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Business opportunities in Bouwteam projects

A Consultant Perspective in the Dutch Construction Industry

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Colophon

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Is samen lachen, samen huilen

Preface

This document is the final formal document towards my graduation for the Master of Science study ‘Civil Engineering and Management’ at the University of Twente. The content of this report addresses the design of the research regarding the role of the consultants in a Bouwteam in the Dutch construction industry. This research is carried out for Antea Group and is conducted under the supervision of Peter Brouwer of Antea Group and Leentje Volker (UT supervisor) & Johan Boes (daily supervisor) of the University of Twente.

With kind regards,

Anders Sewalt
September 2019, Deventer

Executive Summary

The adoption of a collaborative design project delivery approach (i.e. 'Bouwteam') involving clients, contractors, and consultants is increasing within the Dutch construction sector. Whereas the roles of both the client and the contractor are relatively well-studied and defined, the professional role of the consultants within Bouwteam projects is imprecise. In practice, the temporal restrictions and changing-dynamics inherent to the specifications of a Bouwteam project blur their responsibilities and influences. This, in turn, raises questions concerning their added value and imposes a threat to their involvement. The consultants are challenged to reclaim or take on new roles in collaborations with other Bouwteam actors by aligning the requested and desired value in a project. This alignment needs to facilitate the firms to create potential role propositions that encapsulate the value of the consultant and suits the setting of a Bouwteam project.

This research contributes insights into how external consultancy & engineering firms might propose and negotiate their professional work in inter-organizational Bouwteam projects. It generates new perspectives on the role structures of consultants and provides concrete, practical insights into the opportunities and difficulties in value capture in Bouwteams by these consultants.

Context and approach of the research

This research adopts and builds on the conceptual framework proposed by Bos-de Vos (2018), which considers value capturing strategies of professional service firms to investigate the opportunities in the role of the consultant in a Bouwteam project and pathways towards their adoption. While paying attention to the unique Bouwteam context in which the consultants operate, the objective is to open up the ability for consultants to diminish potential role barriers within the Bouwteam and be able to negotiate new role structures that makes the most of their potential value. To reach this objective, two main research questions are addressed:

1. What is the potential added value of consultants in a Bouwteam project?
2. How can the consultant capture and negotiate this potential value in a new role structure?

To answer these questions, the underlying processes of value capturing attributed to external consultancy and engineering firms with the purpose of isolating the barriers impeding the fulfillment of their potential roles and how to overcome them were identified. Data was collected through a qualitative study consisting of 19 interviews within a total of 27 respondents. Drawing on 8 initial rounds of explorative preliminary interviews, the perceived and requested value of consultancy & engineering firms was examined in the practice. The empirical insights were synthesized into requested value propositions that can be used by consultancy & engineering firms to engage in different Bouwteam projects and reconsider their role in such projects with increased awareness. To enable discussion in the case-based interview part, a sample of three Bouwteam experts were approached to verify and validate the value propositions and translate them into statements. Subsequently, eight consultants from different disciplines of the case firm were individually interviewed in order to reveal their potential value according to their expertise. The outline of this research is visualized in **Figure 1**.

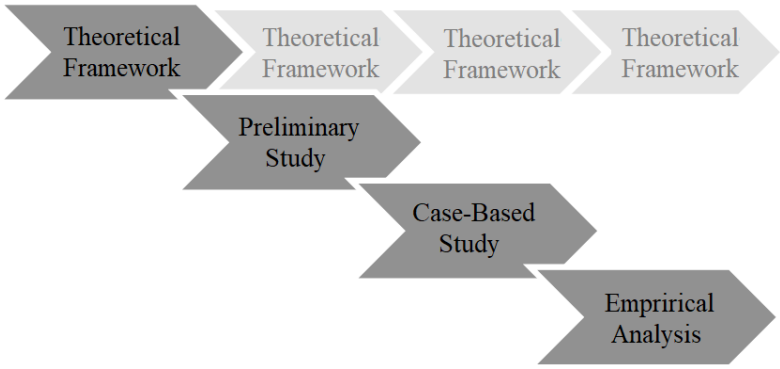

Figure 1: Research outline

Findings

Three types of findings were identified:

- The role factors influencing the need for an external Bouwteam consultant
- The requested value of the Bouwteam consultant from external perspective
- The desired value of the Bouwteam consultant from internal perspective

The role factors influencing the need for an external Bouwteam consultant

It was suggested that the need for the involvement of an external consultant in a Bouwteam depends on three strongly interlinked dimensions based on project-specific characteristics: project performance, team integration, and relationship quality.

