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# CONCEPTUAL MODEL FOR PARTNERING IN THE DREDGING INDUSTRY

## ABSTRACT

Partnering can be an instrument for increasing sustainability in the decision-making process of dredging projects. This article argues that sustainability in the decision-making process can be influenced by optimising the interaction between the public decision-making process and the technical design and construction process. These processes are strongly interrelated, although in practice the project-related responsibilities of involved parties are often allocated to either one of these processes, and stakeholders often have different interests in relation to the project. This can lead to sub-optimal interaction, resulting in adversarial relationships amongst partners and lose-lose situations.

Partnering on the other hand is a form of co-operation between contractor and client. Literature on partnering is diverse and plentiful, but remains unstructured and shows strong focus on success stories. Although this helps to gain insight into the potential of partnering, it does not allow parties to critically reflect on the threats and promises of partnering in their specific projects. Such reflection requires a conceptual model that identifies and

structures the main factors in partnering projects.

A recently published theoretical model for partnering, published in construction literature, is extended and modified here based on further literature review and two case studies of partnering in dredging projects. These projects are an infrastructure development project for a part of the Betuweroute and a spatial development project Wieringerrandmeer, both located in the Netherlands. The research results in a revised conceptual model for partnering can be used as an instrument for deciding on applying partnering, and, subsequently, to provide a checklist that aids the design of a partnering process and its continuous monitoring.

The author would like to thank Leon Hermans, Assistant Professor at the Faculty of Technology, Policy and Management of Delft University of Technology, for his contributions to this article, Dieuwertje Klazinga who

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Above: Partnering as a procurement tool involves proactive rather than adversarial involvement of the public and was used successfully for a coastal protection scheme here which reinforced part of the Southeastern English coastline.

supervised the process of the research and Royal Boskalis Westminster NV for its support for the research. The article was presented at CEDA Dredging Days 2008 in Antwerp, Belgium and is reprinted here in a revised version with permission.

## INTRODUCTION

The topic of the relationship and co-operation between Client and Contractor has been addressed repeatedly in papers, at congresses and during meetings in the construction industry in general and in dredging industry specifically. For instance, the report of a recent workshop on contract management in dredging mentions that: "neither the client, nor the consultant, nor the contractor is individually sufficiently knowledgeable about the environmental consequences of a project. All the parties together, however, can muster a collective expertise that will be of benefit to the entire operation". "...Existing knowledge must be better harnessed and utilised through more open sharing of expertise amongst clients, consultants and contractors" and: "In the end, prevention is far preferable over any form of dispute settlement and so using all

Figure 1. Fasiver, near Ghent in Belgium, is a brownfield that was rehabilitated. Using Partnering as a procurement tool helped deal with difficult high-risk issues involved in working at a contaminated site.

means in the pre-tender phase to reduce potential conflicts is advisable"<sup>[23]</sup>.

Secretary General of the International Association of Dredging Companies (IADC), Constantijn Dolmans, mentions that the IADC tries to encourage ports to get the dredging companies involved at an early stage in the long-term planning for the development of the ports<sup>[14]</sup>. He claims that innovations have been derived from collaborations between Contractors and Clients: "Increasingly clients understand that when contractors are given more space, it also benefits them"<sup>[13]</sup> (Figure 1).

The topic of co-operation gained attention because of the increasing complexity and size of projects and the changing contracts and responsibilities of the parties in the dredging market. With large and complex project, the design questions cannot all be answered at the start. The danger arises of parties maximising their individual profit instead of optimising project results. This happens because of a lack of clarity on the project, the lack of a long-term relationship between the partners and the low profit made on the project<sup>[28]</sup>.

In this article attention will be paid to a form of co-operation between client and contractor called "Partnering". Partnering is believed to have several positive effects on projects and to overcome problems with traditional approaches in construction industry, such as time and cost overruns and litigation within projects.

The questions of when and how a partnering approach can be usefully applied in dredging projects are addressed. Based on a survey of recent literature, a conceptual model for partnering is adapted and extended that increases the understanding of partnering and can be used to decide whether partnering is suitable for the project. This conceptual model is then compared with empirical data from two



case studies in the Netherlands resulting in further modifications, as well as some specific insights into the dynamics and conditions that affect the success or failure of partnering projects in practice.

## SUSTAINABILITY, DECISION MAKING AND THE DESIGN OF DREDGING PROJECTS

How does co-operation between client and contractor contribute to the sustainability of a dredging project? Although sustainability in dredging projects is sometimes reduced to issues of ecology and nature conservation, the general concept of sustainability is broader. It covers economic, social as well as environmental dimensions. Moreover, ever since the UN's Brundtland Commission defined sustainability in 1987, sustainability has been characterised by its focus on future generations and its concern for the long-term effects of current actions<sup>[e.g. 20]</sup>.

This means that for dredging projects, sustainability refers not only to an appropriate treatment of environmental interests, but also for instance to the long-term use of the resulting project by a client and the long-term market position of a contractor. These aspects of dredging projects all contribute to sustainability, even if they may conflict with each other. Why then in dredging projects is optimisation not always self-evident?

In realising a construction project three different phases can be distinguished:

- the design of the project,
- the construction or implementation of the project, and
- the finished project, ready for operations<sup>[24]</sup>.

