Quality of Information System Negotiation Processes

Case Study at Vodafone Maastricht, the Netherlands

Master Thesis Information Science

M.P. Smith, BSc.

MatthijsSmith@student.ru.nl 0334065

Information Science

Radboud University, Nijmegen, the Netherlands

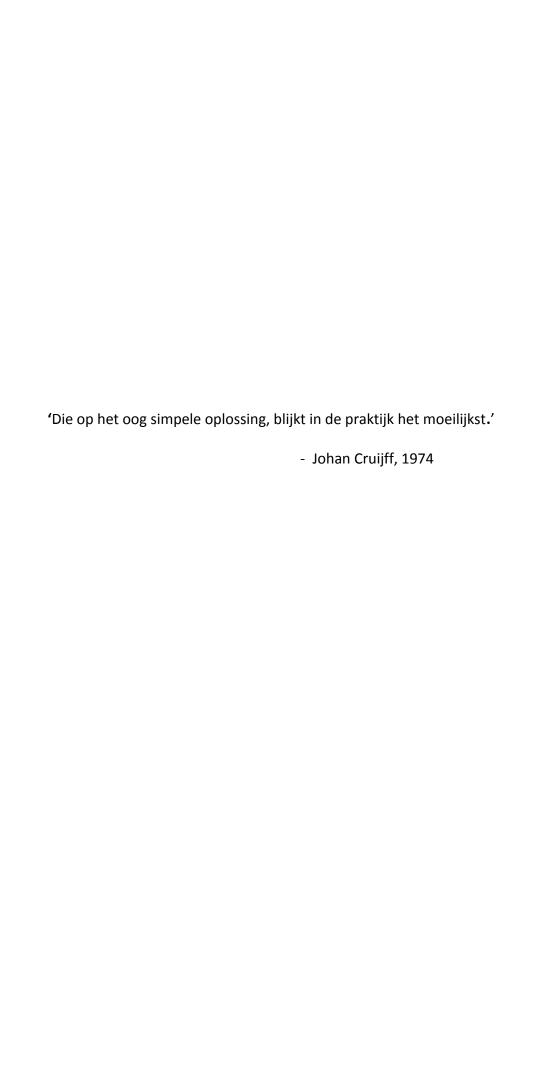
Supervisors

Prof. dr. H.A. Proper Prof. dr. E. Barendsen

Thesis Number

104 IK

19th of August 2009



Abstract

This research has been focused on the assessment of the quality of negotiation processes. This assessment focused on a case study where the stakeholders have different viewpoints on different levels and where there is a lack of consensual view on the problem and system perspective.

The WinWin Negotiation Model was chosen to address these problems. This model will generally increase the stakeholders' levels of cooperation and trust. Other positive effects of the model are mutual satisfactory, equalization, more realistic expectations and a shared vision. These positive effects of the WinWin Negotiation Model have been used to assess the quality of the negotiation process. Two negotiation sessions have been set up based on the WinWin Negotiation Model. The sessions were accompanied by a pre and post test questionnaire and observations.

The analysis has shown that the sessions in combination with the WinWin Negotiation Model had a significant positive influence on mutual satisfactory, expectations and shared vision. It also had a positive, but not significant, influence on cooperation. The model in combination with the sessions had a negative, but not significant, influence on trust and equalization. These results are supported by the results of the sessions.

The outcome of the pre and post test analysis in combination with the results of the sessions are in contrast with the observations and the expectations of the WinWin Negotiation Model. Therefore this difference has been clarified with additional research on several hypotheses.

The additional research showed that especially the lack of priority to this project and company culture have had a negative influence on the negotiation process. The participants favored their daily work over this project. And the WinWin Negotiation Model is incorporated in a phase which can easily be skipped and which the company does not value so much because of the lack of tangible results.

Preface

There are several people who have helped me to complete my research and master thesis. I am very grateful that these people have helped me and I want to mention and thank them for what they have done.

<u>Supervisors Radboud University of Nijmegen</u>

Prof. dr. E. Barendsen Prof. dr. H.A. Proper

Supervisor Vodafone Maastricht, the Netherlands

F. Halder, Manager Service Platforms Build & Operate

Thanks to

Prof. dr. A.M.A. van Deemen Dr. S.J.B.A. Hoppenbrouwers O. Mulder, Team Coordinator Service Platforms Build & Operate D. Ssebuggwawo, MSc.

Special Thanks to

C.G. Poublon, for being the person who I always could turn to and who provided me with the reflective feedback to show me another point of view.

Table of Contents

ABSTRACT	3
INTRODUCTION	8
COMPANY BACKGROUND	8
GOAL-ORIENTED APPROACH	10
WINWIN NEGOTIATION MODEL	10
RESEARCH	14
Scope	14
Relevance	14
Research Method	14
Research Question	15
Research Variables	15
Indicators	15
The control of the co	13
MEASURING TECHNIQUES	17
MEASURING TECHNIQUES	17
MEASURING TECHNIQUES STRUCTURE OF NEGOTIATION PROCESS	17 18 19
MEASURING TECHNIQUES STRUCTURE OF NEGOTIATION PROCESS Beforehand First Session Questionnaire	17 18 19 19
MEASURING TECHNIQUES STRUCTURE OF NEGOTIATION PROCESS Beforehand First Session Questionnaire Explanation	17 18 19 19 19
MEASURING TECHNIQUES STRUCTURE OF NEGOTIATION PROCESS Beforehand First Session Questionnaire Explanation Win Conditions	17 18 19 19 19 19 20
MEASURING TECHNIQUES STRUCTURE OF NEGOTIATION PROCESS Beforehand First Session Questionnaire Explanation Win Conditions Issues: Conflicting Win Conditions	17 18 19 19 19 20 20
MEASURING TECHNIQUES STRUCTURE OF NEGOTIATION PROCESS Beforehand First Session Questionnaire Explanation Win Conditions	17 18 19 19 19 20 20 20
MEASURING TECHNIQUES STRUCTURE OF NEGOTIATION PROCESS Beforehand First Session Questionnaire Explanation Win Conditions Issues: Conflicting Win Conditions Issues from Stakeholders	17 18 19 19 19 20 20 20
MEASURING TECHNIQUES STRUCTURE OF NEGOTIATION PROCESS Beforehand First Session Questionnaire Explanation Win Conditions Issues: Conflicting Win Conditions Issues from Stakeholders Products: Artifacts Bridging Period	17 18 19 19 19 20 20 20 20
MEASURING TECHNIQUES STRUCTURE OF NEGOTIATION PROCESS Beforehand First Session Questionnaire Explanation Win Conditions Issues: Conflicting Win Conditions Issues from Stakeholders Products: Artifacts	17 18 19 19 19 20 20 20 20 20
MEASURING TECHNIQUES STRUCTURE OF NEGOTIATION PROCESS Beforehand First Session Questionnaire Explanation Win Conditions Issues: Conflicting Win Conditions Issues from Stakeholders Products: Artifacts Bridging Period Second Session	17 18 19 19 19 20 20 20 20 20 21
MEASURING TECHNIQUES STRUCTURE OF NEGOTIATION PROCESS Beforehand First Session Questionnaire Explanation Win Conditions Issues: Conflicting Win Conditions Issues from Stakeholders Products: Artifacts Bridging Period Second Session Product Examples	17 18 19 19 19 20 20 20 20 21 21 21
MEASURING TECHNIQUES STRUCTURE OF NEGOTIATION PROCESS Beforehand First Session Questionnaire Explanation Win Conditions Issues: Conflicting Win Conditions Issues from Stakeholders Products: Artifacts Bridging Period Second Session Product Examples Recapitulation Options Agreement on Options	17 18 19 19 19 20 20 20 20
MEASURING TECHNIQUES STRUCTURE OF NEGOTIATION PROCESS Beforehand First Session Questionnaire Explanation Win Conditions Issues: Conflicting Win Conditions Issues from Stakeholders Products: Artifacts Bridging Period Second Session Product Examples Recapitulation Options	17 18 19 19 19 20 20 20 20 21 21 21 21

Session Artifacts	22
Session Observations	22
Session Questionnaire	23
Second Negotiation Session	24
Session Artifacts	24
Session Observations	24
Session Questionnaire	25
Pre and Post Test	25
Student-T Results	26
Mutual Satisfactory	26
Trust	26
Equalization	27
Cooperation	27
Expectations	27
Shared Vision	27
INTERPRETATION OF RESULTS	28
First Negotiation Session	28
Bridging Period	29
Second Negotiation Session	29
Pre and Post Test	31
CLARIFICATION	32
Priority	32
Company Culture	32
Session Structure	35
Conclusion	36
CONCLUSION	37
DISCUSSION	38
LITERATURE	39
APPENDIX B: SECOND SESSION SCENARIO (DUTCH)	42
	A 2
APPENDIX C: PRE-TEST QUESTIONNAIRE (DUTCH)	43
APPENDIX D: POST-TEST QUESTIONNAIRE (DUTCH)	44

APPENDIX E: STATISTICAL PACKAGE FOR THE SOCIAL SCIENCES (SPSS) OUTPUT	46
Mutual Satisfactory Output	46
Trust Output	46
Equalization Output	47
Cooperation Output	47
Expectations Output	48
Shared Vision Output	48
APPENDIX F: POST-TEST EXPECTATIONS	49
APPENDIX G: POST-TEST PROJECT PRIORITY	49

Introduction

Every human being will need to negotiate at some point in their life, whether it is at a young age to get some sweets in return for cleaning their room or at an adult age to negotiate about finances and implementation. Negotiation is or will become part of everyday life.

