

# Conflict in Business Relations.

## The core of conflict in oil industrial development projects.

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### Abstract

*Interaction between buyer and seller has been studied a long time within marketing, with different research streams and traditions being applied. Some of these studies focus on conflict motivated from a genuine interest for conflict per se, others as a way to understanding the interaction or business relation. Following the latter I believe that the core of conflict is found in two interrelated sets of governance mechanisms embracing events of conflict: Formal and informal governance mechanisms. In the former weaknesses are found in terms of i.e. lack of predetermined prescriptions for behavior caused by planning deficits. In the latter weaknesses can be expressed through lack of informal judgement and improvisation caused by low trust and low commitment beyond rules and contract. My study explores these two governance mechanisms in relation to selected conflict events from the oil industry. In this study I extracted 266 conflict events from 5 dyads which were then assessed by both the buyer and seller side (counting 738 observations) to place the events in relation to the two categories of causes. I found that the informal relational mechanisms are significantly more important than formal plans and contractual specifications. One implication of this is that resources spent on planning should be balanced, and possibly redirected towards skills in handling situations than cannot be planned. This is particularly relevant when facing complex managerial and technological challenges common in development projects characterized by a high degree of uncertainty.*

### Introduction

Early morning on August 23<sup>rd</sup> 1991 the national earthquake center in Bergen recorded a quake that measured 3 on the Richter scale. However, this was not an earthquake in the normal sense, but the 250000 ton "Sleipner A GBS" concrete platform that hit the seabed of the Stavanger basin during completion tests. Miscalculation caused crackdown in vital structures in the concrete pillars. Would the Norwegian oil industry lose reputation and market shares? Future business was in danger. However, even before the investigation of the accident was completed, a new copy of the Sleipner platform was launched following a remarkably smooth building process, where the business atmosphere between project owner and main contractor was radically different from before. The building process, characterized by strong cooperation and mutual trust between the actors involved, led to an earlier completion date, lower cost and lower level of conflict than expected and planned. What happened to the business relations between the owner and the main contractor? A common fear of losing international reputation? Increased mutual dependency? Something happened to the business-to-business interaction after this accident.

In this paper I want to suggest an answer to these questions by addressing the governance mechanisms associated with situations where interaction between buying and selling parties is put under stress. As in other parts of life, relationships are most interesting when put under stress and pressure, and probably easier to study as well. Business relationships that exist between the oil companies that control large fabrication projects and their main contractors are used as empirical fundament. In revealing and studying events of conflict in oil projects the aim is to create new managerial knowledge to improve the competitive strength of oil companies and suppliers.

## Positioning in relation to other studies

Compared with past conflict studies, the empirical material is more complex, with a blurred picture of the actors involved. The product is far more advanced and difficult to manage. Time constraints and a high technological level are new elements. The study thus follows an established research stream of dyadic conflict research in business-to-business interaction. I also study micro processes ("conflict events") and apply these to draw conclusions on business relationship characteristics. This is not very common in contemporary studies, they tend to focus on a more aggregated level. A second position is in relation to a managerial perspective, since no study has specifically focused on conflict in oil related fabrication projects before to my knowledge.

## Case descriptions

Three cases are applied in this study. Two are complex projects limited to the fabrication phase of a new type of production vessel and a more traditional oil-rig. The third is not a project, but the base operations in an oil company established to supply goods and services to offshore installations. In the following these will be described.

### Norne fabrication project

The field was discovered by Statoil and confirmed in December 1991 as the biggest oil find to be made in a number of years. It is located about 200 kilometers from the Norwegian coast. Conceptual engineering started late 1993 and the completed vessel was finished and in full production at the Norne field late 1997. The field has been developed by means of a production and storage ship tied to subsea templates. The physical entity consists of a hull similar to an ordinary ship and a process unit placed on the deck of the vessel. This functions as an alternative to traditional oil-rigs. Flexible risers carry the well stream to the vessel. Risers, control cables and mooring lines are attached to a central turret allowing the ship to turn so that it is always bows-on to wind and weather. Shuttle tankers can moor to the stern of the ship to load oil. Norne represents the new generation of Norwegian offshore developments. Statoil has succeeded in reducing costs sharply compared with earlier fields, and the project ranks as one of the most cost-effective off Norway. Investment has been reduced by roughly 30 per cent compared to comparable projects, because Statoil, its license partners and Norwegian industrial companies have adopted innovative approaches to developing the field.

Two types of cultural differences are encountered. Firstly, differences between the Norwegian and Asian business culture, secondly, differences between offshore production quality standards applied for traditional oil installations, and the shipbuilding quality standards applied in the hull fabrication prototype. The production vessel was a new concept compared with the more traditional, more expensive and less flexible oil-rig. From this new concept technological innovations materialized. In addition, there are integrated teams embracing both seller and buyer representatives in a unitary organization. These were introduced to speed up decisions and enhance informal cooperation. The Norne case is of particular interest in this study because of

two aspects. Firstly, a new technology and design are introduced. Production vessels are not new, but both the size of the vessel and the topside unit have entailed a large number of technical- and conceptual challenges not experienced in previous projects. Secondly, a new managerial concept was introduced through integrated teams, which blurred the roles of buyer and seller.

