Chris Rupp

18

# Mediation techniques – Breaking the ice

- Once you begin systematically eliciting requirements, you'll invariably face the challenge of having to solve conflicts.
- You'll be able to solve some conflicts concerning requirements - with others, you shouldn't even try: they don't stem from professional incongruities, but are rooted in personal differences or ailing group dynamics.
- There are many different mediation techniques. Our mediation matrix will help you choose the most appropriate one.

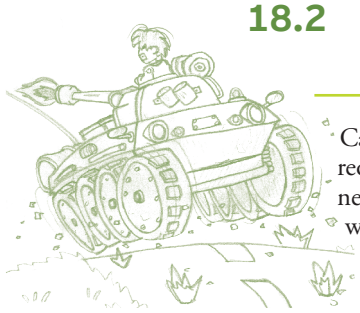
## 18.1 Below the RE-surface

The way system requirements are handled has undergone a momentous change since the end of the last millennium. While requirements were inadequately elicited in many domains a few years back, today we're flooded with them. Requirements management has become a buzzword. People will try to sell off just about anything as requirements to the requirements engineer: goals, desires, ideas, opinions, solutions and, from time to time, there might even be some real requirements in there.

Requirements in a sheepskin

Since systems keep getting more and more complex and link an ever growing number of domains, the amount of stakeholders supplying requirements has grown accordingly. As a result, there's also that many more gaps and contradictory requirements. That a requirements engineer has to filter out the real requirements from masses of look-alikes is ancient history. But handling those contradictions and gaps, including the hidden conflicts that cause them, requires other approaches.

## 18.2 Indicators of conflict – the tip of the iceberg



Can you relate? You're holding a workshop to resolve open questions to do with requirements. At its conclusion, you stumble out the door and feel like you've made next to no progress. It did start out well: everybody was all for it. But when there were just a few details left open, which you would have liked to clarify, things started going awry. And now you're left without any tangible results.

What could possibly have transpired during that workshop?

- When you got down to clarify the details, there were diverging opinions. A stakeholder abruptly changed his mind: 10% were actually 20%. Moreover, he understood "contract" to be one thing, a second thought it meant something entirely different. A third was apparently visited by the "men in black" and flashy-thinged: he just couldn't seem to remember he'd just assented three minutes ago. Suddenly, all the agreements previously made came tumbling down like a house of cards.
- A group of people who'd always contributed constructively suddenly practiced blind approval and left the meeting repetitiously mumbling to themselves "O well, guess we'll just do it that way then." Those details surely are clarified, but you just know it won't stay that way for long.
- The representative for a certain department got pedantic on you. He had something to say about every proposition and sure enough always found some tiny problem which he used as an ace in hand to argue against every suggestion. As a result, your entire meeting was literally discussed to death.
- An employee brought his leadership skills into play. He who asks, leads. Very cleverly, maybe even using some methods from natural language requirements analysis, he inquired the statements of other stakeholders into pieces. The results you thought secured were shattered.

- A colleague began reinterpreting terms. Based on the (false) reinterpretations, he drew diverging conclusions. Based on which he twisted some aspects of the system here and distorted some goals there. The products of your coordination lost all of their previous concise clarity.
- One faction just wouldn't give out necessary details. Another party suddenly started following suit.
- Since the participants couldn't agree on the details, they abstracted the same. And you were given the task of documenting everything neatly and told "We'll review it when you're done." Thus, you were suddenly responsible for technical details outside your area of expertise or degraded to become a suggestion-producer.

RE-rule of thumb: Before conflicts escalate, you surely need to mediate.

All these possible developments and the techniques illustrated such as being pedantic, asking questions on to infinity or disinformation are indicators for ongoing conflicts not carried out in the open.

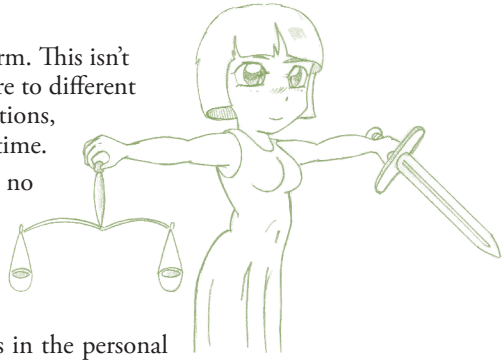
The requirements engineer, whose task it is to structure the contents of a workshop efficiently, has a hard time recognizing such telltale signs in good time and countering these motions. It's easier if a second requirements engineer, who doesn't heed the technical discussion, but keeps his attention on the process, is present. If he spots one of the indicators of conflict during the discussion, he can then intervene and steer the argument back onto track.

## 18.3 Cause and effect

*External influences* are typical causes of conflict. The dealings any firm can conduct are influenced by its customers, suppliers, competitors and by the legislation. If changes occur concerning opinion, perception or market power, conflicts arise. To these, the business must respond adequately.

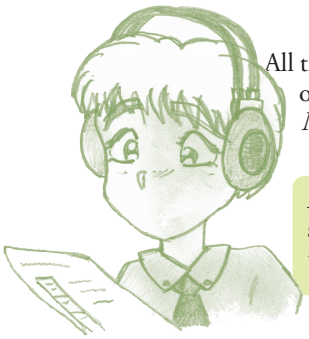
As a requirements engineer, you need a lot of tact when dealing with conflicts, because if they escalate, your results - that by which you are judged - are in serious jeopardy.