Negotiations have several important elements that make it difficult for the parties involved. Some of these elements are subjective matters such as trust and cooperation, contextual culture and contextual history. These facets can influence negotiations in a positive, but also in a negative way. Furthermore negotiations have several, whether or not desired, outcomes. The possible outcomes are: lose-lose, win-lose and win-win situations. In general the most desired outcome should be the win-win situation. But unfortunately many people are also engaged in ending up in a win-lose situation, where one wins and the other party loses.

This research will be about the quality of negotiation processes. A case study has been performed at Vodafone in Maastricht to assess the quality of a particular negotiation process. A small group of stakeholders was working on a new information system project. This information system should enhance the knowledge sharing at the technology department of Vodafone Maastricht. The stakeholder group consisted of several people from Vodafone Maastricht as well as from other Vodafone departments in the Netherlands. They brought me in as an intern to support the team in the start-up phase. My knowledge in the field of information science could be a valuable addition in the assessment of the information system.

During this internship at the technology department of Vodafone Maastricht my observations were that the stakeholders were pursuing their own goals. If this had lingered on, there would be a reasonable chance that the project would fail. Therefore my decision was to focus on getting a consensual view on both the problem and system perspective, which would suffice to all the stakeholders' needs and goals.

The structure of this thesis will be similar to the research path that has been taken at the case study at Vodafone Maastricht. The steps that have been taken are: find a scientific negotiation model that suits the negotiation environment, preparation of the negotiation process, analyze the negotiation process with a pre and post test, based on personal observations and through a general overview of the results made during the two negotiation sessions. This analysis will be split up into an overview of all the results and an interpretation. To complete the thesis a conclusion will be drawn and the process and results will be discussed.

Company Background

Vodafone is the leading company in the area of mobile telecommunication. The company is well known for their quality services around the world and the brand has

a significant presence in Europe, the Middle East, Africa, Asia Pacific and the United States. Vodafone has 315 million customers and this makes them one of the biggest companies in their expertise (Vodafone Group, 2009)

In 1997 Vodafone started their headquarter in the Netherlands in Maastricht. From then on, the company grew and it now has over 2500 employees divided amongst three divisions, namely customer service, financial and IT and technique. In September 2008 Vodafone opened a new headquarter in Amsterdam. (Vodafone Group, 2009)

The vision of Vodafone is to provide their customers with the services to fulfill their total communication need. The customer should have the freedom to communicate where and whenever they want. This should be care and problem free with the use of fast and reliable connections.

Due to the fast changing environment Vodafone has to be an innovating company in order to always be one step in front of their competitors.

Negotiation Approaches

In case studies it is common to test one specific approach. Furthermore it is difficult to test multiple techniques for a particular case. Therefore the general area of negotiation approaches will be narrowed down to a more specific approach. In the next sections will be explained why and how one can narrow down from all the negotiation approaches to a specific approach. All the choices have been made in the context of the information system negotiation process at the technology department of Vodafone.

Goal-Oriented Approach

The stakeholders of the information system differ in their problem perspective, system perspective and, in general, in their viewpoints. They are all using their own view to get to their own individual end goals. This creates the problem which will be called "island separation". Every single stakeholder is on his/her own island, with their own problem and system perspective trying to reach his/her own individual end goals. This will lead to several initiatives without a general support base from the other stakeholders and eventually the users. Therefore it is from the utmost importance to connect all the "islands" and create a new "country" with a shared view on the problem and system perspective. Rather than coming to a consensus for all the stakeholder viewpoints, it is better to create a new synthesis (Abma, 2000; Gilligan, 1986). Based on each others stakes and viewpoints there can evolve a new common ground which can become the base for the future project phases.

There are several techniques to identify viewpoints, generate overall awareness, create a consensual view on both problem and system perspective and in general bring people closer to each other. According to Darke & Shanks (1997) a goal-oriented approach is best to use when you want to create a consensual view on the problem and system perspective between all the stakeholders. Besides that, it is suited to overcome the obstacles that people can not express their requirements in a complete, relevant, and coherent way. This matches with the needs of the negotiation environment at Vodafone that has been described earlier.

Besides the theoretical compliance, it also has a practical use. The company culture of Vodafone is aimed for results and reaching goals fast. This means that they are used to think in goals, which should be very appropriate for the goal-oriented approach.

WinWin Negotiation Model

There are several goal-oriented approaches (Kavakli, 2002). Some example approaches are: i*, ISAC, KAOS, GBRAM and NFR. There is a need for an approach that gives the stakeholders a consensual view on both the problem and system perspective and it has to create a new synthesis. This excludes techniques that are used later on in the requirements process when the problem and system perspective

are clear to all stakeholders. Both ISAC and i* are used early on in the requirements negotiation phase, unlike the other three techniques. They can be used to make the stakeholders understand the current state and problem domain and analyze the need for change. The techniques are suited to get a general understanding of the problem domain among all stakeholders, but they lack the aspect of bringing stakeholders with different viewpoints together. All these aspects are part of the WinWin Negotiation Model and that is why the choice has been made to use this technique as a base for the negotiation process.

Negotiation Approaches | Goal-Oriented Approaches | WinWin Negotiation Model

The WinWin Negotiation Model (Horowitz, 1996; Boehm & Egyed, 1998) is based on Theory W (Boehm, 1989) and the Spiral based approach on Theory W (Boehm, 1995). The model is used for negotiating requirements between multiple stakeholders with the goal of "identifying, analyzing and reconciling requirements". As Boehm points out, the positive aspects of the WinWin Negotiation Model are that it promotes more cooperativeness and mutual understanding, it focuses on key issues, reduces friction, equalizes participants and facilitates distributed collaboration.

The WinWin Negotiation Model is a perfect fit to overcome the conflicts, different viewpoints on different levels and the lack of consensual view on problem and system perspective (both part of the "islands" perspective).

Even though every situation is unique, the WinWin model will generally increase the stakeholders' levels of cooperation and trust (Boehm, 1999; In, 2001). This part is essential if one wants to evolve into a new "country" from all the individual "islands".

The WinWin Negotiation Model consists of four artifact types (see Figure 1):

Win Conditions are the goals and concerns of the stakeholders in light of the new system.

Issues are conflicts, risks or uncertainties involving one or more Win Conditions. **Options** are suggested alternative solutions by the stakeholders to solve an Issue. **Agreements** are consents on either a Win Condition or an Option.

A Win Condition can be non-controversial; this means that it is covered by an Agreement. Or it can be controversial; this means that there is an Issue involved.

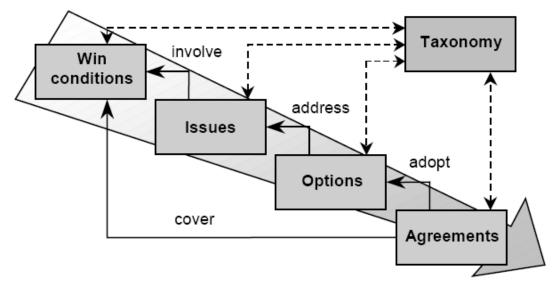


Figure 1. WinWin Negotiation Model (Boehm, 1998)

The taxonomy is a list of domain specific terms that can be used to link the artifacts to a specific item. This will not be included in the negotiation process. The reason for this is that it will limit the stakeholders to a limited list of domain specific terms. It is better to give them the freedom to express their artifacts without any boundaries.

The WinWin Model is suited to address rationale and therefore it is wise to add this aspect to the model. For example: "Why has a particular Option been chosen to solve an Issue?". To avoid ending up in endless discussion it is important to capture the rationale behind the decision. The WinWin Model is used to negotiate about goals and not about the rationale behind the goals. But during Option negotiation the stakeholders will use rationale to support the Option. Later stages in the development process will benefit from this rationale. That is why not only the artifacts of the WinWin Model should be captured, but also the rationale of why an Option has been chosen to resolve an Issue. The artifacts themselves also serve as rationale, but the rationale behind the Options can provide more insight in the decisions made during the process.

The artifacts can be used as project guidance, for checking the project status and to manage the project risks (Boehm & Kitapci, 2006). The rationale can be used as a reference and also as a reminder of why this path has been chosen. Both the artifacts and the rationale will form a solid base for the project and later phases will benefit from this.

Two WinWin artifact examples:

Example 1 (conflicting Win Conditions)

Win Condition1: The door should be yellow Win Condition2: There should not be a door

Issue1: Win Condition1 & Win Condition2
Option1: Create a yellow door opening

Example 2 (objection on Win Conditions)

Win Condition3: There should be a red door Issue2: Isn't red a too violent color?