#### Siri fabrication project

The Siri field is a marginal field that required short project planning and fabrication time, with small follow-up costs in order to be profitable. The Siri field was awarded and declared a profitable oil field in 1995. It is located off the coast of Esbjerg in Denmark and is expected to produce oil for six to eight years. The physical entity that was built was a jack-up platform connected onto a seabed storage tank, pipelines and a loading buoy, a so-called integrated PSQ-platform, (Production/Storage/Quarters). The platform was based on a new concept within contemporary design solutions. The short time frame in project execution plan represented considerable challenges as regards technical solutions, materials, availability of equipment, productivity and financial control. The Siri case is of particular interest in this study because it is less complex than Norne. The field is very small, with time and cost limitations being more important than the innovative aspect, which acknowledges the strong focus on simplicity in project management and in technical solutions.

#### Base operations

The seller is Aker Base A/S, an Aker group subsidiary. The buyer is Statoil Field Support division, which has the responsibility for supplying all Statoil operated offshore installations in the Norwegian sector of the North Sea. Aker Base is the supplier of all base services to Statoil from bases in Stavanger, Bergen, and Kristiansund. The service includes loading/unloading of supply vessels and internal transportation. The tasks are characterized as high frequent, relatively simple and easy to plan. Due to political concessions, the seller is in a monopolistic situation. The physical facilities are operated and owned by the seller. The buyer represents approximately 70% of the seller's revenue in this market segment. The buyer defines seller as a supplier, cooperation partner and a competitor. The seller has occasionally tried to convince buyer to outsource a larger share of the total supply chain than only base operations. Combined with the monopoly this puts a considerable pressure on the pattern of interaction. The interaction is characterized by duration with expectations for a long-lasting future relationship, in addition to strong activity interdependencies. The relationship is characterized as formal with a strong emphasis on contract and incentives. The seller has made significant investments with high asset specificity in terms of facilities and production equipment. The buyer on the other hand has no physical resources, nor competence to carry out the physical supply activities.

#### Challenges

The context represents at least three major challenges for the study. Firstly, there is a theoretical challenge in terms of the institutional form of a project. A project is a hybrid form of governance (Borys and Jemison 1989), neither governed by the market, nor the internal hierarchy. This implies that it is difficult to determine whether the core of conflict is in the internal organization or in the market. Secondly, the context is characterized by a high degree of technological complexity consisting of a large number of interdependencies. This implies that conflict occurring in i.e. activity structures cannot easily be isolated for analysis without losing crucial parts of the picture. Finally, there is a managerial complexity, with a large number of actors, including active third parties. This implies that conflict easily will be interpreted in terms of an open system with more or less visible interfaces between the actors. Taken together these three challenges impact on the parties' perception of conflict and the way conflict events are approached.

Summing up, the two complex projects can stand as suitable representatives for contemporary projects in the North Sea oil industry. At the same time they reflect different technological and managerial challenges. This furthermore characterizes different aspects of the business-to-

business interaction in which the conflict emerges. Finally, the non-project in terms of a base operation case serves as a fruitful contrast to the projects. Perhaps the difference between a complex project and a traditional continuous organization is smaller than anticipated.

## Defining conflict

Rex (1981) claims that the core issue of conflict is the situation in which A fully understands what is expected from him, but rejects the line of conduct that B requires. Furthermore A is prepared to pursue both his own goals and the line of action by which he proposes to achieve them. A shorter definition is suggested by Deutsch (1973): "A conflict exists whenever incompatible activities occur". Pondy (1967) further adds three attributes in understanding inter-organizational conflict. Firstly that each conflict relationship is made up of a sequence of interlocking conflict episodes, secondly that conflict is intimately tied up with the stability of organization, and thirdly that conflict may both be functional and dysfunctional. Furthermore, there is an interplay between conflict and collaboration (Gadde and Håkansson 1993). Even though organizational stability is desirable to obtain smooth daily operations, stability should be disturbed by activities that create openings to identify new combinations or resources and/or activities. These initial statements about conflict constitute an adequate starting point.

In the study the concept of conflict is operationalized and narrowed down to micro processes in terms of events embracing ingredients with a potential for growing into more comprehensive and manifest conflict situations. We thus end up with the term "conflict event" comprising all types of events indicating disagreement between the parties.