This article leaves the operations of the finished project outside the discussion and focuses on the construction and preparations of the project. Large and complex dredging projects in the dredging industry are rapidly becoming the norm rather than the exception. These complex projects can be regarded as shaping and changing larger "socio-technical systems", that is, systems that are characterised by the interaction between society's institutional structures, technical infrastructures and human behaviour. In relation to socio-technical systems one can identify three different types of design:

- a systems design,
- a decision process design, and
- an institutional design<sup>[6]</sup>.

These three types of design differ highly from each other, although they have a clear relationship with designing a socio-technical system. Descriptions of the three types of design can be found in Table I. The table shows that the technical system design should lead to an artefact to be realised, while the process design should result in a decision, and the institutional design produces a set of rules.



Stephanie Janssen received the IADC Award for the Best Paper by a Young Author from Constantijn Dolmans, Secretary General of the IADC.

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CEDA DREDGING DAYS, ANTWERP, BELGIUM  
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An IADC Best Paper Award was presented at CEDA Dredging Days 2008 to Stephanie Janssen who graduated from Delft University of Technology in September 2007 at the section policy analysis of the Faculty Technology, Policy Analysis and Management. Her research on "partnering" was part of her thesis project for the Masters "System Engineering, Policy Analysis and Management" (SEPAM) at Delft University of Technology. This research was conducted for Royal Boskalis Westminster NV. She currently works as a junior researcher and advisor on integrated spatial development projects at the unit for scenarios and policy analysis for Deltares, a Dutch institute for delta technology.

Each year at selected conferences, the International Association of Dredging Companies grants awards for the best papers written by younger authors. In each case the Conference Paper Committee is asked to recommend a prizewinner whose paper makes a significant contribution to the literature on dredging and related fields. The purpose of the IADC Award is "to stimulate the promotion of new ideas and encourage younger men and women in the dredging industry". The winner of an IADC Award receives €1000 and a certificate of recognition and the paper may then be published in *Terra et Aqua*.

Table I. Design (Technical, Decision process and Institutional) according to Bots.

Technical design	Decision process design	Institutional design
<b>Design consists of</b> technical specifications, drawings and models (tangible artefact)	<b>Design consists of</b> a set of rules that the actors should observe during the course of the decision-making process (intangible artefact)	<b>Design consists of</b> a set of rules (intangible artefact)
<b>Product:</b> an artefact to be realised	<b>Product:</b> a decision	<b>Product:</b> internalisation of the rules in society, thereby changing human behaviour
<b>Based on assumptions on</b> the environment and the artefact	<b>Based on assumptions on</b> actor behaviour in response to the rules	<b>Based on assumptions on</b> behavioural and cultural aspects of collective actions

An example of the development and extension of a harbour shows how these three designs are all needed. In the case of a harbour, the technical design describes the piece of land to be reclaimed from the sea; it contains quays, sufficient deep waterways, breakwaters and so on.

The institutional design is used to make arrangements so that the reclaimed land becomes part of the harbour. It consists of a set of agreements on the use of the harbour; determining ownership, the rights and obligations of users, applicable legislation and so on.

The decision process design is a design applied to both the technical design and the institutional design. For example, the owner of the harbour is the one who had the idea to extend it, but as an extension of a harbour affects not only the owner but

also the people living around the harbour, the economy, the environment, the government and other things, the owner needs to discuss and agree with different parties to reach decisions.

This demonstrates that all the three designs are necessary to develop large and complex projects, in this case, a harbour. It also shows the interaction between the different designs, that they are interrelated and cannot be regarded separately (see Bots <sup>[6]</sup>). The interrelations between the different phases in developing a project are schematised in Figure 2.

The design, according to Bots is a result of the interaction between the designer, the client and the realiser of the design. In traditional construction or dredging projects the contractor is responsible for the construction of the system. Within design

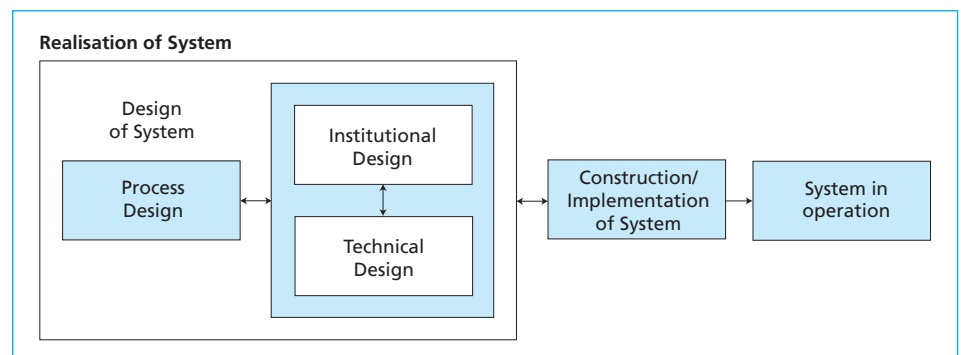


Figure 2. The three phases in realising a project: The scheme shows that all activities in realising a dredging project are interrelated.

and construct contracts the contractor has a responsibility for the technical design. The initiator of the project, for example the owner of the harbour may take responsibility for the process design and the institutional design. The responsibilities for the different activities in the scheme rest with different parties. An optimal and sustainable project result therefore requires interaction and co-operation of the responsible parties.

