

Service Level Agreement Negotiation: A Theory-based Exploratory Study as a Starting Point for Identifying Negotiation Support System Requirements

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Abstract

IT outsourcing practices have recently proliferated an interest in service level agreement (SLA) negotiation relevant to engagements with either in-house or external IS service providers. An important research gap exists in establishing Negotiation Support System (NSS) requirements for the processes associated with SLA development. A first step in specifying such requirements is to examine relevant theoretical bases to identify and postulate reasonable propositions. A second step is to examine the efficacy of the theory-based propositions using the constructs adapted in the context of a relevant, practical and exploratory scenario. Accordingly, this paper discusses propositions that rely on theoretical bases from relevant sociological models, it identifies constructs adapted from prior Theory W research in NSS as an exemplar, it discusses an exploratory study related to the research gap identified, and it discusses findings that represent a starting point for identifying SLA NSS requirements.

1. Introduction

Outsourcing has emerged as one of the leading global trends in information technology (IT) management. Firms increasingly acquire needed IT services and products from internal and external partners through arrangements that are formally detailed in contractual agreements. According to recent estimates, IT outsourcing expenditures in the U.S. reached \$56 billion in 2000, and are expected to top \$100 billion by 2005 [7]. Despite this marked increase in outsourcing expenditures, emerging evidence suggests that many IT outsourcing contracts continue to be written in a very ineffective way. Rather than focusing on critical business or technical service levels that need to be customized to support the attainment of an enterprise's business process objectives, traditional IT outsourcing contracts focus on providing outsourcers with buffers and safeguards that protect them from non-performance circumstances [6]. As a means of addressing this problem, there has recently been a shift from broad, generic service contracts to very specific service level agreements that more clearly reflect the customized services and products involved. The main objective of

such service level agreements (SLAs) is not only to improve the quality of the service, but also to address the ongoing management of the relationship between the partners. This is, of course, in addition to clearly stating detailed expectations for each party, as well as costs, remedies, and penalties for failures to perform at negotiated levels. As Karten [14] defined them, "SLAs are formally negotiated agreements that help to identify expectations, clarify roles and responsibilities, and they facilitate communication between a service provider and its customer." In August 2000, Nextslm completed a study involving 182 middle and executive managers, the purpose of which was to assess current issues and needs with respect to IT outsourcing management practices [19]. One of the key findings of this study was that the most important item for IT outsourcing success is having a well-written, negotiated service level agreement that effectively addresses roles and responsibilities, goals and objectives, reporting policies, help desk availabilities, penalties, incentives, and adjustment procedures -- all with specific clauses that include measurable performance levels.

Despite an extensive body of research on negotiation, an important gap exists with regard to the preparation of well-written IT outsourcing SLAs that are constructed through formal negotiation processes. Information systems research has, however, been conducted in the area of requirements analysis involving multi-stakeholder negotiations. These research efforts, which rely on what is known as "Theory W", embed theoretical findings in negotiation support systems that embody the Win-Win Spiral Model [e.g., 10]. The intent of this research stream has been to develop normative approaches for improving requirements analysis across multiple projects, a goal which represents a key repeatability objective adapted from the Software Engineering Institute's Capability Maturity Model [13]. At its core, Theory W embodies the principle that projects are successful when all of the parties involved are winners.

There is now a need for research in SLA negotiation that builds upon what has been addressed in the requirements analysis area. This is because the coming into vogue of the IT outsourcing model presumes the

development of contractual agreements -- many of which are formulated by individuals in an organization serving as members of the team that negotiates with one or more vendors to develop an SLA. Negotiated SLA clauses and financial schedules are similar to requirements development in the sense that multiple stakeholders are involved in the process, and that there is potential for the team engaged in the negotiations to neglect issues of importance to each and every class of stakeholder -- particularly where those issues are expressed in vague terms that must be interpreted and then precisely articulated as contractual elements. A confounding factor is the lack of understanding that exists regarding the key roadblocks impeding the development of "good" SLAs -- from both a customer's and a service provider's perspective. Furthermore, there are few proven research methods upon which to build, excepting for those that can be borrowed from the requirements analysis negotiation literature and the more general negotiation support system literature. In this paper, we examine relevant theoretical bases to postulate normative service level agreement negotiation approaches.