Other causes for conflict originate within the business. These may be subsumed as *internal influences:*



- There may be different value systems in different divisions of the firm. This isn't just true of international enterprises. Regional units may also adhere to different values. This factor plays a major role during mergers or re-organizations, since in those cases different corporate cultures are mixed in short time.
- Even when there's no merger, departments are still interdependent: no sales and marketing department without a production department, no production without sales and marketing. Without a deeper understanding for each other, problems such as blame-games and breaches of competence are preprogrammed.

Aside from external and internal influences, there are also disturbances in the personal relationship between individual stakeholders.



All these causes lead to different types of conflicts. The requirements engineer cannot solve all of them. But, drawing from his pool of methods, he can alleviate some. Among these are: *Naming conflicts, material conflicts, conflicts of interest and conflicts of values.*

***Naming conflicts*** are set off when different stakeholders use dissimilar terms for the same thing (synonyms) or when they have a conflicting understanding of the same term (homonyms).

One stakeholder might be speaking about an "ID" and talking about the library card of a reader, another understands "ID" to be the identity card of said reader. If you assemble a glossary during the project, you'll quickly be able to solve such conflicts. These are the simplest conflicts on the technical level, and can usually be solved rather quickly – if they don't just happen to be the tip of the iceberg, where the part below water would be material conflicts.

***Material conflicts*** originate when the conflicting parties agree on the ends but disagree on the means.

A material conflict might arise when stakeholders disagree on a functional requirement: Stakeholder A demands that it should be possible to reserve items via internet. Stakeholder B is stone-set on allowing reservations only in person or per telephone.

The iceberg could be bigger still, though: stakeholders may be pursuing different ends.

Due to his personal interests, every stakeholder has a set of defined opinions and perceptions concerning requirements. These may lead to material conflicts. If the underlying interests causing the material conflicts cannot be solved, the material conflicts cannot be solved. Often, conflicting interests center on such things as quality, costs, sustainability or the like: Stakeholder A envisions a very comfortable new library system, where the user is taken by the hand. Stakeholder B would like to get a minimalistic, low-cost system.

If the interests – the strategic goals – of two stakeholders cannot be reconciled, a ***conflict of interests*** ensues.

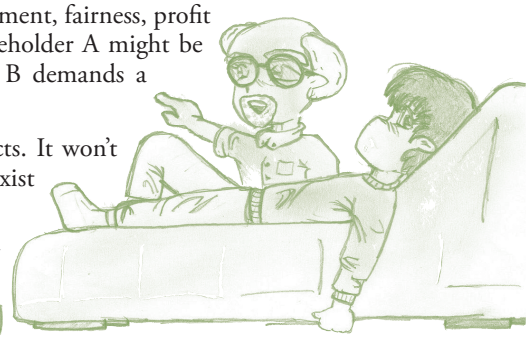
Why? Why? Why?

Conflicts of interests cannot be solved as quickly as material conflicts. To do so, the conflicting concepts must be challenged and questioned again and again.

Underlying the interests (that which will surface after plenty of "why"s) will be values. This is where society and corporate culture become major influencing factors.

***Conflicts of values*** originate if the value systems of different stakeholders clash during a project.

Conflicts of values are usually centered on topics such as environment, fairness, profit etc., which mirror the personal ideals of the stakeholders. Stakeholder A might be vying for equal late charges for every user, while stakeholder B demands a significantly reduced fee for children.



To a requirements engineer, these are the worst kind of conflicts. It won't always be possible to resolve them. But the knowledge that they exist will help him handle them with more serenity.

There are other types of conflicts; these should be dealt with by professional team coaches or therapists. They are not discussed here, but we'd like to mention the most important ones:

- *Relationship conflicts* evolve due to dissension about given social or hierarchical relationships or due to negative interpersonal behavior amongst stakeholders. Such a conflict could evolve between two stakeholders of the same standing, trying to disparage each other and distinguish themselves by criticizing each other's requirements to foster an impression of incompetency.
- *Role conflicts* are characterized by a separation between role and function. The new boss might have the function "boss", but the role "boss" is being played by a long-time employee, who is the point of contact for questions that should rightly be handled by the boss.
- *Structural conflicts* are earmarked by an unequal distribution of power and authority. A boss, for example, would reject every requirement submitted by a certain employee because he doesn't trust his member of staff to have the required level of competence to formulate good requirements.

Keep your hands off these conflicts, unless you have therapeutical aspirations.

## 18.4 How to handle conflicts – out on the ice

How does a requirements engineer handle conflicts that become apparent after a look at the elicited requirements? We'll handle recognition, prevention and containment first. Later, we'll have a look at mediation techniques apt to help solve those conflicts.