Co-operation contributes to an integrated design, in which the interests of the process design, the technical design and the institutional design are covered and lead to an optimal and sustainable project result. Partnering is a form of co-operation between client and contractor in a project, which is the central focus in the remainder of this article.

PARTNERING

What is partnering?

Partnering was first reported in the late 1980s in United States construction industry, where the US Army Corps of Engineers applied the partnering method [26] as a response to traditional projects leading to cost-overruns, late completion and litigation. In the early 1990s partnering was applied in the UK oil and gas industry. As a result of successes in the oil industry, the UK construction industry adopted the approach in the mid-90s. The report of Sir Michael Latham "Constructing the Team report", was of major influence in the development of partnering [26].

One of the most cited definitions on partnering is the one used by the Construction Industry Institute (CII) [10]:

*"A long-term commitment between two or more organisations for the purpose of achieving specific business objectives by maximising the effectiveness of each participant resources. This requires changing traditional relationships to a shared culture without regard to organisational boundaries. The relationship is based on trust, dedication to common goals and an understanding of each other's individual expectations and values".*

Another definition commonly used is the definition put forward by Bennet and Jayes [4]. They describe partnering as a "set of strategic actions" that deliver vast improvements in construction performance, "driven by a clear understanding of mutual objectives and co-operative decision making by a number of firms which all focus on using feedback to continuously improve their joint performance".

Thus, while Bennet and Jayes talk about "a set of actions", the CII speaks of a commitment or relationship between parties.

These two definitions and the differences between them, show important aspects of partnering literature. The literature is diverse, definitions are numerous, and there appears to be a fair amount of confusion over what partnering is [9]. As Skeggs put it, "The general use of partnering tends to propagate the perception of partnering as fuzzy which is talked about by many, but understood by few" [26]. Skeggs does note that there is conformity over the general concept of partnering as a co-operative relationship to improve performance of the projects. Barlow [3] concludes that partnering is best considered as a set of collaborative processes. Processes which emphasises the importance of common goals and raise such questions as how such goals are agreed upon, at what level are they specified and how are they articulated.

Within the broader concept of partnering, a difference is often made between project and strategic partnering [e.g. 17]. Strategic partnering concerns a relationship between parties that extends beyond a specific project, while project partnering brings parties together for a specific project. In this article the focus will be on project partnering, although of course project partnering can result in, or be part of, a broader strategic partnering relationship.

Confusion often arises when defining partnering and alliancing [9]. Writers tend to see alliancing as a part of partnering. According to Hauck [16] alliancing may be viewed as an outgrowth of a partnering relationship. Alliancing can be seen as the legally enforced form of partnering [16, 27].

This is also confirmed by Tang. Tang [27] distinguishes partnering from alliancing by means of the relationship between Client and Contractor. He presents the traditional relationship, the partnering relationship and the alliance relationship in a scheme which is shown in Figure 3. His comparison is in line with Skeggs and with the partnering definition of the CIIA: "Partnering itself is not a contract. A partnering charter is developed to run in parallel with a traditional construction contract to provide guidelines to the relationship among the organisations [11]."

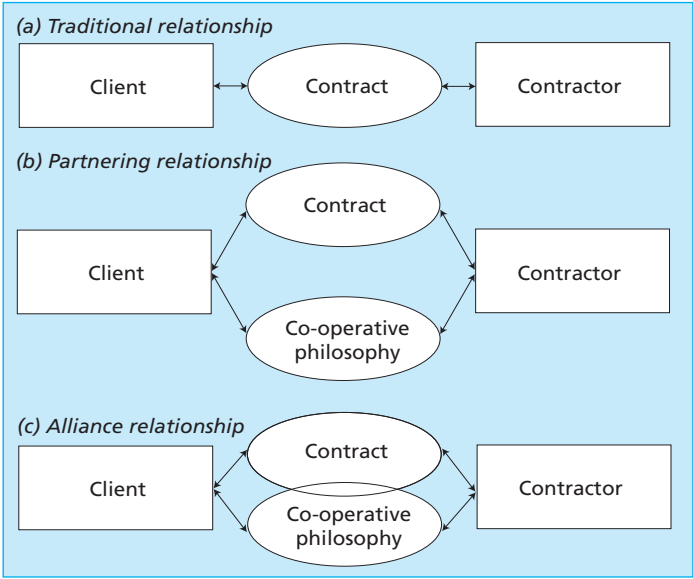


Figure 3. Traditional, Partnering and Alliance relationships based on Tang et al.

### When and why is partnering used?

Project partnering is now used and applied in projects on several continents. Examples are found in the UK, the US, Hong Kong and the Australian construction industry. The reasons for applying partnering lie in the negative experiences with more traditional approaches in the construction industry. The application of the partnering method is believed to have several positive effects on projects and to overcome problems encountered using traditional approaches in construction industry <sup>[18, 21]</sup>.

In traditional practices the industry is relying primarily on contractual relationships based on duties and liabilities <sup>[4]</sup>. Authors have claimed that these traditional practices have negatively affected working behaviour <sup>[17]</sup> and project outcomes <sup>[4, 7]</sup>. The main characteristic following from traditional practices is the adversarial relationship between Contractor and Client. As a result of lack of co-operation, limited trust and ineffective communication, adversarial relationships have emerged <sup>[8]</sup>. Chan <sup>[8]</sup> regards adversarial relationships as one of the major barriers to project success. Warne <sup>[30]</sup> notices a win-lose approach "if I win you have to lose and vice versa". He argues that this approach is costly in both time and resources for both parties resulting in a lose-lose scenario.

