very useful in this issue.
			6	referring to advice of VienNA	As VienNA suggested we should…
			7	utility specific features (Negoisst)	The system calculates a utility of 65 for this offer.
			8	Negoisst specific features	The agend presenting including all issues….

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