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***INTEGRATION AND DISINTEGRATION OF ROLES
AND ACTORS: THE GERMAN CONTRACTING
SYSTEM UNDER CHANGE***

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RESUME

Les relations entre les acteurs dans le BTP allemand sont aujourd'hui en pleine évolution. Traditionnellement la "coalition de projet" est dominée par la demande. Le maître d'ouvrage est l'acteur dominant et l'architecte, en tant que maître d'œuvre, joue le rôle central. L'entreprise du bâtiment est, quant à elle, située au bout de la chaîne décisionnelle. La régulation du processus de construction, en particulier la réglementation sur la passation des marchés publics, favorise l'entreprise locale de taille moyenne fonctionnant sur le mode artisanal.

Cependant, depuis quelques années la position de "l'offre" s'est renforcée. En particulier les grandes entreprises dynamiques intègrent de plus en plus différentes fonctions du processus, notamment celles de la maîtrise d'ouvrage et parviennent ainsi à se substituer à l'architecte.

Le système contractuel allemand est donc en train d'évoluer d'un processus orienté "client" vers un processus orienté "producteur".

INTRODUCTION

The relationship between actors in German construction is under change. Indeed the traditional way how clients and professionals, companies and public authorities form a project coalition to perform construction is still in use, but there is a certain evolution towards a rearrangement of roles, functions and relations. Traditionally the project coalition in Germany is dominated by the demand side. The client is the predominant actor and the architect plays the central role. The construction firm is placed at the end of a line, where nearly all decisions have been made, before it enters the stage. The regulation of the construction process and in particular the regulation of the public tendering favours the trade-oriented, medium, regionally based construction firm. But now there is an evolution, which, step by step, shifts influence towards the supply side, lets other actors take over functions of the architect and reinforces the bigger and more dynamic construction company. So it seems to be worthwhile to look in more detail at the features of the traditional system and to the reasons, nature and direction of the recent change.

Therefore - after a few general considerations - the client as the traditional predominant actor and its different types are presented first. Second, because the regulation of the tendering process is important for the relationship between the actors, the *Verdingungsordnung für Bauleistungen (VOB)* as the most important regulatory document is introduced. In addition, to give an insight into how actors do compete or collaborate on the markets, what I call «the social constitution of construction markets» is explained. Finally the recent development of the project coalition is investigated, starting with a brief examination of the central role of the *Architekt* and indicating how and by whom his functions are taken over together with other than traditional forms of running construction projects. It then will be evident that the actors, taking over functions of the *Architekt* as well as starting to play the role of the clients, are the construction firms - in particular, but not only, the big ones. So the final - and open - question is, if the German construction is shifting from a client oriented towards a producer oriented system.

GENERAL CONSIDERATIONS

| Main Trades | Finishing Trades |
|------------------------|-----------------------|
| Structural Engineering | Wall painting |
| Building | Services Installation |
| Prefabrication | Tiling |
| Civil Engineering | Flooring Plastering |
| Road Construction | |
| Ground Works | |
| Special Works | |
| Insulation | |
| Demolition | |
| Stucco, Plaster | |
| Joinery | |
| Roofing | |

Table 1 - The structure of the german construction industry

The construction industry in Germany includes all trades from the preparation of the site to the finished building. The official German term for this industry is *Baugewerbe*¹. Inside the construction industry there is an important discrimination between the main trades (*Bauhauptgewerbe*) occupied mainly with the erecting of the structure and the finishing trades (*Ausbaugewerbe*) (see table 1). Firms performing structural steel works only do not form part of the *Baugewerbe* and nor do firms specialised in services trades like climatisation or electricians. The definition of the *Baugewerbe* and its internal structures are the frame of reference for administrative regulation, for business or professional organisations, for training

¹ Terms sometimes also used like *Bauwirtschaft* or *Bausektor* are not used in the same way as precise definitions and are not part of official terminology. Some confusion may be caused by the fact that in Germany the term "industry" normally is not used for that part of (mainly) smaller building firms which belong to the chamber of artisans.

and education, for the regulation of the labour market and, last but not least, for all statistical data. Works done prior to the groundworks - e.g. architectural or engineering planning - or the lines of business which manage a building when it is ready are not classed with the construction industry.

The construction industry in Germany consists of about 100.000 to 150.000 enterprises and provides an employment of about 2.5 million. But exact statistical data is available only for the main trades. Because of the overwhelming number of very small enterprises of the finishing trades exact data is hard to get for this sector. The total construction industry represents 6.2 per cent of the gross national product and 8.3 per cent of total employment. Both numbers have decreased continually during the last 30 years and are very different between the Eastern and the Western parts of the country (e.g. the ratio of employment is 7.2 in the west and 13.2 in the east).

Roles and functions of actors differ in the German construction industry and so does their relationship. Distribution of functions, shape of roles and forms of relationship inside the construction process vary from sector to sector (i.e. housing, tunnelling, road works, repair and maintenance etc.), but also inside these sections from project to project. So to outline a traditional form of the project coalition as a frame of reference can only be done by giving a description of a typical and widespread form, while noting that many different variations can also be found. As it is with the evolution of roles and their relationship, which is far from homogeneous, so similar works can be done in different forms of project coalition and similar project coalitions can be used for different works. Even a common «leading edge» is hard to discover. This general structure and development of the German construction industry has not changed after unification. So instead of generalisation only some tendencies can be outlined, which give a flash of light on some developments inside the German construction industry, but can not represent the sector as a whole.

Although in fact there is of course a system of relationship of actors in German construction industry as well as in other countries, which defines their tasks, roles, functions, liabilities and relations and interrelations, a specific term like the English «contracting system» does not exist in Germany. Indeed Ekardt *et al.* (1992 p 183-9) describe a *System der Baubeteiligten* (System of Participants in Construction) and nearly the same expression is used by Bollmann and Vincent² (1993). But this term is neither commonly used nor very meaningful. Whereas the term «contracting system» is indicating that actors are in a contractual relation to each other, emphasising that this legal aspect is important for what they are doing and how, the term *System der Baubeteiligten* just says, that several actors take part in a construction process.

The *System der Baubeteiligten* is outlined by Ekardt *et al.* as a pentagon of relationship formed by (1) the client, (2) the construction enterprise, (3) the independent professionals, (4) the public authorities, and (5) the public interest concerned and affected by construction projects and their results. The authors emphasize, that there is not only one single actor, which influences the technical and organisational development of the sector, but that all five actors have a certain influence, independent from each other. Ekardt *et al.* are right to underline this to make clear, that the predominant view of the German industrial sociology, which ascribes industrial evolution and in particular rationalisation of the production process more or less only to the action of the producing enterprise, is inadequate to analyse processes in construction. But beyond that, neither Ekardt *et al.* nor Bollmann and Vincent aim to investigate the *System der Baubeteiligten* more intensively. So some important information on the existence and the roles of actors in the construction process is provided by these authors, but a deeper analysis of the relationship between actors and its recent change is not undertaken.

This may have to do with - or may be indicated by - the fact, that in German terminology in the field of construction far fewer legal or functional terms are used, than professional ones. For example: the French term *maître d'œuvre* characterises one actor by his function as the overall controller of the process. The actor, who has this function in Germany, is normally named *Architekt* - a term, that first indicates, that he has a particular professional education

² They name it «Das traditionelle System der am Bau Beteiligten»

and therefore a particular professional competence. Then, at a second glance to insiders it is known, that it is the *Architekt*, who normally has this special function of controlling the whole process on behalf of the client. That seems to be characteristic for the German way of defining concepts for indicating actors in construction. The term *Architekt* includes both the professional meaning as obvious notation and the functional meaning as a hidden connotation. The traditional exception is the client, who in Germany - to indicate his predominant role in the construction process - is named by the functional term *Bauherr* (the one who owns the construction process, so that he can command the process and the other actors)³. But also - to take another example of the usual way of definition - the construction firm, which is in the principal legal relation to the client, is characterised as *Bauunternehmen* (construction enterprise). So its role is first defined by its material task, that it has to perform the structural works, whereas the legal aspect, that it has to fulfill a contract, can be again seen as a hidden connotation of the professional or trade term *Bauunternehmen*. A term equivalent to the English «contractor» does not exist in German. However to indicate the consequences of changes not only in the way of acting, but also in the traditional legal status (which then have an impact of their roles and their internal ways of working) of the construction firm the more functional terms of *Generalunternehmer* (general contractor⁴) and *Nachunternehmer* (subcontractor) are used.

