

ARBITRATION AND EXPERT APPRAISALS OF DEFECTS IN CONSTRUCTION: WHAT DO COMPANIES LEARN?

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The purpose of this paper is to analyse the interplay between the conflict system and actors in the construction projects with focus on the parties' use of the conflict system, and the conflict system's influence on the parties' practice. For a long time there has been focus on defects in buildings and the high levels of conflict between partners in construction projects. New collaboration forms e.g. partnering have been seen as a means to avoid conflicts, while it has not been examined how the institutional conflict system affects the companies' learning process. Use of the institutional conflict system can be seen as an opportunity for the involved companies and clients to rethink defects e.g. in a construction project. This study applies theories within science and technology studies (STS) and learning processes. The data are gathered through qualitative interviews of representatives of the conflict system (arbitration and experts) and actors in the construction sector (client, advisor and contractor). The following three findings are discussed in the paper: 1) Interviews revealed that actors in the construction sector to a very high degree wish to solve the conflicts by themselves as collaborators, and they have developed different solution processes; conflicts escalate when they enter the institutional conflict system. 2) Companies have developed a double strategy toward conflict-solving targeting respectively the context of building process and context of the institutional conflict system that reflect the contradictions in the two contexts. 3) The companies use the experiences from cases in the institutional conflict system as feed back processes from construction projects to companies.

Keywords: arbitration, building defects, conflict, dispute resolution, organisational culture.

INTRODUCTION

The high level of conflict in the construction industry has been in focus for a long time along with the high costs associated with this high level of conflict in the cases brought before the civil courts, the construction industry's appeals board, or the court of arbitration. Costs are often described as direct costs both in terms of costs for expert appraisal, legal assistance and the use of courts and the indirect costs associated with the companies' use of their own time on the case, the cost if the construction is stopped during the proceedings and the lack of earnings due to the time spent by the employees on the dispute. In Denmark focus has been on how the parties in the construction could be better at preventing conflicts to evolve into actual legal disputes, and partnering has been cited as one of the cooperation forms that could reduce

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conflicts. The argument has been that a higher level of mutual trust between the parties could create an environment where conflicts are solved jointly rather than brought to court (Høgsted 2008).

Other efforts have been made in the Arbitration Tribunal, which tried to develop different approaches to mediation between parties in order to resolve conflicts before they become a real legal dispute.

This study focuses on the interaction between expert appraisal and the court of arbitration, and the users of these systems. The hypothesis is that the users' trust in the systems affects the conflict culture that develops among the parties in the construction sector, including their understanding of failures and shortcomings and their strategies to deal with the problem area.

The study suggests that the parties have developed a distrust of the system. This has caused a situation, where the distrust itself becomes a part of the conflict culture and in this way a part of the problem.

The structure of this paper is as follows. Initially, the paper contains theoretical reflections of project based companies and use of experts in a courtroom. Next, methodological considerations are presented in relation to the use of qualitative research interviews and the practical examination. Finally, the analysis of the interview survey is presented.

THEORETICAL PERSPECTIVES

In this analysis the construction project is seen as a process, and in conflicts involving the arbitration system the arbitration proceedings are included as part of the process. The path of the construction project from company to construction project, from court and back to the company can be illustrated by Figure 1.

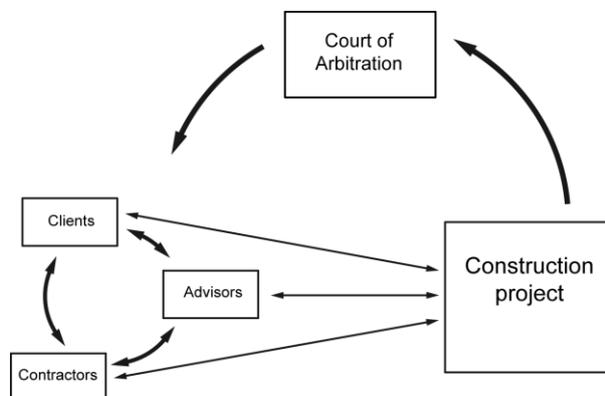


Figure 1: The construction project path from company to construction project, court and back to the company.