## The core of conflict rests in the governance mechanisms

Prior empirical studies of the sources to conflict in business-to-business interaction are commonly studied based upon the power construct where one assumes a connection between power and conflict (Gaski 1984). Power as both a dependent and independent variable in relation to conflict thus seems to be commonly acknowledged. It appears that the nature and sources of the power possessed by a channel entity may affect the presence and level of conflict" (Gaski 1984). In the following I will propose a complementary construct to the power construct, labeled formal and informal governance mechanisms, which will form the basis for a search for the fundamental sources to conflict.

The governance mechanism construct is applied to several purposes within interorganizational phenomena. One area is related to ways of organizing transactions most efficiently on an institutional level. Three governance mechanisms are applied: market, hybrid, or hierarchical governance (i.e. Williamson (1985)). The construct can also be applied in a discussion of how to manage existing business relations within any institutional form. The importance and combinations of incentives, authority and trust as governance mechanisms are among the most relevant governance mechanisms (i.e. Williamson (1985), Haugland (1996)) in this context. In this study I will apply the governance mechanism construct in terms of understanding the business relations in a project.

According to (Williamson 1995:11) "governance is,.....an exercise in assessing the efficacy of alternative modes (means) of organization. The object is to effect good order through the mechanisms of governance". One can ask whether "good order" is a main goal for business relationship. "Good order" can reduce disturbance and improve efficiency, but can on the other hand prevent the functional side of conflict and reduce innovation. Hence I argue that the purpose of a governance mechanisms should be extended to include "value creation" to grasp the crucial importance of functional disturbance. Based on this assumption I suggest the

following: Governance mechanisms are institutional tools, values and ideals applied to effect good order and value creation in a business relationship.

Events of conflict can be related to the classical three forms of governance mechanisms; incentives, authority and trust. In a complex project it might, however, be difficult to fully distinguish between incentives and authority, since both are subject to predetermined written patterns of behavior between the parties. Incentives are used in combination with contract as a tool to motivate mutual goal achievement and limit the number and intensity of interorganizational conflict. The authority mechanism is applied both within the company boundaries and between organizations to centralize and formalize decisions in order to reduce the emergence and consequences of conflict. These can be concretized in terms of contractual articles, detailed drawings, procedures or routines. The third governance mechanism, trust, is quite different in terms of formalization and basically embraces important elements of the industrial network approach. Trust mechanism embraces personal connections, shared values and norms that develop mutual understanding and relational identity. Norms referred to as solidarity, mutuality, flexibility and conflict resolution (Macneil 1980) added to personal relations are the main ingredients in building trust (Haugland 1996).

For the further study I embrace both authority and incentive mechanisms into a construct labeled "formal governance mechanism". The trust based mechanism I label "informal governance mechanism". There are at least two important reasons why governance mechanism characteristics can shed light on the phenomenon of conflict. Firstly, because they tell us about the point of origin of the conflict. If conflict in a specific dyad is primarily associated with one of the two governance mechanisms, one can assume that weaknesses in this type of governance mechanism are the main sources of the emergence of conflict. In order to reduce the frequency and/or intensity of conflict the mechanisms should be strengthened.

An event of conflict associated with strong formal mechanisms can stem from lack of contractual details, unclear formal procedures or unawareness of predefined patterns of behavior. The complexity in the atmosphere and environment is i.e. not fully reflected in the formal arrangements made prior to project start-up. Conflict events that are primarily connected with formal mechanisms are likely to be perceived as problems that should be avoided. They reflect a deficiency of planning, which in the next turn is enhanced through even more detailed routines and contracts, or perhaps the number of lawyers involved. All these problems can be seen as examples of a structural misfit and the conflict is a result of this misfit. It could have been avoided through better planning. The formal mechanisms reflect a traditional view, where prescriptive and predefined patterns of behavior are assumed to reduce conflict. In other words conflict is a problem which should be avoided through formal arrangements.