So to analyse what can be taken as the «contracting system» in German construction it seems to be more precise to refer at first to the material tasks of the actors, of the roles resulting therefrom, and to consider, how control, turnover and risk are distributed among them. Reference to the legal framework will only be made, where it seems to be helpful for better understanding of the real relations between the actors.

A generic scheme by which roles and functions of actors in the construction process can be identified was first published by Winch and Campagnac (1995 p 7-8) and underwent further development during the research of *Le Groupe Bagnolet*. This scheme will be used here. In its final shape it discriminates at a first level the three main phases of decision, preparation and construction, and at a second level inside each phase again three functions, which are defining need, find land, and find finance (decision phase), conception, design, and detailing (preparation phase), and production planning, work of the main trades and work of the finishing trades (construction phase). Obviously these main phases are more or less the traditional main activities of client (decision), professionals (preparation) and contractors (construction) and the particular meaning of some recent changes can be seen in the fact, that some actors try to cross the «borders» into one of the other phases. To catch in particular these expansive strategies facility management has been introduced in the scheme as a fourth main phase.

THE CLIENT AS THE PREDOMINANT ACTOR AND THE DIFFERENT TYPES OF CLIENTS

The client orders the construction and he pays for it. Because of that traditionally he is the predominant actor in the project coalition. Generally the client is the one who has to define the need for a building or a civil engineering construction, to find the land and to find the money. But for a more detailed analysis of the role of the client in the construction process several distinctions have to be made.

The first difference is a consequence of the fact, that the client can be a *casual client* or a *experienced client*. The casual client is building once for his life (e.g. a family looking for a house) or at least once in a longer period (e.g. a small or medium firm needing a new plant or more space for office work every ten or twenty years). His relation to the other actors in the construction process is obviously different from that of the experienced client, for whom construction (including renovation and rehabilitation of buildings) is every day business, and for whom, as the most important point, it may be possible and profitable (although it is not

³ The notion *Herr* for example is also used in the term *Grundherr*, traditionally indicating, that he is the one who owns the land and that he therefore can command everything and everyone (!) existing on this land. The Austrian-Dutch authors Unger and van Waarden (1994) translate *Bauherr* consequently by «principal».

⁴ Detailed analysis will show later on, that there can be certain differences between the ways, a *Generalunternehmer* in Germany and a general contractor in Britain are working.

necessary) to employ in-house professionals for other than the client's (decision) phase of the construction process.

The second important distinction is between the client as *user* and as *seller* of the building. The casual client nearly always is also the later user. He becomes a client only because he later wants to have and use the building himself. The experienced client may be either user or a seller, who as the latter becomes a client in construction only to turn his money into a commodity he then can sell. Experienced clients on the one hand, who are also the later users of the building are above all public authorities (as legitimized representatives of the real users of streets, airports, indoor baths, theatres, schools, universities etc.), but also bigger firms (e.g. manufacturing enterprises, who in their built production infrastructure need a change whenever their product or production process is changing or whose built infrastructure is big enough to require steady maintenance). Housing companies (*Wohnungsbaugesellschaften*), which provide one-family houses or multi-storey-apartment houses (with from three to hundreds of dwellings), can be included here also even if they sell some of the houses or apartments they have built, because they mainly let houses and therefore have to take care of them as users themselves normally do. On the other hand, experienced-seller clients (e.g. real estate companies), are those which develop land, and build, renovate, and sell one-family-houses, or building promoters (*Bauträger*), which do the same with office blocks or commercial buildings (mainly in urban areas as combinations of apartments, offices, and shops). They take the role of the client, but they do not intend to use the buildings themselves (cf. table 2).⁵

Whereas the user-clients can be expected to be above all interested in the use-value of a building, for the seller-clients the most important questions are the timing and the amount of the return of the investment. So different interests and different relations to the other actors in the construction process may occur. The extent, to which these come up, depends upon the volume of the business of a seller-client. Among them there are big companies with a turnover of hundreds of million DM. They on the one hand are able to impose strong supervision and control on the process and dominate the other actors, but on the other hand are also able to make an investment in quality. But among them are also small firms consisting of two or three persons, which do not own more than their ability to work and their willingness to take a risk which holds out a prospect of a profit. They are totally dependent upon the bank financing the project and because they have only very small margins, they need to implement a very tough cost and time supervision and control on the other actors, especially the construction firms. Another key question for the form of the project coalition is whether a company employs in-house professionals, who can take over other than traditional clients functions, (i.e. the planning, the design and the control of the construction process), or if they employ for these tasks independent professionals by contract.

A third way to discriminate clients is if they are *public* or *private*. Whereas private clients are free how they want to place orders towards contractors, for public clients there is a particular regulation, which they are obliged to obey strictly.

FORMS OF TENDERING

In Germany, like elsewhere, three main different forms of tender and different possibilities to place orders are in use: directly placed orders or negotiated tender, selective or limited tender and open tender. Private clients and commercial investors (industrial or commercial companies, banks, insurances, building societies) often use the form of selective tender, inviting only contractors well known for efficiency and to whom they have good, long-term relations. Public clients are allowed to place orders directly or use selective tender only if the work is very small or if it is very difficult and requires very highly specialised qualification only a few firms can offer. Normally they have to use the open tender form. The basic document for the tender process especially in the case of a public client is the *Verdingungsordnung für Bauleistungen (VOB)*⁶.

⁵ *Wohnungsbaugesellschaften* in fact act both as user- and seller clients. One-family-houses normally are sold, whereas apartments can be sold or let.

⁶ «*verdingen*» is somewhat of an old-fashioned way to express one self; it refers to the fact, that a person, «*Ding*» for the employer.

| Frequency | Intention to Use | Intention to Sell |
|-------------|--|---|
| Casual | families; small enterprises | (does not exist) |
| Experienced | public authorities; manufacturing enterprises; housing companies | commercial enterprises (banks; insurance companies); building promoters; <i>Bauträger</i> |

Table 2 Types of Client

THE VERDINGUNGSORDNUNG FÜR BAULEISTUNGEN

The *Verdingungsordnung für Bauleistungen (VOB)* is a central document which has ruled the tender of construction processes⁷ in Germany since now 70 years. (Daub 1976) It consists of three sections. Section A (*VOB/A*) regulates tender procedures. Section B (*VOB/B*) consists of detailed technical norms of work packages and quality of materials to use. Section C (*VOB/C*) regulates contract conditions.

As far as *VOB/B* and *VOB/C* are concerned private clients have two possibilities to make construction contracts. Either they can do it on the basis of *Bürgerliches Gesetzbuch (BGB)*. Between the parties there then exists a normal contract, according to civil law, between seller and buyer and both parties must agree how the object to be delivered is to be described. Or they can make the *VOB/B* and *VOB/C* part of the contract, which offer a precise description of construction works. The difference between these two forms for the rights and duties of the parties is mainly a question of warranties, which is five years after completion according to *BGB*, two years after completion according to *VOB*. But many private clients prefer contracts which make in particular *VOB/B* a part of it, because the performance of construction works according to its norms, which are closely linked to the *Deutsche Industrie Norm (DIN)*, guarantees a precise description of the level of performance which can be expected and also high quality standards of the work completed.⁸

VOB/A is of interest only for the public client and for construction firms, tendering for public construction orders. The *VOB* itself is not a law, but all public clients (governments, local authorities but also the Bundespost and the Bundesbahn⁹ and other public enterprises) are obliged by order of the government to tender using *VOB/A* (and of course parts B and C as well), which means, to use open tender procedures and to obey the rules, prescribed by *VOB/A*. So the *VOB/A* gets a legal quality. Private clients whose construction projects are funded by public authorities to an extent of 50 per cent and more are subject to the same rule.

The history of public tender regulation in Germany can be pursued back if not to the Romans, then seriously to at least the end of the 17th century (cf. Daub 1976). At that time big construction works were let by open-air auction, a form apparently learned from the Netherlands. A clients agent quoted the maximum price for the total construction or for parts of it, so that *Generalentrepreneurs*¹⁰ - to construction trades-people it was forbidden by the rules of their craft guilds to take part in these auctions - could tender by shouting how much they would like to undersell firstly the client's quotation and then their competitors. But this procedure often seemed to have made it difficult for bidders to reflect upon their offers carefully and sufficiently, so that it resulted in poor standards of final performance, which often did not meet clients' needs in terms of quality and sometimes even of quantity. It is argued, that it was in particular this evidence of a correlation of cheap bids and bad quality and the experience that the public interest was not purely met by giving construction orders to the firm which offers the lowest price, that has been dominated later versions of tender regulation and finally the *VOB/A* (Daub 1976 p 73). So from the 19th century on it became obligatory, that the procedure was based on written bids, which had to be presented in a closed envelope and could not be opened before a fixed date, after which the presentation of other bids was no longer admitted.