Option2: Paint the door green

Research

Scope

My research has been performed at the technology department of Vodafone in Maastricht. In more detail the research was focused on a particular information system project, which involved five stakeholders. Therefore the results should be applied to this particular domain. But there are assumptions to believe that these results can be generalized to all the departments of Vodafone in Maastricht and perhaps to Vodafone Netherlands.

Relevance

As pointed out in the beginning of this thesis, negotiations are part of everyday life and every human being will experience negotiations in some form. The negotiation process in this thesis is focused on information systems, but it can possible be generalized to suit other fields of expertise. The outcome of this case study is relevant for negotiations in the field of information science, but it is quite possible to adapt it to other areas that are in need for negotiation strategies. The global negotiation structure will stay the same, the content and perhaps some details will differ.

Probably the most important contribution of my research will be that a scientific proposed model, which is only tested in a controlled environment, will now be tested in a real life environment in a, to some extent, semi-controllable situation. Therefore the scientific model will be assessed on its practical usefulness.

Research Method

The research method that has been used for this case study is action based. The research has been shaped during the execution and adapted to match the need of the company. But once one step was completed it did not change and the following actions build upon the previous achievements.

The negotiation process was split up into two sessions (see chapter "Structure of Negotiation Process"). These sessions were accompanied with a pre and post questionnaires to assess the (positive) influence of the WinWin Negotiation Model. These questionnaires were supported by my own observations during the negotiation process.

To support the outcome of the pre and post test, post sessions interviews with several employees, stakeholders as well as non-stakeholders in the project, of all layers in the technology department were held.

Research Question

The previous sections have shown how the research was narrowed down to the WinWin Negotiation Model. This model will be applied in the case study where multiple stakeholders are involved. Based on this notion the following research question is formulated:

"What is the effect of the WinWin Negotiation Model on the quality of the information system negotiation processes with multiple stakeholders with different viewpoints?"

Research Variables

From the research question two variables can be extracted, namely "Negotiation Approaches" and "Quality of information system negotiation processes". For this being a case study, the "Negotiation Approaches" variable has been declared. This variable has been narrowed down to the value "WinWin Negotiation Model".

Negotiation Approaches

Goal-Oriented Approaches
WinWin Negotiation Model

Quality of the information system negotiation process

<u>Indicators</u>

The variable "quality of the information system negotiation processes" still has to be assessed. The indicators for the assessment of the quality of the information system negotiation process will be based on the positive effects of the WinWin negotiation model. Previous research from Boehm (1998), Boehm & Egyed (1998), Boehm (1999), In (2001) and Boehm & Kitapci (2006) has shown that most of these positive effects occur and that the negotiation process will benefit from it. Unfortunately none of this literature gives a clear definition of the positive effects. The effects are subjective and situation dependant. Therefore it is important to have a clear definition in order to know what should be assessed and eventually measured during the negotiation process.

Based on the literature the following definitions of the indicators have been formulated which will be used.

Mutual Satisfactory (Win-Win): The extent to which stakeholders are satisfied with whatever it was to which they agreed, even when the stakeholders do not get everything they want.

Trust: The extent to which stakeholders have confidence in each other.

Equalization: The extent to which the presence, being loud or quiet and anything in between, of participants is equalized.

Cooperation: The willingness of stakeholders to cooperate with the negotiation process.

Expectations: The realisticness of the stakeholders' expectations about getting what they want.

Shared Vision: The extent to which a consensual view on the problem and system perspective between the stakeholders has been formed.

Measuring techniques

To assess the six indicators, an appropriate measuring technique or multiple techniques should be applied. The best way to do this is to have some form of triangulation where one will use one or more measuring techniques to confirm the findings of the main measuring technique.

The problem in this project was that almost all the indicators are subjective matters. These indicators may differ from stakeholder to stakeholder and are therefore difficult to measure exactly. To solve this matter partially, the indicators have been described at a detailed level, but not too detailed so they will not deviate from the original intended effects in the WinWin Negotiation Model.

The main measuring technique was a questionnaire. To handle the aspect of the subjective matter, almost all indicators will be measured through several questions (Appendix C and Appendix D).

The indicators have been split up into one or more questions. Each will question a particular aspect and combined they will form the measure for the appropriate indicator. Some aspects have been related to the stakeholders' own perspective and some have been related to the perspective of the respondent on the rest of the participating group.

The assessment of the effect of the WinWin Negotiation Model on the negotiation process will be calculated through a pre and post test questionnaire. This makes it possible to compare the indicators at the beginning of the negotiation process with the outcome of the post test at the end of the negotiation process.

The pre and post test questionnaires have the exact same structure, this makes it possible to measure the exact same thing at the beginning as at the end. To be sure that the stakeholders do not try to give desired answers by answering the same or more positive at the post test, there will have to be a bridging period between both questionnaires.

The indicator that cannot be measured through a pre and post test is Expectations. One cannot say whether or not their expectations are more realistic than before. The negotiation process should have taken place before one can judge whether or not their expectations are more realistic. Therefore this question will only be asked at the post test. But to assess some form of expectation, a question about the stakeholders' expectations about the extent to which their vision will be executed will be asked at both the pre and post test.

The observations will be used to check the outcome of the pre and post test and it will provide some additional information. The best way to do this, is to have an external person who will observe several beforehand prepared objective matters which the stakeholders might demonstrate. The observer might look at body language of the participants or the observer might count the number of times somebody says something.

The problem with this technique is that it is hard to validate. It is impossible for example to relate the action of crossing ones arms to a lack of trust or the number of times a stakeholder gets up to draw something on a board to cooperation. These are all personal aspects of people. Does crossing ones arms indicate a lack of trust? For person A this might be the case, but for person B this might have no meaning. To have a sense of what might be related to the indicators, a long term study should be executed before one knows what kind of aspects and behaviour of a person belongs to a specific characteristic. Thus the decision has been made to exclude the option of adding an external observer.

To compensate for this, my own personal observations will be used as additional results and partially as confirmation or rejection of the outcome of the questionnaires. Even though my role as facilitator will affect the observations, it is still possible to notice several things that might seem odd or other matters which could be related to one of the indicators.

This might seem as invaluable as an external observer, but due to our mutual history and personal relation with the stakeholders my judgements and observations can be better related to someone's character and it is easier to see how these observations can be placed in the process.

Normally a control group would be used to support the outcome of the main negotiation session. If the control group with the exact same conditions as the main group, but without the specific model performs less on the indicators, then one can conclude that the model indeed improves the negotiation process. Unfortunately due to the semi-controllable environment it is impossible to re-create the same conditions as with the main group. To accomplish this, one has to "clone" all the stakeholders in order to maintain all their characteristics, goals, needs, believes, knowledge etc.

Structure of Negotiation Process

The choice has been made to split up the negotiation process into two workshop sessions so the stakeholders have time to let the first session sink in and prepare for the second one. Besides that, the pre and post test requires a small bridging period to prevent the stakeholders from giving desired answers on the post test. Desired answers in this context are answers given by the stakeholders on the post test which have been rated higher than the answers on the pre test on purpose. This way the outcome of the research can be influenced to mask the truth and to let things appear better than they are. Also the sessions have been organized for a particular purpose, the stakeholders will suspect that it is for the better. To support this suspicion, the stakeholders might favor the sessions by rating the answers on the post test higher. The bridging period will minimize this problem, because the participants will not be able to recall the pre test questionnaire when the post test questionnaire has to be filled in. If these tests have been filled in with two hours in between, instead of a week, they know their previous answers and can use them in their advantage.

This negotiation process structure also has practical use. During a two hour session there is a chance that the focus of the participants will decrease. With a break in between they get a moment to put everything in perspective and they will have a fresh start with the second session.

The different sections of the sessions are going to be kept strictly separate. The stakeholders can not start arguing and proposing Issues while the session is still in the "expression of Win Condition" phase or start proposing Options to Issues while not all stakeholders have expressed their Issues.

The role of the facilitator is important. To be certain that the sessions will go as planned, most of the time the role of the facilitator will be filled in by a professional. Even though my experience as a facilitator is almost zero, my decision was to lead the session myself. This decision will certainly have an impact on the sessions. But this impact does not necessarily have to be negative. The stakeholders might undermine my authority, but it is also possible that due to the mutual history between the stakeholders and myself they will accept more and are more willing to cooperate. With an unknown professional this might not be the case.

Beforehand

Before the actual sessions start, the stakeholders will be asked to think about and perhaps formulate their Win Conditions. This way it is possible to jumpstart the first session and it will prevent the stakeholders to start thinking on the spot. This will slow the process down. The stakeholders have not been demanded to enter the sessions with at least two Win Conditions, but were asked to at least think about their goals.

First Session

Questionnaire

The stakeholders will have to fill in the pre test before the negotiation session starts.