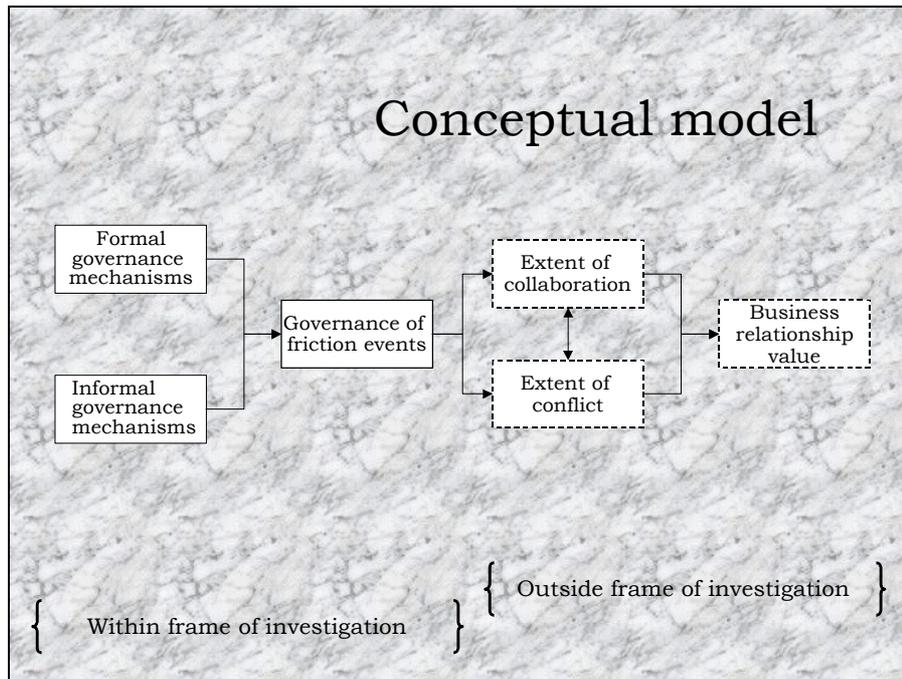
Informal mechanisms are related to the social dimension. It can indicate a lack of social and cultural awareness caused by for example lack of prior experience and trust, but it can also indicate that new opportunities of combining resources and/or activities have been found. Conflict events associated with informal mechanisms are likely to be solved by improving social interaction and the parties' mutual understanding of each other's. This further opens for more flexibility and exploration of new opportunities. Through the informal mechanisms we recognize conflict as a much more functional phenomenon. Conflict is assumed to be a natural part of a relationship and intertwined with how people solve problems through relating in an informal way.

In relating governance mechanisms to conflict events the following question emerges: When informants from the buyer (representing the project owners) and seller side assess events of conflict, to what extent do they associate conflict with formal versus informal governance mechanisms? The answer to this question will indicate whether conflict primarily is caused by lack of planning, or caused by weaknesses in handling the unforeseen.

## Conceptual model

Conflict events identified in the dyads are allocated to the two sets of governance mechanisms based on perceptual judgement by buyer and seller informants. The mode of governance connected to the conflict events is the basis of the dependent variables of the study. This leads us to the following conceptual model:

Figure 1. Conceptual model



Knowledge obtained from the study of the characteristics of conflict event in relation to governance mechanisms gives new opportunities for understanding the interplay between conflict and collaboration. According to Gadde and Håkansson (1993) a high degree of collaboration and conflict is one condition for a well-developed business relationship. For example if the seller and buyer side have quite different perceptions of whether the events are caused by deficits in formal governance mechanisms or not we may assume that the extent of collaboration is low compared with the extent of conflict. This has consequences for the value of the existing business relationship. An empirical example is found in the ongoing legal battle between Esso/Exxon versus the Smedvig group regarding a production vessel, in which a corporate culture with strong formal and legal focus is challenging a more informal way of handling business. In this case the business relationship is broken down, possibly as a result of an uneven mix of conflict and collaboration.

The conceptual model is based on one important assumption related to the two main constructs, the conflict event and the governance mechanisms. These are assumed as being perceptual in the sense that the buyer and seller sides have different imaginations or pictures of the conflict events and the governance mechanisms. Differences in past experience and history thus have an effect on how these events are perceived. Hence the two constructs are not considered as a neutral construct as claimed by the pure positivist, but rather as social constructs as claimed by the realist school of thought. This implies that whereas i.e. the selling party may perceive one event as a minor isolated incident far away from a conflict, the buyer side may consider the

"same" event as a highly inflamed conflict issue, simply because their past experiences are different.

## Governance of conflict events

The question is whether the governance mechanism construct is a theoretical construct requiring creation of more empirical, observable indicators, or whether the construct can be applied directly. Governance mechanisms are an abstract construct grounded in the theoretical world. The construct therefore has weaknesses, which could be improved by measuring sets of indicators related to the overall importance of a conflict event. These indicators, forming the construct, are set forth in table 1. Based on the empirical indicators the question is whether the conflict events should be measured in terms of the indicators of the two governance mechanisms, or directly.

There are at least two major arguments supporting indicators in terms of reflective measurements. Firstly, multiple indicators of the construct open for a multi-trait matrix method or factor analysis for testing construct validity quantitatively. Secondly, the construct is not self-explanatory to the informants, which means that some explanations of content prior to assessment of the events are required. On the other hand, three arguments favor a direct use of the construct in terms of formative operationalization. A formative operationalization of a construct is used when the construct is viewed as an explanatory combination of its indicators (Heide 1987). The construct is thus defined as a total score across a number of items, where each item represents a dimension in its own right.

Firstly, the construct includes a range of different elements describing the extent of formal versus informal mechanisms. By converting these elements into variables for separate analysis of conflict events we may easily distort the totality of the construct. Put simply, the facets of the construct are so numerous that we run the risk of losing crucial contents by splitting up. Secondly, a pilot test made of the construct, based on a list of criteria and characteristics of the two mechanisms, indicated convergence in the informants' understanding of the content. Multiple indicators of the construct were therefore found to be unnecessary, representing a more serious threat to validity than applying a direct compound measure. Thirdly, by applying several indirect measures we run the risk of overloading the informants. Simplification is important when informants have to understand a long list of conflict events. The governance mechanism construct was therefore applied directly in the assessment.