In the traditional construction industry trends are noticed in claims and lawsuits. Contracting firms are about to employ more attorneys than engineers <sup>[30]</sup>. Furthermore, there is a tendency for projects not to be completed on time. Also, projects are growing increasingly complex <sup>[26]</sup>. "Losing" relates to expensive projects, not meeting schedules and claiming at the end which again costs time and money. Partnering has generated attention in the construction industry as a means for transforming the hostile, adversarial owner-contractor relationships into a more collaborative team and co-operative and caring environments <sup>[18, 21, 26, 5]</sup>.

Partnering is believed to lower the risks of cost overruns and delays as a result of better time and cost control over the project <sup>[12, 22, 5]</sup>. Sanders and Moore <sup>[25]</sup> state

that partnering aims for an organisational environment of trust, open communication and employee involvement. Benefits found by Bresnen and Marshall <sup>[7]</sup> are: Increased productivity and reduced costs, reduced project times, improved quality, improved customer focus and client satisfaction and deploying resources more effectively. Tang found benefits produced by partnering: An improved ability to respond to the changing project environment, improved quality and safety, reduced costs and project time, improved profit and value and a more effective utilisation of resources.

### What more is there to learn about partnering?

In the literature little attention is paid to the undesirable consequences of partnering. When mentioned, it concerned not achieving the desirable consequences of partnering, despite efforts. The limited attention for the negative consequences of partnering indicates a tendency to focus on success stories in partnering literature <sup>[7]</sup>. Also, there is a lack of attention to conditions for these success stories. However, some authors claim that attention is needed and conditions should be identified that encourage (or inhibit) partnering in practice <sup>[7]</sup>. Bresnen and Marshall note that it is much too simple to presume that the application of tools and techniques, backed up by an expressed commitment to partnering, is all that is needed. Green and McDermot <sup>[15]</sup> make a note that the use of partnering does not *per se* lead to effective outcomes (or even collaboration), in the same way that using traditional forms of contract does not necessarily result in poor performance or conflict. There are attempts to identify and structure the conditions and factors that influence partnering outcomes, but they are still limited in number and inconclusive in their findings <sup>[7, 2]</sup>.

The conclusions from the partnering literature is that it is vast and that there are different, sometimes confusing, definitions about what partnering is <sup>[9, 26]</sup>. Furthermore no consensus exists about precisely what form partnering can or should take, under what conditions it is likely to develop and how such ways of working can be fostered and developed <sup>[3, 7]</sup>. To overcome these

deficiencies in the literature, a more thorough understanding of the factors and conditions that drive and influence partnering processes is required. At the basis of such understanding should be a conceptual model that further specifies the relevant factors and relations concerned with partnering that can put success stories in perspective and provide some practical guidance for future partnering projects.

## GENERAL CONCEPTUAL MODEL

To overcome some of the deficiencies of partnering literature mentioned above a conceptual model for partnering is needed. Only one explicit attempt to develop such a conceptual model was found in a recent paper by Anvuur and Kumaraswamy <sup>[2]</sup>. They developed a model for partnering and its effects on project performance. This model provides a useful starting point, but was developed solely on a theoretical basis, fitting it only with published literature. The purpose here is to adapt and extend this model, using additional literature, but, more significantly, by adding direct empirical observations from two cases of project partnering in the Netherlands.

Anvuur and Kumaraswamy based their model on two theories in social psychology. The first theory is on the "team approach" in organisations, in which attention is paid to prerequisites for an optimal team and the benefits of teamwork. The characteristics of an optimal team are described as being:

- unitary focus and common goals,
- interdependence,
- mutual accountability and
- confluence.

The second theory Anvuur and Kumaraswamy <sup>[2]</sup> use is the "contact hypothesis" in which the subject of prejudice and bias in intergroup contact situations is studied to understand their causes and to develop strategies for mitigating them. In the contact hypothesis four conditions for optimal intergroup contact are formulated:

- equal group status,
- common goals,
- intergroup co-operative interaction and
- support of authority, law or custom.

Figure 4. Structure of Conceptual Model for Project Partnering (adapted and expanded from Anvuur and Kumaraswamy).

In this theory attention is also paid to how to achieve these conditions. In both theories it is emphasised that optimal (inter) group contact takes time and effort.

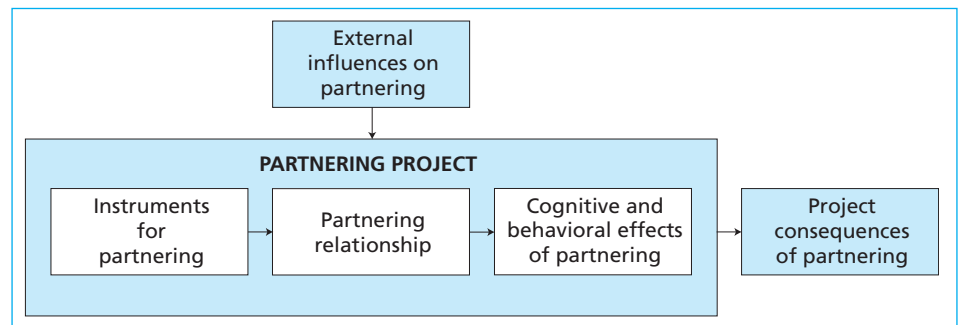
The model of Anvuur and Kumaraswamy forms the basis for the conceptual model for partnering presented here. It will be extended and adjusted on some aspects. Most importantly, where the original model is based on theories in social psychology and group relations, the adapted model departs from a system perspective, using a system model as a basis [see e.g. 29].