There has long been a focus on the interaction between business processes and project work and focus has been on the company's supply of resources for project work and feedback processes from project work to business processes. In this study focus is on feedback processes from the arbitration system to the company, because the assumption is that firms learn from participating in arbitration proceedings. The question is what they learn and what it means for project work.

In the next section two theoretical issues are outlined. Firstly, the interfaces between companies, who work project organised and the interfaces within the individual company and the project team is outlined - the lower part of Figure 1. Secondly, the

use of experts and experts appraisals in the courtroom are explored - the top of Figure 1.

Interfaces between companies and companies and projects

Buildings consist of many products integrated in complex product systems. Furthermore buildings are produced in complex design and production systems (Winch 1998, Gann and Salter 2000). The construction firms are project-based firms, who usually cooperate in one-off processes (Gann and Salter 2000, Barrett and Sexton 2006).

Gann and Salter (2000: 959) describe project-based firms in the construction industry with the following main characteristics:

- 'their design and production processes are organised around projects,
- they usually produce one-off, or at least highly customised, products and services, and
- they operate in diffuse coalitions of companies along the supplier-customer chain'.

Gann and Salter (2000: 959) characterise the main consequences of the project-based work as:

'The project-based nature of work implies that firms have to manage networks with complex interfaces. Delivery of products and services requires collaboration between firms. Performance and competitiveness depends not solely on the single firm, but on the efficient functioning of the entire network. A technical support infrastructure, including professional institutions, industry organisations and associations together with mobility of personnel, aids learning between firms and projects.'

Project-based firms will often have a continuing organisation structure, typically based on functional departments, and a temporarily organisational structure based on project teams. Gann and Salter (2000) distinguish between project and business processes, where business processes are the intra-organisational activities that bind the different parts of a project-based firm together.

Project-based firms have to deal with both project and business processes (Gann and Salter 2000: 957):

'In general, business processes are ongoing and repetitive, whereas project processes have a tendency to be temporary and unique (Gann 1998, Brusoni et al., 1998). Firms usually develop routines in their business activities. These routines are made possible by their recurrence and the frequency of their business activities.'

On the other hand a project is characterised by non-routine features, and it is not possible to systematise and standardise the project work.

There is not much literature that focuses on the mechanisms that support the link between business processes and project processes. For example the resource and feedback flows between the business process and project processes (Gann and Salter 2000). When companies are involved in the production of complex products and systems, they cannot be perceived as well-defined entities. In many project-based firms the project team has limited contact with management and works in teams with employees from many other companies often away from the company.

Central problems, which are often discussed, are the broken learning and feedback loops from the individual projects. The problem is not lack of innovation, but lack of

accumulation and reuse of experiences from one project to the next. The experiences stay personal and do not lead to increased productivity for the trade.

There has been an increasing focus on the management of innovation within these project-based firms that operate in complex production systems (Gann and Salter 2000, Barrett and Sexton 2006). Gann and Salter (2000: 961) point to the fact that:

'Project based firms need to manage technological innovation and uncertainty across organisational boundaries, within networks of interdependent suppliers, customers and regulatory bodies.'

Furthermore they view construction as a process rather than an industry that include designing, maintaining and adaptation the built environment.

Experts, expert knowledge and courtrooms

Michael Lynch (2006) has studied what happens in a courtroom. He argues that 'experts' and 'expert knowledge' are social concepts and legally valid categories, as in a case always renegotiated in a courtroom. As nouns, expert and specialist knowledge often describe an agent with recognised knowledge. As adjectives, the words are used to give social status to the activities of agents, statements or evidence. In many formal and informal situations they are used to announce or confirm authority and credibility. In the work in a court there can be an increasing articulation and rewriting of the social categories as a part of the interaction between the parties, and it will simultaneously impact on the relationship between expert and layperson, and between what is expert knowledge, and what is layman's knowledge. 'Member categories' is a special actor category where you use the category not only to define a thing, an actor or activities, but at the same time the holder of the category uses it to refer to himself.