In the next section we provide an overview of the existing theories of negotiation, emphasizing the social perspective and its relevance to SLA negotiation. After reviewing the research questions and model in section three, section four provides managerial insights abstracted from a pilot experimental study. In the last section, we discuss our conclusions and describe our next steps.

2. Theoretical Background

If we examine economic models of decision making such as production, transaction, or agency cost theories, we note that they primarily focus on cost savings as the most significant aspect. Social perspectives, as an addition to economic model perspectives, can provide further insight into the facets of decision making involved in complex and dynamic decision processes such as SLA negotiation. This implies that while economic models have a significant theoretical role in supporting research on IT outsourcing decision making, the negotiation of acceptable IT outsourcing contracts may well rely on additional theoretical bases. This implication is supported in literature examining the effects of partnership quality on IT outsourcing success [e.g., 17]. As such, this paper assumes that a significant reference framework for examining negotiations with respect to IT outsourcing SLAs comes from sociological theory. Both parties in the SLA negotiation process desire an agreement that yields long term mutual success. To that end, most SLAs either formally define a long term relationship or include specific provisions for renegotiating the next version of the agreement. It is therefore in the best interest of both parties to make an

SLA work by contractually achieving some level of equilibrium between the needs of the customer and the provider's ability to perform for the negotiated cost.

Models closely allied with sociological theories are mostly descriptive rather than prescriptive. These models interpret the negotiation process from a number of different perspectives including learning, individual behaviors, joint decision making, comparison of alternatives, etc. [e.g., 18]. The core concept of this social exchange theory is a longitudinal exchange relationship between actors whereby there is give-and-take in the actors' relations to one another [15]. This theory focuses on the subjective cost-benefit analyses performed by each party as they attempt to manage the relationship, and predicts that the parties will maintain the relationship until one of them believes the perceived costs to outweigh the perceived benefits. In a similar vein, the work of Homans [12] led to the development of equity theory, which postulates that parties will strive to create and maintain conditions of justice. Under this explanatory framework, a party will resist attempts to alter the terms of the SLA as long as it is getting what it wants from the other party. With respect to managing this relationship, Bartos [3] offers a theory based on the work of Homans that presumes that negotiators view the midpoint between their past demands and offers as "just," and that they strive to meet at that midpoint with an eye towards fairness as achieved through reciprocation.

From another perspective, Cross [8] sees negotiation as being part of a learning process. Negotiators choose bargaining strategies in their attempt to optimize their payoffs from the situation, but these strategies change based on how the negotiation progresses. These strategies are based on each party's perceptions of their opponent's strategies, which in turn are based on the way each negotiator gathers and/or collects information. With respect to negotiation as a learning process, there is some evidence that SLA negotiation is greatly improved through learning processes used to close the knowledge gap that exists between a customer and service provider [16]. In addition to the learning perspective, the quality of the partnership is another important aspect impacting SLA negotiations [18]. From yet another perspective, Bereby-Meyer, et al. [4] state that organizational teams are a fundamental learning and decision making unit. They find that high learning teams (with high learning goals, high learning values, and team discussions) perform better than low learning teams (with performance goals, low learning values, and no team discussions).

With respect to the negotiation process in particular, Ury et al. [25] propose principled negotiation as a win-win approach to reaching a lasting agreement. Under this model, the focus of the negotiation is on the interests of the parties rather than on their positions.

Parties using principled negotiation will generate several distinct options before arriving at an agreement, and should insist that the final agreement be based solely on objective measures. Similarly, Rahwan et al. [22] introduce an interest-based negotiation theory, wherein one party may influence their opponent's preferences by discussing the underlying motivations for adopting specific goals in a negotiation, thereby shifting the discussion away from outcomes to the relevance of those goals. In order for this theory to be applicable in a negotiation environment, both parties need to be very knowledgeable about each other, and the trust is presumed to be high.