⁷ For other public procurement a *Verdingungsordnung für Leistungen (VOL)* exists, which has nearly the same content as the *VOB*; a reason for the existence of two parallel documents was not found (Daub 1976, p. 76).

⁸ However in fact nowadays mainly a five years warranty is required by clients.

⁹ This may change after privatisation.

¹⁰ The every-day-language of the ruling feudal class in Germany at that time was French.

The *VOB/A*, proposed by the Parliament of the *Deutsches Reich* in the early 20s and developed by a commission of government and construction industry experts, was first published in 1925 and since then has been regularly adapted¹¹. It prescribes that construction orders must be given to expert, effective, and trustworthy entrepreneurs, and that competition should be the rule (§2, 1). Open tender normally has to take place (§3, 2). To give small and medium enterprises a fair chance, bigger construction works, if even possible, should be divided and tendered in lots (*losweise* or *gewerkeweise Vergabe*) (§4, 2), which must be separated and tendered by trades (§4, 3). Bidders could be asked to indicate their expertise, performance, and trustworthiness as well as their economic and financial capacity of work (§8, 3). Bidders, against whom legal proceedings because of bankruptcy have been taken, whose trustworthiness is otherwise doubtful, or who have not paid taxes, social charges or dues to the *Berufsgenossenschaft* (the official work accidents insurance), can be excluded from tenders (§8, 5). An additional law is currently in preparation to exclude bidders for a certain time (probably two years) from public tenders, who have employed workers not officially registered by the tax and social insurance bodies (*Schwarzarbeiter*).

For the tender a specification of every single task required (the *Leistungsverzeichnis*) has to be worked out, which has to be understandable and answerable by every potential bidder (§9). This *Leistungsverzeichnis* can determine that contractors in the bid have to name tasks, which should later be subcontracted (§10, 3). It can also determine that special offers of variations to the work demanded in the *Leistungsverzeichnis* are required or on the contrary are excluded (§10, 4). Fines for missing completion dates or premiums to speed up the construction process are only permitted as part of the *Leistungsverzeichnis* to avoid or gain disadvantages or advantages, if they are to be classified as «important» (§12).

Bids must be submitted in a closed envelope and must not be opened before a certain date (the so-called submission-date), when all are opened at once. At that event only bidders are allowed to be present and only the total amount of each bid should be announced (§22, 1-3). Then all bids were technically and economically and in cost terms examined by the public client (§23, 2). A bidder can be asked to explain his bid and the way how he intends to perform the work (§24, 1). If he fails to do so, he can be excluded (§24, 2). But negotiation after tender is strictly forbidden (§24, 3). Bidders are bound to their bid for a certain time (§19).

Bids which do not conform to the *Leistungsverzeichnis*, bidders, who have formed a forbidden pre-tender agreement, and bids offering an inadequately high or low price have to be excluded (§25, 1-3).¹² To examine and determine in particular the latter is the duty of the public client, particularly of the in-house professionals he employs. Into the final selection round only bids should be taken, which, under consideration of rational site organisation and economic behaviour, offer an incontestable performance including all warranties. Among these the order has to be given to that bid, which after consideration of all technical, economical, and also aesthetic and functional aspects, is the most acceptable. «The lowest price only is not crucial» (§25, 3., 3).

So the *VOB* obviously can be seen as an instrument of a particular industrial policy in construction. The requirement of tender by lots (that means in parts of a project small enough to be performed by smaller firms as well) on the one hand favours small and medium sized firms and gives them a real chance to win a contract. The requirement of tender by trades (that means that a lot, be it a small or a big one, must not include works from different trades) hinders general contracting. On the other hand tender by lots requires that the client employs - in-house or by contract - the capacity to prepare very detailed tender documents and to control first a more complex tender process and later on a more complex design and production process with many specialist actors. So clients are both encouraged and obliged to build up (or to buy in) a certain capability. In particular the experienced client is strengthened versus the contractor, whereas the casual client is forced to employ a

¹¹ In the last years especially by introducing EU public procurement regulation. This is not covered in detail here.

¹² It may be of interest, that a decree of the Minister of Public Works of the State of Prussia from 1855 prescribes: «Excluded ... are such bids ..., which contain a claim of price being in obvious disproportion to the respective performance or delivery, so that according to the price requested a qualified execution in itself can not be expected». Cf. Daub (1976 p. 74).

professional agent doing the tasks for and on behalf of him. In addition, the casual client is obliged by law to employ a professional expert to perform the design and present it to the public authorities to obtain the building permission. Among other facts this is the basis of the central role of the *Architekt* in the German construction system, which will be discussed later on. To the experienced client, who can employ in-house-professionals, the tender by lots gives the possibility of a better, because more detailed, cost and process control than the cooperation with a *Generalunternehmer*. This is empirically confirmed by experienced clients, who with nearly no exception said, that they prefer tender by lots instead of contracting a *Generalunternehmer*.¹³ Third point of what was called an industrial policy option is the very strong emphasis laid by the *VOB* on quality, solidity, and cost-benefit-analysis instead of pure cost saving. That follows as shown a long tradition in public procurement in Germany and also a widespread belief in the German (not only construction) industry, that nothing is as expensive as a cheap¹⁴ performance.

Although the *VOB/A* prescribes the tender by trade as the general form, tenders can ask for a *Generalunternehmer*. In public procurement this has sometimes occurred recently, when public authorities have tried to reduce cost and abolished their planning departments. They then often use the form of tender on performance specification¹⁵. This means, that the client does not work out a *Leistungsverzeichnis*, but only prescribes the purposes and functions the construction shall have («one school»). In the tender process bidders then have to offer the complete design, planning, and construction. This form, although sometimes covered under the term of *Generalunternehmer*, for better distinction should be named *Generalübernehmer*. But terms like this often were formed according to particular situations and therefore lack of clear definition and general meaning. So a *Generalübernehmer* can also be employed on the basis of an architectural design, which was done before tender. It then has to adapt this design to the detailed needs of the client, to the financial possibilities or to the requirements of the construction process on site.

PUBLIC AND PRIVATE CLIENTS IN GERMAN CONSTRUCTION

Although the *VOB/A* is an important and influential document of regulation, the extent of its use must not be overestimated. As tables 3a and 3b show, public clients, for whom the *VOB/A* and open tender procedures are obligatory, in 1993¹⁶ formed about one fifth of total construction volume only. In the main trades sector the ratio was less than one third, and only in civil engineering it was the greater part (about 75 per cent). It may be of interest, that among the public clients the local authorities¹⁷ form by far the greatest amount with nearly 60 per cent of all construction volume, whereas the Federal Government has little more and the *Länder* little less than 20 per cent.

THE SOCIAL CONSTITUTION OF CONSTRUCTION MARKETS IN GERMANY

The construction process is dominated by two main conditions: the site-orientated character of production and the predominant influence of the client on product and process (cf. Angermaier 1981; Schneider et al. 1982; Unger, vanWaarden 1994; Pahl et al. 1995). In Germany¹⁸ both conditions result in the fact that construction markets are regional, sometimes even local, markets which are dominated by the demand rather than the supply side. By far the most construction projects are tendered on a regional or even local market by regional or local clients, who give orders to regional or local enterprises.

This fact is based on two arguments: a cost argument and a social argument. The cost argument follows from the fact, that in construction not the product, but only the production facilities (plant and labour) are transportable. But to transport plant over long distances or to

¹³ This information, even if not systematically gained, is very evident by many interviews, which have been done for different empirical studies in construction by the author.

¹⁴ The German term *billig* (which is equivalent to the English «cheap») has a twofold meaning: it indicates «at low cost» as well as «of low quality».

¹⁵ In German this type is called *funktionale Leistungsbeschreibung*.

¹⁶ More recent data on this specific breakdown is not available. But structures have not changed for more than 15 years, except a certain shift from new building, especially in residential building, to renovation.

¹⁷ Basic local authorities can be *Gemeinde*, *Stadt* (town, city) or *Landkreis* (county).