Explanation

The first session will start with an explanation of how the sessions are structured and how the process will proceed. Further my role in the process will be explained. This includes the things they can expect and what a facilitator during a session will and will not do.

Win Conditions

The stakeholders can express their Win Conditions in the context of the information system. Furthermore the Win Conditions gathered prior to the negotiation sessions through several interviews will be used as input for the first session. These Win Conditions should be communicated as being objective and not as the goals of the facilitator. These Win Conditions could disrupt the negotiation process. But to my opinion it is important to have objective views from outside the stakeholder group. It is a risk, but it is a calculated risk.

Issues: Conflicting Win Conditions

Conflicting Win Conditions will result in an Issue and will be grouped together.

Issues from Stakeholders

The stakeholders can express the Issues they have with one or more Win Conditions.

Products: Artifacts

- * Non-controversial Win Conditions
- * Controversial Win Conditions

 (unless all the stakeholders agree upon everything, which is highly unlikely)

* Issues

See Appendix A for an overview of the first session

Bridging Period

The products of the first session will be sent to all the stakeholders. Between the two sessions the stakeholders get the opportunity to reflect on the process and session and think about possible Options to address the Issues.

Some practical examples with some overlapping functionalities from other projects inside Vodafone went live during the bridging period. Due to the nature of the stakeholders to use examples to clarify their viewpoint, it would be advisable to add these to the second session. These example products can be used as clarification and the stakeholders can gain other points of view in the context of the information system project.

Second Session

Product Examples

The session will begin by discussing some outcomes of other projects that came up during the bridging period which have some overlapping functionality with our project. This will give the stakeholders some sense of what happens inside the company and it can be used to get some visual influence of what might be interesting for this project. If the overlapping functionality is of added value to this project, the stakeholders might decide to use the already existing functionality.

Recapitulation

The session will continue with a recapitulation of the results of the previous session. To refresh the memory of the stakeholders all the artifacts and if necessary the rationale will be recapitulated.

Options

The stakeholders get the opportunity to express the options they have come up with during the bridging period.

Agreement on Options

The stakeholders have to negotiate about the proposed Options and choose which one provides the best solution to address the Issue.

Products: Artifacts and Option Rationale

- * Non-controversial Win Conditions
- * Chosen Options
- * Option rationale

Note: If there are still controversial Win Conditions then there might be a need for a third session. This depends on how the process evolves. It might be possible that the stakeholders have to ask themselves whether the project is still plausible and whether they should proceed.

The outcome is either a solid grounded base for the future of the project or the conclusion that the project is no longer plausible and that it should be ceased.

See Appendix B for an overview of the second session.

Results

The results can be divided into three different categories. Namely: session artifacts, session observations and the questionnaires. For each session these categories will be the structure for the presentation of the results. In the end of this section the pre and post test questionnaires will be presented through a statistical calculation.

First Negotiation Session

Session Artifacts

The first session was constructed to produce the following artifacts: Non-controversial Win Conditions, Controversial Win Conditions and Issues.
Unfortunately not all the stakeholders were able to think about their Win Conditions in advance. Therefore the session did not get its jumpstart.

Three stakeholders had almost all input on the Win Conditions. This led to a list of twelve Win Conditions. The two other stakeholders agreed to the proposed list of Win Conditions.

The Win Conditions consisted of all the goals of all the stakeholders and none of the stakeholders found any of the Win Conditions conflicting and/or had any objections on the Win Conditions. This led to the end result that all the Win Conditions became non-controversial and no Issues were reported.

Session Observations

The following observations could be noted during the first negotiation session:

- The stakeholders were particular keen on explanation about semantics. The Win Conditions were often formulated with "fuzzy" terms and explanation was needed. The explanation itself was as fuzzy as the terms themselves. The act itself was very good, the execution was not.
- From time to time the stakeholders supported their Win Conditions with an explanation on how it should be seen as an improvement. Even though it was explicitly pointed out at the beginning of the session that the session should be about goals and not about rationale. But it did not disrupt the session and the discussions were still about the goals and not about the rationale.
- The stakeholders used a lot of comparisons as examples, e.g. it should work like system A, it should have something like element X of system B etc. It could be noted that the stakeholders are very visually oriented. To support their goals they used visual examples which the other stakeholders could relate to.

- Most of the stakeholders were not critical of the Win Conditions. Everything was possible and no conflicts could be found. It can be compared to the wish of building a car that can transport thousands of people, drive more than four hundred kilometers an hour, can fly to Jupiter, sail from Europe to America and dive to the depths of the ocean.
- One of the stakeholders had very little input. To get this stakeholder more involved, she was asked for her opinion and input. She said she agreed with everything and was also concerned with one of the facts another stakeholder raised. Another stakeholder noted that he had the feeling this particular stakeholder was busy doing other activities not related to the session, e.g. writing e-mails.
- Another stakeholder seemed a bit annoyed. His reactions were at a tone that everything was moving too slow and that this session was unnecessary, e.g. reaction: "of course I agree to everything" (implying that everything is clear and discussed). It could also be noticed that he put his head in his hands, this implied a bit the same as the tone of his reactions. Another stakeholder noticed the same fact and he added that the aforementioned stakeholder wanted to start building immediately and this session was slowing down the process.

Session Questionnaire

This section will give an overview of the results of the pre test questionnaire. Table 1 shows the results of the pre test questionnaire in the form of the mean and standard deviation for every indicator.

Table 1. Pre test results

Indicator	Mean	Standard Deviation
Mutual Satisfactory	3,200	0,671
Trust	6,100	0,840
Equalization	6,132	0,838
Cooperation	4,800	1,430
Expectations	5,000	0,707
Shared Vision	4,600	1,194

n = 5

See Appendix C for the pre test questionnaire.

Bridging Period

During this period one of the stakeholders came with a requirements document. This document was then combined with the Win Conditions of the first session to a new requirements document. This combination of both documents increased the chance

of Issues and therefore it was good to use it as input for the second negotiation session.

To fuel the second session several Issues have been formulated based on the combination of the documents. Besides that, the decision has been made to let all the stakeholders have a critical look at the combined document of requirements during the bridging period. This should encourage the stakeholders to have a more critical view on the Win Conditions.

Second Negotiation Session

Session Artifacts

The formulated Issues during the bridging sessions were swept of the table almost instantly. None of the participating stakeholders saw these Issues and thus disagreed with them. When the stakeholders were asked to have a critical look at the Win Conditions, none replied. The combined document stayed the same as before the session.

One of the stakeholders proposed to clarify the requirements and make them SMART. He suggested that the other participants should criticize the requirements before a new session. During this new session they will discuss the outcome. All the stakeholders agreed to this proposition.

Session Observations

The following observations could be noted during the second negotiation session:

- The session was much more open and the atmosphere was friendlier than the first session. The participants seemed happy and were willing to participate.
- The participant that was rather closed and at a distant during the first session was now more participating and willing to have input into the session.
- One of the stakeholders made a comment on my practical examples at the beginning of the second session. According to him the focus was shifting too much to "how" instead of "what". This indicated that they had learned from the first session to not focus too much on the "how", but more on the "what".

Session Questionnaire

This section will give an overview of the results of the post test questionnaire. Table 2 shows the results of the post test questionnaire in the form of the mean and standard deviation for every indicator and also for the extra questions.

Table 2. Post test results

Indicator	Mean	Standard Deviation
Mutual Satisfactory	4,900	1,387
Trust	5,600	1,294
Equalization	6,000	0,851
Cooperation	5,200	0,975
Expectations	6,200	0,447
Shared Vision	5,600	0,742
Post-Expectations	6,000	0,707
Priority Daily work to Project	5,600	1,517
Failure of Project	6,400	0,548

n = 5

See Appendix D for the post test questionnaire.

Pre and Post Test

The pre and post test should indicate whether the model has had a positive influence on the negotiation process. Based on this statement the following hypotheses can be formulated:

$$H_0$$
: $\mu_{difference} \le 0$
 H_1 : $\mu_{difference} > 0$

 $\mu_{\text{difference}} = \mu_{\text{session2}} - \mu_{\text{session1}}$

The H_0 hypothesis indicates that the model has had no or a negative influence on the negotiation process. The alternative hypothesis (H_1) indicates that the model has had a positive influence on the negotiation process.

To calculate the results of the pre and post test, the Student-T test will be used. To be more specific, the Student-T test for dependant paired samples will be used. This test is ideal for paired samples that are dependent on each other, which is always the case when a pre and post test is used. Therefore this Student-T test is perfect to calculate the outcome of the pre and post test questionnaires.

The outcome is only focused on whether the model has had a positive influence, therefore the Student-T test will be a single tailed test. The choice has been made to set the significance level at 5%.

With four (n-1) degrees of freedom (df= 4) and a significance level of 5% the critical t value is 2,132.

The formula for the Student-T test for dependant paired samples is:

$$t = X_{md} / (\sigma / \sqrt{n})$$

Where X_{md} is the mean difference, σ is the standard deviation and n is the population.

Student-T Results

The following results have been calculated by using SPSS.

Appendix E shows an overview of the calculated t values.