Other aspects of human behavior, including complacency and individual differences, have been introduced in the realm of IT by Prinzel III et al. [21]. Such aspects are likely relevant to some stages of SLA negotiation, and will merit further examination if a more general social theory is shown to apply to the SLA negotiation process. Similarly, we believe that another social model-oriented area significantly related to IT SLA negotiation involves individuals' prefactual and counterfactual thinking processes. Defensive pessimism and optimism are included in a proposed model describing aspects of an individual's self-esteem when they are entering "risky" situations [20]. Defensive pessimism, which engages prefactual thinking, involves setting low expectations prior to entering a situation. Such negotiators acknowledge a history of success in a situation, but enter that situation "expecting the worst". An optimistic strategy, which involves counterfactual thinking, is where expectations are high at the outset. The defensive pessimist strategy seems to act as a form of natural cognitive therapy for those using it. In an exemplar study, defensive pessimists engaged in downward (worse than expected) prefactual thinking, whereas optimists preferred counterfactual thinking [24]. It has also been shown that both groups use their preferred strategies effectively. Performance suffers, however, when the preferred strategy is unavailable.

The theoretical models presented in this section may be very relevant to SLA negotiation processes. These models seek to describe what goes on during those processes, and as such, provide a starting point for the establishment of negotiation support system requirements. In support of relying on sociological constructs to develop relevant research models for IT SLA negotiations, many other researchers have employed sociological theories in their studies. Lee and Kim [17] established "partnership quality" as a key predictor of outsourcing success by utilizing social exchange, power, and political theories. Their work focused primarily on the impacts of "trust" and "power" to partnership quality. Trust has been conceptualized as "the firm's belief that the other company will perform actions that will result in positive outcomes for the firm"

[11]. Power exists when there is dependence in an exchange relationship between two players [2].

3. Negotiation Process and Research Model

Traditionally, negotiation is viewed as the interaction among participants in the context of deriving mutual commitment. The construction of SLAs begins with initial proposals -- likely prepared in secret -- that include each party's goals and objectives. It continues with negotiation processes, and ends (successfully) when both parties agree to a specified written document. The negotiation lifecycle for IT SLAs has many similarities with the Win-Win Software Requirements Negotiation Model [10]. The outsourcing relationship depends largely on effective communication between participants, with exchanges of information necessary to fulfill obligations, achieve expectations and mutual satisfaction, avoid conflicts, facilitate solutions to problems and issues, reduce uncertainty, and ensure flexibility [1, 9]. The negotiation life cycle for SLAs differs in several important ways from software requirements negotiation, however. First, rather than simply meeting stated software requirements, SLAs seek to provide a high level of *service* quality. Second, an SLA is produced through interactions between multiple parties (customer and service provider), as opposed to a single party, i.e.: the software development team. Finally, an SLA provides a foundation for a long term relationship rather than serving solely as the starting point of a software development project [23].

The negotiation life cycle can be illustrated by considering the negotiation of an SLA between a University's Business IT group (hereafter referred to as BIT) and representatives of its current MBA students. Figure 1 illustrates such a negotiation lifecycle. In the diagram, the "Apply Win-Win spiral model..." box and the expanded and more descriptive version of this box together represent the inclusion of a particular theory-based process model, built on such theories as those advanced above. In this way, it is possible to conceptualize the impact that a theoretical framework might have on the different aspects of the SLA negotiation process.

To be more specific, Figure 1 depicts a skeletal research model whereby sociological theories such as those discussed above can be mapped to SLA negotiation stages at phases where they are deemed most relevant. For example, the Win-Win spiral model is relevant to the stage of negotiation subsequent to