¹⁸ This argument leaves open how far these conditions are «natural» or «societal» Especially international comparison makes clear, that under the same conditions different solutions can be developed.

use labour for a longer period far from home is so expensive, that the advantage of a lower price usually disappears. It is unnecessary, if both facilities are present near to the site in the same quality. Therefore the "typical» German construction firm is strongly established in local or regional markets.

| | public % | private % | total % |
|--|----------|-----------|---------|
| Building | | | 80.1 |
| Residential | | 49.3 | |
| Commercial | | 22.9 | |
| Public | 7.8 | | |
| Civil engineering | | | 19.9 |
| Commercial | | 6.8 | |
| Street works | 5.1 | | |
| Public | 8.1 | | |
| Total | 21.0 | 79.0 | 100 |
| Total construction volume ¹ | | | 516.4 |
| Public construction ³ | 100.0 | | |
| Federal government ⁴ | 21.2 | | |
| Länder | 19.4 | | |
| Local public authorities | 59.4 | | |
| Total | 51.6 | | |

Table 3a: Construction volume by type of construction and client 1993

| | public % | private % | total % |
|---------------------------|----------|-----------|---------|
| building | | | 66.1 |
| residential | | 35.2 | |
| commercial | | 23.6 | |
| public | 7.4 | | |
| civil engineering | | | 33.9 |
| commercial | | 8.9 | |
| street works | 10.8 | | |
| public | 14.2 | | |
| total % | 32.4 | 67.6 | 100 |
| total amount ² | | | 218,9 |

Table 3b Construction volume in the main trades sector by type of construction and client 1993

¹ in bn DM; current prices; including main trades, finishing trades and other sectors.

² in bn DM; current prices; including main trades only.

³ 1995 ⁴ Without military construction.

Sources: *Deutsches Institut für Wirtschaftsforschung (DIW): Zeitreihen für das Bauvolumen der Bundesrepublik Deutschland Berlin 1994* and *Zentralverband des Deutschen Baugewerbes: Analyse und Prognose '95, Bauwirtschaftlicher Bericht 1994/95, Bonn 1995, p. 108-9*; own calculation.

This argument is valid not only for small and medium sized firms, but also for the big, nation- or even world-wide operating ones. These companies consequently have built up a dense network of local subsidiaries to be present on local markets as «home-firms». The firm structure in the German construction industry therefore shows very few big firms¹⁹ compared to the overwhelming majority of medium and especially small and very little ones. But employment and turnover figures indicate, that medium and bigger firms of course have a greater weight in the industry (see table 4).

Whereas the radius inside which a small or medium firm is working is limited by the cost argument to a distance which makes daily return from site possible to avoid additional payment for accommodation and special payments, for the subsidiary of a bigger company the business area is restricted additionally by the structures of the company. Each regional subsidiary is normally responsible for a region with a radius of about 100 kilometres and in this area it has to do the total of the operating business of the company (with a clear

¹⁹ «Firms» here are all independent in other ways, and form business units, even if they are subsidiaries of bigger companies.

demarcation with other subsidiaries of the same company). Subsidiaries usually act as profit centres with full responsibility for their business. The functions in the company at higher levels, the main subsidiary and the company's headquarters, offer special services to the subsidiary, but do not interfere with the operating business. The regional subsidiary is normally no bigger than a medium sized firm and has between 50 and several 100 employees. Only in a few cases (especially in regions with a big construction volume) do big companies' subsidiaries have 1000 and more employees.

The cost argument for the regional or local orientation of construction firms is complemented for the case of Germany by a social one. In construction the client does not purchase a well-established object of mass-production, but a single product which is a prototype. And strictly speaking he does not purchase a product, but the promise of a product. He does not purchase the work of the contractor, but its supposed and promised capacity of work. But when a project is under construction, always and nearly inevitably imponderables come up, which the client, who normally is not an expert, is unable to foresee (and very often even experts cannot). Because of these imponderable factors like time, cost, and quality cannot be controlled before the contract is signed. Indeed these parameters are fixed in the offer given by the construction firm and this offer is obligatory. But if an offer will be fulfilled or not, one can see not before, but first during the construction process and after the work is done and the product is ready. This marks a fundamental difference to other markets.

The client in other markets to a certain extent can control the market by the «classical» client's option, the decision to buy or not to buy a product after he has inspected and sometimes even tested it. The client in construction on the contrary has to buy a product which does not yet exist, and he has to buy it on the basis of a design he can neither interpret nor evaluate. He cannot decide not to buy a product, if it is different from what he thought, because when he first can inspect and evaluate it, it is just ready and he has already bought it. So for the client the situation is much too complex to control. To supervise and examine the construction process itself, especially to evaluate the means and measures the contractor uses during the process, is normally impossible for the client and very often also for his agents. So what he needs is somebody who reduces this complex situation for him as much as possible. The employment of professionals, either in-house or by contract, only shifts the principal problem to another level, because evaluation of the work on site can be executed effectively only by the contractor itself.

| Size of firm (by employees) | % Firms | % Employment | % Turnover ^a |
|--------------------------------|------------|---------------------|----------------------------|
| 1-9 | 57.0 | 12.1 | 9.4 |
| 10-19 | 21.8 | 16.2 | 13.2 |
| 20-49 | 13.8 | 22.2 | 19.8 |
| 50-99 | 4.5 | 16.6 | 17.2 |
| 100-199 | 2.0 | 14.7 | 16.7 |
| 200-499 | 0.7 | 10.8 | 14.2 |
| 500 u.m. | 0.2 | 7.4 | 9.5 |
| Total | 82.226 | 1.534 ^{b)} | 223.0 ^{c)} |

Table 4 Number of firms, employment and turnover by size of firm 1994.

^{a)} 1993 ^{b)} in 1.000 ^{c)} in bn DM

Source: Statistisches Bundesamt, Fachserie 4, Reihe 5.1

But how can the client know, that the contractor will reduce the complexity of the situation not only in its own, but also in his, the client's, interest? A fruitful theoretical concept to answer this question is the one of «trust», which was introduced by Luhmann (1968). Luhmann points out, that «world» as basic condition and environment of man is of an infinite complexity, so that the amount of information is too great to be processed and action based on rational choice is impossible. But action also is inevitable. Therefore complexity has to be reduced. One medium to reduce complexity is «trust». Trust can be placed in norms and rules, in institutions and procedures, and/or in persons. The reason for a rule need not be known or even understood, but following the rule reduces complexity and makes meaningful action possible. Complexity is reduced for the receiver of the result of a work not if he knows,

how a task is performed and why - this could be and remain unknown and opaque - but if he knows, *who* is doing it. It is not the knowledge of the complex process which enables him to be sure that he will get, what he wanted to, but the knowledge of the particular person who is managing it for him - who thus reduces for him the complexity. And that is, what the contractor is doing for the client.

And this is not only valid for the casual client, but - in another way - it is true for the experienced client too. Whereas the casual client does not know at all what has to be controlled on a site during a construction process, the experienced client knows it too well. So he has - from different viewpoint - the same interest, that is, to find a construction company, which is long-term established in the market and has been proved as trustworthy concerning the control which is required in the interest of the client. Experienced clients therefore very often - without reducing competition - try to build up long-term business relations to a couple of contractors. This is not only true for private clients, for whom it may be obvious, but also for public ones. Also public clients have an interest in stable long-term relations with trustworthy firms and although they can not evade *VOB/A*, they have some space to manoeuvre for example according to their duty to examine offers and to determine their quality.

The contractor tries to do the same (or the complement). It is acting under conditions, where demand is crucial and which does not give it control of the rate of utilisation of its production facilities. To get orders it can only react, but rarely act. So the contractor has two possibilities to present itself as trustworthy: one is reference projects, and the other is persons who represent the firm. So it can itself build up long-term business relations only if it delivers again and again construction works to the full and lasting satisfaction of the client; in other words: if it can present itself as trustworthy concerning the crucial parameters of the construction process also in the interest of the client.

Presentation of a firm happens through its representatives, that means: by persons. The promise of the contractor, which it offers to be bought by the client, is not an abstract capacity of work and the trustworthiness of an enterprise (although tradition plays a role here), but the capacity and trustworthiness of its representatives: managers, engineers, workers. So the mechanism of real supervision, to which the contractor is subject to a great extent, is a social control between the persons, who act in the network of clients, professionals, and firms representatives. That is why the contracting system in the German case is a social system too. Representatives of firms guarantee as responsible persons the trustworthiness of their firms on the level where firms are invited to tender and construction orders are placed. And that is why it is the local area where the network as a social system can be constructed and can be set to work much better. Here information is close, direct, detailed, and can be processed and evaluated fast and without much loss. Trust works well, because «people know each other».

This is, what can be called the social constitution of construction markets. It is - beside the cost argument - through this person-to-person relation (i.e. this social supervision and control) too, that clients prefer to co-operate with «home-firms», which are well proven, well known and highly regarded also by other experts and important actors inside the network.