Based on the two sets of governance mechanisms discussed above, the informant groups placed each event in relation to these two. In order to do so the constructs are elaborated further to sharpen the distinction between the informal trust based governance on the one side and mechanisms embracing authority/economical incentives and rule based governance on the other. The meaning of a concept is fully and exclusively determined by its operational definition (Frankfort-Nachmias and Nachmias 1996). Hence we need to proceed in bridging the conceptual theoretical level set forth in a conceptual model with empirical operational level. This can be done by elaborating the mechanisms into a set of elements characterizing the more practical sides of structure and processes as suggested below:

Table 1 Measurements of the governance issue in relation to each conflict event

<b>Strong formal governance Highest GOV-value (5)</b>	<b>Strong informal governance Lowest GOV-value (1)</b>
<p><b>The event is primarily associated with:</b></p> <ul style="list-style-type: none"> <li>• Lack of precision or understanding of contract or specification/ standards</li> <li>• Better monitoring and control would prevent the event from emerging</li> <li>• Procedures and routines are important, but not sufficient to prevent emergence of events</li> <li>• Events should be reduced to a minimum in order to keep high project efficiency and effectiveness</li> </ul>	<p><b>The event is primarily associated with:</b></p> <ul style="list-style-type: none"> <li>• Lack of informal communication across boundaries</li> <li>• Lack of ability to see new possibilities in improving project activities.</li> <li>• Lack of willingness to take risk together with opposite party</li> <li>• Lack of mutual trust</li> <li>• No predefined rule or routine could prevent the event from emerging</li> <li>• Events are valuable sources to project improvements</li> </ul>

Accordingly the conflict events were placed on a scale from 1-5 with 1 indicating a strong informal governance (hence a weak formal governance) and 5 indicating a strong formal governance (hence a weak informal governance). The GOV variable is labeled SGOV for the seller's perception of the governance issue, and BGOV for the buyer's perception of the same.

Both the seller and buyer side informants are supposed to allocate selected conflict events in relation to formal and informal governance mechanisms. This assessment will be based on the assumption that defectiveness in the governance mechanisms caused the emergence of the conflict events. If a specific event is given 5 on the 5-point scale it means that the informant claims weaknesses in the formal mechanism. One further implication of this is that the mechanism is found important and should be improved.

Here there is a possible weak logic point. If an event is caused by weaknesses in for example formal mechanism, why is this an indication of formal importance and not the opposite? It is thus possible that an event associated with lack of precision in contract and specifications etc. really emphasizes the importance of the "opposite" informal and soft relational mechanisms. In other words, defectiveness in formal mechanisms can underline the importance of informal mechanisms.

There is a possibility that some of the events associated with for example weaknesses in one mechanism cannot be improved, and that improvement of the "opposite" mechanism therefore is the only solution. In the practical sense, however, an event given 5 on the scale is assumed to indicate both (1) defectiveness in the formal governance mechanism, (2) that the formal mechanism is important, and (3) that the formal should be improved in order to improve the interaction. In order to reduce this risk of misunderstanding informants were explained this assumption prior to startup of assessment.

## The research question

When events of conflict occur in the business interaction, to what extent are these associated with formal- versus informal governance mechanisms? In other words, can stress in the business relationship be related to a lack of focus on informal mechanisms?

Referring to the Sleipner GBS case, one can argue that the relational stress imposed by the disaster caused a shift from one governance mechanism to another, from a formal to an informal. On the other hand the conflict event construct has weaknesses because the sum of event assessments doesn't necessarily explain the state of the relationship. The expected finding

is thus unclear, which prevents me from suggesting a clear hypothesis, which again underlines the explorative character of this study. No previous studies of this phenomenon in projects are found, and preliminary discussions with managers and project officers in the oil industry do not provide us with unambiguous standpoints. On the other hand we know that the oil industry in general strongly emphasize planning and development of routines and standard operation procedures.

The relation between the governance mechanisms of the set of events and the interplay between cooperation and conflict (as set forth in the conceptual model) were not tested. One can argue that the way conflict events are related to the two different governance mechanisms influence both on the level of perceived cooperation and the level of conflict, and in the next run on the fruitfulness and development of business relationship.

## Research design

The study followed a two-step approach. First, conflict events were identified through investigation of written experience reports, and key informant interviews. This was based on a combination of archival research and a survey methodology. In the second step selected informant groups, recruited from the seller side and buyer side respectively, assessed the events. The assessment was based on perceptual issues related to the events. The second stage thus followed a structured survey methodology. Both perceptual data and structural data were coded for statistical treatment by means of t-tests and ANOVA after a series of tests to ensure compliance with statistical assumptions, both in general terms and in terms of the specific statistical tool.