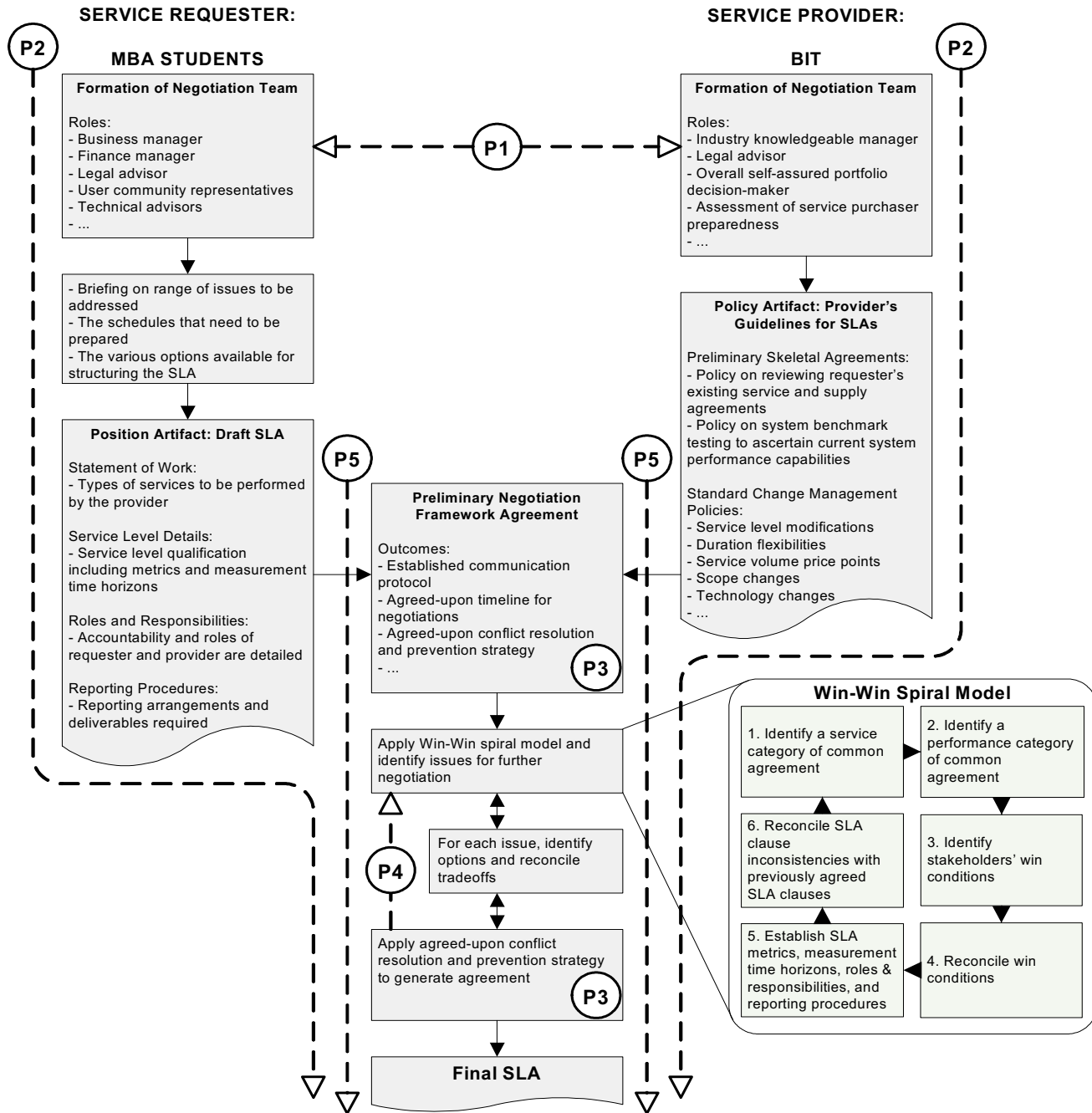


Figure 1: An example negotiation life cycle with theory-driven elements. The Win-Win Spiral Model is adapted from Boehm [5].

agreement of a preliminary negotiation framework. A Negotiation Support System (NSS) like that developed by Boehm, et al. [5] can utilize information derived from position artifacts containing a draft SLA to initiate the spiral model. However, by presuming the relevance of the Win-Win model, one is likely overlooking the research steps necessary to determine if this particular model has relevance to SLA negotiation. In fact, the

Win-Win spiral model, while useful in negotiations involving multiple stakeholders in a requirements negotiation context, may well be irrelevant to negotiations where there are few win-win conditions identifiable, the win conditions identified might be highly controversial, and/or those win conditions may be traded off as other conditions are negotiated. For this reason, it is important to step back and examine, from an

exploratory perspective, those theories that might have relevance to SLA negotiation. The dashed lines with their “P#” denotations represent the scope of this paper’s examination of the relevance of the several theories discussed above to the SLA negotiation process. Each P corresponds to a proposition that relates to theories discussed earlier.