THE PROJECT COALITION AND ITS RECENT DEVELOPMENT

While the client is the legally dominant actor in the project coalition, the key actor in the German system is traditionally the *Architekt*. The *Architekt* is the classical agent of the client - mainly of the casual client, but also of the experienced one, who does not employ in-house professionals himself. This key role has been changing recently. Other actors are taking over the role of the *Architekt*. This simple fact is not new, because the work of the *Architekt* has always been performed in different ways. But to describe a traditional role of the *Architekt* it is useful to present a scheme which then makes it possible to understand both this crucial role in the project coalition and its recent change.

The Key Role of the *Architekt* in the Construction Process

The right to bear the title of an *Architekt* in Germany is dependent upon to a professional education at a *Fachhochschule* or a university, a certain period of professional experience under the supervision of an admitted *Architekt*, and inscription in the Chamber of *Architekten*. As a member of this Chamber the *Architekt* has the right to sign the application, which will be presented to the public authorities to obtain the building permission - and it was until recently only the *Architekt* who had this right.²⁰ This so-called *Planvorlageberechtigung* is the main basis of the key role of the *Architekt*. But a more detailed analysis demonstrates that the term *Architekt* in Germany has the same twofold meaning mentioned in the introduction. It indicates on the one hand a certain professional qualification and competence, acquired through a particular education. On the other hand it has a functional connotation, because the *Architekt* traditionally is the one, who as an independent professional²¹ is working for and on behalf of the client by contract. As an expert with a specific professional education, an *Architekt* can do - and in many cases does - the same work, when he is employed by a client as an in-house-professional. But then nobody would use the term *Architekt* to indicate the actor in the project coalition who performs this role. It would be said, that the client has taken over the role of the *Architekt*, although the professional qualification and competence is still in use in the same way. The only thing the *Architekt* as a person has lost, is the status of independence in economic and tax terms.

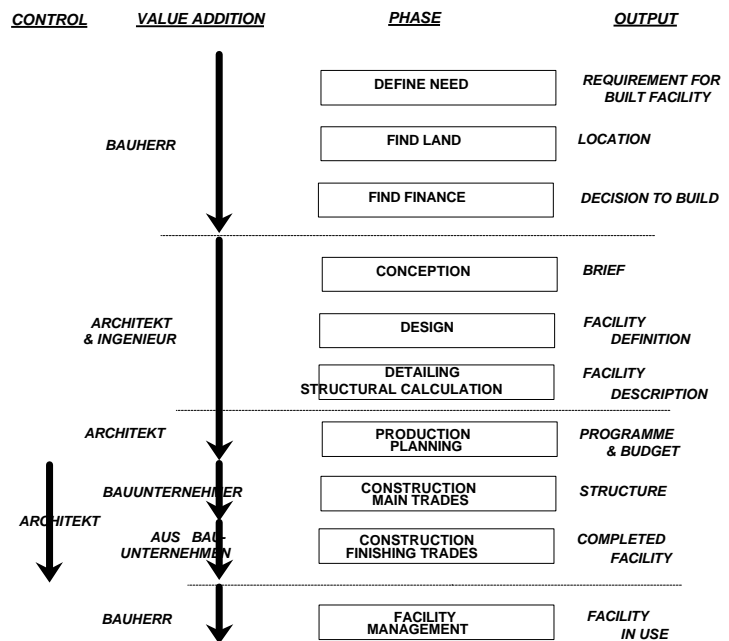


Figure 1 - Traditional Trades Contracting

So what is called the key role of the *Architekt* in the project coalition (equivalent to the *maître-d'œuvre* in France) is not the role as professional expert, but the functional one and the legal and economic status as an independent professional. And it is this functional role and this status which are under pressure and undergoing change, not so much their professional expert's qualification and competence. If today other actors take over the role of the *Architekt*, which they in fact have done for a long time, they probably will continue or start to employ *Architekten* as in-house-professionals and not replace their qualification and competence as professional experts. Apart from this, the qualification and competence of *Architekten* may and should change to meet the needs of a modern project organisation in construction, but these changes will keep their particular value for the construction of the built environment.

The key role of the *Architekt* in the project coalition can be described best by taking the traditional form of running a project. The process responsibilities and structural (contractual) relationships within the project coalition are illustrated in figures 1 and 2 respectively. This role consists of a threefold mediation.

²⁰ This is under change, because recently similar Chambers for civil engineers were established by the *Länder* to give in principle the same legal status to admitted civil engineers.

²¹ This type of independent professional is strongly promoted by German law, in particular by tax law.

It is the *Architekt*, who first transforms the needs and wishes of the client into something which can be built. He makes the first draft of the project and by doing so, he first mediates between the idea of the client and the reality. So it is the *Architekt*, who decides not only the form and dimensions of the building, but also the technology and very often even the materials. He then makes a technical description of the building and he later works out the detailed design²², which is the basis of the application for the building permission, the tender documents, the work of the structural calculation, the production planning, as well as the layout of formwork and reinforcement, made by the contractor²³. He also makes a rough cost estimation. Those structural engineers, who normally are employed by contract to work out

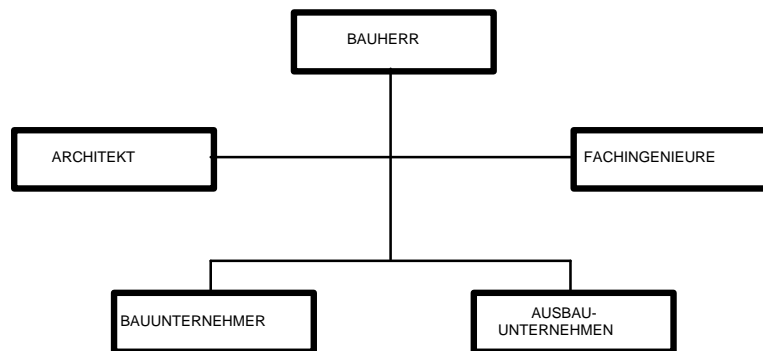


Figure 2 - The Traditional Project Coalition

the structural calculation in this phase, normally have a contractual relation only to the client.

The second mediation task concerns the building permission. It is the *Architekt*, who on behalf of the client obtains it. The urban planning scheme, to which every building must fit, represents the public or societal interest in the construction of the built environment. The single building on the contrary represents the individual interest of the client, who wants to consume land or to realise the value of a building. These two interests differ and can be opposed and it is the *Architekt* who has to mediate between them.

After obtaining the building permission the *Architekt* prepares the tender documents, (i.e. the specified list of performances, the *Leistungsverzeichnis*) required. He coordinates the tendering process, assisting the client as a consultant to place orders with the contractors or selecting them in the tender process. Here too, all contractors are in contractual relationship only to the client. This process means thirdly, that the *Architekt* mediates between the demand for construction facilities and the supply of them. This process results in a certain amount of cost for the client and therefore in a ratio of appropriation of economic means to particular needs. And it results in a price for the construction performance and therefore is a measurement of the value of construction work in the society, valid for companies, workers and professionals. Finally it is the architect, who normally makes the time schedule and the overall organisation plan (who starts when and works how long on site) and who supervises the works on site, regarding programme, and the conformance of work to the specification, on behalf of the client.

²² This can be done also in-house by the client or another actor employed by the client to save money.

²³ Or by a structural engineers, contracted by the contractor.

A Particular Role in the German Contracting System: The *Prüfingenieur*

At the structural calculation stage, another actor enters the stage of the project coalition, whose particular role is not found in other contracting systems. In Germany the structural calculation, be it done by in-house professionals of the contractor or by independent professional consultants engaged by the client, has to be examined by an independent actor before the work on site is allowed to start. This is the so-called *Prüfingenieur*. For every building, a *Prüfingenieur* must be engaged by the client, who has to pay all the expenses and fees. But the *Prüfingenieur* is independent from the client and responsible only to the public authorities, by which an engineer is given the permission to act as *Prüfingenieur*.

The *Prüfingenieur* examines the structural calculation, the construction drawings and the layout of formwork and reinforcement. If he finds errors or mistakes he can demand changes in all these documents before letting them pass. So the structural engineers have not only the possibility to correct faults, but there is an obligation to do so, because without the examination of the structural calculation by the *Prüfingenieur* the building permission can not be obtained. The same procedure has to be undergone, if there are changes concerning the structural design, while the construction is under way. Without construction drawings and layouts signed as correct by the *Prüfingenieur*, works on site must not go on.

