

Structural analysis of negotiating situations

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Summary

Negotiation situations always involve more organizations, groups, and individuals than just those partners who ultimately confront each other in the negotiating process. In technical sales, a structural analysis of the negotiating situation will help in gaining clarity regarding the number and objectives of these visible and invisible participants. The relationships between the various individuals can be easily visualised. In addition, this method enables existing and potential conflicts to be identified and analysed in terms of their causes or sources. It is therefore possible to prepare for these conflicts and to deal with them in negotiations through dedicated conflict management as soon as they arise. The aim of the negotiations, in other words the attainment of an agreement of the greatest benefit to both negotiating partners, is made possible with little conflict through the targeted application of a structural analysis of the negotiating situation.

1 Introduction and objective

Negotiations are necessary if at least two individuals, groups, organizations or social systems fail to agree on a matter under debate. This is also referred to as a conflict². In the case of technical sales, matters for negotiation are usually subject to differing views on prices, delivery times or product specifications. In most cases, sales engineers talk with development engineers, but also with buyers. In the negotiation process, both parties seek to maximize their benefits. It may well be in the interest of both sides also to increase the benefits to the other side as well. This supports sustainable business relationships (Schurr 1987). Furthermore, sales talks increasingly take place in groups (Crosby et al. 1990; Wotruba 1991; Weitz und Bradford 1999; DeVecchio et al. 2004; Hunter und Perreault, Jr. 2007). In this case, several individuals from both companies meet with different aims. If these aims do not coincide, further subsidiary negotiations must be conducted within the central negotiation. Teams from the customer side and from the supplier that are part of the buying centre come together in talks. Responsibility for decisions is shared between several decision-makers on both sides. Not all decision-makers have a place at the negotiating table. Competence structures within companies do not allow everyone to be directly involved. As part of a business plan, companies are examined with regard to their organization. This reflects the existing competencies and the associated persons within limits. However, this is not sufficient to identify all decision-makers. "Eminences grises" who have a key influence on decisions are not easy to identify in organisational charts. Finally, third parties play a role in the decision-making process. Examples of such third parties are subcontractors of both companies, customers of the customer, competitors and many more. When preparing for negotiations, all influential stakeholders should be listed. These are two main aspects that significantly influence the course of a negotiation: the directly or indirectly involved parties and the conflicts that already exist or that may occur between the parties. The relationship structure may be incomplete and incomprehensible without appropriate analysis. A systematic approach is needed: how can negotiations be analysed in advance, so that all (potential) conflicts are identified in order to take preventive action? This publication proposes a method for analysing and presenting negotiating situations.

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² A conflict occurs when at least two individuals disagree on a specific matter.

2 Solution

2.1 Approach

In order to show the links between the above groups and persons, two theories are to be applied and combined. One is described by conflict management, the other by system theory. System theory models are applied to the negotiating situation here. In order for structures available in system theory, from the system to the relevant elements, to be transferable to negotiations, the terms present in conflict theory must be compared with those of system theory. The conflict management models indicate the possible nature of the participants (the social units) in a negotiation: from single individuals to society. These models can also be used to classify the various conflict types. The conflict can be resolved through the use of appropriate strategies and tactics (Tries 2008).

First, the system theory of technology will be considered in this publication with regard to the structural analysis of systems. In a second step, the terms used will then be applied to the social units of a negotiation. Finally the structural approach to the negotiation situation analysis will be explained.

2.2 The structural approach to the system theory of technology

The general system theory provides methods for analytically describing the links between people, parts of the environment and the environment itself. Taking general system theory (Bertalanffy 1955; Bertalanffy und Sutherland 1973) as a starting point, many authors have derived the system theory from the technique. These include, in particular, Küpfmüller (Küpfmüller 1974) and Ropohl (Ropohl 1978). Four approaches have been developed in (Schneider-Störmann 2015) that ultimately lead into the system theory for technical distribution. One of these approaches, namely, the structural one, is particularly suitable for representing the negotiating situation. In order to understand this, the terms used are defined below.