Michael Lynch shows that when there are disagreements it may mean that a jury will have more freedom, but also that the categories and expert testimony can be the subject of discussion. Boundary work refers to the border work between what is science and non-science and what is expert knowledge and what is non-expert knowledge. As stated before, in the form of rewriting. Lawyers, witnesses, judges and other members of a court place not only experts and disciplines in a matrix, but actively rewrite, and thus they continue the whole time to renegotiate the social categories of what is one thing and what is the other. The court establishes a local relationship between science and the state each time it calls a witness an expert and relevant areas are termed science. Experts articulate boundaries and situate themselves in the court's understanding of what knowledge and experts are. The court's task is to classify specific activities such as science and to differentiate between the laymen and expert witnesses.

Experts are assigned formal and informal privileges. A formal privilege is for example when experts have the right to give testimony on the basis of being a member of a relevant profession. The informal privileges arise based on the participation of experts in education and training and on their experience. This may make it difficult for non-specialists to understand and evaluate a statement, which they nevertheless take to be the truth.

METHOD

The overall purpose is to explore how the parties in a building project perceive expert appraisal and court of arbitration and the meaning of this perception for the construction industry's conflict culture.

The research was limited to cases actually put before the Arbitration Tribunal, i.e. civil cases and cases in the construction industry's appeals board are excluded. The Arbitration Tribunal is a private institution with a board composed of representatives selected by relevant actors in the construction sector. In the court of arbitration there are technically competent judges. This means that the relevant technical competence is available, unlike in the civil law courts. In the Danish system expert appraisals cannot be appealed and this is often mentioned as presenting a great uncertainty for users. The technical competence of the court of arbitration may reduce this uncertainty and mean that confidence among users of the system is higher.

Because the Arbitration Tribunal is a private institution, there is no public access to documents and proceedings are not public. Currently no data are collected nor statistics made regarding who takes legal actions, who wins cases and what the cases deal with in connection with the arbitration system or use of expert appraisals. As a consequence there is no overview of the parties' use of the systems. The qualitative research interviews have therefore been selected as a method to get insight into the user's experience with their use of and experiences with the system.

Focus in this study is on professional actors which mean that all private clients who often use the construction industry's appeals board or the civil courts are not included. Actors who only have contact with the conflict system once are sorted out with this definition. As focus is on the importance of interactions between the system and the actors, and their development of strategies or counter-strategies in relation to the system, it is most appropriate to examine multiple users.

Qualitative interviews have been conducted with various parties in a construction project (client, advisor and contractor), a representative from the Arbitration Tribunal secretariat and arbitration experts. Furthermore, participation in a course for arbitration experts has given important knowledge about expectation to the experts' performance. The interviews were issues-oriented and not person-oriented. They were implemented as semi-structured interviews and general interview themes were:

- What is perceived as failures and shortcomings.
- Experience of the use of the court of arbitration and expert appraisals.
- Effect of the use and decisions of the firm's practice.

The interviews were recorded on tape and later transcribed in full. Subsequently, the interviewees had the opportunity to comment on the transcripts.

The qualitative research interview endeavours to cover both the factual and the sense-making level. Kvale (1984) distinguishes between the interviewee's role as an informant and as a representative. As an informant focus will be on the informative in the interview, which is linked to the need for factual knowledge. As a representative the interviewee is understood to be the object in the study and focus is more on sense-making.