## The conflict escalation model according to Friedrich Glasl

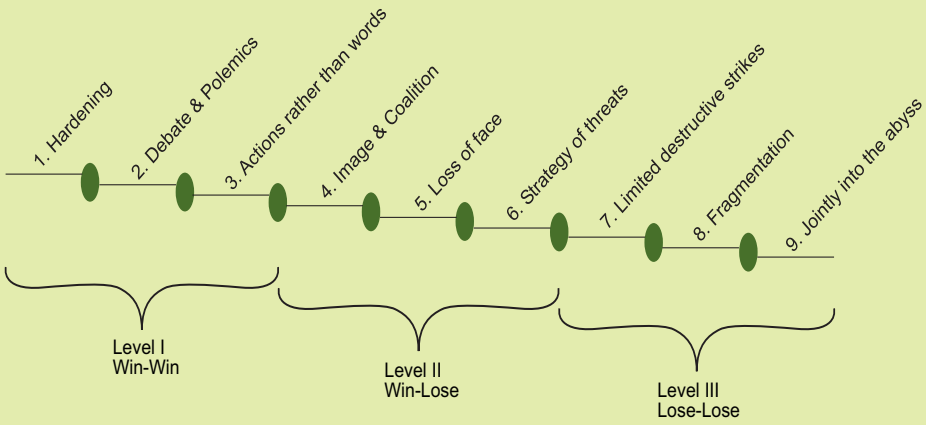



**Figure 18.1:** The phases of escalation of a conflict

The organizational consultant Friedrich Glasl has developed a conflict escalation model with nine distinctive phases [Glasl04], which traces the typical course a conflict takes (see figure 18.1). It is valid for any number of conflicts; it can be applied to conflicts amongst family members, colleagues, stakeholders or even states. The nine phases of the model are grouped into three levels: Win-Win (Level I), Win-Lose (Level II) and Lose-Lose (Level III). While a conflict hovers on level I, both parties are still trying to solve the conflict to mutual satisfaction. On level II, the priority has shifted to enforcing the own point of view at almost all costs, while on level III the goal has become to ensure that the enemy sustains more damage than the own party – the initial conflict is no longer of any importance.

### Level I: Win-Win

*Stage 1 – Hardening*: Two points of view (represented by contradictory requirements) that clash harden. The involved still believe that the existing tensions can be alleviated through talks. There are no fixed parties or camps yet.

*Stage 2 – Debate & Polemics*: The differing opinions are experienced as being in competition with each other, which may lead to harsh verbal confrontations. A black or white thinking begins to ensue, which leads to mutual denigration.

*Stage 3 – Actions rather than words*: The parties involved come to the conclusion that discussions won't solve the conflict. Whatever understanding for the other's point of view was left, it quickly fades altogether. Now aggressive posture is assumed. The conflict begins to worsen ever more quickly.

### Level II: Win-Lose

*Stage 4 – Image & Coalition*: The factions maneuver each other into negative roles and stereotypes. Rumors to damage the other's reputation are spread. At the same time, every group tries to gather sympathizers to strengthen its position. The conflict begins to be less important than prevailing over the enemy.

*Stage 5 – Loss of face*: The rival must be made to lose face, be it through humiliation or personal verbal attacks. Autostereotypes and heterostereotype are massively distorted in favor of the own group's position. Trust and an understanding of the other's point of view have completely disappeared. A compromise has become unthinkable.

*Stage 6 – Strategy of threats*: The adversaries begin using blackmail and threats as viable means to reach their end. These threats are then answered by counter-threats, leading to an increasing level of violence in the escalation. Because of this downward spiral, it becomes ever more difficult to control the situation.

### Level III: Lose-Lose

*Stage 7 – Limited destructive strikes*: The enemy is no longer perceived as a human being. Attacks lead to counterattacks. At this point in the escalation, it is viewed as a victory if the foe's losses surpass the faction's own.

*Stage 8 – Fragmentation*: The objective is now to destroy the base of power and livelihood of the rival. Yet, the readiness to sacrifice oneself is still surpassed by the will to survive.

*Stage 9 – Jointly into the abyss*: All out annihilation. The last remaining satisfaction is that the enemy won't survive either.

## 18.4.1 Recognizing conflicts

Before you can attempt to solve a conflict, you'll have to recognize it first – obviously. Luckily enough, it's not usually as drastic as in the examples detailed at the beginning of the chapter. You'll notice conflicts during your normal daily work – by means of methods that are common use:

Professionally sound

- Since requirements are elicited, they can also be compared. This becomes easier if requirements are classified or grouped according to different criteria. Modern requirements management tools provide excellent functions to sort and display requirements and thus help systematically compare requirements.
- A glossary (see chapter 8 "Documenting requirements) is also very helpful. When clearing the glossary terms with the stakeholders, naming conflicts will automatically become apparent.
- During projects, object oriented models (especially class diagrams, see chapter 8 "Documenting requirements"), simulation models and technical prototypes are often utilized. Based on these, it is relatively easy to detect gaps in the processes or other

discrepancies whilst trying to replay highly critical scenarios.

- If stakeholders are actively involved with quality assurance measures such as static inspections and reviews, the protocols of the same can make possible conflicts visible. Find more information on this subject in chapter 10 "Proofing techniques for requirements".

### 18.4.2 Containing a conflict

If conflicts have already broken out, it is too late to prevent them – but it is possible to create an atmosphere where they won't worsen. A professionally handled de-escalation will oftentimes be your only resort as a requirements engineer, when trying to save a project.