Project Performance. According to the respondents, a Bouwteam project should be regarded as a one-time task scoped by *time*, *quality*, and *costs*. The success of a project depends on how well these factors are balanced.

Team Integration. A huge advantage mentioned while working together in a Bouwteam is the opportunity to combine all the forces of the participating parties at an early stage and supplement each other's weaknesses. It emerged from the interviews that putting together a well-functioning Bouwteam depends on the *experience of the parties involved*, the extent to which they can *efficiently transfer knowledge* and the *degree of specialization* of that knowledge.

Relationship Quality. The respondents emphasized that especially the quality of the relationships affects the risks of the project. As a more 'relational' model, the Bouwteam requires a *closer relationship* between the team members. Those closer relationships will help in the long term as 'these relationships increases *trust* and *commitment* among the parties so that it provides solid ground for later Bouwteam projects'.

The requested value of the Bouwteam consultant from external perspective

As a consequence of the findings of the first part, it was assumed that unless the dimensions are in 'perfect' balanced symbiosis, there is a certain demand for an external consultant. From this point, the next step are the conditions so that the other actors are able to make use of that value. Six primary Bouwteam consultant-related factors appeared: Extensive knowledge of Bouwteam operations and needs; Competences and commitment in delivery complex offerings; Sophisticated experience and communication; Strong operational-

financial-strategic risk management skills; Bouwteam-centered culture and management mind-set; Potential to build trust and a strong relationship with Bouwteam actors over time.

***Extensive knowledge of Bouwteam operations and needs*.** A shared notion among all experts is that the consultant should have a more holistic view of the whole process when engaged in a Bouwteam project. The respondents stress a need for a mutual understanding of the role of the respective project parties.
Competences and commitment in delivery complex offerings. It's a common understanding that a Bouwteam requires more specialized knowledge from the consultant, which could be a source of revenue. Instead of the 'traditional' task outsourcing, the other actors like to handpick consultants for 'work packages', based on their specialized experience and knowledge.
Sophisticated experience and communication. In order to deliver complex offerings to the Bouwteam, good communication is very important for successful interaction between the consultant and other Bouwteam members. The respondents argue the need for consultants with good communication skills, experience, and integrity who can constructively discuss with the contractor and the client.
Strong operational-financial-strategic risk management skills. The respondents state that the consultant should have strong managerial skills in order to reduce both the risks of the client and contractor as well as their own risks in case they are able (and willing) to take more liabilities.
Bouwteam-centered culture and management mind-set. There is a strong consensus that Bouwteam projects create the needs for the consultant to adopt a 'best-for-project' mind-set at all the levels of the Bouwteam organization.
Potential to build trust and a strong relationship with Bouwteam actors over time. Strong strategic relationships between contractor and consultant are potentially needed to obtain effective collaboration and bridge knowledge in a Bouwteam project. From this point, work experience with specific contractors or contractors, in general, will become very valuable for the consultant, according to the interviewees.

The desired value of the Bouwteam consultant from internal perspective

The statements, distilled from the requested value of the other Bouwteam participants, were used to encourage the consultants to see their added value from multiple perspectives. From this point, the consultants showed a desire to offer their value in three different ways: reinforce, bend, and shift.

Reinforce. The consultants championed the idea that there should be a paradigm that changes the internal culture of the external consultant to a more collaborative when participating in a Bouwteam project. The consultants stress the desire to reinforce their traditional Bouwteam role: they want to operate from their own primary activities and responsibilities, but with a more collaborative best-for-project mindset.
Bend. On the other hand, the consultants also recognized that their profession is subject to change and are willing to keep pace with ongoing developments. This could mean that they are willing to be adaptive and resign to the role available in a Bouwteam project. Whereby they want to adopt a flexible attitude and see for each Bouwteam project which activities and responsibilities fit best within the total. According to the respondents, the (larger-scale) Consultancy & engineering firms should consider to bend their services and focusing more on the contractor's side, as more work shifts to the market with the integrated Bouwteam.
Shift. Lastly, the respondents all agreed that there is still a lot to gain in improving their network relationships, especially with close contractor organizations. This led to the desire to act and shift towards a more integrating role. They believe it is more suitable to act an integrator for certain Bouwteam projects than e.g. a contractor organization.

Conclusions and implications

As a result of this research, it can be audaciously argued that the consultant has to a certain extent always an added value in a Bouwteam project. However, it should also be clear that the scope of services could never be set as a default due to the huge difference in the characteristics of individual Bouwteam projects. Nevertheless, three potential types of Bouwteam project-specific role structures that a consultant can think about were identified (**Figure 2**): (1) Reinforcement of their traditional role as specialist and representative of the client; (2) Re-focusing and bending their traditional role towards the contractor's side; (3) A shift of their traditional role as a jobber towards a more integrating and coordinating role.