In system theory, the term "system" is generally understood to mean a unit to which input and output variables, as well as a status, can be assigned. "Subsystems" are part of a system and also fulfil the requirements for a system. Likewise, "groups" and "elements" are the units subordinate to a system or subsystem. They have no input and output variables and do not fulfil any (sub)tasks. However, they are necessary in order to form the system. After all, the system, along with all its subsystems, groups and elements, is integrated into the "environment". In order to describe systems, the following four representations are used: functional, hierarchical, structural and finally the signal-theoretical (Schneider-Störmann 2015). To illustrate the differences, let us consider a simple technical product: A flash light which is battery operated and which has an LED as a light source.

The functional description describes the input and output (electrical energy, optical energy) of the system under consideration, as well as its status (switched on, switched off, etc.). There is no further exploration of the individual components of the system. The hierarchical description contains an account of the flash light as a system in its environment (e.g. outdoors at night). The subsystems, in this case the LED and possibly the optical unit consisting of lenses and mirrors, have in turn an input and output variable as well as a status. For the LED, these would be the electrical energy as the input, the optical energy as the output and the operating state. Components such as switches or sealing rings are monolithic elements or consist of groups assembled from elements. The signal-theory description makes it possible, for example, to describe the conversion of electrical energy into optical energy by means of the characteristic curve of the LED. The entire chain from the source (battery) to the sink (illuminated object) corresponds to the signal theory description. It contains only subsystems.

The representation in the structural diagram is similar. In the literature, this representation is often referred to as a "block diagram". It differs from the above-mentioned signal-theory model in that it may also contain groups. In addition, by means of the signal-theory concept, a calculation rule can be used to determine how the input signal becomes the output signal or the output variable.

The structural concept can easily represent complex systems by combining individual subsystems into new, higher-level subsystems. Conversely, by breaking down the subsystems into their component parts, which in turn are subsystems, a system can be shown at any depth down to the level of the smallest subsystems.

The special feature of this concept is that relationships between the participating subsystems are clearly shown. These links can also be described in this context, as well as how the entire system works. In technology, each subsystem involved is described by a function. These may be transfer functions, characteristic curves, or properties. The system under consideration is located in its environment and interacts with it. Thanks to the mathematical description, output variables can be predicted with changing input variables. The better the subsystems and the more completely their interconnections are described, the more accurate a prediction can be made.

In addition, the impact on the output variables of modifications or the replacement of individual subsystems by others can be predicted (within limits).

2.3 Application of the system theory behind technology to the negotiating situation.

In order to apply the approaches from the system theory behind technology to negotiating situations, the system is initially defined as an "action system". Stempfle describes systems as action systems if they have states, feature input and output functions, the transition from one variables to another can be described, and the action system consists of subsystems, groups and/or elements, as well as relations between parts of the action system. (Stempfle 2008, pp. 40–41) Action systems are open systems that are related to their environment. (Stempfle 2008, pp. 41) In the system theory proposed by Bertalanffy, living organisms are open systems, always interacting with the environment of other social beings. (Bertalanffy 1955, pp. 3)

Building on this, negotiations can be viewed in a similar manner. Hence, the terms system, subsystem, group and element must be redefined accordingly. This can be seen in Table 1 below.

Breakdown	Definition of the system theory behind technology	Definition of the system theory behind technical sales
Environment	The environment surrounding the system under consideration with all factors affecting the system. Example: Nature with weather conditions for an outdoor flash light	In this case: Society The environment surrounding the system under consideration with all factors affecting the system. Examples: Values, laws, standards, etc.
System	The technical system considered and sold. The system is characterised by input, output and status.	All companies, organisations, groups and persons participating in the negotiating process. The influence of the systems on the negotiation can be represented.
Subsystem	Subsystems can be described as a system with the functional concept.	There are several types of subsystems. Organisation Organisations are closed units consisting of one or more of the following subsystem types. Example: Company, department Group (community) A combination of several, non-organised individuals, which combines a common interest (the same agreement or the same objective). Example: Stakeholders in project management

		Individual Person who acts on an individual basis Example: Sales rep., buyer
Group	Groups consist of several elements that are linked together. No input or output!	This is not applied to the system theory behind technical sales, since there is no input, output or state.
Element	Elements are integral components. No input or output!	