- Holding jours fixes provides the stakeholders with the opportunity to speak up on technical issues in good time. Workshops, for example for a joint compilation of use cases, help the involved carry out the most important technical discussion at the beginning of the project, thus establishing a sound foundation for the project.
- Stakeholder management is recommendable particularly for larger projects: After all stakeholders have been identified, they are openly approached and actively incorporated. For a closer look at how this is done, please take a look at chapter 4 "Goals, informants and their bonds".
- Conflicts may be prevented if you do what you're used to doing anyway as a requirements engineer: scrutinize the requirements concerning technical detail and unearth their essential parts (see chapter 5 "Eliciting requirements". There, you'll find an in-depth description of the technique). You should furthermore challenge such things as contracts, orders or requests. These represent solutions – paper-based solutions, developed hundreds of years ago in order to master such difficulties as consistency, spatial distribution, sustainability or processing capacity. Problems which might be solved differently today.

Prevention is better than cure!

### 18.4.3 Solving a conflict

Even if some conflicts may be prevented or contained – you can't dodge all of them. There are several different approaches to solving conflicts:

Ruble and Thomas [Ruble76] analyzed human patterns of behavior in the face of conflict (see figure 18.2) and concluded that they may be grouped into four categories. They pit the extent to which one own's needs are fulfilled against the wishes of others. The four categories are: coercion, avoidance, compliance, cooperation. Whetten and Cameron [Whetten84] adopted this approach and went on to develop the following two-dimensional model:

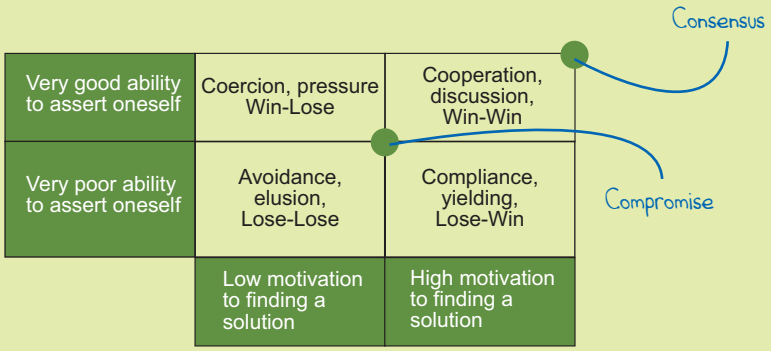



**Figure 18.2:** Human patterns of behavior when faced with conflict

Using this model, it is possible to explain the behavior of the persons involved in a conflict. It also helps reflect on one owns strategy.

*"Coercion, pressure"* stands for imposing one's wishes and goals on others despite their resistance. If conflicts are solved in this manner, it will lead to resentments between the parties involved, since you're compelling others to do as you wish. Such a constellation is called a win-lose-strategy (you win, the others lose). This approach to solving conflicts is sometimes necessary for very pressing or fundamental decisions.

*"Avoidance, elusion"* is the case when no wholehearted attempts to solving a conflict are made. The reasons for this can be a lack of self-confidence or fear of endangering interpersonal relationships for the sake of small problems. Using this strategy will leave every party involved frustrated since the problem remains unsolved. That's why it's categorized as a lose-lose-strategy with no winners. Even so, it may be a useful tactic when problems with a very low priority come up during a project with a really tight time frame.

*"Compliance, yielding"* is about letting go of your own convictions for the sake of the other parties involved in the conflict (a lose-win-strategy). Accordingly, it is only used when a lasting good relationship between the conflicting parties is more important than resolving the dispute.

A win-win-situation occurs if the factions in strife jointly develop a solution to the problem bearable for both parties, using *"cooperation, discussion"*. The discussion doesn't revolve around finding the guilty, but on solving the problem at hand. Evidently, this is the best way to solve a conflict.

- *Harmonization-methods* try to bring together both parties through communication and an exchange of opinions in order to facilitate a mutual solution;
- *Voting- and directive-methods* solve conflicts through a range of arbitration-techniques;
- *Analytical methods* break down the problem into manageable pieces or rationalize all aspects of it, so as to make finding a solution possible even in heated quarries or complex conflicts.

All the techniques described in the following paragraphs are apt to be employed during the early phases of a conflict (stages 1-3). But the more the conflict escalates, the harder it becomes to find an acceptable mediation-technique.

## 18.4.4 Harmonization–methods

Harmonization-methods are about finding the solution to a problem jointly. We differentiate between five different processes which will help settle conflicts: the agreement, the consensus, the compromise, configurations and divergence. Developing a joint solution to a conflict usually takes a long time. Therefore, the use of harmonization-methods is only economically reasonable when dealing with conflicts of interests or values, since other techniques will not solve these clashes lastingly.

Agreement = one of the predefined solutions is chosen.

The best solution to a conflictis an *agreement*. It is reached if the disagreeing parties – after having exchanged information, arguments and opinions – have come to a common understanding and acceptance of a certain solution. The involved must be prepared to reveal more than just their "honest opinion". They will need to express their interests, at times even their values. Everybody must be open to other points of view: respect of others is an absolute prerequisite for coming to an agreement.

Consensus = a solution is concocted.

The *consensus* imposes constraints similar to an agreement on the involved. When working out a consensus, the best bits and pieces of the solutions under discussion are thrown together to create a solution everyone will endorse. A consensus can also imply tossing all of the proposed solutions and working out something completely new. The downside of the consensus is the time and effort involved. Sometimes working out a consensus feels a bit like working at the UN.