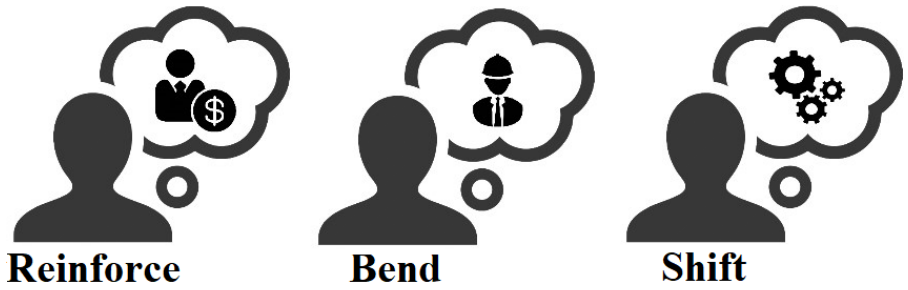

Figure 2: The development opportunities of the consultant in a Bouwteam

Such findings offer a grip of how consultants could propose and negotiate their professional work in inter-organizational Bouwteam projects. It provides a better understanding of how the consultant attempt to capture value based on the requested and desired value in a Bouwteam, Moreover, it aims to facilitate the consultancy & engineering firms to deal with collaborative challenges they face in practice.

This research revealed the framework as proposed by Bos-de Vos (2018) could not only help the professional service firm to align their requested and desired role in a Bouwteam project but could also be used to increase the ability to gain an overview and respond to the challenges of the Bouwteam project. Furthermore, involving all the actors helped to generate a better understanding of each other's motivations and constraints in the project, triggering the need to revaluate the current situation This research thereby adds by providing nine practical implications a consultancy & engineering firm could use to improve the current situation:

Activities & Responsibilities	Resources & Partners	Collaboration Agreements & Revenue Model
• Invest in collaboration	• Establish strategic relationships with desired contractors	• Commit yourself to the client
• Continuously develop juniors in a collaborative project environment	• Obtain a more holistic picture over the whole construction process	• Send and demand the appropriate person
• Dare to take initiative	• Enhance cost estimation and planning abilities	
	• Combine the right resource to the right Bouwteam project	

Management Samenvatting

De toepassing van een meer samenwerkingsgerichte benadering voor het leveren van ontwerpprojecten (d.w.z. 'Bouwteam'), waarbij opdrachtgevers, aannemers en consultants betrokken zijn, neemt toe binnen de Nederlandse bouwsector. Terwijl de rollen van zowel de opdrachtgever als de aannemer relatief goed bestudeerd en gedefinieerd zijn, is de professionele rol van de consultants binnen Bouwteam-projecten nog steeds onnauwkeurig. In de praktijk vervagen de tijdelijke beperkingen en veranderende dynamiek die inherent zijn aan de specificaties van een Bouwteam-project de verantwoordelijkheden en invloeden van de consultant. Dit roept op zijn beurt vragen op over hun toegevoegde waarde en vormt een bedreiging voor hun betrokkenheid. De consultants worden uitgedaagd om nieuwe rollen op te nemen of terug te winnen in samenwerkingen met andere Bouwteam-actoren door de gevraagde en gewenste waarde in een project op elkaar af te stemmen. Deze afstemming moet de advies- & ingenieursbureaus faciliteren om potentiële rolproposities te creëren die de waarde van de consultant omvatten en passen bij de opzet van een Bouwteam-project.

Dit onderzoek draagt bij aan inzichten in hoe externe advies- & ingenieursbureaus hun professionele werk in inter-organisatorische Bouwteam-projecten kunnen aanbieden en onderhandelen. Het genereert nieuwe perspectieven op de rolstructuren van consultants en biedt concrete, praktische inzichten in de kansen en moeilijkheden bij het vastleggen van waarde in Bouwteams door deze consultants.

Context en aanpak van het onderzoek

Dit onderzoek gebruikt en bouwt voort op het conceptuele raamwerk dat wordt voorgesteld door Bos-de Vos (2018) en waardebepalingsstrategieën van professionele dienstverlenende bureaus behandeld om de kansen in de rol van de consultant in een Bouwteam-project en de paden naar hun acceptatie te onderzoeken. Terwijl er aandacht besteed wordt aan de unieke Bouwteam-context waarin de consultants opereren, is het doel om de mogelijkheid te bieden voor consultants om potentiële rolbarrières binnen het Bouwteam te verminderen en in staat te zijn om te onderhandelen over nieuwe rolstructuren die het meeste uit hun potentiële waarde halen. Om dit doel te bereiken worden twee belangrijke onderzoeksvragen behandeld:

1. Wat is de potentiële toegevoegde waarde van consultants in een Bouwteam-project?
2. Hoe kan de consultant deze potentiële waarde vastleggen en onderhandelen in een nieuwe rolstructuur?