Mutual Satisfactory

Calculated t: 3,302

3,302 > 2,132

The H₀ hypothesis will be rejected at a significance level of α = 0,05. Based on the data the conclusion can be drawn that the model has had a significant influence on improving mutual satisfactory, t (4) = 3,302, p = 0,015.

Trust

Calculated t: -1,174

-1,174 > -2,132

The H₀ hypothesis will not be rejected at a significance level of α = 0,05. Based on the data the conclusion can be drawn that the model has had no significant influence on improving trust, t (4) = -1,174, p = 0,1525.

Note: H_0 and H_1 do not match with this indicator, because the results are only focused on the positive influence of the model. Although this indicator decreased, it has been added to give a complete overview.

Equalization

Calculated t: -1,633

-1,633 > -2,132

The H₀ hypothesis will not be rejected at a significance level of α = 0,05. Based on the data the conclusion can be drawn that the model has had no significant influence on improving equalization, t (4) = -1,633, p = 0,089.

Note: H_0 and H_1 do not match with this indicator, because the results are only focused on the positive influence of the model. Although this indicator decreased, it has been added to give a complete overview.

Cooperation

Calculated t: 0,775

0,775 < 2,132

The H₀ hypothesis will not be rejected at a significance level of α = 0,05. Based on the data the conclusion can be drawn that the model has had no significant influence on improving cooperation, t (4) = 0,775, p = 0,2405.

Expectations

Calculated t: 2,449

2,449 > 2,132

The H₀ hypothesis will be rejected at a significance level of α = 0,05. Based on the data the conclusion can be drawn that the model has had a significant influence on improving expectations, t (4) = 2,449, p = 0,035.

Shared Vision

Calculated t: 2,828

2,828 > 2,132

The H₀ hypothesis will be rejected at a significance level of α = 0,05. Based on the data the conclusion can be drawn that the model has had a significant influence on improving shared vision, t (4) = 2,828, p = 0,0235.

To summarize:

- The WinWin Negotiation Model has had a significant positive influence on Mutual Satisfactory, Expectations and Shared Vision.
- The WinWin Negotiation Model has had a negative, but not significant, influence on Trust and Equalization.
- The WinWin Negotiation Model has had a positive, but not significant, influence on Cooperation.

This means that three indicators were influenced significantly positive, one indicator was influenced not significantly positive and two indicators were influenced not significantly negative.

Interpretation of Results

The previous section has shown an objective overview of all the results obtained from the negotiation sessions. Now these results will be analyzed and interpreted.

First Negotiation Session

The first session led to a list of twelve Win Conditions. This is a rather small list of goals. The list also contained all the goals of all stakeholders. There is nothing wrong with a list of all goals even when they contradict, but then the participants should be critical on the list and find the Issues in this list.

In an ideal world a car that can transport thousands of people, drive more than four hundred kilometers an hour, can fly to Jupiter, sail from Europe to America and dive to the depths of the ocean will be a great product, but nevertheless the world we live in is far from ideal and therefore this vehicle will definitely not work. The aforementioned specifications of the vehicle will conflict and will bring the efficiency of it down instead of supporting the capabilities of it.

Besides the part of proposing ideas and not questioning them, it was also noticeable that the stakeholders were keen on delivering the product fast. Great ideas should be executed immediately without a moment of reconsideration. It is like they want to execute the idea without a solid base and possible problems will be dealt with when they occur.

Some of the stakeholders also seemed occupied with other businesses, e.g. writing e-mails. This could indicate that their priority was not with this project, but perhaps with their daily work. It seemed that the participants were satisfied as long as their ideas were in the product and all the other stakeholders were content. This would explain why nobody questioned any of the Win Conditions. Their thoughts could be: "My Win Conditions are in the proposition and I will not question any of the other stakeholders' Win Conditions otherwise they will question mine".

The outcome of the pre test questionnaire indicated that especially Trust and Equalization were very positive, with small differences in answers (low standard deviation). In contrast Mutual Satisfactory, Shared Vision and Cooperation were low at the beginning of the negotiation process. But Cooperation and Shared Vision have a high standard deviation. Only Mutual Satisfactory, with a low standard deviation, can be seen as negative before the negotiation sessions.

From the observations and the results of the first negotiation session it can be expected that Mutual Satisfactory and Shared Vision will increase. All the stakeholders saw their goals incorporated in the Win Conditions list. This means that it will be most likely that the stakeholders will be more satisfied with the outcome and that they share a common vision on what the goals of the information system should be.

Bridging Period

The outcome of the first session consisted only of Non-controversial Win Conditions. This was different than expected, a list of Non-controversial and Controversial Win Conditions and Issues was expected (see chapter *structure of negotiation process*, *first session*, *product: artifacts*). To investigate why the outcome of the first negotiation session was different as expected the following hypotheses have been formulated:

- Company Culture: the company culture is to propose ideas and execute them immediately without a thorough reconsideration and analysis of the problem and solution domain.
- Priority: this project has a lower priority than the stakeholders' daily work.

The company culture will be investigated after the second session through several interviews in all layers of the technology department (see chapter *clarification*, *company culture*). The priority of this project will be asked on the post test questionnaire. Two questions about the stakeholders' priority of this project in comparison with their daily work and the extent of how serious it would be if this project fails will be asked.

Second Negotiation Session

The second session continued where the first one stopped. There were no new Win Conditions proposed and all formulated Issues during the bridging period were discarded. Even though the atmosphere was much better and opener, the outcome of the session was again not as expected according to the WinWin Negotiation Model.

One of the stakeholders did take the initiative to clarify the requirements and make them SMART. His suggestion to let the other participants criticize his work was

admirable. The other participants agreed to this proposition of criticizing the requirements. During the first two sessions none of the stakeholders showed this behavior, if they would act upon his request then it would indicate that they undermined my authority as facilitator.

This raised again several hypotheses why the outcome of both sessions was different than expected. The following hypotheses will complement the previous hypotheses which will possible clarify the difference in expectation and outcome:

- Undermining of authority: the stakeholders undermined the authority of the facilitator.
- Speed of negotiation process: the sessions went too fast and the stakeholders were still thinking on bringing all goals together.

To investigate whether these hypotheses are plausible, a follow up session, which one of the stakeholders proposed, will be used to assess these hypotheses. If the session has the same similarities as the sessions for this research, then these hypotheses are not true. If that session does encourage the stakeholders to be critical and participatory, then these hypotheses can be the reasons for the difference in outcome and expectation.

The outcome of the post test questionnaire also matched the results of the sessions. All indicators had a neutral to positive answer, but with some more variation in answers (larger standard deviation).

The questionnaires had one mirrored question. Many participants gave a high answer, which has to be noted as negative because of the mirroring. The surrounding answers for the same indicator were also high, which thus contradicts with the mirrored answer. This might indicate that the stakeholders have given desired answers on the questionnaires. Without reading the questions properly, they gave every question one of the highest answers.

This is another hypothesis that could clarify the difference in outcome and expectation.

 Desired answers: the stakeholders gave desired answers on the questionnaires.

As a follow up on the previous hypothesis there is also a strong regional culture in Vodafone Maastricht. A large portion of the employees is from Maastricht or other areas near Maastricht in Limburg, the Netherlands. The culture in Limburg is to not be straightforward but to express oneself positively. Therefore people from this region will never give direct criticism.

This will support the previous formulated hypothesis.

- Influence of the culture: there was a negative influence of the culture in Limburg, the Netherlands.

Unfortunately these hypotheses are too comprehensive and this would require a thorough investigation. These hypotheses should be input for a standalone research. These last two hypotheses will not be investigated in this research.

Pre and Post Test

The Student-T test indicated a significant increase in Mutual Satisfactory, Expectations and Shared Vision. These three were amongst the lowest scores in the pre test. The results of the Student-T test are not so surprising. The sessions have supported the stakeholders to incorporate all their goals in the information system requirements list, none of the goals were excluded. This means that everybody is satisfied and it explains why Mutual satisfactory and Shared Vision increased significantly. Because the stakeholders find all their goals in the requirements list, it confirms and reinforces their expectations.

Another low scoring indicator at the pre test was Cooperation. Cooperation has also increased, but not significantly. It could very well be that the stakeholders see cooperation as pleasing the other participants by not criticizing their Win Conditions. Every stakeholder has incorporated their Win Conditions in the end results and the other stakeholders gave him or her the room to do this, everybody is content and therefore they have had a good cooperation. The relation has not been investigated, it is merely a strong indication.

The two higher scoring indicators on the pre test, Trust and Equalization, now have decreased, but not significantly. Both are still scoring very positive with means of 5,6 and 6.

Clarification

The outcome of the sessions and pre and post test did not match with the observations. Six hypotheses have been formulated which could be the reasons for this mismatch. Four of these hypotheses have been researched.