In other words: nonsense also = small consensus

If you don't have the time or money to solve a conflict through an agreement or consensus, or if the quarrelling parties don't show enough respect for each other, you can try to come to a *compromise*. Compromises are those things politicians try to sell us under the guise of consensuses. A compromise is still about working out a joint solution. But it's less about respect and more about haggling. It's a give and take until a solution everyone can at least

If you'll give me this, I'll give you that..

live with has been found. The acceptance of this solution is usually not very enduring, but it's easier to come to a compromise than to a consensus.

If a joint solution cannot be reached, there's always the possibility of letting several solutions coexist. In the European Union, for example, a commission develops general decrees, which are transformed into national law differently in each member state. In a method more or less similar to this procedure, it is possible to create *configurations* in IT-systems. When working with configurations, a configuration for each stakeholder needs to specified, implemented and maintained. The time and effort involved with this method and the increased complexity of the IT-system is the price to pay for this kind of harmonization. On the other hand, configurations have the advantage that they may be used to solve conflicts which have reached level II – Win-Lose – on the conflict escalation model according to Glasl.

Configuration = many solutions are acceptable.

An extreme, but successful method is the one applied when electing a new pope in the Vatican: "Black smoke - white smoke".

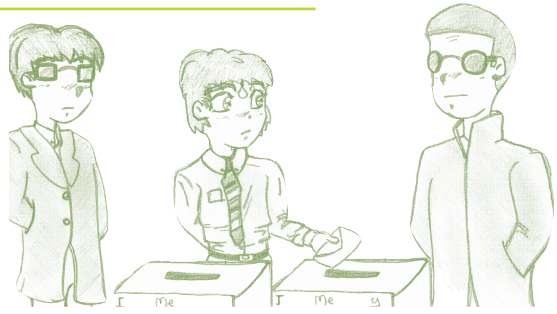
The quarrelling parties lock themselves in a hotel or conference room, and may go home only if and when the problem has been solved jointly. An independent host is vital!

There's one more type of harmonization method, which must not be omitted here: the non-harmonization. The disputing parties acknowledge that they won't be able to find a suitable solution and jointly decide to dismiss the undertaking entirely and not implement any functionality. Such a non-solution can – if no consensus can be reached – at times be the best solution.

Non-harmonization = agreement not to agree.

### 18.4.5 Voting- and Directive-Methods

If you don't have enough time or too many parties are involved or the conflict doesn't run deeper than technical details, it's less expensive to come to wrap everything up using voting- or directive-methods. Do remember that one party will always end up "losing". In the following, we'll detail three proven methods.



Smallest common boss

The easiest approach is finding a SCB and letting him decide the conflict. He's presented with a decision-paper, which details the different alternatives. There's also the possibility of letting all the parties hold short presentations of their solutions. If you do so, be sure to set and communicate a few rules:

Method: Pulling rank

- Every party may submit exactly one possible solution approach.
- This paper shouldn't be longer than ten pages and contain a few required items (costs involved with the solution, benefits to be had from the solution, …).

- Every party may hold an oral presentation of their solution based on the paper presented. This presentation can take no longer than twenty minutes, but may be extended to another 20 minutes if the SCB has questions.
- Who goes when is decided per chance.

The superior's command decides the matter.

After the presentations have been held, the decision-maker will give out a directive, which he will justify. The advantage of this method is that the decision is made by the entity which will later be held accountable. Depending on how high-ranking the superior is, preparations can be laborious and/or scheduling a meeting can be difficult. On the other hand, pulling rank is probably the only possibility of solving a conflict on level III of the conflict escalation model according to Glasl. If the factions have entrenched themselves so deeply that they cannot possibly come to any kind of solution, pulling rank can sometimes be the last viable resort.

As is the case with some divorces, entrenched conflicts can sometimes only be solved by an external arbiter.

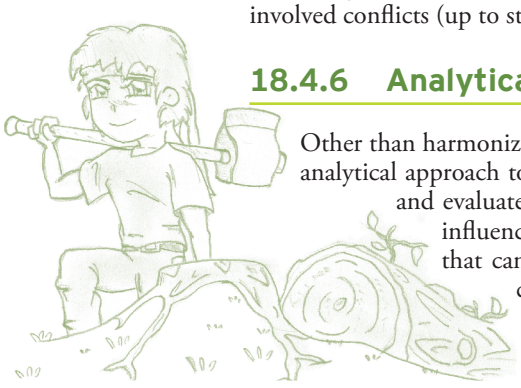
Voting is a bit more on the democratic side. As in parliament, different solutions are worked out, presented and then voted on in secret. This method is a simple way of coming to a solution when there's many people involved. Although the solution won't be favored by everyone, chances are high that everyone will come to accept it. Voting only makes sense, if solving the conflict still has a higher priority than damaging the opponent(s) (max. stage 4 according to Glasl) When voting, it's also important to delineate a few rules. And it should always be a secret vote.

Determine an orderly sequence and length of the presentations.

Largest common denominator

An alternative includes a secret vote every round.

If pulling rank isn't possible, perhaps because there's no SCB, and if voting doesn't make sense because there's too few people concerned, you can look for the LCD, also called the lesser evil. All the possible solutions are presented and the conflicting parties take turns dismissing the solution they currently deem worst of all choices. This goes on until only the lesser evil is left. To be able to carry through this method, you'll obviously need more solutions than conflicting parties – else there's no point to it. Furthermore, make sure that one party doesn't enter a batch of extremely similar solutions. If you handle the dismissing part of the method via a secret vote, this method will help you solve even relatively involved conflicts (up to stage 6 according to Glasl).