The analysis is based on 200 conflict events gathered from projects, and 66 from a non-project context, overall 266 events. These were analyzed in terms of structural and perceptual aspects involving informants from both the buyer side and the seller side. These observations add up to a total of 413 buyer-observations and 325 seller observations, overall 738 observations. The database should be sufficient for several types of variable analysis. A detailed breakdown of the empirical figures is illustrated below:

*Table 2 Breakdown of empirical base:*

Number of:	Norne-project				Siri project	Sum projects	Base ops case	Sum
	Dyad 2	Dyad 3	Dyad 1	Sum				
Events	27	61	59	147	53	200	66	266
Buyer observations	54	122	118	294	53	347	66	413
Seller observations	27	61	118	206	53	259	66	325
Sum observations	81	183	236	500	106	606	132	738
Buyer informants				6	3	9	3	12
Seller informants	4	4	5	13	2	15	4	19
Sum informants				19	5	24	7	31

Both parties understood and accepted all events. It is, however, important to stress that the parties may have different opinions as to who is to blame for the event. Acceptance of the events is thus restricted to being a phenomenon causing various degree of criticality for at least one of the parties. The informants were recruited from Japan, South Korea, Singapore and Norway, in order to enhance representativeness of the oil industry network in which the cases are embedded. A simple t-test was applied to find mean values across the buyer and seller perceptions. Test to ensure compliance with statistical assumptions was carried out and found acceptable. T-tests are furthermore robust with assumption violations except in extreme cases (Hair, Anderson, Tatham and Black 1998), such as small cell sizes and few observations.

## Validation

In order to test the practical understanding a two-step test in connection with the data collection process was carried out. The first step was made by using key informants from the buyer side to test their understanding of the constructs set forth in the conceptual model in relation to practical management. No major adjustments were found necessary. The second step was made the same day as the assessments. The informant group was presented with 10 random events and asked how it interpreted and understood the following constructs: Conflict event and informal vs. formal governance mechanisms. The constructs were further clarified and finally found acceptable by the informant group.

In addition to a qualitative test of face validity a quantitative test was carried out. One of the dyads in Norne contained two sets of buyer perceptions and two sets of seller perceptions. The two buyer sets were compared with respect to the BGOV variable. The same was done for the seller perceptions. A bi-variate correlation analysis was carried out based on exactly the same conflict events. The purpose was to test the construct validity of perceptual variables. The buyer perceptions are highly correlated and within 0,01 probability level. The perceptions of SGOV are close to the 0.05 significance level ( $\alpha=0,056$ ). The perceptions among seller groups for the same events may be different, not because of an error element in the construct, but as a result of a true component. Summing up the quantitative test of construct validity was found acceptable for the variables BGOV and SGOV.

Assumptions are met with regard to independence of observations. Test for normality and for the assumption of equal variance for all treatment groups indicated statistic and graphic deviation. The robustness of tools, and sample and cell sizes are strong enough to conclude that no violations of assumptions have any significant effect on the study.

Summing up, I admit that a lack of multiple measures strictly limit the value of the test of validity commonly applied in a variable analysis. The weakest point is related to our use of formative compounded measures for the governance mechanism construct, because this prevents us from using multi-trait test of convergent validity. A test of convergent validity, applying the same method and events, but different sets of informants, supported construct validity.

## Findings

### Seller perceptions

The mean values of seller perceptions are based upon 259 project observations. As outlined in the following table, seller perceives the events as being more related to informal governance mechanisms than formal, as the mean  $\bar{x}=2,59$  is below the midpoint of 3 on the scale. There is however close to an even mix of the two mechanisms. Furthermore, events from the Siri project and Baseops are considered as being more relational than those derived from the Norne project. Hence this indicates that events from an innovation type of project has a stronger tendency towards formal mechanisms than more straightforward challenges, where the risk of failure is lower.

Table 3 Degree of formal- versus informal governance mechanisms perceived from seller side

<b>Seller perceptions of governance mechan.</b>	<b>N</b>	<b>Mean (□s)</b>	<b>t-value</b>	<b>p-value (2-tailed)</b>	<b>Std. Dev.</b>
Projects (Norne+Siri)	259	2,59	29,302	0,000*	1,42
Norne	206	2,69	26,283	0,000*	1,47
Siri	53	2,17	14,078	0,000*	1,12
Baseops	66	2,15	13,407	0,000*	1,30

\* significant at 0,01 level

#### Buyer perceptions:

Turning to the buyer perceptions we see a strong informal association with a low mean value (□B=1,80). When comparing the different empirical contexts, the results indicate a significant higher relational tendency for Norne than Siri and Baseops (□B=1,71 versus □B=2,11 and 2,44).