Priority

The first hypothesis that has been researched is the priority and failure of this project. The hypothesis was that the priority of this project is lower than the priority of the stakeholders' daily work. The post test questionnaire has been extended with two questions. The first question was about the priority of their daily work in comparison with this project. This resulted in a mean of 5,6 with a standard deviation of 1,517. The high standard deviation is solely aimed at the positive answers. The stakeholders either gave a neutral or a very positive answer. Based on this outcome it can be concluded that the stakeholders definitely give their priority to their daily work.

The second question was about how the stakeholders would feel if the project would fail. In addition to the first question the stakeholders also valued this question high. With a high mean of 6,4 and a low standard deviation of 0,548 it can be concluded that the stakeholders definitely don't want the project to fail, but they are not willing to give their priority to this project.

The first hypothesis has been confirmed. The lack of priority is interfering with the performance of the project. As long as the stakeholders do not change their priority, the project will not get the desired results.

Company Culture

The second hypothesis was about the company culture at Vodafone Maastricht. The assumption is that the culture is to propose ideas and execute them without time for reconsideration and analysis of the problem and solution domain. This is a very serious assumption and can not be investigated with quantitative methods. It has a negative sound to it and people will probably give desired answers on the questionnaires.

To research whether this statement is true, a qualitative method in the form of interviews has been used. Six interviews with employees in all layers and different teams of the technology department have been performed. It ranged from secretaries to managers and specialists. This would provide the best overview and give different points of view from different levels and people.

Note: the results of these interviews have been combined to one continuous result. It has been based on the expressions and information from the participants, but they will not be mentioned and quoted for privacy reasons. Nevertheless the results are still objectively gathered and consist of the views and opinions of employees of Vodafone Maastricht.

The interviews have been conducted at the technology department. Therefore it is not possible to generalize these results to the whole company. But several interviewees, who worked at multiple departments, indicated that this culture can be seen throughout the whole company.

The following result has been based on several interviews, these interviews were only focused on the company culture of Vodafone Maastricht.

Vodafone is a telecom company which is in a fast changing environment. Therefore they have to respond quickly to actions of competitors and have to act fast when new ideas and products emerge. This means that they have to have a short time-to-market. If they do not deliver, then someone else will.

Vodafone Maastricht is a company that gives their employees a lot of freedom in their jobs. The people have the freedom and space to express their creativity. The focus is therefore to not constrain the employees with a lot of rules and binding structures. In their opinion this will restrain the employees from coming up with bright new ideas.

Furthermore their way of working is mainly focused on the exterior. Consumers will first look at how something looks and less to how it works. Vodafone is focused on making money, thus they are satisfied with a good enough product to sell that can be developed in a short period, rather than with a better product which has a long development period.

"Vodafone is only focused on the profit of tomorrow."

With a small development period it is easy to skip phases that do not deliver results immediately. The requirements phase is a good example. This phase will only deliver paper work, but not a working product. Even though this is an important phase in the development process, it is easy to skip.

The Vodafone culture is to produce products and services fast and put them in the market. Problems that may occur will be dealt with when they do occur. If the product or service does it job, nothing is wrong. But if something goes wrong, then they will analyze if and how they can solve this problem.

A reoccurring metaphor that the interviewees used to describe Vodafone is as follows:

"Vodafone can be compared to a marketplace. Every employee can set up his or her own stand and sell their products. Nobody tells them what to sell and where they can sell it. The one who sells the most is the most appropriate for the marketplace."

If one analyzes this metaphor further, one will draw the following conclusion. Usually the one with the biggest mouth and the nicest looking package sells the most. Many consumers can easily be convinced with fancy words and a nice bow. If a merchant who sells apples has spent a lot of effort on the package with a nice red bow and also has a nice talk to accompany this package, he will sell more than other merchants. Even though he fills his package with rotten apples, the consumer will only notice this when they eat their apples and then it is too late. When they go back to address this issue, the merchant has moved to another market in another country.

This metaphor is a perfect match for Vodafone. Many people join Vodafone and propose a lot of new ideas accompanied with a nice talk. These are then executed without thorough reconsideration and analysis due to the short time-to-market period. The responsible person for the idea makes a promotion and leaves Vodafone shortly with a nice résumé. When the others notice that they are building castles in the sky based on an idea, the responsible person has wisely left the scene.

Another culture aspects which is in line with the previous one is "ownership". The employees do not have responsibility towards fellow colleagues as well as to external suppliers. Their main concern is their own career. "It is always someone else's fault and/or responsibility".

The sessions that have been performed in the light of this research fit in the requirements phase. This is the phase that Vodafone from time to time skips or underestimates. It is thus not surprising that the sessions have not matched the expectations. Furthermore it is custom to propose a lot of ideas and see where they end. There is no time for reconsideration and analysis. The product, in this case the information system, has to be ready before someone else produces the same. Even though this is a product that will be used internally, the same culture and tension was influencing the project.

Also the "island separation" phenomenon, which was noticed in the beginning of the research, can be explained with this information. Due to the general and fuzzy guidelines and the lack of overview the employees have the freedom to do what they think is best for the company. It will generally increase creativity, but it also enables the employees to set up their own stand and sell whatever they like regardless of the presence of products on the market. Hence they will create their own island and sell their own products the best they can, regardless of other islands.

Probably the most appealing example of the Vodafone culture is my internship. Nobody really knew what my job description was. In line with their culture they gave me a general task which had to be filled in by myself. It could also be noticed that there was not a clear view on what the intern should do and what the added value of such an intern could be.

This situation has two sides. One has the freedom to do what one wants and seems interesting. But one does not know what the objective criteria to ones assignment are. Therefore it is always possible to judge somebody on subjective criteria. It also makes it impossible to know what they expect from somebody. Their response is that they want to provide space for creativity. In their culture it is only about creativity, not about structure. A combination of both is perfectly possibly.

The outcome of the interviews was predominantly negative. Even though the outcome was not so encouraging, the results of Vodafone have been positive. Apparently this culture matches the way of working in this branch and it delivers them the desired results. Besides it will probably differ from department to department and even from team to team. Nevertheless the company would benefit from less ad-hoc decision making and a less ad-hoc culture.

Session Structure

The last two hypotheses, undermining the authority of the facilitator and the speed of the negotiation process, will be investigated together. It might be that the stakeholders found the facilitator not capable enough. Which led to some resistance to the sessions and the way of negotiating. If this is true, the difference in outcome of the sessions together with the questionnaires and the observations may be explained. It could also be that the sessions were seen as a possibility to put all goals of all the stakeholders on the table and not as an opportunity to create a consensual view. That might explain the fact that the Win Conditions list consists of all the goals of all the stakeholders and no Issues have (yet) been identified.

The follow up session proposed by one of the stakeholders can be used to validate both hypotheses. If the stakeholders behave the same way as during the two sessions that are part of this research, then they have not undermined the authority of the facilitator of these two sessions and the first hypothesis is false. If the stakeholders do behave accordingly and follow the new facilitator, then the first hypothesis is true and it explains the difference in outcome and observations. If the stakeholders also start criticizing and start proposing Issues and matching Options, then the second hypothesis is also true. Either way, the progress of the follow up session will support or reject the two hypotheses.

Follow up Session

The follow up session was planned a week after the second session. During this week the particular stakeholder who proposed this session had made the requirements SMART and clarified them. Only two, including the person who proposed the session,

of the five stakeholders were present at the follow up session. This situation supports the priority hypothesis. Even though the session was planned a week in advance, most of the stakeholders did not show up.

The leader of the session, the stakeholder who proposed the follow up session, started analyzing the requirements/Win Conditions. The other stakeholder was not very willing to cooperate. He was occupied with other business, e.g. writing e-mails and reading presentation slides. From time to time he contributed a bit to the session, but sometimes he had to be explicitly asked for his opinion.

During the session none of the stakeholders showed criticizing behavior. The outcome was a more specific and clarified the requirements list. The progress of the session was almost identical to the first two sessions. Everything was good, nothing conflicted, the way requirements are specified is not important and other business was more important.

It was good to notice that at least one of the five stakeholders has picked up the spirit and tried to continue with the process that has been set into motion. He is eager to create a specific and clear set of requirements. Unfortunately the others are rather unwilling to cooperate with this process.

Because the progress of the follow up sessions has a lot of the same characteristics as the first two sessions, the hypotheses about undermining the facilitator's authority and the speed of the negotiation process can be rejected.

Conclusion

From this clarification can be concluded that the low priority of the project had a great impact on the negotiation process. Also the company culture added a negative weight to the negotiation process, perhaps not as much as the priority aspect, but it still influenced the process. The session structure, facilitator and speed of process, did not have a large impact on the negotiation sessions. The follow up session was not sufficient to reject the hypotheses totally, but it did indicate that it did not matter who was leading the session and that the speed was not of importance.

The hypotheses about regional culture and desired answers have not been tested due to their size. But these hypotheses can only clarify and support the difference more. If the hypotheses are false, they will not have an impact on the clarification. But if they are true they can contribute more in the clarification of the difference in outcome of the session in combination with the questionnaires and the observations.