Om deze vragen te beantwoorden werden de onderliggende processen van waardebepaling toegeschreven aan externe advies- & ingenieursbureaus met het doel de barrières te isoleren die de vervulling van hun potentiële rollen belemmeren en hoe deze te overwinnen. Gegevens werden verzameld via een kwalitatief onderzoek bestaande uit 19 interviews bij in totaal 27 respondenten. Aan de hand van 8 eerste rondes van verkennende interviews werd de waargenomen en gevraagde waarde van advies- & ingenieursbureaus in de praktijk onderzocht. De empirische inzichten werden gesynthetiseerd in waardeproposities die door advies- & ingenieursbureaus kunnen worden gebruikt om verschillende Bouwteam-projecten aan te gaan en hun rol in dergelijke projecten met een groter bewustzijn te heroverwegen. Om discussie mogelijk te maken in het casus-gebaseerde interviewgedeelte zijn drie Bouwteam-experts benaderd om de waardeproposities te verifiëren en te valideren om deze vervolgens te vertalen naar stellingen. Vervolgens werden acht consultants uit

verschillende disciplines van de casefirma individueel geïnterviewd om hun potentiële waarde te onthullen op basis van hun expertise. De hoofdlijnen van dit onderzoek zijn weergegeven in **Figuur 3**.

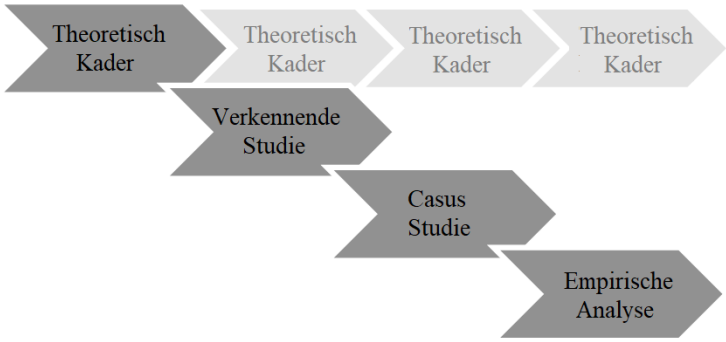

Figure 3: Hoofdlijn van het onderzoek

Bevindingen

Drie soorten bevindingen werden geïdentificeerd:

o De rolfactoren die de behoefte aan een externe Bouwteam-consultant beïnvloeden
o De gevraagde waarde van de Bouwteam-consultant vanuit extern perspectief
o De gewenste waarde van de Bouwteam-consultant vanuit intern perspectief

De rolfactoren die de behoefte aan een externe Bouwteam-consultant beïnvloeden

Er werd gesuggereerd dat de noodzaak van de betrokkenheid van een externe consultant bij een Bouwteam afhankelijk is van drie sterk onderling verbonden dimensies op basis van projectspecifieke kenmerken: projectprestaties, team integratie en kwaliteit van de relatie.

Projectprestaties. Volgens de respondenten moet een Bouwteam-project worden beschouwd als een eenmalige taak die *tijd*, *kwaliteit* en *kosten* omvat. Het succes van een project hangt af van hoe goed deze factoren in evenwicht zijn.
Team Integratie. Een enorm voordeel dat tijdens het samenwerken in een Bouwteam wordt genoemd, is de mogelijkheid om alle krachten van de deelnemende partijen in een vroeg stadium te combineren en elkaars zwakke punten aan te vullen. Uit de interviews bleek dat het samenstellen van een goed functionerend Bouwteam afhankelijk is van de *ervaring* van de betrokken partijen, de mate waarin zij *kennis efficiënt kunnen overbrengen* en de *mate van specialisatie* van die kennis.
Kwaliteit van de Relatie. De respondenten benadrukten dat vooral de kwaliteit van de relaties de risico's van het project beïnvloedt. Als een meer 'relationeel' model vereist het Bouwteam een nauwere relatie tussen de teamleden. Die nauwere relaties zullen op de lange termijn helpen, omdat deze relaties het vertrouwen en de betrokkenheid tussen de partijen vergroten, zodat het een solide basis biedt voor latere Bouwteam-projecten.