Kvale (1984) suggests that a statement of empirical validity in the informant perspective can be verified through triangulation. Triangulation refers to a method where the same phenomenon is examined through various informants and/or other sources. Through triangulation a statement of empirical validity will emerge. He points out that statements from the informant's perspective appear to have a limited validity, from the representative's perspective can open up new types of questions: What is the consequence of the partial invalid understanding of the social context? And how is a partial invalid understanding produced? To explain this point Kvale

(1984) uses an example taken from his own study of the influence of marks in the upper secondary school. In an interview a student expresses correlations between marking level and how much you speak up and how much you agree with the opinion of the teacher. Through triangulation Kvale (1984) finds that the statement is supported by other sources, but not with the same strength with which the claim is made. From the informant perspectives the statement has therefore a limited validity. Kvale (1984) points out that if instead we take a representative perspective, two new questions will arise: 'What are the consequences for the school day of a partial invalid understanding of the basis for grading? And how occurs a semi-invalid understanding of the basis for scoring?'

Conflicting statements within an interview may reflect that there were errors in the communication process in the interview situation. But they may also reflect objective contradictions in the world the interview person inhabit (Kvale 1984).

This qualitative analysis focuses on the actors' understandings of systems and their reactions to the systems. The analysis does not say anything about the system's functioning and activities and consequently is not an assessment of the system. The stakeholders' understanding of the systems, whether objectively true or not, helps to influence the use of the system.

ARBITRATION AND EXPERT APPRAISAL - LEARNING AND REACTIONS OF COMPANIES

Background

In Denmark, the construction process between professional parties is mostly governed by the contract system that was agreed between the construction industry's trade associations. One provision in the standard contract is to settle conflicts in the court of arbitration. Thus, in construction projects that end up in the court of arbitration, you can see the process of arbitration as part of the construction process. Disputes between parties frequently occur at the interfaces between the parties and deal with negotiation and regulation of the interfaces. A case in dispute resolution system can be seen as an opportunity for feedback from the project to the company. The question is what the company learns and what is transferred to the project.

The use of experts and expert appraisals is a well-established system consisting of rules for the expert's role, established procedures for his task, traditions of training of the expert to maintain his role and the quality of performance of the expert appraisal. The expert's role is to assist the court in clarifying technical issues, so that the court on the basis of the appraisal can take a position on the legal issues. The expert should - and must not - address the legal issues. Expert appraisals are first and foremost a form of proof. An expert appraisal will be claimed by one or more of the parties to secure the evidence of the facts at the construction site. The expert will often play a key role due to his opinions as a technical expert - a key role that is emphasised by the fact that an expert's appraisal cannot be appealed. The statement of the expert is based on the expert' interpretation of what he views and perceive as 'normal good construction practices'. The study highlights what role the expert system plays for the construction industry's understanding of defects and behaviour.

The number of cases filed with the arbitration system is steadily growing and there is no explanation why. Number of cases in the period 2000 - 2007 has increased from a level of 400 to just less than 700 cases a year. The experience is that 25-30 % of the

cases brought into the Arbitration Tribunal will be reconciled during the period of preparation for the arbitration court (Høgsted 2008).

Clients, consultants, contractors and others all bring cases before the court. In traditional cases, the issues are often a mix of different issues such as questions about payment, extra bills, day fines or extra bills otherwise associated with a forced pace of work, and shortcomings with regard to placement of responsibility. Placing the responsibility of shortcomings could be about whether there has been a performance error, a project material error, whether the wrong building components were delivered from suppliers or if the error is based on an error in risk assessment.

The arbitration system perceived by the parties and the development of conflict resolution strategies

The interviews of the actors in the construction industry shows that the parties have developed a distrust of the system, as expressed through a series of statements about experts' competence, expert appraisals, the process per se in the arbitration system and the rulings.

The interviewees question the experts's competence. As issues are often complex and cover several disciplines, it may be difficult to find the right expert. The expert has to answer a number of themes formulated by the parties. Both consulting engineers and contractors have experienced that the expert moves outside the themes and/or highlights issues on the wrong professional basis.

When there is a statement from the expert, the appraisal is included as evidence in the case. The appraisal cannot be appealed. Usually you will abide by the appraisal which serves as evidence and will be waived only if completely new information emerges that remove the basis for the statement and this happens very rarely. In those cases, the technical judges draw attention to it and the parties are asked to decide whether they will pursue the case on the new basis. There is a general attitude to the expert statements that they carry greater authority than they warrant, as technical factors may be viewed from several angles.