We begin with a discussion of the knowledge gap that may exist among the SLA negotiation parties. Proposition 1 stipulates that the knowledge gap may well have a significant impact on the success or failure of the negotiation processes and on the quality of the SLA produced as a result of the negotiation. This proposition is most closely associated with the formation of the teams that represent each party. Thus, we include a dashed line, labeled P1, to represent the potential point of interaction for theory-driven strategies that might specifically address issues to improve problems that might occur when there is a large knowledge gap. P1 is therefore stated as follows:

Proposition 1: *The degree of the knowledge gap, defined as the difference between the relevant knowledge, skills and backgrounds of the actors/parties involved in the negotiations, will have an impact on the quality of the negotiations and the outcomes generated [after 16].*

Along with the knowledge gap, a general classification of teams as fundamental learning and decision making units forms the basis of Bereby-Meyer, et al.’s [4] theory. They found that high learning teams outperform low learning teams. The dashed lines in Figure 1 representing Proposition 2 therefore encompass all phases in the skeletal model. P2 is stated as follows:

Proposition 2: *Teams will show improved performance as a function of their members’ experience, motivation, learning processes, team discussion quality, etc. [after 4].*

The next proposition we address refers to the equity theories postulated by Homans [12] and Bartos [3]. Under the equity framework, fair-minded parties will seek agreements that represent midpoints of exposed differences in desired outcomes. P3 likely has relevance to two specific boxes in the skeletal model of Figure 1. First, when establishing a preliminary negotiation framework, one would expect that this theory might aid in establishing an agreed-upon conflict resolution and prevention strategy that strives for justice and fairness. In addition, when issues rise to a stage of conflict, this theory likely has relevance to actual applications of the justice strategies agreed to earlier. P3 is stated as follows:

Proposition 3: *A midpoint between the SLA aspects will be viewed by both parties as just, and they will accept the responsibility to strive to achieve that midpoint in their negotiations [after 3, 12].*

A fourth proposition relates to the knowledge gap issue of Proposition 1, but more clearly aligns SLA negotiation processes with Cross’ learning theory [8], discussed earlier. Cross postulates that as participating teams learn more about the strategies of their negotiating counterparts, they alter their own strategies to make progress toward an optimal outcome. P4 in Figure 1 shows how this theory might apply to the SLA negotiation research model as the process of reaching agreements on subsets of action items is repeated or cycled through. P4 is stated as follows:

Proposition 4: *During the process of negotiation, the strategy of each party will be influenced by that party’s perception of the other party’s strategy [8].*

The final proposition addressed in this paper relates to the theory-driven findings of Lee and Kim [17]. Their research focused on partnership quality, a construct they found related to high quality IT outsourcing negotiation outcomes. Partnership quality was influenced significantly by communication, participation, etc. which clearly addresses all aspects of the Figure 1 skeletal model subsequent to each party’s preparation of preliminary position statements. P5 states:

Proposition 5: *There is a positive relationship of the variables communication, participation, joint action, coordination, information sharing with partnership quality, and partnership quality influences negotiation outcome satisfaction [17].*

In the following section, we describe an exploratory study designed to determine if there is reason to initiate the design of requirements for SLA negotiation support systems based on the above propositions and their underlying theories.

4. Experimental Method and Results

An exploratory experiment was conducted to examine the propositions discussed in the prior section. It should be noted from the outset that SLA negotiation, and indeed using SLAs as research artifacts, are both quite new in a research context, and therefore require novel methodological constructs that are likely reminiscent of the nascent stages of more traditional IT research topics. In this study, we investigated an SLA-based sourcing relationship between a service receiver (MBA students) and a service provider (a University’s Business IT group -- BIT). We focused on both parties’ perceptions of the negotiation process, and we analyzed

the results of pilot negotiations to address the propositions advanced above.