Table 4 Formal vs informal governance mechanisms perceived by buyer

<b>Buyer perceptions of governance mechan.</b>	<b>N</b>	<b>Mean (□s)</b>	<b>t-value</b>	<b>p-value (2-tailed)</b>	<b>Std. Dev.</b>
Projects (Norne+Siri)	259	1,80	28,730	0,000*	1,01
Norne	206	1,71	28,288	0,000*	0,87
Siri	53	2,11	11,132	0,000*	1,38
Baseops	66	2,44	13,999	0,000*	1,42

\* significant at 0,01 level

#### Differences between the Norne and Siri projects

From the seller's point of view Siri is characterized by a stronger informal tendency than Norne (□s=2,17 versus □s=2,69). On the buyer side we see the opposite tendency. The informal tendency is strongest for Norne (□B=1,71 versus □B=2,11). In other words, the most complex innovation type of project drives the seller towards a more formal direction, and the buyer towards a more informal direction, than in a more straightforward project.

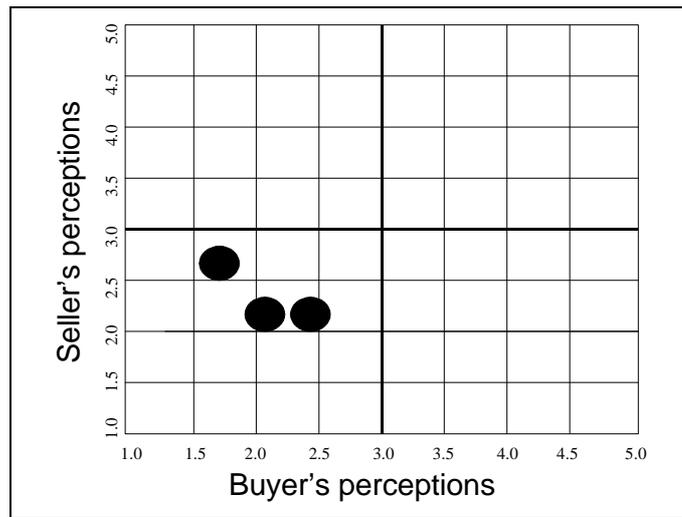
#### Differences between projects and the Baseops-case

The finding in the Baseops-case is close to the straightforward Siri project. This makes sense in the way that they both experience less complexity and less relational tension compared to Norne. Furthermore the perceptual difference between buyer and seller is more harmonized than in a tense Norne project. Some of the informants argued that in the Baseops-case it is easier to formalize and follow up because the events are recurrent in a continuous value chain. Recurrent events are easier to relate to established routines than the project, thus increasing the formal tendency for both parties. Others supports the findings by arguing that the project and non-projects (i.e. Baseops) are not so different. They both rely on the actor's set of past experience and history.

#### Discussion of the findings

Still recognizing both the perceptual differences between the buyer- and seller role, and between the three cases, our main emphasis is that the relational aspect of conflict is very clear. They all belong to the balanced relational side in the governance grid illustrated below.

Figure 2 Governance grid



Value 1,0 on the scales indicates a very strong association with informal governance mechanisms and no association with formal governance mechanisms. Value 5,0 indicates the opposite extreme. Value 3,0 indicates equal association with the two mechanisms.

Why do the parties perceive conflict between them as a matter of informal judgement rather as a matter of contracts, specifications, routines, and procedures? Taken into account the large resources spent in the base organizations on developing managerial-, technological and conceptual details prior to start-up of a project, one would imagine that conflict events would be associated with this reality. The findings, however, give us an indication of the opposite in terms of freedom of choice and sound judgement.

These findings were presented to the informants in stage two of the study in order to verify the findings. In general the key informants acknowledged the differences in the perceptions of buyer- and seller. The experience of the more informal buyer and the less informal seller coincided. Secondly they agreed that events stemming from an innovative type of project would most certainly be perceived informal compared to non-innovative/non-projects. Thirdly, the high level of relational importance on both project types was more surprising. Two informants even claimed that an assessment of the business relation per se, without going through the conflict event-perceptions, would probably end up in a formal governance-zone. In total the informants did not reveal significant doubt about the findings.

Summing up, we have four significant findings. Firstly, conflict events are significantly more associated with informal governance mechanisms than formal. In general both the seller and the buyer agree, and the parties thus enters the mutual informal zone in the governance grid. Secondly, the buyer/seller perceptions separate more in the Norne-project compared with Siri. This can be explained by differences in the distribution of risk between the parties. Thirdly, the seller side seems to go formal when the degree of innovation and functional risk is high. From the buyer's perspective it is opposite. Fourthly, in the Baseops-case the seller side seems to assess conflict more as a relational problem than buyer side.