### 18.4.6 Analytical methods

Other than harmonization-methods and voting- and directive-methods, there's also the analytical approach to solving conflicts: analyze the conflict, divide it into little pieces and evaluate each piece separately. Such little sections may be things such as influencing factors or outcomes. Splitting a complex problem into parts that can be handled with more ease works best when a mathematically correct solution is important – the decisions made based on the analytical method are objective and transparent.

Moreover, it might be simpler to get many stakeholders to agree on smaller portions of the problem than on the entire thing at once. Then again, every single piece must be evaluated separately, which can involve a lot of effort. Applying a mathematical formula on the consolidated evaluations will then deliver a winner.

Analytical techniques can only be used to solve complexity problems, not if the group dynamics are askew.

To come to a decision via an analytical method, auxiliary techniques are usually necessary. They are used to clarify complex situations and constellations. The two most importantauxiliary techniques are consider-all-facts and plus-minus-interesting.

The *consider-all-facts technique* (CAF) [DeBono06] involves examining all the influencing factors of a solution. A list of influencing factors can be built using creativity techniques such as brainstorming. The influencing factors thusly identified are then graded on a scale from 1 (not important) through 6 (very important) on how relevant they are to the solution.

To determine whether the new library system should enable users to reserve books over the internet, a CAF table as seen in figure 18.3 could be assembled:

| Influencing factor | Evaluation of the influencing factor |
|---|---|
| Implementation of the new functionality increases costs during system development. | 2 |
| Acceptance amongst employees increases, since services which had to be offered by librarians will be available to the user through the internet. | 4 |
| Running costs will increase, since the new functionality must also undergo maintenance. | 2 |
| Acceptance amongst customers increases, since services which had to be offered by librarians will be available to the user through the internet. | 6 |

Rather unimportant factor

Very important factor

**Figure 18.3:** Example of a CAF-table

With the auxiliary technique *plus-minus-interesting* (PMI) [DeBono06] the consequences of each solution are evaluated positively (+) or negatively (-) with respect to each influencing factor. Consequences which cannot be categorized as neither positive nor negative, are classified as "interesting" (I). Sorting a consequence into this category means that the implications involved aren't fully understood yet and must be submitted to further scrutiny.

For the internet reservations example, the consequence analysis might be depicted as in figure 18.4:

The entire system will be more expensive (negative).

More information needed. The employees must be asked (interesting).

Internet users will value the service (positive).

| Influencing factor | Evaluation of the influencing factor |
|---|---|
| Implementation of the new functionality increases costs during system development. | – |
| Acceptance amongst employees increases, since services which had to be offered by librarians will be available to the user through the internet. | I |
| Running costs will increase, since the new functionality must also undergo maintenance. | – |
| Acceptance amongst customers increases, since services which had to be offered by librarians will be available to the user through the internet. | + |

**Figure 18.4:** Example of a PMI-estimation

If you combine the auxiliary techniques CAF and PMI, you get the analytical technique weighted *plus-minus-interesting* [DeBono06]. An analytical technique – in contrast to auxiliary techniques – will deliver a clear result, which can be mathematically reproduced. Positive and negative consequences (+ and -) are multiplied with their CAF-score and added, a process resulting in a sum above or below zero. Interesting consequences aren't thrown into the calculation – they must be resolved beforehand.

For our example, applying this technique will lead to a decision in favor of allowing users to reserve books over the internet, as shown in figure 18.5:

2 times minus

Interesting doesn't enter the calculation

6 times plus

Positive value = decision in favor of the functionality

| Influencing factor | CAF-score | PMI- evaluation |
|---|---|---|
| Implementation of the new functionality increases costs during system development. | 2 | - |
| Acceptance amongst employees increases, since services which had to be offered by librarians will be available to the user through the internet. | 4 | I |
| Running costs will increase, since the new functionality must also undergo maintenance. | 2 | - |
| Acceptance amongst customers increases, since services which had to be offered by librarians will be available to the user through the internet. | 6 | + |
| Score | 6 - 4 = 2 | |

**Figure 18.5:** An example of weigthed plus-minus-interesting

You may construct this table for a problem with multiple possible solutions. Just go through all the steps described above for every alternative. The solution with the highest score is the winner.

The results obtained via the CAF technique may also be used in another directive-method: the *decision matrix* [DeBono06]. Build a table where the columns contain the alternative solutions. List all the criteria necessary to make a decision in the rows. Evaluate every solution-criterion-combination and tag them with a score. The solution with the most points wins.

The decision matrix to go with our internet reservation problem (figure 18.6) was built using a scoring system ranging from positive (5 points) to negative (-5 points).

saves extra work

| Influencing factor | Reservierung über Internet | Reservierung nur persönlich/telefonisch |
|---|---|---|
| Implementation of the new functionality increases costs during system development. | -2 | 0 |
| Acceptance amongst employees increases, since services which had to be offered by librarians will be available to the user through the internet. | 5 | -3 |
| Running costs will increase, since the new functionality must also undergo maintenance. | -2 | 0 |
| Acceptance amongst customers increases, since services which had to be offered by librarians will be available to the user through the internet. | 3 | -1 |
| **Score** | 4 | -4 |

The discussion concerning the internet reservations has gotten everybodys hopes up.