Figure 2 shows a process model that helps in explaining the organization of the experiment. Six teams of MBA students (19 total students) participated in the study as part of the requirements of a graduate level course in the management of distributed business information systems. All of the students reported that they had never before participated in this type of negotiation task. Each team engaged in two simultaneous negotiations with two of the other teams by playing a different role in each negotiation, i.e., in one negotiation a team was the service requester, and in the other negotiation they represented the service provider. Care was taken to ensure that any given team would only participate in the negotiation task once with any other given team. The pairing of opposing teams was also controlled for to ensure that they had not previously worked together on other projects.

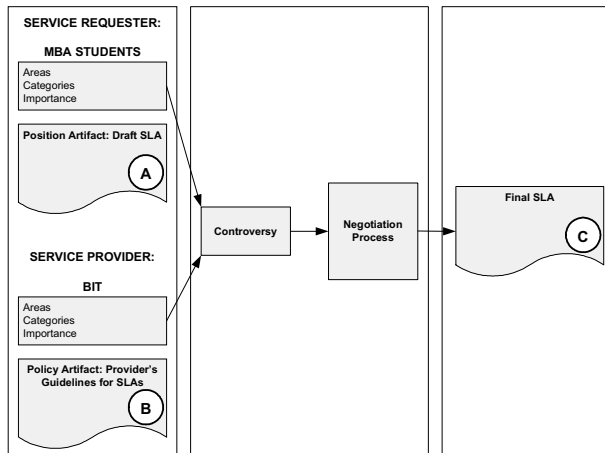


Figure 2: Information Technology Service Negotiation Model based on sociological theories of negotiation and decision making

The teams were instructed to prepare initial proposals (Figure 2 - A and B) with their needs/wants - without the other team's knowledge. Next, they conducted a two-party negotiation, and finally, they jointly constructed a final agreed-to SLA document (Figure 2 - C). Thus, the artifacts produced in the study included each team's initial position statement for each role (As and Bs in Figure 2) and a final SLA (C in Figure 2). A and B were both in the form of preliminary contracts used to focus the negotiation and to represent agreement of all group members on the terms they were striving to achieve -- all before negotiations began. C represents an agreed-to set of contractual elements specifying performance levels, measures, penalty costs, etc. The

students were all taught about SLAs and their development using the U.S. Navy's Marine Corp Intranet contract with EDS as an exemplar [26].

Each team defined their initial proposed contract artifact to cover roles and responsibilities, goals and objectives, reporting policies, help desk availabilities, penalties, incentives and adjustment procedures, etc. -- all with specific statements that addressed measurable performance levels based on their perspective. Then, after their negotiations, the teams developed a final joint SLA document. Both parties were motivated to claim as much value for themselves as possible, and each party exhibited different priorities and importance levels for negotiated items. There were a total of twelve initial proposals (six each for service providers and service requesters) and six final SLAs.

For each of these artifacts, a data matrix was populated to capture the important areas, categories and importance levels of each item for each team (see Appendix). A matrix template was developed through an extensive review of the literature and an exhaustive examination of actual existing SLAs in order to develop a comprehensive set of performance areas (Y-axis) and service categories (X-axis). A performance area refers to an area where IT SLA negotiations may be required, and a service category refers to the type of service that might be relevant to that performance area. For example, the hours of operation of help desk services might be referenced in a particular contract clause in an SLA. This reference can be reflected in the template by the cell corresponding to the "Basic help desk services" performance area and the "availability" service category. An example of this data matrix is provided in the Appendix.

The matrix was utilized to analyze the coverage of each initial position statement artifact relative to the final SLA artifact. The numbers represent the importance level (a density count) of the occurrence of a clause in a contract artifact for the group and for the negotiation being examined. For example, the figure in the Appendix shows a data matrix for team 2 when they were playing the BIT role in negotiation 1 for their initial position statement artifact. The availability of desk/laptop, hardware, and operating system was included in three clauses of the contract artifact that represented their initial negotiating position. Figure 3 provides an aggregated count of the "importance factors" for each performance area/service category item from the teams' initial negotiating positions. These summary data are included in order to provide a synopsis of the nature of the data collected.