## Theoretical and managerial implications

The project, its market processes, and market behavior can be understood in terms of traditional economics and resource based theories or in terms of the concept of industrial network and business relationship (i.e Håkansson and Snehota (1995) and Ford (1998)). The findings confirm one important proposition set forth by the industrial network approach: the existence of

business relationships. By studying events of conflict we clearly see that the parties' strongly emphasize informal interaction and personal judgement.

Conflict in complex projects is primarily perceived as a relational phenomenon. This implies that the history and past experience of the actors is crucial in building the business-to-business relationship. This leads to the following managerial implications: Firstly, knowledge of how individuals act in the buyer/seller interaction is valuable information which should be saved and made available to enhance existing and new business relations. Systems for handling and retrieving relational information should be developed. Secondly, the relational importance has implications for the recruitment of project staff; too large discrepancies in personality and individual characteristics between buyer and seller should be avoided, and flexibility should be supported by a pluralistic recruitment policy to projects, perhaps with a multi-cultural background. Thirdly, conflict is not necessarily dysfunctional and to be avoided. Mechanisms should be further developed in order to benefit from conflict in order to find solutions and pattern of resource and activity combinations. Fourthly, contracts, standard operating procedures and so forth are not unimportant, but should be supplemented with systems to keep track of relational investments made by both parties. This is particularly interesting in the pre-qualification, and tendering processes where non-relational, "objective" criteria are stressed on the expense of prior relational investments made by both parties.

## Limitations

Any study implies limitations. Six limitations are found particularly important. Firstly, validation measures are weak and limited to a qualitative assessment due to lack of multiple indicators. Consciousness and awareness regarding validity challenges help, but are not sufficient for a good variable analysis, although we have arguments supporting composite constructs. Secondly, the buyer side informants are exclusively recruited from one buyer company (project owner), whereas the seller side is more diversified. The third pertains to the issue of generality. With only two projects (supplied with one non-project as contrast) embracing five dyads, the findings have limited generality beyond the cases in a statistical sense. On the other hand we have a large number of observations (738), and key informants (31).

The fourth limitation is related to the definition and assessment of conflict events. Exploring conflict based on isolated events without relating these to a broader context implies a risk of suppressing the synergic effects in combining different events. A combination of two conflict events may i.e. outbalance or neutralize each other, whereas two other events of low importance may by coincidence explode into a large conflict when they occur at a specific time and place. The fifth limitation is that the informants didn't have the same knowledge about the projects from which the events were derived. This was evident when the Asian informants assessed events from projects of which they did not know the identity. The last limitation pertains to the time level. Based upon snapshots of completed projects we miss one crucial element in exploring conflict, i.e. the dynamic features of conflict. Awareness and humbleness in our claim of knowledge are therefore highly appropriate. This also implies that the limitations discussed above are not strong enough to prevent us from claiming that we have gained additional insight into the sources to conflict in a highly complex environment.

## Further Research

The empirical material is based on one Norwegian buyer organization and several international seller representatives. An idea for a follow-up study could be to follow this methodology and conceptual framework, but to extend the empirical base, allowing a stronger focus on cultural

differences when exploring conflict in complex projects. As concerns networks in the oil industry yards from Japan, South Korea, Singapore, Norway and USA would be particularly interesting on the seller side. On the buyer side European, Asian and American oil companies would serve as an ideal reference for cultural diversity. The study could be organized as a comparative study involving research institutions from several nations. Other researchers could explore projects in other contexts or follow an ongoing project in order to reveal the dynamic features of conflict in a longitudinal study. The two projects investigated are relatively successful projects, both in technical and financial terms. An alternative study could focus on projects that ended up as disasters for one or both parties. This could bring in new knowledge about the relation between the project atmosphere and the perception of governance mechanisms. Finally, a study could focus on the functional conflict, examining how conflict is used as a vehicle for enhancing effectiveness.

## Conclusion

Firstly, informal governance mechanisms are very important in understanding why conflict develops and is solved, and why it is more important than formal mechanisms. Both the buyer and seller place conflict event on the informal side of the 3,0 midpoint on the formal versus informal continuum. Secondly, the buyer is more informal than the seller. The parties differ in the mix of formal and informal governance mechanisms, at least under complex circumstances, where technology and organizational solutions represent uncertainty. In the "innovative" Norne-project, the buyer seems to have a more relational attitude than the seller. In a broad sense, however, the perceptual differences are negligent, which leads to the conclusion that both parties are relatively balanced in their perception of the informal mix. Thirdly, conflict has to be understood through the combination of mixed forms of governance. This implies that relational mechanisms cannot fully substitute formal mechanisms but have to be carefully managed in combination.

Our story started with an earthquake caused by the loss of a 250,000-ton concrete platform, and a remarkable change in business-to-business interaction towards mutual interdependencies based on trust and informal interaction. Having applied different cases and events of conflict imposing less stress on the interaction than the disastrous loss of a platform, we still see the same traces of importance of informal governance.

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