It is not the business of the *Prüfingenieur* to act as a consultant and even in the case where changes have been executed on his demand, he does not take on any liability, which remains completely with the other actors. But quite often a *Prüfingenieur* informally gives help to the structural engineer working out a structural design and his remarks can be considered from the very beginning - so that *in fact* often there is not a big difference from how a *bureau de contrôle* is working.

A *Prüfingenieur* in person is normally a very well experienced structural engineer. His task is to check structural design and drawings and he can demand changes in them before letting them pass and construction works can start. However the function of the *Prüfingenieur* is not seen as an overall censor or as a «hostile» agent of the client. On the contrary, structural engineers estimate this function as helpful to them. If a building is simple, the work of the *Prüfingenieur* is fairly a routine one, if it is difficult, it provides for the structural engineer and the construction firm the benefit of what is called «The Principle of Four Eyes». Because errors or mistakes can occur to the best professional, everybody feels better if somebody else is checking what is difficult and responsible work which can have severe consequences in the case of error.

Moreover engineering firms having a licence as *Prüfingenieur* normally also work as structural engineers, so that it is quite common, that in a building project the one engineering firm is engaged as structural engineer and the other one as *Prüfingenieur*, and in the next project *vice versa*. So *Prüfingenieure*, although they act towards the single building project from outside the project coalition, with respect to a local network of the construction business are far from being outsiders.

The Changing Role of the *Architekt*

Despite the fact, that the *Architekt* is still a key actor in many project coalitions, his role is recently more and more changing. In principle the role he can play in the project coalition is obviously bound to his personal capacity and that of his team. So very efficient architectural offices can even work on very big and complex projects or they can act as project managers. Others who work on their own or with one or two partners only, or who restrict their work to the aesthetic part of the design and do not take much care of the growing needs for cost saving, the possibilities of production-oriented design, and the requirements of project management methods may lack of the competence to play an equivalent role in a complex and efficiency-orientated project coalition. But despite their ability to meet even the needs of very complex projects their key role is increasingly overtaken by other actors. An growing number of buildings recently are undertaken by *Generalunternehmer* and in particular by *Generalübernehmer* or *Projektentwickler*. These actors have not appeared recently, but have existed for some time.

The forces which are pushing the recent development are various. First, some building types have become more complex, so that new competencies are required. Second, especially in the private sector, more and more seller-clients occur, to whom cost and time are most important parameters and who prefer to give their orders to *Generalunternehmer* or to *Generalübernehmer*. Third, and obviously most important, contractors more and more tend to move into that field. In all cases the functional role of the *Architekt* or at least parts of it will be taken over by contractors. This leads to the result, that the threefold mediation task, which has been traditionally part of the *Architekt* role, has also been taken over by contractors. This provides new tasks and new requirements for their professional organisation and sets new qualification demands for their employees. Although it is observed, that this will result in employment of *Architekten* by contractors (Syben, Stroink 1995), this will save the role of the *Architekt* as professional, but not his functional one as an independent actor with a key position inside the project coalition.

The contractor in the German system on the other hand is inside the project coalition in a very uncomfortable position. It is situated at the end of the line, starting its work when all decisions are made. So it has the turnover and the chance of a profit, but it also has by far the greater part of the risk and only a small chance to control it. All it can do is to try to meet the needs of the client, but he is rarely able to influence them, neither by defining his needs nor by doing the design. That is why for bigger projects very often contractors try to build an *Arbeitsgemeinschaft*²⁴ so that they can share workload and risk. If the construction firm fails to perform what it contracted for, the client also carries the risk, that it did not get what it ordered in terms of quality, time or cost. But the client can require the overhaul of the work at the expense of the contractor and he can hold back or reduce the final payment. All these possibilities are at the full risk of the contractor; even more, it risks losing not only money, but also its good name as an effective and trustworthy contract party.

So in particular the big contractors, but also medium and even small ones have for several years tended to avoid the situation, in which they can only react to decisions made by clients and *Architekten*. They mainly use two ways (which are well known from the recent development in other countries in the European construction industry too): the one «upwards» is to take over the design process and in particular (with the help of a bank) the financing of a project; the other one «downwards» is to take over the management of the building, sometimes (but until recently very rare) doing both in the form of concession contracting. There is in fact a great difference between the traditional experienced client, who employs *Architekten* as in-house professionals and those new strategies to take over the role of the *Architekt* in the project coalition by contractors. These new

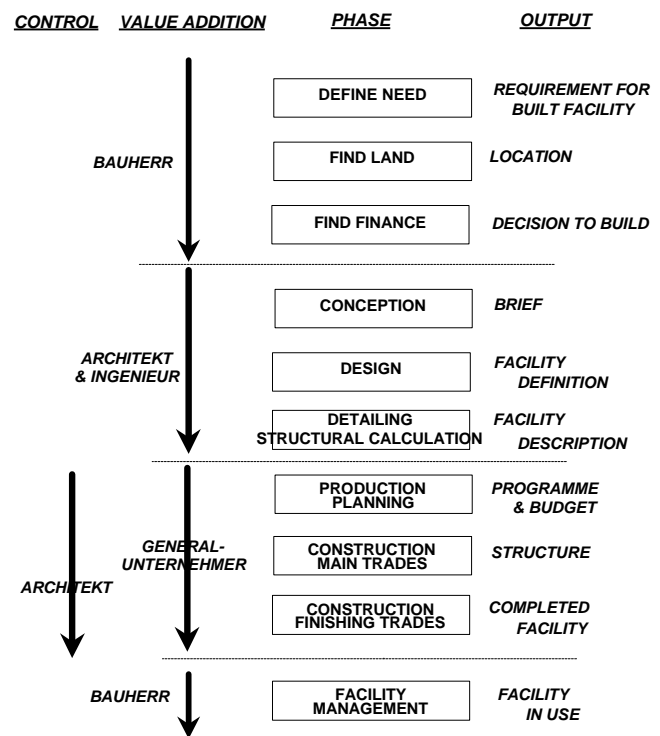


Figure 3 - The Construction Process : the Generalunternehmer Form

²⁴ An *Arbeitsgemeinschaft* (briefly: *Arge*) is a legal possibility to build a firm on time, bound to the programme of a project. It is therefore equivalent to a consortium (cf. Contribution 1).

strategies will lead to the result, not that the client takes over the design and thereby integrates the role of the *Architekt* into its professional organisation, but that the contractor now integrates the role of the client and therefore takes over the whole process. It indicates a shift from demand priority to supply priority, or from consumers towards producers.

The Generalunternehmer

For the construction firm the step from acting as a contractor for the structural works on site being in a legal relation to the client towards acting as *Generalunternehmer* can be seen as a strategic decision towards a fundamental change of its role in the project coalition. It can be considered «fundamental», because the contractor starts to leave its traditional role at the end of the decision line and takes over itself client-like functions of organising tender processes and placing orders with other actors. The *Generalunternehmer* is in the construction phase the only one to have a contractual relation to the client and is the only one responsible directly to the client for the whole process and the whole building. As *Generalunternehmer* the contractor integrates a greater part of the construction project and enables itself to control it more extensively. Its turnover and therefore its possibility to make profits increases, but so does the economic risk, in particular, because under German law all warranties and obligations remain to the *Generalunternehmer* and cannot be shifted to subcontractors. This is illustrated in figures 3 and 4.

Consequently, with increasing number of *Generalunternehmer* projects the number of subcontractors grows. Between 1980 and 1994 the big contractors increased the ratio of subcontracted works from 25 to 35 per cent (Syben 1995 p 43). But this is not the only reason why the construction process is more and more fragmented and the number of actors in the project coalition goes upwards. One reason is that contractors try to ease their own business by subcontracting as many trades as possible, because they save the expenses for calculating themselves every single task by shifting that work on to the subcontractors. The other reason is that firms (not only in construction) more and more often decide not to make, but to buy even those services that they traditionally have made in-house.

This concerns, for example, EDP services, production planning and work preparation, and structural calculation. If the respective departments were outsourced and transformed into self-reliant acting commercial units (although they become economically not totally independent), the process of integrating more phases of the construction process into the construction firm will be accompanied by a process of disintegration of the construction firm itself (cf. Syben 1995).