This alternative wins

The customer nowadays expects more internet functionality.

**Figure 18.6:** Example of a decision matrix

Both, plus-minus-interesting as well as the decision matrix, aren't all that different from the methods used in publications with (pseudo objective) test reports designed to help buyers make the right choice. As in those publications, these analytical methods can be easily manipulated. Even if the most complex technique is used, participants will quickly discover how they can manipulate the final results. For that reason, it is absolutely imperative the quarrelling parties are present when the lists of influencing factors and consequences are built and when the entries are evaluated.

The auxiliary techniques we just illustrated may also be combined with harmonization-methods and voting- and directive-methods. They can be used to help the SCB come to a decision or to prepare the relevant facts for a voting.prepare the relevant facts for a voting.

Smallest common boss

Another analytical method, which helps compare several alternatives, is the *Analytical Hierarchy Process* (AHP). If you like things mathematical and aren't afraid of formulas, it just might be the thing for you. You can find more information on AHP under [WikiAHP].

Not apt for math-loathers

## 18.5 On the right moment to mediate

The choice of a point in time to begin using mediation techniques might not always be easy. Both a very early and a very late intervention have advantages and disadvantages.

**Advantages of early mediation**

- It becomes easier to plan your project, since the incalculable consequences of conflicts are minimized.
- You're better guarded from nasty surprises.

**Disadvantages of early mediation**

- Mediating during the early phases of a project is sometimes difficult, since some aspects are yet undefined and you sometimes still lack a basis for discussion.
- If you mediate conflicts at a very early point in time, good ideas might be lost, because debates and altercations can be a trigger for creativity.
- In consequence, your project might not have enough time to develop and end up drifting in the wrong direction.

**Advantages of late mediation**

- You can assume you're not preventing any good ideas from popping up, because creativity has had enough time to develop.
- The mediation measure you take, can be firmly grounded, because what used to be vague ideas now has grown real substance.
- Some conflicts which existed in the beginning of the project might just have solved themselves.

**Disadvantages of late mediation**

- If a conflict still exists during the later stages of a project, it'll be more costly to dissipate.
- The conflict might have already had negative influences on your project: perhaps the project advanced more slowly than planned, because the planned progress wasn't all that secure due to all the conflicts and because the advancement couldn't be guided into desired channels.
- Perhaps misinvestments were made and too many unnecessary artifacts created.
- One of the biggest risk involved with late mediation is the discouragement of your stakeholders, who might feel like they're completely adrift without any guidance, what with all the unsolved conflicts everywhere.

The correct point in time to mediate a certain conflict depends on many different factors and must be made from case to case while taking into account all chances and risks.

## 18.6 The process

Mediating a conflict means pacifying modern RE-wars. As a requirements engineer, you'll be standing in the mediator's position. That's why it's important you can recognize which kind of conflict the parties involved are carrying out. Is it a material conflict, a conflict of interests, of values? Or does the conflict stem from causes that require a professional therapist, not a requirements engineer? If so, don't even try to solve it. Some conflicts cannot be solved methodically.

Depending on how long your conflict has been going on and how involved it has become, you might not be able to use all the techniques at your disposal. Thus determine how deeply the hostile parties have entrenched themselves.

The escalation model according to Glasl will help you assess the situation.

The way the hostile stakeholders relate to each other can give you vital clues to their motivation or social competence.

Analyze these using the model of Ruble and Thomas.