Conclusion

For the case study at Vodafone Maastricht the goal-oriented WinWin Negotiation Model was chosen. This model is a perfect fit to overcome the conflicts, different viewpoints on different levels and the lack of consensual view on problem and system perspective. Even though every situation is unique, the WinWin model will generally increase the stakeholders' levels of Cooperation and Trust. Other positive effects of the WinWin Negotiation Model are Mutual Satisfactory, Equalization, Expectations and Shared Vision. These positive effects have been used to indicate the quality of the information system negotiation process.

Based on the literature research the following research question for the case study could be formulated:

"What is the effect of the WinWin Negotiation Model on the quality of the information system negotiation processes with multiple stakeholders with different viewpoints?"

To assess the quality of the negotiation process, two sessions have been organised based on the WinWin Negotiation model. These sessions were accompanied by pre and post test questionnaires and observations.

The pre and post test analysis has shown that the sessions in combination with the WinWin Negotiation Model had a significant positive influence on Mutual Satisfactory, Expectations and Shared Vision. It also had a positive, but not significant, influence on Cooperation. The model in combination with the sessions had a negative, but not significant, influence on Trust and Equalization.

These results are in contrast with the literature about the WinWin Negotiation Model. Both Boehm (1999) and In (2001) pointed out that even though every situation is unique, the WinWin Negotiation Model will generally increase the stakeholders' levels of cooperation and trust. In this research Cooperation did increase, but not significantly and Trust even decreased.

The results are furthermore supported by the results of the sessions. The Win Conditions list consisted of all the goals of all stakeholders and no Issues were found. Therefore every participant could be satisfied because all of his or her goals were incorporated in the end result.

The lack of criticizing behavior in combination with the observations showed that what was expected from the WinWin Negotiation Model was different from the outcome. Therefore six hypotheses were formulated to investigate why there was a difference in outcome and expectation.

The research showed that especially the lack of priority to this project and company culture have had a negative influence on the negotiation process. The participants favored their daily work over this project. And the WinWin Negotiation Model is

incorporated in a phase which can easily be skipped and which Vodafone does not value so much because of the lack of tangible results.

Based on the results of the pre and post test analysis and the outcome of the sessions one can conclude that the WinWin Negotiation Model has had a significant positive effect on the information system negotiation process. But based on the post research, one has to conclude that this approach does not fit in the company culture of Vodafone. Even though it might have had a positive influence on the negotiation process, it might have had a negative influence on the development process.

Discussion

There are some points that can be improved for future research. The first point is about the questionnaires. These have not been validated and are therefore perhaps not the best suited. But it is hard, perhaps even impossible to validate a certain questionnaire that asks for subjective matters.

The next points have already been spoken about and the reasons to in- or exclude these elements have been carefully considered. The first one is the lack of a control group. If one wants to research the effect of a particular model, it is custom to use a control group to test whether the expected effect does not occur. In case studies, which are semi-controllable environments, it is very difficult to create an almost exact copy of the situation to test the process without the model.

Furthermore there was a lack of an external observer. The reason is very similar to the questionnaires. It is even more difficult to validate observations than questionnaires. On questionnaires one can ask the subjective matters directly, with observations it differs from person to person.

The fourth one is about the Student-T test. Even though the outcome has shown some significant improvements, the population which has been used is very small. The smallest changes in answers will have a reasonable effect on the outcome of the calculation.

This discussion will finish with the scope of the research. The scope is set to the project group of five stakeholders who negotiate about a particular information system. Therefore the results can only be applied to this situation. It is difficult to generalize these to other negotiation situations. Every negotiation situation has its own characteristics, culture, environment and stakeholders which will influence the whole process.

Literature

Abma, T. A. (2000). *Stakeholder conflict: A case study*. Program Planning and Evaluation, 23(2) (pp.199–210).

Boehm, B.W. & Ross, R (1989). *Theory W Software Project Management: Principles and Examples*. IEEE Transactions on Software Engineering (pp.902-916)

Boehm, B.W., Bose, P., Horowitz, E., Lee, M.J. (1995). *Software Requirements Negotiation and Renegotiation Aids: A Theory-W Based Spiral Approach*. Proceedings of ICSE-17 (pp.243-253)

Boehm, B.W. & Egyed, A. (1998). WinWin Requirements Negotiation Processes: A Multi-Project Analysis. Proceedings of the 5th International Conference on Software Processes

Boehm, B. & Egyed, A. (1998). *Software Requirements Negotiation: Some Lessons Learned*, Proceedings of the 20th International Conference on Software Engineering.

Boehm, B., Egyed, A., Port, D., Shah, A., Kwan, J., and Madachy, R. (1999). A *Stakeholder Win-Win Approach to Software Engineering Education*. Annals of Software Engineering (pp. 295–321).

Boehm, B. & Kitapci, H. (2006). *The WinWin approach: using a requirements negotiation tool for rationale capture and use*. In Rationale Management in Software Engineering (pp. 173–190).

Darke, P. & Shanks, G. (1997). *User viewpoint modeling: understanding and representing user viewpoints during requirements definition*. Information Systems Journal (7) (pp.213-239).

Gilligan, C. (1986). Remapping the moral domain: New images of the self in relationship. Reconstructing individualism: Autonomy, individuality and self in western thought (pp. 237-252).

Horowitz, E. (1996). WinWin Reference Manual: A System for Collaboration and Negotiation of Requirements. Center for Software Engineering, University of Southern California Technical Report.

In, H., Boehm, B., Rodgers, T., and Deutsch, M. (2001). *Applying WinWin to Quality Requirements: A Case Study*. Proc. ICSE'01 IEEE Computer Society Press, Toronto (pp.555-564).

Kavakli, E. (2002). *Goal-oriented requirements engineering: A unifying framework*. Requirements Engineering, vol.6 (pp.237–251).

Vodafone Group. (2009). *Who we are*. Retrieved August 3, 2009, from http://www.vodafone.com/start/about_vodafone/who_we_are.html

Vodafone Group. (2009). *Vestiging Maastricht*. Retrieved August 3, 2009, from http://www.vodafone.nl/overvodafone/werken_bij_vodafone/onze_organisatie/ves tigingen/maastricht/

Appendix A: First Session Scenario (Dutch)

WinWin Negotiation: Draaiboek 3 juli 2009 11:00 – 12.00

Organisatorisch

Alle artifacts & Option rationale zullen door de stakeholders op post-its geplaatst worden en deze post-its worden op een bord geplakt.

11:00 (5 min.) Vragenlijst

Laat alle stakeholders de pre-test vragenlijst invullen

11:05 (5 min.) Opening en uitleg

Geef korte inleidende presentatie

11.10 (15 min.) Win Conditions naar voren brengen

ledere stakeholder mag zijn of haar Win Conditions naar voren brengen. Uitgaande van 5 stakeholders krijgt iedere deelnemer 3 min. de tijd om zijn of haar doelen naar voren te brengen.

11.25 (10 min.) Groepering van conflicterende Win Conditions

Alle voortgebrachte Win Conditions worden gegroepeerd op basis van de Issue en gebaseerd op de categorieën "content" en "environment", misschien komen er nog meer categorieën naar voren.

11.35 (15 min.) Bezwaren stakeholders Win Conditions

Stakeholders krijgen de kans om hun bezwaar omtrent de Win Conditions naar voren te brengen. Hieruit volgen weer Issues die apart gegroepeerd zullen worden.

11.50 (5 min.) Agreements op Win Conditions

Win Conditions zonder Issue krijgen een Agreement en worden apart gegroepeerd.

11.55 (5 min.) Afsluiting (eventueel gebruiken voor uitloop)

Bedank iedereen voor de medewerking en stel voor om Options te bedenken zodat de 2^e sessie snel van start kan gaan. Laat iedereen 2 Options bedenken en verdeel de Options over de verschillende Issues en stakeholders.

Appendix B: Second Session Scenario (Dutch)

WinWin Negotiation: Draaiboek 17 juli 2009 09:00 – 10.00

Organisatorisch

Alle artifacts & Option rationale zullen door de stakeholders op post-its geplaatst worden en deze post-its worden op een bord geplakt.

09:00 (10 min.) Dashboard Initiatief Vodafone

Besteed aandacht aan het nieuwe 'dashboard' initiatief van Vodafone wat onder de aandacht kwam tussen beide sessies.

09:10 (5 min.) Recapitulatie

Besteed kort aandacht aan de zaken die bereikt zijn in de eerste sessie en tussen de sessies in.

09:15 (15 min.) Issues

Laat iedereen nog eens kritisch kijken naar de Win Conditions in combinatie met het requirements document wat tussen de sessies aangedragen werd. Ik geef zelf een aanzet tot kritisch gedrag.

Stakeholders zien Issues

09.30 (10 min.) Options

Mochten er Issues zijn, laat iedereen dan Options aandragen.

09.40 (10 min.) Selecteer 'beste' Option

Alle stakeholders krijgen de mogelijkheid te onderhandelen over wat de beste Option is om de Issue op te lossen. Deze Options krijgen een agreement.

09.50 (5 min.) Vragenlijst

Alle stakeholders moeten de post-test vragenlijst invullen.