The central notion here is that interested parties have certain instruments which they can use to influence key factors and relations in a certain system of interest, leading to certain outcomes of interest. Besides the instruments, however, systems and thus the outcomes are also influenced by external factors that cannot be influenced. This perspective leads to a certain re-organisation of the conceptual model, most notably in relation to the external factors affecting the implementation partnering and the relation between "process effects" of partnering and the "project consequences of partnering" as the final outcomes of interest.

The resulting conceptual model (see Figure 4) is structured by means of five components:

- external influences on partnering,
- instruments for partnering,
- the partnering relationship,
- the cognitive and behavioural effects of partnering, and
- project consequences of partnering.

Also, four relations can be distinguished: The project consequences of partnering are a result of the partnering project. Within the partnering project the instruments used for partnering result in a partnering relationship, which results in cognitive and behavioural effects. The partnering relationship, instruments for partnering and the cognitive and behavioural effects together form the



### Box 1



Figure 5. The concept plan for the Wieringerrandmeer project includes saltmarshes, recreational and residential areas.

### Wieringerrandmeer

The Wieringerrandmeer is a spatial development project. In the development vision of the municipality of Wieringen it was concluded that more recreation and tourism was needed, as in other areas no development was possible anymore. Therefore, a feasibility study was performed for the Wieringerrandmeer by the municipality of Wieringen and neighboring municipality Wieringermeer. A "randmeer" is a lake between former coast and empoldered land. The province became involved and it was decided that a project would be set up to develop the Wieringerrandmeer. A "development competition" was held. The winning party had the exclusive right to negotiate with the involved public parties about the development of the project. The public and private parties signed a letter of intention to co-operate. At the time of the research the definite agreement was worked on. When the agreement is definite the Ground Exploitation Company (GEC) will be set up. The GEC has the task

to design develop the Wieringerrandmeer, the nature involved and the land on which houses will be build. The GEC will sell the ground developed to the private parties that are also involved in the GEC. On this ground these private parties that have the right to build and sell houses. In the GEC the above-mentioned public and private parties, are represented with both taking risk in the GEC and each has a 50% share. The private parties profit from participating in the GEC in two ways: They are entitled to buy the land and they have influence in what the land will look like. There may be a third source of profit from participating in the GEC, which is executing the construction works necessary for preparing the Wieringerrandmeer. However, because of certain European Union tender legislation it may not be possible for the GEC to grant the execution rights directly to one preferred contractor as this may limit the chances of other contractors to win the execution contract.

“partnering project”. The fourth relation is the relation between the external influences on partnering that influence the partnering in a project. The relations in the conceptual model are assumed. By assuming relations it is possible to order the information found in literature and in case studies on partnering. Two case studies are presented below.

### FITTING THE CONCEPTUAL MODEL WITH PRACTICAL EXPERIENCE

The two case studies used here are projects in which partnering was applied and both are located in the Netherlands: The Wieringerrandmeer project (Figure 5) and the Waardse Alliance (Figure 6).

The Wieringerrandmeer project is a spatial development project in which the participant will co-operate in Ground Exploitation Company (GEC). The project was at the time of research in an early stage, and the GEC was not yet formed.

The Waardse Alliance is a finished infrastructure project where Client and Contractor co-operated to find optimisations in design and realisation.

Information for the case studies was gathered from relevant documents and by interviewing involved people, including both the Client and Contractor, so that different views were integrated in the results. A further description of the two case studies can be found in Box 1 and Box 2. The detailed conceptual model that resulted from the case study research is found in Figure 7. In this figure the five components are filled in with elements. Each component is described below.

#### Instruments for partnering

Anvuur and Kumaraswamy<sup>[2]</sup> define five different activities that serve partnering. These activities can be seen as instruments for enabling partnering:

- workshops and champions’ meetings,
- charters and alliance agreements,

- issue resolutions/escalations procedures,
- periodic performance assessments, and
- training on problem solving and joint decision making.

Chan<sup>[8]</sup> did literature research and empirical research to find out the critical success factors of partnering. This resulted in instruments for partnering. In his empirical research he identified:

- the establishment and communication of conflict resolution strategy,
- a clear definition of responsibilities and
- regular monitoring of the partnering process.

These three instruments correspond with the change/integrations strategies or instruments found by Anvuur and Kumaraswamy<sup>[2]</sup>, although they do not explicitly mention the clear definition of responsibilities.

The case studies indicated that the identity and location of the partnership played an important role in the formation of

#### Box 2



Figure 6. Under the Waardse Alliance – a type of partnering agreement – the first part of the Betuwe double track freight railway (which will extend from Rotterdam to Germany) was successfully completed on time.