Table 1 Definitions, names and examples of structures in technical sales and in the system theory behind technology. (Schneider-Störmann 2015)

The difference between the two models is that in the system theory behind technical sales, organisations, groups, and individuals are among the subsystems because they have input and output variables. This results from the aforementioned consideration that only action systems interact with their surroundings (environment). In addition, these groups or organisations are involved in negotiations and influence their course and outcome. In the system theory behind technology, groups and elements are, by definition, non-communicative units. The term "group" is used in both models. As only negotiation systems that form part of the system theory behind technical sales are considered below, it should be noted that, in this context, "groups" are defined as "subsystems". This publication uses the term "community" to avoid confusion.

Once the terms have been defined here, the method behind the structural approach will be presented.

2.4 Method behind the structural approach for the preparation of negotiations

While the "buying centre" considers the individuals who have decision-making powers, the method presented here goes far beyond this. It also includes communities (G), organisations and society (S), provided these have a direct or indirect influence on the negotiation but do not determine their outcome. Communicative relations include sources of conflict that can occur in addition to the target conflict associated with the negotiation. In order to be able to carry out an analysis of the negotiating situation, it is necessary to begin by listing the individuals and organisations that are obviously involved. These include, for example, the person as an individual (I) and the direct partner in talks as other individuals. In addition, there are the companies from both sides as organisations (O). If the technical specifications take the form of a specification, the organisation of the customer's development department of the customer should generally be reported, as well as the relevant supplier department. If standards, directives, laws, etc. are to be taken into account when compiling the requirement specification, the society (S) or organisation must be indicated. Known competitors (O) should also be named. Typically, sales engineers have their technical skills and possibly their price expectations. This facilitates the preparation of appropriate strategies and tactics for negotiation.

If all influencers and (potential) sources of conflict are known, the structural analysis can be implemented in a graph.