09.55 (5 min.) Uitloop

Stakeholders blijven geen Issues zien

09.30 (5 min.) Vragenlijst

Alle stakeholders moeten de post-test vragenlijst invullen

09.35 (25 min.) Stakeholder inbreng

Gebruik resterende tijd voor inbreng van stakeholders of sluit de sessie.

Appendix C: Pre-Test Questionnaire (Dutch)

Vragenlijst WinWin Negotiation Sessie 3 juli

Deze vragenlijst heeft betrekking op <u>het projectverloop</u> tot nu toe. Alvast bedankt voor je medewerking.

	Helemaal niet	•	•	Neutraal	•	•	Helemaal
In hoeverre ben je tevreden met de resultaten die tot nu toe zijn behaald?	0	0	0	0	0	0	0
In hoeverre denk je dat de andere deelnemers tevreden zijn met de resultaten die tot nu toe zijn behaald?	0	0	0	0	0	0	0
In hoeverre is er sprake van een vertrouwensbasis voor een goede samenwerkingsrelatie?	0	0	0	0	0	0	0
In hoeverre heb je er vertrouwen in dat de andere deelnemers de juiste beslissingen nemen?	0	0	0	0	0	0	0
In hoeverre heb je vertrouwen in een goede samenwerkingsrelatie?	0	0	0	0	0	0	0
In hoeverre vertrouw je de andere deelnemers?	0	0	0	0	0	0	0
Ik heb het gevoel dat ik evenveel mogelijkheden tot inbreng heb gehad als andere deelnemers.	0	0	0	0	0	0	0
ledereen heeft evenveel mogelijkheden tot inbreng gehad.	0	0	0	0	0	0	0
In hoeverre is er sprake van gelijkheid tussen de deelnemers?	0	0	0	0	0	0	0
Ik heb een houding van: "Wij zijn samen bezig in dit project".	0	0	0	0	0	0	0
Ik heb het gevoel dat er mensen zijn die hun eigen beeld behouden en deze ook doordrukken.	0	0	0	0	0	0	0
Ik heb het gevoel dat we bezig zijn om een oplossing te vinden die geschikt en acceptabel is voor iedereen.	0	0	0	0	0	0	0
Hoe verloopt de samenwerking?	0	0	0	0	0	0	0
In hoeverre verwacht je dat jouw visie uitgevoerd wordt?	0	0	0	0	0	0	0
Ik heb het gevoel dat mijn beeld ten aanzien van het doel in overeenstemming is met de andere deelnemers.	0	0	0	0	0	0	0
In hoeverre is er sprake van een gedeelde visie tussen de deelnemers?	0	0	0	0	0	0	0

Appendix D: Post-Test Questionnaire (Dutch)

Deze vragenlijst heeft betrekking op <u>het projectverloop</u> tot nu toe, **inclusief** beide sessies die zijn gehouden. Alvast bedankt voor je medewerking.

	Helemaal niet	•	•	Neutraal	•	•	Helemaal
In hoeverre ben je tevreden met de resultaten die tot nu toe zijn behaald?	0	0	0	0	0	0	0
In hoeverre denk je dat de andere deelnemers tevreden zijn met de resultaten die tot nu toe zijn behaald?	0	0	0	0	0	0	0
In hoeverre is er sprake van een vertrouwensbasis voor een goede samenwerkingsrelatie?	0	0	0	0	0	0	0
In hoeverre heb je er vertrouwen in dat de andere deelnemers de juiste beslissingen nemen?	0	0	0	0	0	0	0
In hoeverre heb je vertrouwen in een goede samenwerkingsrelatie?	0	0	0	0	0	0	0
In hoeverre vertrouw je de andere deelnemers?	0	0	0	0	0	0	0
Ik heb het gevoel dat ik evenveel mogelijkheden tot inbreng heb gehad als andere deelnemers.	0	0	0	0	0	0	0
ledereen heeft evenveel mogelijkheden tot inbreng gehad.	0	0	0	0	0	0	0
In hoeverre is er sprake van gelijkheid tussen de deelnemers?	0	0	0	0	0	0	0
Ik heb een houding van: "Wij zijn samen bezig in dit project".	0	0	0	0	0	0	0
Ik heb het gevoel dat er mensen zijn die hun eigen beeld behouden en deze ook doordrukken.	0	0	0	0	0	0	0
Ik heb het gevoel dat we bezig zijn om een oplossing te vinden die geschikt en acceptabel is voor iedereen.	0	0	0	0	0	0	0
Hoe verloopt de samenwerking?	0	0	0	0	0	0	0
In hoeverre verwacht je dat jouw visie uitgevoerd wordt?	0	0	0	0	0	0	0
In hoeverre zijn jouw verwachtingen over de uitvoering van jouw visie realistischer geworden naar aanleiding van de sessies?	0	0	0	0	0	0	0

Ik heb het gevoel dat mijn beeld ten aanzien van het doel in overeenstemming is met de andere deelnemers.	0	0	0	0	0	0	0
In hoeverre is er sprake van een gedeelde visie tussen de deelnemers?	0	0	0	0	0	0	0
Ik vind mijn dagelijkse werkzaamheden belangrijker dan dit project.	0	0	0	0	0	0	0
Hoe erg vind je het als dit project niet slaagt?	0	0	0	0	0	0	0

Appendix E: Statistical Package for the Social Sciences (SPSS) Output

Mutual Satisfactory Output

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair	Post Mutual Satisfactory	4.9000	- 11	1.38744	.62048
1		.,	5	,	,
l '	Pre_Mutual_Satisfactory	3,2000	5	,67082	,30000

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Post_Mutual_ Satisfactory & Pre_ Mutual_Satisfactory	5	,564	,322

Paired Samples Test

			Paired Differences						
				Std. Error	95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Post_Mutual_Satisfactory - Pre_Mutual_Satisfactory	1,70000	1,15109	,51478	,27074	3,12926	3,302	4	,030

Trust Output

Paired Samples Statistics

					Std. Error
		Mean	Ν	Std. Deviation	Mean
Pair	Post_Trust	5,6000	5	1,29422	,57879
1	Pre_Trust	6,1000	5	,84039	,37583

Paired Samples Correlations

	N	Correlation	Sig.
Pair 1 Post_Trust & Pre_Trust	5	,678	,208

Paired Samples Test

			Paire	ed Differences	3				
				Std. Error	95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Post_Trust - Pre_Trust	-,50000	,95197	,42573	-1,68203	,68203	-1,174	4	,305

Equalization Output

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair	Post_Equalization	6,0000	5	,85115	,38064
1	Pre_Equalization	6,1320	5	,83825	,37488

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Post_Equalization & Pre_Equalization	5	,977	,004

Paired Samples Test

			Paire	d Differences	3				
					95% Confidence Interval of the				
				Std. Error	Difference				
		Mean	Std. Deviation	Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Post_Equalization - Pre_Equalization	-,13200	,18075	,08083	-,35643	,09243	-1,633	4	,178

Cooperation Output

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair	Post_Cooperation	5,2000	5	,97468	,43589
1	Pre_Cooperation	4,8000	5	1,42960	,63934

Paired Samples Correlations

	Ν	Correlation	Sig.
Pair Post_Cooperation 1 & Pre_Cooperation	5	,597	,288

Paired Samples Test

		Paired Differences							
				Std. Error	95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Post_Cooperation - Pre_Cooperation	,40000	1,15380	,51599	-1,03263	1,83263	,775	4	,481

Expectations Output

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair	Post_Expectations	6,2000	5	,44721	,20000
1	Pre_Expectations	5,0000	5	,70711	,31623

Paired Samples Correlations

	N	Correlation	Sig.
Pair Post_Expectations 1 & Pre_Expectations	5	-,791	,111

Paired Samples Test

		Paired Differences							
				011 5	95% Confidence Interval of the				
1				Std. Error	Difference				
		Mean	Std. Deviation	Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Post_Expectations - Pre_Expectations	1,20000	1,09545	,48990	-,16017	2,56017	2,449	4	,070

Shared Vision Output

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair	Post_Shared_Vision	5,6000	5	,74162	,33166
1	Pre_Shared_Vision	4,6000	5	1,19373	,53385

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Post_Shared_Vision & Pre_Shared_Vision	5	,762	,134

Paired Samples Test

		Paired Differences							
				Std. Error	95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Post_Shared_Vision - Pre_Shared_Vision	1,00000	,79057	,35355	,01838	1,98162	2,828	4	,047

Appendix F: Post-Test Expectations

Mean of question 15 (*realisticness of the stakeholders' expectations*) of the post-test questionnaire based on the 7-point likert-scale: **6**

Appendix G: Post-Test Project Priority

Mean of question 18 (priority of this project compared with the stakeholders' daily work) of the post-test questionnaire based on the 7-point likert-scale: **5,6**

Mean of question 19 (how the stakeholders would feel if the project fails, higher numbers indicate a negative feeling against failing of the project) of the post-test questionnaire based on the 7-point likert-scale: **6,4**