In addition to the review of the aggregated count of "importance factors", we performed an overlap data comparison analysis to review the closeness of initial

Pre-Negotiation BIT Aggregate						Row
		Manageability	Usability	Consistency	Resolvability	Sum
1	User Services	26	123	62	23	234
2	Maintenance and Help Desk Services	8	28	6	19	61
3	Communication and System Services	3	20	10	4	37
4	Information Assurance Services	2	10	6	2	20
5	Other Requirements	2	15	8	3	28
	Col. Sum	41	196	92	51	380

Pre-Negotiation STD Aggregate						Row
		Manageability	Usability	Consistency	Resolvability	Sum
1	User Services	51	138	74	28	291
2	Maintenance and Help Desk Services	7	37	8	23	75
3	Communication and System Services	7	25	17	3	52
4	Information Assurance Services	2	11	7	2	22
5	Other Requirements	2	19	15	5	41
	Col. Sum	69	230	121	61	481

Figure 3: Initial Proposals Aggregate Summary

Game	BIT_STD Initial Overlap	BIT_Final Overlap	STD_Final Overlap	BITSTDIntCumAvg_Final Overlap
G1_2BIT_5STD	32	90	32	89
G2_1BIT_6STD	28	30	78	86
G3_3BIT_4STD	43	39	108	108
G4_4BIT_1STD	24	18	76	74
G5_5BIT_3STD	28	28	184	184
G6_6BIT_2STD	36	32	30	50

Figure 4: Overlap Analysis

proposals between BIT and MBA groups (Figure 4: BIT_STD Initial Overlap), BIT's initial proposals and the final SLA (Figure 4: BIT_Final Initial Overlap), MBA's initial proposals and the final SLA (Figure 4: STD_Final Initial Overlap) and the average of cumulative total of initial proposals and the final SLA (BITSTDIntCumAvg_Final Overlap). A higher number represents the closeness of the artifact overlap. For example, when team 2 was playing a BIT group and team 5 was playing the MBA students' role (G1_2BIT_5STD) in game 1, their initial proposals' overlap with each other was 32 points (BIT_STD Initial Overlap), BIT's initial proposals' overlap with the final SLA was 90 points (BIT_Final Overlap) and Students' was 32 points (STD_Final Overlap). Thus, almost all of BIT's, and some of the MBA students' requirements were included in the final SLA.

The teams in this pilot study were comprised of students with similar backgrounds who played identical roles in the two assigned negotiation tasks, i.e., each team acted as both a service requester and as a service provider. As such, we assume that the knowledge gap between teams was kept to a minimum. This assumption enables us to reach stronger conclusions regarding the other propositions where variations could have been attributed to a large knowledge gap. We do, however,

believe that the knowledge gap proposition is a significant one, and that it is necessary to incorporate decision aids intended to close identified knowledge gaps in NSS requirements. This reconciliation of knowledge is particularly applicable to gaps associated with explaining the business processes that are to be addressed in the IT solution.