3 Example

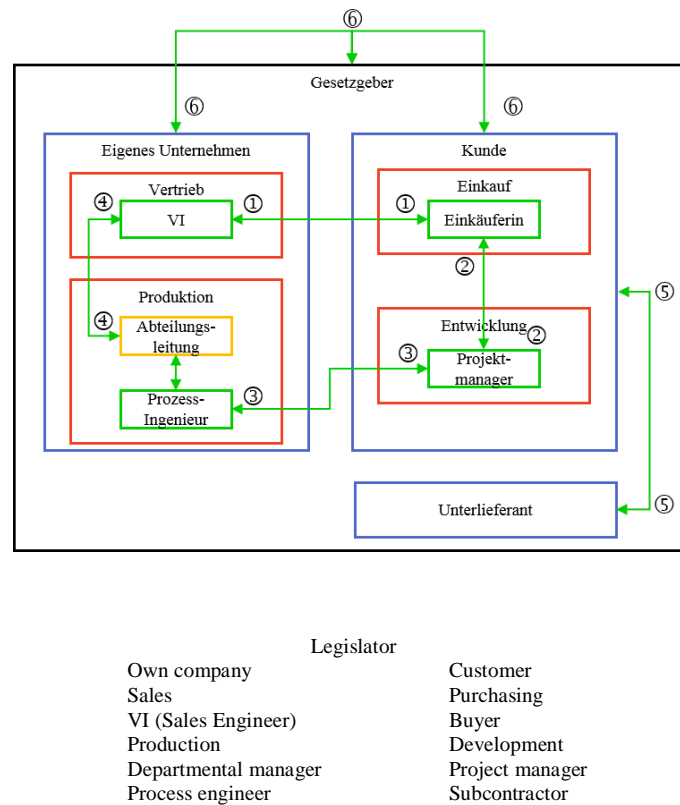


Figure 1 Structural representation of a negotiating situation

If all parties directly or indirectly involved in the negotiations are known, a "map" of the situation can be created. Such a possible representation can be seen in Figure 1. The smallest discernible units are the individuals: Sales Engineer (VI), Purchaser, Process Engineer and Project Manager. Communities (groups) are not involved in this example. In the system shown in Table 1, the "Sales", "Purchasing", "Production" and "Development" departments are listed as organisations, which are, in turn, included within the organisations "own company" and the "customer's company". Another organisation without further differentiation is the customer's "subcontractor". Finally, society influences the transaction. Using the numbered relationships ① to ⑥ the conflicts or influencing factors can now be listed.

① There is a relationship between the two individuals, "VI" and "Buyer". These may include negotiating objectives which may take the form of specifications, delivery conditions, quantity frameworks, prices or other subjects for negotiation.

② Let us assume a specification sheet has been exchanged. This will be handed over to the VI (I) by the development department of the customer (O) through the buyer. If deviations occur in the requirement specification, they will be transferred to Development via the "Purchasing" channel (O) via the "Purchasing" channel. It is already evident that possible communication errors can occur here, since the contents are not exchanged directly between the customer and supplier development departments. Hence, the request to open the communications channels between the two departments can be made to the purchaser by VI.

③ If these relationships already exist, this should be indicated in the graphic by a corresponding double arrow. In many cases, project managers from both companies or, as shown above, also the process engineer and project manager from both negotiating companies know one another. Even if formal

communications involve the purchasing / sales department, this relationship should be listed. Sometimes their insights can be very useful in participating in the development of a product at an early stage.

④ A relationship is also shown between Production (I) and VI (I). In the interests of end-to-end business processes, production should also be involved in the discussions at an early stage (Ulrich und Probst 1988). This has many advantages, such as the early recognition of cost drivers or long-running factors in the production process. This enables sales engineers to communicate more openly and to build greater trust with the customer.

⑤ Subcontractors (O) are possible influencers. This can also be the case for subcontractors of the customer. Let's assume that the negotiated technical system becomes part of a customer's overall system. If this is linked on the customer side to a subsystem manufactured by another supplier, the definition of this interface of both subsystems will influence the overall specification. Because the subcontractor does not participate in the concrete discussions relating to the upcoming negotiations, this is a "third party conflict" or "third party influence".

⑥ In the above figure, society (S) is the largest social entity listed. Society may impose specific legal conditions in the form of laws that influence the product specification or, in the case of medical products, the product approval. Following a change to the Medical Products Act (MPG), manufacturers and their subcontractors changed the guidelines for safety officers for medical products. This means that certain subcontractors are now obliged to employ a safety officer in the company (Bundesministerium der Justiz 24.07.2010). Thus, accepting an order in this environment can lead to unexpected costs. Product managers and VIs are required at this point to prepare templates on the basis of which the company decides whether or not the contractor is to be hired.

Once all relationships are fully listed, the transaction can be prepared in a suitable way in a further step. The advantage of the above presentation for the participants is that it makes it possible to visualise the complexity of the negotiation in a systematic manner. Possible conflicts and objections can be proactively managed and prepared in this way. The clarity in relation to the structure also gives the VIs greater potential power in negotiations as they can control the talks.

4 Results and summary

The method presented for analysing negotiating situations is a further development from the structural analysis of technical systems. Applying the system shows that only communicative units need to be listed. This accords with familiar models from Bertalanffy and Stempfle. In his presentation, the diagram resembles an engineering block diagram. Since, however, only action systems are of relevance, this is also a form of the signal-theory communication chain (Schneider-Störmann 2015).

The structural diagram is a particularly way of making more complex negotiating situations transparent. Thus, conflicts or third party influences are easier to identify and will not be neglected in the negotiations. VIs should use such analyses to better prepare for negotiations, thus enabling them to be more successful.

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