The parties experience a change when the case is brought in to the arbitration process. It is expressed as 'to make bad blood in the case'. Characteristic features of the process are that the parties' lawyers prepare the case by drawing up the contours of the conflict as they want to bring to court. It happens that the parties in preparation solve the conflict through conciliation. When the case is brought before the court, the Arbitration Tribunal is involved and the case will be prepared for the court of arbitration. The parties will exchange written submissions after a fixed pattern. Together with the court president, the arbitration secretariat manages the process throughout the preparation stage. They must ensure that all parties comply with the requirement to the correct procedure. This phase runs until a specified date for the meeting of the arbitration proceedings. Arbitration proceedings will start with a debate in which the parties present the problems of the case to the court. Implementation of the arbitration proceedings relating to the construction is often extremely complex and there is a requirement for substantial documentation of what happened. Based on construction meetings, letters, tender documents, drawings, descriptions etc. the parties substantiate their claim of how they perceive the matter. The chief of the arbitration secretariat states: 'There is much substance to be processed and that one who can manage to present all the material, they have a good case, by being able to conduct a thorough documentation and logical presentation of how a process has been.'

After the parties present their views, it is up to the court to find out how 'the world' should look like. The judgement of the arbitration proceedings are perceived as arbitrary by the interviewees. The statement is that there is fifty-fifty chance of winning, but that injustices are shared equally between the parties.

Conflicts, contexts and strategies

It is characteristic that all the interviews contained conflicting statements about cooperation and the problem-solving process between the parties. In this context, where it is common for all the interviews, the contradictions are given the mean that they reflect contradictions in the real world - contradictions between the different contexts in a construction project.

To handle the contradictions, companies have developed a double strategy. On the one hand, they try for as long as possible to keep problem-solving outside the arbitration system and to solve problems themselves between the parties. On the other hand, once the case is on its way through the arbitration system the strategy changes. Now, all actors will formulate as many claims and counterclaims as possible in order to ensure themselves.

This is exemplified by the pattern of the conflict solving in one of the case companies (see Figure 2).

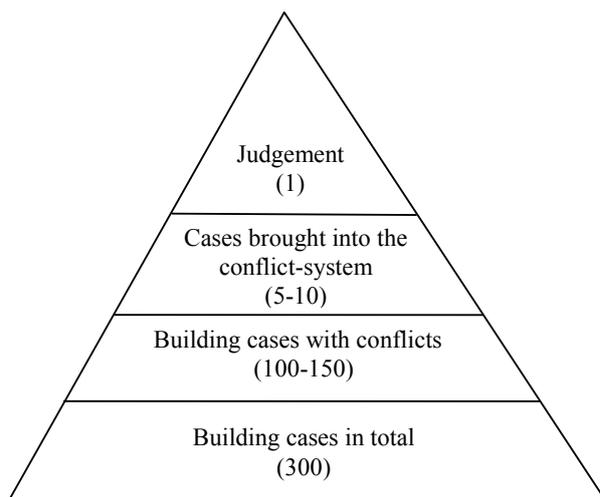


Figure 2: Example of where the conflict is solved in a case company. The numbers refer to number per year.

When conflicts escalate between partners in a construction project, the construction project will pass through three different contexts: The company, the project team, and the Court of Arbitration (see figure 1). The three contexts have different targets in the building process and the contradictions are embedded in the actors who are the main actors in the context and in structures which frame the context. The differences are characterised in Table 1 below.

Table 1: Three different contexts in a building process.