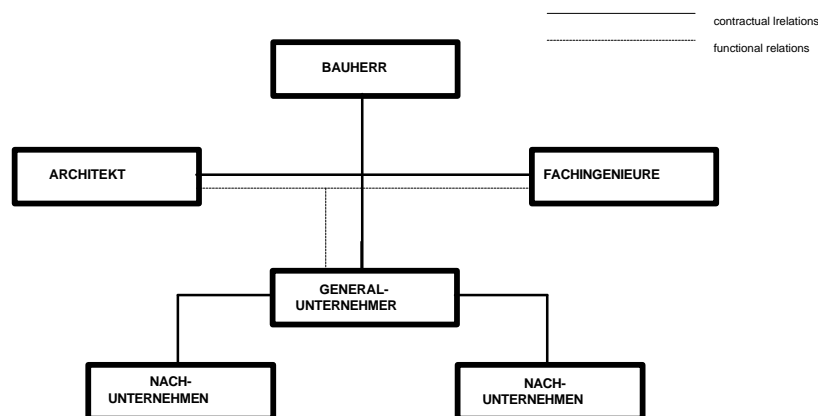


Figure 4 - The Generalunternehmer Project Coalition

The contractual relations between the *Generalunternehmer* and the *Architekt* can be different. Some clients still employ an *Architekt* in his traditional functional role, so that

contractual relations exist only between the client and the *Architekt* on the one hand and the *Generalunternehmer* and the client on the other, but not between the *Generalunternehmer* and the *Architekt*. The *Architekt* (or the planning department of the client in the case of an experienced client such as a public authority or a bigger company) then prepares the specification (*Leistungsverzeichnis*). In these cases the *Generalunternehmer* receives the *Leistungsverzeichnis* by another actor and works on its basis in the traditional way of a contractor. In particular it itself produces the superstructure mainly with own workers and subcontracts all other trades.

For very big projects with a large project sum, for very complex ones with a lot of participants and actors, or for projects which need a particular, highly professionalised control of cost and time schedules, clients may employ a special project manager - the *Projektsteuerer* or *Baubetreuer*. This is normally a specialised or a very experienced consultant, typically a civil engineer by education, whose role is to control the project on behalf of the client. He is in contractual relation only with the client and normally paid on a fee basis, which is sometimes linked to results. He is a consultant to the client and has no directing authority over any other actor, but because he acts on behalf of the client, he in fact has a great influence on the decisions.

One change the contractor undergoes if it becomes a *Generalunternehmer* concerns the need to tender for subcontractors, not only, in particular those for the finishing trades. In bigger firms this new demand results in a change of the professional organisation. A department for tender will be established, and the departments for work preparation, supervision and control on site will be reinforced. Quite often these firms meet the new qualification demands by hiring new staff, which can consist of employees, who have an education as *Architekt* (Syben, Stroink 1995). In small and medium construction firms acting as *Generalunternehmer*, these tasks are taken over by managers or owners, who by profession mostly are civil engineers.

Also the situation of the finishing trade contractors changes. As long as they had contractual relations only with the client, their situation was not too disadvantageous. The *Architekt* as overall controller was an expert in design and construction, but often not in project management. So contractors have had sometimes plenty of space in which to manoeuvre. If a construction firm becomes *Generalunternehmer* and the finishing trade contractors become its subcontractors, then their counterpart changes fundamentally. It is now a company, which not only has a totally different economic and financial background, but which employs also highly experienced construction professionals, by far superior to that of the subcontractors in the relevant technical and managerial expertise.²⁵ So the situation for subcontractors becomes very

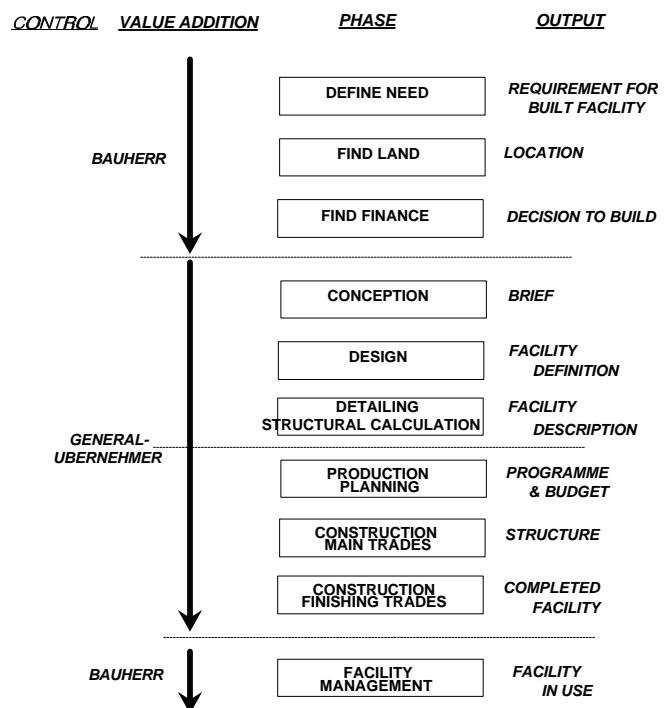


Figure 5 - The Generalübernehmer Process

²⁵ Not to speak of the skills of its lawyers and its financial background to institute legal proceedings against a subcontractor.

uncomfortable. Some *Generalunternehmen* reported that they intend to establish stable, long term relations to particular subcontractors, but until recently this seems to be more intention than action.

Sometimes in the case where a construction firm is employed under the label of *Generalunternehmer*, the client prefers to give also the design and the detailed planning to it. This creates different contractual relations and at the same time changes the roles and the relations of the actors. For better analytical distinction the contractor then should be titled as *Generalübernehmer*, a term often, but not always used to indicate this type of contractual relationship between the actors.

Generalübernehmer

The step from *Generalunternehmer* to *Generalübernehmer* is made if the contractor also takes over the design and the whole of the traditional functional role of the *Architekt*.²⁶ It is then the contractor which has to make the detailed planning, to provide the structural calculation, the building permission, and a detailed cost estimate for the whole project, as illustrated in figure 5. Now it crosses the border of the phases defined in the generic model of the construction process above and takes over the conception phase. It integrates a greater part of the work and therefore of turnover and of the possibility of profits. The risk situation is now different. On the one hand, risk is reduced because the contractor now has made the design itself and thus is able to eliminate problems on site. Lower risk is a result of increased control. On the other hand, increased control means also increased responsibility, and because the contractor as *Generalübernehmer* is now responsible for the design also, it has integrated another source of risk. The structural relationships within the project coalition are illustrated in figure 6.

A *Generalübernehmer* is usually able to execute all design and planning work in-house and therefore also employs those who are *Architekt* by education. Small and medium contractors, because they only very exceptionally employ structural engineers and because

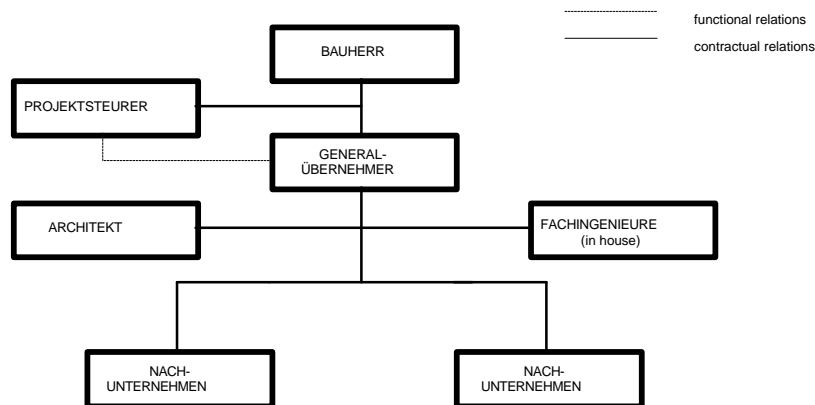


Figure 6 - The Generalübernehmer Project Coalition

they are not prepared to take the risk of a whole project, very seldom work as *Generalübernehmer*. If a *Generalübernehmer* employs an *Architekt* by contract, this one nevertheless undergoes a fundamental change not of his role as a professional expert, but of his functional role as an independent professional. He is still independent in a legal, but not in a real way. And also the *Generalübernehmer*, if it is a contractor, may itself produce the structure mainly with its own workers and subcontract all other trades.

²⁶ Sometimes it takes over the economic responsibility for the design only and, to perform the task, it employs an independent *Architekt* by contract.

The client in contract with a *Generalübernehmer* is much more likely to employ a project manager or *Projektsteuerer* to win back an equivalent control power to that of the *Generalübernehmer*, which has integrated also the design functions of a project and therefore increased the range of its control possibilities.