#### Betuweroute 1-2

The Betuweroute 1-2 is a part of a freight railway construction project in which one of the six parts of the trajectory of the Betuweroute is developed. The trajectory entails 22 kilometers, running through 6 different municipalities concerning 1,000,000 m<sup>3</sup> earth-moving and 4,000,000 m<sup>3</sup> spouted sand in the project. Difficult aspects of the project are the very weak soil, the difficult social environment in

which land has to be obtained and unwilling municipalities. For the project an alliance was formed between the Client and the Contractor after tendering a design and construct contract. With the alliance a new organisation was formed. The alliance was paid from an alliance fund. Both the Contractor and the Client filled this fund. By applying optimisations in the design, cost savings could be made. The balance was

made up at the end of the project and split by a 50/50 ratio. The main responsibilities of the alliance are: Making the design, gear activities and deliberate with the environment, manage the alliance fund, supervise the executive contractor and its delivered work. The Betuweroute 1-2 project finished with a positive result. It was the only trajectory of the Betuweroute to be finished on time and within budget.

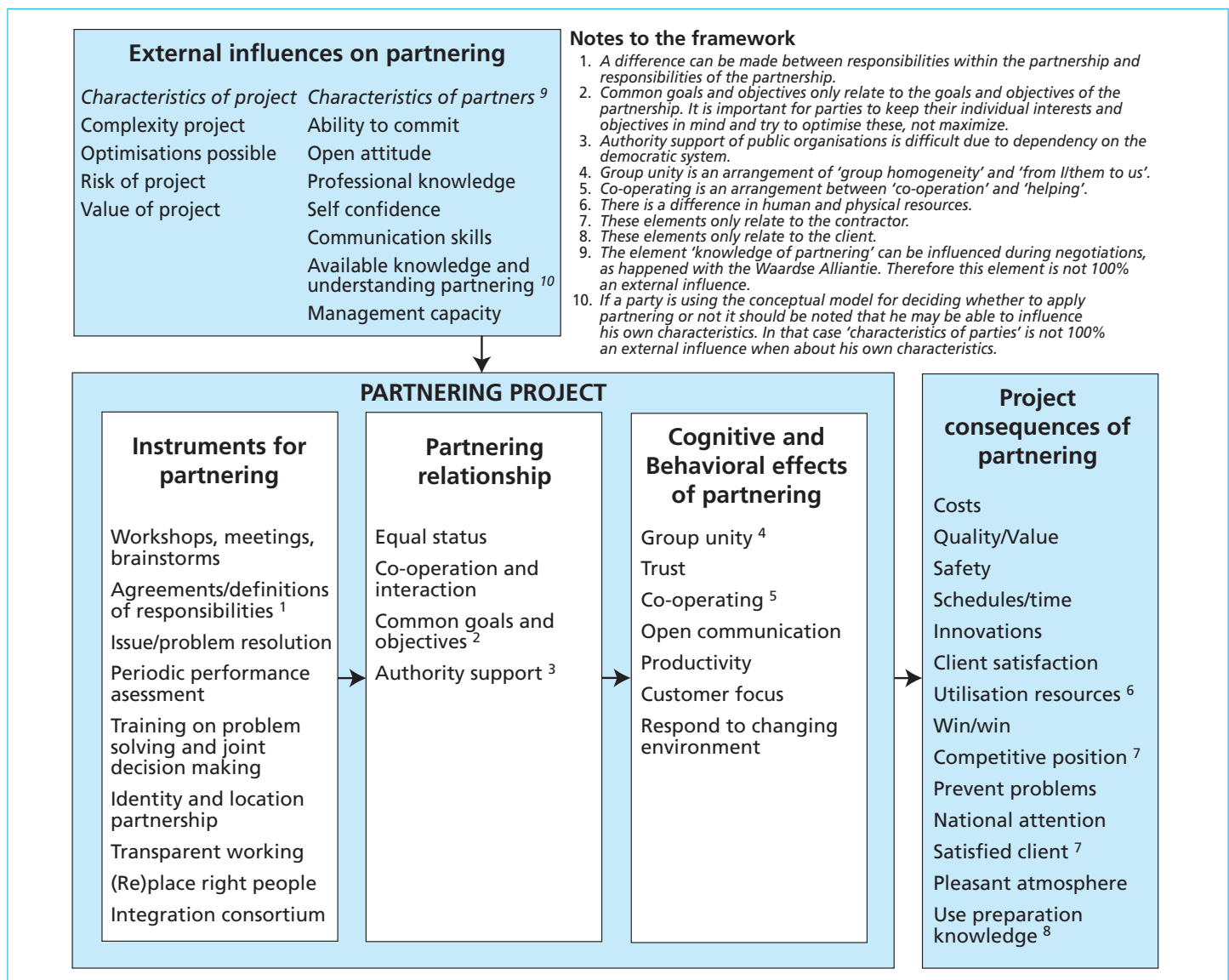


Figure 7. Conceptual Model for Partnering.

partnering. The right person in the right function was mentioned as important; when and if necessary, people should be replaced. A third instrument found in the case study was transparent working within the partnership. Periodic performance assessment, regular meetings and agreements can all contribute to transparency, but it also requires an open attitude, as well as clear and structured procedures. Transparency helps avoid distrust. It should be noted, that although some authors believe that partnering is an informal and organic development under certain circumstances<sup>[7]</sup>, the focus here is on instruments that enable partnering.