	Company	Design and execution	Arbitration (court)
Relation between the companies	Agreement	Collaboration and fulfilment of expectations	Opponents
Actors	Management	Professional building employees (architects, engineer, workmen)	Lawyers
Target	Financial circumstances and clarification of responsibility	Construction of buildings	Win the case
Means	Reduction of uncertainty	Secure momentum: The building case is project organised with imbedded uncertainty	Documentation and facts: The building case is understood as a rational process.
Time perspective	Long-term	Short-term	Indefinite

The differences influence the interpretation of a construction project in the contexts. During the process through the different contexts, the construction project will be transformed into different interpretations of what count as valid explanations. During the design and execution, the construction project is project-organised and the actors have to deal with uncertainty. It is very expensive to stop a construction project, and the actors will do all they can to secure the momentum in the project. Because of uncertainty, collaboration and fulfilment of expectations are very important. When the construction project arrives in the conflict system, the interpretation of the construction project will change and it will now be handled as a rational process, where only documentation counts. The interaction between the contexts cannot be understood as a flow, but rather as a transformation process between the contexts where the actors reinterpret the circumstances from the other contexts into the perspective of their context. To solve conflicts during the phases of design and execution, the professional building actors use potential insurance excess and case cost as objects of negotiations. And lawyers reinterpret building plans, drawings e.g. as pure facts.

What do the companies learn?

While the cases are in progress or have been completed there are consecutive feedback processes from the cases to the companies. The experience gained allows management the opportunity to develop new strategies to reduce uncertainty for the company in connection with new construction projects. Examples of strategies already in use are the development of new forms of contracts by industry, types of insurance, service and supply agreements, and de-selection of markets.

The new strategies are mainly to reduce the possibility of being held accountable and reduce uncertainty in the interfaces between the parties. Developing strategies to reduce the liability of the parties in construction projects can help to increase a confusion of the expectations in the design and execution phases. This has laid grounds for new types of conflicts in the construction project.

During the arbitration process the parties design their own different realities and in the process they support the cases with documentation and information that are in the best

interest of the company. It may help to increase their distrust of the system and reinforce the tendency to escalate matters. Both these aspects can contribute to enhancing the dynamics of the dual strategy. In this way, actors' understanding of the system - whether it is objectively true or not - become self-perpetuating of distrust and the double strategy.

CONCLUSION

In complex production systems based on project organisation, one of the most important features is the managing of the interfaces between companies. The institutional conflict system plays an important role as the place where disagreements can be sorted out when it is necessary. The function of institutions depends on the users' support for norms embedded in the institution.

The following three findings are found in the study: 1) Interviews revealed that actors in the construction sector to a very high degree wish to solve the conflicts by themselves as collaborators, and they have developed different solution processes; conflicts escalate when they enter the institutional conflict system. 2) Companies have developed a double strategy toward conflict-solving targeting respectively the context of building process and context of the institutional conflict system that reflect the contradictions in the two contexts. 3) The companies use the experiences from cases in the institutional conflict system as feed back processes from construction projects to companies.

It seems as if the companies have developed a practice based on their understanding of the system, where they use the system to order things in the individual project, while at the same time shaping frames for new types of conflicts between the companies in future projects.

REFERENCES

- Brandt, E and Prebensen, K (2004) *Syn og skøn i praksis - råd og vejledninger*. København: Ingeniørforeningen i Danmark.
- Barrett, P and Sexton, M (2006) Innovation in small project based constructions firms. *British Journal of Management*, **17**(4), 331-346.
- Gann, D M and Salter, A J (2000) Innovation in project-based, service-enhanced firms: The construction of complex products and systems. *Research Policy*, **29**(7-8), 955-972.
- Jones, M and Saad, M (2003) *Managing innovation in construction*. London: Thomas Telford Publishing.
- Lynch, M (2006) Circumscribing expertise - Membership categories in courtroom testimony. In: S. Jasanoff (ed.) *States of Knowledge, The Co-production of Science and the Social Order*. Oxon: Routledge.
- Høgsted, M (2008) Partnering og tvister i byggeriet - del 1 - omfang, data og vurderinger, [www. plus-net.dk](http://www.plus-net.dk).
- Kvale, S (1984) Om tolkning af kvalitative forskningsinterview. *Tidsskrift for Nordisk Forening for Pædagogisk Forskning*, **4**(3-4), 55-56.