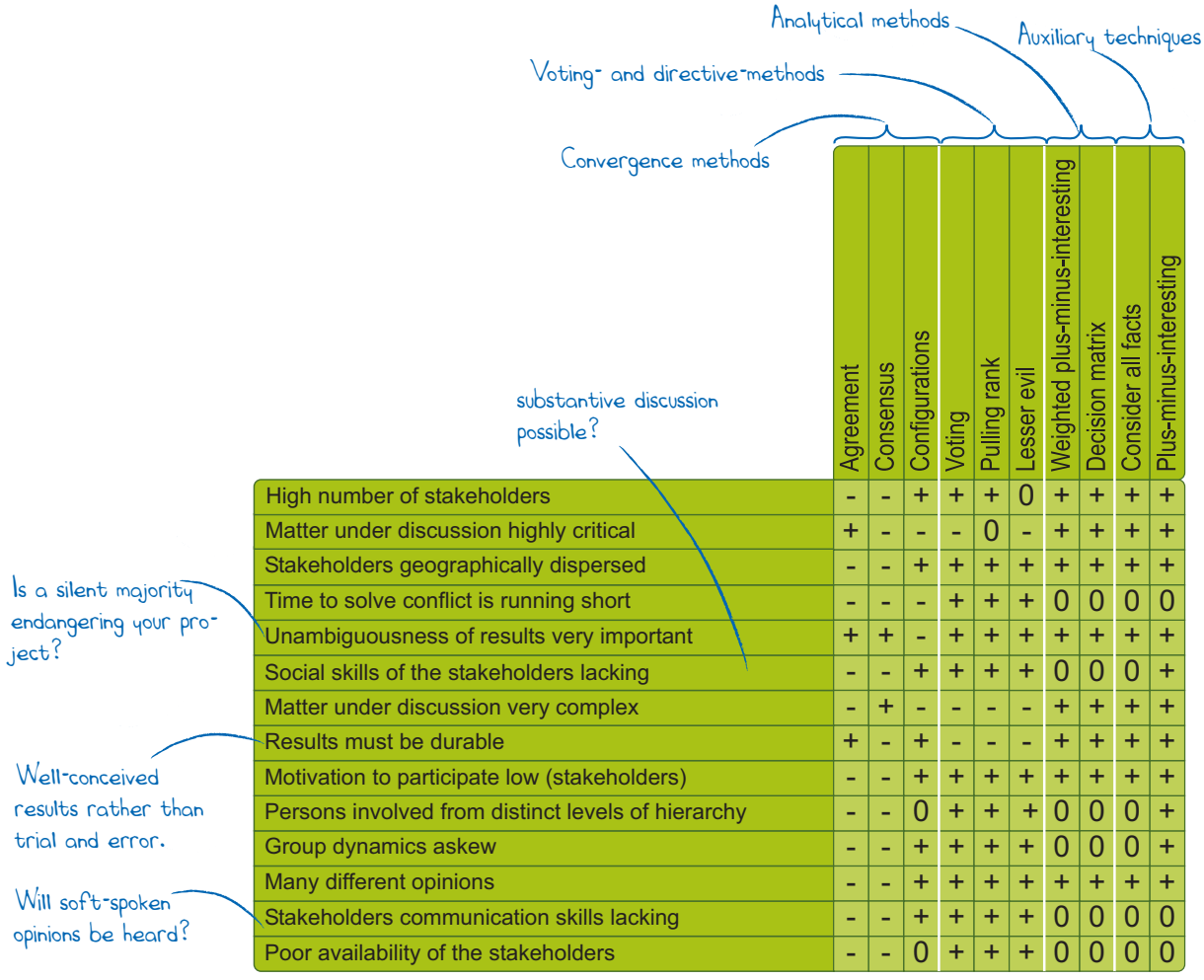
In addition, influencing factors need to be accounted for. We've listed these for you in the mediation matrix in section 18.7. There you'll also find the most promising techniques to use depending on the conditions and constraints you're faced with. Choose the technique most suited to the situation at hand. Document the reasons why you've chosen this technique and the results obtained, including all the alternatives, points of critique and justifications given. Because if your results aren't comprehensible, you might soon be facing exactly the same process you did the first time the conflict reared its ugly head.

## 18.7 The mediation matrix

To safeguard you from future disaster during projects, we've assembled a matrix (figure 18.7) which will help you choose the method best suited for you.

We've listed influencing factors, based on our joint project experience, which are relevant when choosing a mediation technique. We've assessed these influencing factors in combination with the mediation techniques presented in this chapter, in a system similar to plus-minus-interesting, marking them positive (+), neutral (0) or negative (-).

Prioritize your conflicts using the consider-all-facts technique and select those rows in the matrix containing the most important influencing factors. Then choose the column with the mediation techniques that has the least number of minus signs in it. Naturally, the most apt technique is one where there are only pluses in each row in question.




| | Agreement | Consensus | Configurations | Voting | Pulling rank | Lesser evil | Weighted plus-minus-interesting | Decision matrix | Consider all facts | Plus-minus-interesting |
|---|---|---|---|---|---|---|---|---|---|---|
| High number of stakeholders | - | - | + | + | + | 0 | + | + | + | + |
| Matter under discussion highly critical | + | - | - | - | 0 | - | + | + | + | + |
| Stakeholders geographically dispersed | - | - | + | + | + | + | + | + | + | + |
| Time to solve conflict is running short | - | - | - | + | + | + | 0 | 0 | 0 | 0 |
| Unambiguousness of results very important | + | + | - | + | + | + | + | + | + | + |
| Social skills of the stakeholders lacking | - | - | + | + | + | + | 0 | 0 | 0 | + |
| Matter under discussion very complex | - | + | - | - | - | - | + | + | + | + |
| Results must be durable | + | - | + | - | - | - | + | + | + | + |
| Motivation to participate low (stakeholders) | - | - | + | + | + | + | + | + | + | + |
| Persons involved from distinct levels of hierarchy | - | - | 0 | + | + | + | 0 | 0 | 0 | + |
| Group dynamics askew | - | - | + | + | + | + | 0 | 0 | 0 | + |
| Many different opinions | - | - | + | + | + | + | + | + | + | + |
| Stakeholders communication skills lacking | - | - | + | + | + | + | 0 | 0 | 0 | 0 |
| Poor availability of the stakeholders | - | - | 0 | + | + | + | 0 | 0 | 0 | 0 |

**Figure 18.7:** The mediation matrix

## 18.8 Full speed ahead!

### Mediation techniques checklist

- [ ] I recognize **indicators of conflict** as such.
- [ ] I know the different **causes** of conflict.
- [ ] I know which conflicts should better be handled by **team-coaches** or **therapists**.
- [ ] I know different **strategies to solving a conflict**.
- [ ] I am aware of the **advantages and disadvantages of choosing different points in time** when mediating.
- [ ] I have analyzed the **conflicts** and the **parties involved** and their relationship to each other.
- [ ] I know which **techniques** are best suited to **solve** which conflicts.