### Partnering relationship

The second component of the conceptual model is the partnering relationship, which is assumed to emerge as a result of the instruments for partnering applied. Four elements of the partnering relationship have been defined by Anvuur and Kumaraswamy<sup>[2]</sup>:

- equal group status within a contact situation,
- co-operation and interaction,
- common goals and
- support of authorities, law or custom.

Anvuur and Kumaraswamy base these characteristics of the partnering relationship

on the contact hypothesis between groups, which has gained support over the years<sup>[1]</sup>. Black<sup>[5]</sup> also mentions the shared objectives and co-operation.

When looking at the case studies, no new elements for the partnering relationship were found. In the case studies the relevance of common goals and objectives was emphasised. However it was also noted that in the organisations of the alliance or partnership the individual goals of the organisations must be taken into account because if a party cannot pursue its own goals as well, it is not likely that they will commit to the partnership. It was

mentioned that in a partnership it is about individual value optimisations instead of short-term maximisations. Another note was made on the element “authority support”. Both case studies showed that this was necessary to function in a partnership. However with public parties, “real” authority support is difficult to pursue as public parties are dependent on the democratic system.

### Cognitive and behavioural consequences of partnering

As a result of the partnering relationship, the cognitive and behavioural consequences of partnering are assumed. For the cognitive effects Anvuur and Kumaraswamy<sup>[2]</sup> mention group homogeneity, trust and re-categorisation (from I/them to us). For the behavioural effects they mention co-operation, helping and productivity.

The cognitive and behavioural effects found by Bresnen<sup>[7]</sup> are: increased productivity and improved customer focus. Tang<sup>[27]</sup> also found that an improved ability to respond to the changing project environment as a cognitive and behavioural consequence of partnering. Sanders and Moore<sup>[25]</sup> stated that partnering aims for an organisational environment of trust, open communication and employee involvement.

From the case studies no additional elements were deduced for the cognitive and behavioural effects of partnering.

When defining the conceptual model it was considered that the element “from I/them to us” overlaps with the first element of “group homogeneity”. Although Anvuur and Kumaraswamy<sup>[2]</sup> distinguish between these two elements, the conceptual model here does not. “Group unity” here indicates a group where people feel in the first place part of the group and the group functions as one entity. The elements “co-operation” and “helping” overlap, the assumption being that co-operative people are willing to help. “Helping” is thus not mentioned separately.

### External influences

The external influences on partnering are presumed to determine how well partnering can function. External influences

are “facts of life” that project partners have to work with at a given time. Although some of these elements can be changed in the long-term, they cannot be changed significantly within the duration of a single project. The external influences are divided in characteristics of the projects and characteristics of the partners.

Several authors have addressed the skills of partners. Bresnen and Marshall<sup>[7]</sup> address the problem of culture related to partnering: “The problem here is that it is well established that it is difficult enough effecting cultural transformation within organisations, let alone between them”. Partners should be able to overcome these culture differences. Chan<sup>[8]</sup> investigated the barriers to partnering. Nine headings of the most common problems were identified. Amongst them were: misunderstanding of partnering concept, lack of experience, cultural barriers and uneven commitment. Clearly, a good understanding of partnering is needed, and commitment to the project is an important attitude.

Another problem noticed by different authors is that “empowerment” is needed to participate in a partnering relationship. In an empirical research by Chan<sup>[8]</sup> the commercial pressure to compromise on the partnering attitude is seen as the main problem. Also Ng<sup>[21]</sup> mentions the lack of empowerment of Clients and their large bureaucratic organisations and the commercial pressure Contractors are dealing with as a problematic issue. Empowerment relates to commitment to the project. Is a partner able to commit? This ability to commit has an important influence on the authority support that is required to ensure a functioning partnering relationship.

Ng<sup>[21]</sup> identified problems specifically for the project, mentioning that applying partnering in projects which are not suitable for partnering presents a problem. However he does not specify what suitable projects are. Rijkswaterstaat<sup>[23]</sup> claims that an alliance is only applicable in complex projects. Alliances and partnering form a departure from the traditional way of working, and this departure from standard practice brings certain costs with it. Rijkswaterstaat argues that alliances are

about optimisations and that in the case of complex projects there are optimisations to be made through combining the knowledge and roles of the different partners involved. The Construction Industry Board’s Working Group<sup>[4]</sup> found that partnering is appropriate when the project or programme is high value and high risk to the Client.

The case studies indicate that partners should have self-confidence, communication skills, open attitude (flexibility and empathy) and professional knowledge. Regarding the project, the possibility of optimisations in the design should be present.

The ability to overcome differences is not separately mentioned in the conceptual model as it is assumed that “open attitude” and “communication skills” will contribute to the ability to overcome differences. A note should be made for the element “available knowledge and understanding of partnering”. This element can be influenced during negotiations, as happened with the Waardse Alliance case study. Therefore this element is not fully an external influence.

### Project consequences of partnering

For the improved performance of the project Anvuur and Kumaraswamy mention cost, quality, schedules and innovations. The benefits of partnering for the project found by Bresnen<sup>[7]</sup> are: reduced costs, reduced project times, improved quality, and client satisfaction and more effective deployment of resources.

The project consequences found by Tang are improved quality and safety, reduced costs and project time, improved profit and value and a more effective utilisation of resources. Black<sup>[5]</sup> mentioned the improvement of partnering as the elimination of the adversarial relationship and the win/win outcome instead of the win/lose outcome.