Projektentwickler

The last step for the contractor is to integrate finally also the clients function in the decision phase defined by the generic model above is in Germany mostly named by the term *Projektentwickler* (project developer) (cf. Syben 1994). This illustrated in figure 7. A *Projektentwickler* is very often a construction firm and there are not only the big companies, but also some medium sized firms which participate in this phase. Different from a *Generalübernehmer*, for whom it is significant, that he takes over the design phases and functions of the *Architekt*, for the *Projektentwickler* it is significant, that he takes over the client's functions. In principal it then has integrated the whole process from the definition of a need for a building to the performance of the work on site. So he has integrated all the turnover, the profits, and the control. He may have further reduced the typical risk of a contractor, but now carries the full risk of a seller-client. This risk is very often tried to be reduced by leasing or selling the building or parts of it in a very early stage of the project, if not before works on site have started. In this case the later user regains some of the client's possibilities and responsibilities, so that he shares a part of the burden of the risk with the *Projektentwickler*. The structural relationships associated with this form are illustrated in figure 8.

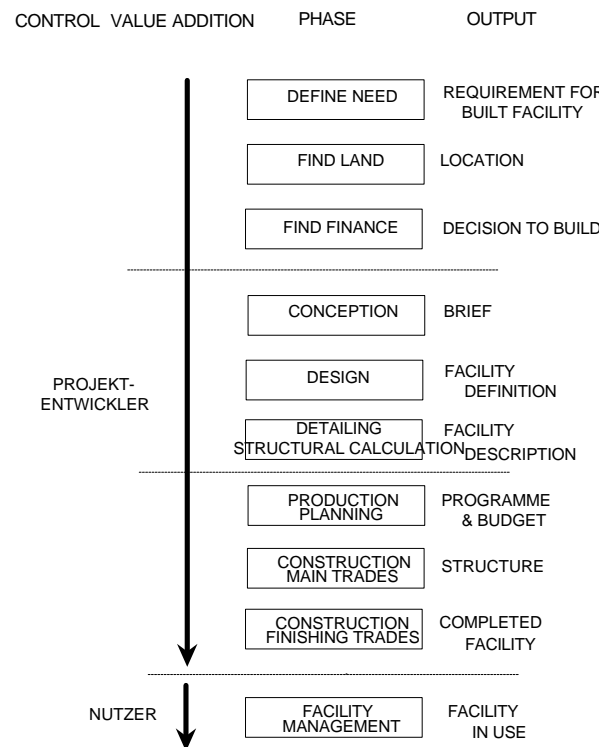


Figure 7 - The Projektwickler Process

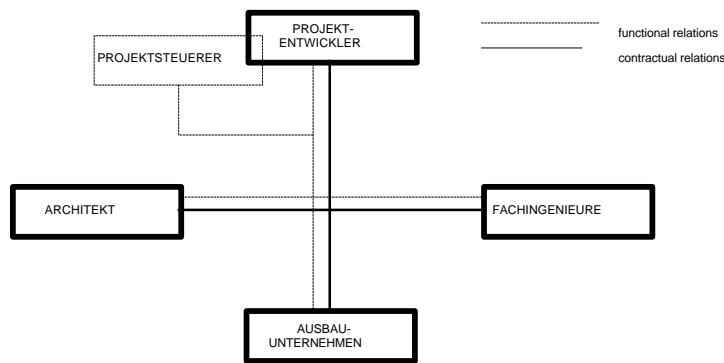


Figure 8 - The projektwickler Coalition

The characteristic lack of personnel which are employed on design and structural engineering tasks, prevents medium contractors from becoming *Generalübernehmer*, but not *Projektentwickler*. Here the crucial question is that of the financial and technical dimensions of a project. If the project to be developed is a 50 storey office block, a sports and recreation area or a whole city quarter, it may be reserved to big companies, which are able to take the economic risk and provide the technical competence even in-house. But a project in this sense of the word can also be a housing development with 20 to 30 one family houses, and these types of projects open up possibilities for medium contractors too.

Contractors, which start to work as *Projektentwickler*, very often form an *Arbeitsgemeinschaft* with a professional property developer, a real estate company and/or a bank. These actors on the other hand sometimes themselves can act as *Projektentwickler* on their own. In this case in the project coalition the contractor can act again as *Generalunternehmer*, *Generalunternehmer* or in the traditional way as contractor.

If a contractor takes over not only the clients functions in the design phase, but those in the phase of using the construction after completion, this is named *Betreibermodell*²⁷. This form is mainly discussed in connection with concession contracting. One reason is that it seems to be an easy solution to many problems of the public authorities at once, to relieve them from the financing both the investment and the running of public infrastructure. The other one is, that it is mainly the construction industry which proposes the integration of constructing and running infrastructure facilities.

But both concession contracting and the private financing of public infrastructure were until recently seldom used in Germany. Even strong supporters of the private financing of public infrastructure do not support building them on a private at risk basis. The private financing of public infrastructure in most cases means that private companies intend to get their money back not by fees from customers or users, but by interest payments from the state. So fee systems are only discussed as a way of re-financing *public* and *not private* investment. But this form of private pre-financing of public infrastructure has come into doubt after the *Bundesrechnungshof* (the federal auditing board to supervise the finances of public authorities) has mentioned in its recent annual report on the basis of a detailed analysis, that the private financing of public investment is more expensive to the tax-payer, than public financing (cf. *Deutscher Bundestag* 1995 p 58-62). The key argument of the *Bundesrechnungshof* is that between private and public financing there are no differences either in contracting sums or in the extension of refinancing periods, but that the interest rates given to public authorities are lower than to private capital. Because - under the condition of missing fee systems for refinancing - in the end it is always the public authority

²⁷ The term *Modell* indicates that this form is a more recent development, and that more experience with it has to be acquired in the future.

(or in other words the tax payer), who has to pay for either the investment or the interest, and it has to pay more or it will get less, if the investor is private.

TOWARDS A PRODUCER SYSTEM IN CONSTRUCTION ?

If the developments recently identified in German construction were to be projected into the future, it would seem that it is undergoing change in one of its traditional basic features, and shifting from a client-orientated system with many actors involved towards a producer orientated system dominated by the contractors. But apart from the general precaution, not to identify a relative shift as absolute, it might be the case that there will be a greater balance instead of the former inequality, which was to the disadvantage of the producers. This possible new balance of advantages and disadvantages will generate inequalities again favouring the bigger contractors with respect to the other actors, whose number may even increase because of enforced subcontracting and outsourcing, leaving many of them in a worse position than before. In particular a sharper distinction between enterprises active in the market and those on the end of the decision line probably will be discerned.

However, at a second glance there are certain mechanisms embedded in the existing system, which make a quick and fundamental change less probable. First the nature of the product as long-term good needing a huge amount of financment can be supposed to be stable. In particular where the product of construction is an investment, it can be expected that investors will remain the ones who keep the traditional client functions and where no space is given for a market-orientated organisation of production. This may be different in those fields where buildings are more similar to a consumer good, like in housing or in office building. But it is as well not very likely, that the particular German habit of regarding the house as a good that a family buys once for life will change very rapidly. So the one-off-production of houses designed by an *Architekt* for and in discussion with the members of the family will retain a fairly big market segment. The family house will probably keep its character as an investment, and so the family house segment of the construction market will also keep its social constitution.

Secondly even if bigger contractors more frequently take over the functional role of the *Architekt* by stepping into the design phase as *Generalübernehmer* they still will have a need for the professional role of the *Architekt* and its particular professional qualification and competence to mediate the process between client and producer and between individual and societal interests towards construction. This will perhaps no longer be the *Architekt* as an independent professional, but as an employee of a big contractor - if for the sake of the construction of the built environment is an open question.

Thirdly by giving up the uncomfortable position at the end of the decision line in favour of a more active role in the market and integrating the role of the client, the construction firm will also take over the client's typical risks. The contractor as *Projektentwickler* may be able to integrate turnover and profits, benefit from a higher rate of utilisation of its production facilities, and increase its range of control of the whole process. But as much as it may be able to reduce the risk of a pure producer no longer dependent upon the clients needs and demand power by taking over the clients function, it integrates also the typical seller-clients risks, whose decisions can be accepted or refused by the market. If it does, its professional organisation may change, new professional roles and new qualification needs may occur. But the growing development towards integrating more and more phases of the construction process into the frame of the construction firm is accompanied by a process of disintegration of the construction firm, because it subcontracts an increased number of tasks and not at least its own former in-house services. The social constitution of construction markets as a characteristic of local German construction markets might disappear, if contractors transform themselves into producers for an anonymous market. But the more the construction firm tries to share the risk included with other actors, especially the later users of the building in a very early stage of decision making, the more the need for a share of risky decisions will remain. And a commitment to share a risk in a field, where the output is by nature indeterminate, never can be a commercial relation only but always will also keep the form of social relation too.