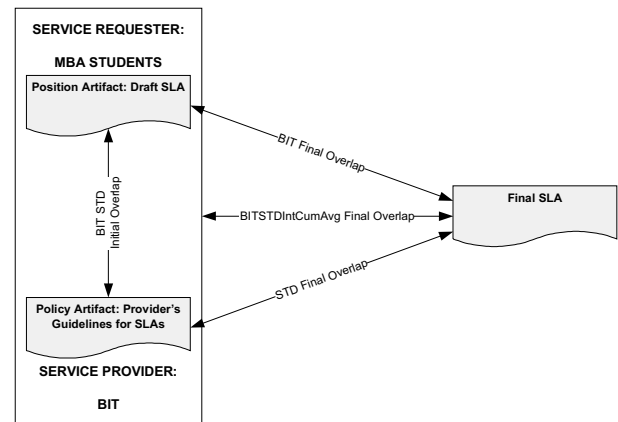


Figure 5: Overlap Summary

For virtually all of the groups, the initial proposals of BIT and MBA students for each negotiation were significantly different. However, some of the proposals tended to subsume other proposals, thereby indicating differences in approach to negotiation preparation between teams or a knowledge gap between teams. It may also be the case that some teams were simply higher performers than others. For example, in Figure 3, the aggregate importance count of every scored aspect for BIT is 380, and the MBA Students' aggregate count is 481. It can therefore be said that the MBA students addressed nearly 26% more items in their proposals than BIT groups. We use similar generalizations in the following to make preliminary statements about the propositions discussed earlier in the paper.

By examining the initial proposals and the final agreement documents, we noticed evidence supporting the validity of proposition 2. Teams who were well prepared and motivated in the early phase and throughout the negotiation process achieved a much higher level of performance in the end. Specifically, as opposed to teams that were less prepared and less motivated, these teams were able to ensure that many more of the items identified in their initial SLA artifacts were ultimately included as part of the final negotiated SLA. This finding provides support for the postulation that team learning and motivation plays a significant role in a team's success in the SLA negotiation process.

Strong evidence also surfaced in this study that disagrees with the "justice" model advanced by Proposition 3. The overlap analysis comparing teams' initial proposals to the final agreed-on SLA clearly showed that the negotiations did not result in an equitable midpoint that balanced considerations from both teams' initial proposals. Predominant winners and losers were evident for each negotiation. The overlap analysis process is depicted graphically in Figure 5.

As mentioned previously, we controlled environmental factors in this study as closely as possible. All of the participants in the study were MBA students with similar professional and academic backgrounds. From post-hoc informal discussions held with the participants regarding the results of the final SLAs, we discovered that the teams all employed a different strategy, each of which was based on the team's perception of their opponent's strategy. This finding provides incidental evidence of the validity of proposition 4, although our methodological constructs do not presently provide clear quantitative support of this finding.

To analyze proposition 5 and the impacts of individual's behavior on the experimental outcomes, we developed several surveys and distributed them to all of the participants in the study. Although the analysis of these surveys has not yielded specifics as of yet, we have discovered trends in the data indicating that

participants who were complacent regarding their IT usage were often poorer contributors to initial position artifacts, regardless of whether the team was playing the provider role or the requester role at the time. We have also observed that prefactual thinkers, or pessimists, tend to contribute more significantly during the negotiation process than do their optimistic counterparts.

5. Discussion and Conclusions

Our research represents one of the first attempts to understand the role of social factors in SLA negotiations and to later parlay that understanding into design requirements for negotiation support systems tailored to the IT SLA negotiation context. A number of preliminary insights were identified in this study. First, motivation and learning were found to have a significant impact on the performance of the negotiators. Second, and perhaps most important, teams who are well prepared for the negotiation process will outperform less prepared teams with regard to the nature of the final SLA document. This finding shows the importance of a comprehensive support system design that provides negotiators with significant up-front SLA guidance. Furthermore, our early results, which are in need of further study, seem to indicate that it is reasonable to expand the relationships and constructs to have stronger methodologies leading to testable hypotheses.

Our findings also call into serious doubt the relevance of equity-based social justice theories to the SLA negotiation process. It may be the case that a predisposition towards self-interest among the members of the teams results in a negotiation environment characterized more by positional bargaining than by principled negotiation. In this scenario, individual predispositions may have an impact on team performance, and by extension, on the nature and quality of the final SLA itself. To that end, both an individual perspective and a group perspective will likely be required in order to fully understand the SLA negotiation process. This implies a rich possibility for further studies examining the role of game theory, political theory, economic theories, etc. The examination of these theories, however, will likely require new evaluative constructs such as the matrix and overlap aggregation approaches utilized herein in order to coalesce a comprehensive SLA and all of its specifics into viable hypothesis testing metrics. That having been said, both the complexity of the SLA artifacts and the growing importance of IT SLA negotiations indicate that we are only at the beginning of a significant field of study for negotiation support systems suited to this purpose.

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