From the case studies, new project consequences of partnering became evident: Pleasant project atmosphere, prevention of problems, improved competitive position (for the Contractor), national (media) attention, use of preparation knowledge (Client) and assurance of work during the project (Contractor).

Not many undesirable consequences were found and little mentioned of the negative consequences of partnering is found in the literature, perhaps because partnering literature tends to focus on success stories<sup>[7]</sup>. Also in the case studies presented here there were few negative experiences: The case study on the Waardse Alliance finished successfully; the case study of the Wieringerrandmeer was not yet finished.

## INTERPRETATION OF THE CONCEPTUAL MODEL FOR PARTNERING

What results from the information by Anvuur and Kumaraswamy, other literature on partnering and the case studies is an extended conceptual model, with five components and numerous elements within. However, it is not clear which elements in the framework are considered to be more or less relevant in applying partnering. In the case study research, therefore, attention has been paid to decisive factors and special points of attention within the projects. Four decisive factors for a well-functioning partnering are found: People, risk-sharing, financial arrangements and showing commitment.

"People" refers to the people who execute the partnership. How the people are determines a great deal how the partnering functions. Risk sharing and financial arrangement serve as decisive factors as they are an incentive for executing the partnership. In the case studies, this was perceived as important. Showing commitment by the parties resulted in enough trust to start the partnership.

Three pitfalls were noticed in the case studies: The first relates to the tender arrangements. It is difficult to tender a partnership. In the case studies this was a result of the influence of EU tender legislation. The second pitfall is the dependency on trust. When trust is lacking, the partnership will collapse like a house of cards. The third pitfall is the dependency on people outside the partnership, such as citizens in a democracy.

Based on these decisive factors and pitfalls, five elements which are more

relevant in the conceptual model are indicated:

- characteristics of partners,
- a partner's ability to commit,
- the allocation/ definition of responsibilities,
- ability to (re)place the right people and
- trust.

The apparent importance of trust as a factor in partnering confirms earlier findings, but also illustrates a last important aspect of the conceptual model. The model itself is basically a rough and static model, which helps to describe the situation at a certain point in time. In its current form, it does not contain specific relations between the elements in each of the five main components, nor does it contain feedback loops. However, the apparent importance of trust, which is here depicted as an effect of partnering, suggest that certain factors, such as trust, play a role in various parts of a partnering project as well.

Following Anvuur and Kumaraswamy, depicting trust as an effect of partnering, as trust can, and needs to, be built through a smart use of partnering instruments and by a functioning partnering relationship seems justified. Thus, it seems fair to characterise it as an effect of partnering. However, the level of trust also influences the partnering relationship, and the effectiveness of partnering instruments. This means that, from a systems perspective, there is an important feedback loop related to trust in partnering projects. There are other examples of feedback loops as well, for instance, between project consequences of partnering and some of the external influences. If a partnering project is successful, in terms of lower costs, higher quality, client satisfaction, and so on, this has a positive impact on the self-confidence, the attitude and the available understanding of partnering in future projects. Project partnering seems to contain numerous positive feedback loops, or self-enforcing cycles, which reinforces positive, but also negative, tendencies.

The model can be seen as a contribution to theory and to practice. The contribution to theory is that in the model different

definitions are integrated and success stories in the literature can be put into perspective. In the conceptual model an overview of the available knowledge in the literature of partnering is presented. The contribution to practice is that the conceptual model may be used when a party considers the application of partnering, or is applying partnering. When a party considers partnering, it is assumed that expected successes could be extracted from the project consequences of partnering described in the model. The expected success of a party is dependent on how partnering is applied and on the external influences. The conceptual model can be used for checking-up, to see whether all instruments are applied, to evaluate the partnering relationship, and the cognitive and behavioural effects.

It should be noted here that the model is a descriptive model, not normative. This means it does not prescribe what should be done to achieve a positive result for partnering. This conceptual model is based on explorative research with assumed relations, so no conclusive statements on how partnering works can be drawn. The model was not tested. Based on the research one cannot conclude how partnering "should" be applied, only on assumptions about how partnering works.

## CONCLUSIONS

In the beginning of this article it was argued that sustainability in decision making might be increased by effective and efficient co-operation. Co-operation is necessary as in construction projects there are different parties with different but interrelated responsibilities. Partnering is presented as a method for co-operation.

Partnering should be applied when it is expected to generate more success in a project than conventional methods. Partnering is presented as a method with the potential to have positive results in terms of time, cost and litigation. In literature as well as in case studies the advantages and the benefits dominate the discussion on partnering. But, as some authors noted, partnering does not

necessarily lead to success. The conceptual model that is developed puts the success into perspective and integrates the differing definitions on partnering. Therefore the model can be regarded as a contribution to theory.

The conceptual model for partnering is an instrument that may help to determine whether applying partnering would be appropriate. When partnering is applied it may serve as a check-up and an evaluation tool. The case studies have shown the importance of the partners involved in partnering in general and more specifically their ability to commit to another partner. The importance of allocation and definition of responsibilities, of having the right people in the right spot and of having trust amongst partners is stressed.

A conceptual model has been developed. It is, however, a model based on exploratory research with assumed relations and it has not yet been tested. Further research to develop and improve the model is recommended. And the last recommendation based on this report is that when the risk of achieving success is low, partnering should definitely be considered as an option.

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