De gevraagde waarde van de Bouwteam-consultant vanuit extern perspectief

Als gevolg van de bevindingen van het eerste deel werd aangenomen dat, tenzij de dimensies in 'perfecte' evenwichtige symbiose zijn, er een zekere vraag is naar een externe consultant. Vanaf dit punt is de volgende stap het bepalen van de voorwaarden, zodat de andere actoren van die waarde gebruik kunnen maken. Zes primaire factoren van de Bouwteam-adviseur werden benoemd: Uitgebreide kennis van de activiteiten en behoeften van het Bouwteam; Competenties en betrokkenheid bij complexe leveringsaanbiedingen; Verfijnde ervaring en communicatie; Sterke operationele-financieel-strategische vaardigheden voor risicobeheer; Bouwteam-gecentreerde cultuur en management mentaliteit; Potentieel om in de loop van de tijd vertrouwen en een sterke relatie met Bouwteam-actoren op te bouwen.

Uitgebreide kennis van de activiteiten en behoeften van het Bouwteam. Een gedeeld idee onder alle experts is dat de consultant een holistischer beeld van het hele proces moet hebben wanneer betrokken bij een Bouwteam-project. De respondenten benadrukken de noodzaak van een wederzijds begrip van de rol van de respectieve projectpartijen.
Competenties en betrokkenheid bij complexe leveringsaanbiedingen. Het is algemeen bekend dat een Bouwteam meer gespecialiseerde kennis van de consultant nodig heeft, wat een bron van inkomsten kan zijn. In plaats van de 'traditionele' taakuitbesteding kiezen de andere actoren graag consultants voor 'werkpakketten' op basis van hun gespecialiseerde ervaring en kennis.
Verfijnde ervaring en communicatie. Om complexe aanbiedingen aan het Bouwteam te leveren is goede communicatie erg belangrijk voor een succesvolle interactie tussen de consultant en andere leden van Bouwteam. De respondenten beweren behoefte te hebben aan consultants met goede communicatieve vaardigheden, ervaring en integriteit die constructief kunnen overleggen met de aannemer en de opdrachtgever.
Sterke operationele-financieel-strategische vaardigheden voor risicobeheer. De respondenten stellen dat de consultant sterke managementvaardigheden moet hebben om zowel de risico's van de opdrachtgever en de aannemer te verminderen als hun eigen risico's voor het geval ze in staat (en bereid) zijn om meer verplichtingen aan te gaan.
Bouwteam-gecentreerde cultuur en management mentaliteit. Er is een sterke consensus dat Bouwteam-projecten de behoefte van de consultant creëren om een 'beste-voor-het-project' -mentaliteit te hanteren op alle niveaus van de Bouwteam-organisatie.
Potentieel om in de loop van de tijd vertrouwen en een sterke relatie met Bouwteam-actoren op te bouwen. Sterke strategische relaties tussen aannemer en consultant zijn mogelijk nodig om effectieve samenwerking te verkrijgen en kennis te overbruggen in een Bouwteam-project. Vanaf dit punt zal werkervaring met specifieke aannemers of aannemers in het algemeen zeer waardevol zijn voor de consultant volgens de geïnterviewden.

De gewenste waarde van de Bouwteam-consultant vanuit intern perspectief

De stellingen, afgeleid van uit gevraagde waarde van de andere deelnemers van Bouwteam, werden gebruikt om de consultants aan te moedigen hun toegevoegde waarde vanuit een ander perspectief te zien. Vanaf dit punt toonden de consultants de wens om hun waarde op drie verschillende manieren aan te bieden: versterken, buigen en verschuiven:

Versterken. De consultants verdedigden het idee dat er een soort paradigma zou moeten zijn dat de interne cultuur van de externe consultant verandert in een meer collaboratieve samenwerking bij deelname aan een Bouwteam-project. De consultants benadrukken de wens om hun traditionele Bouwteam-rol te versterken: ze willen opereren vanuit hun eigen primaire activiteiten en verantwoordelijkheden, maar met een meer collaboratieve beste-voor-het-project-mindset.
Buigen. Anderzijds erkenden de consultants ook dat hun beroep aan verandering onderhevig is en bereid zijn gelijke trend te houden met de lopende ontwikkelingen. Dit kan betekenen dat ze bereid zijn om adaptief te zijn en zich te schikken tot de beschikbare rol in een Bouwteam-project. Waarbij ze een flexibele houding willen aannemen en voor elk Bouwteam-project willen zien welke activiteiten en verantwoordelijkheden het beste binnen het totaal passen. Volgens de respondenten zouden de (grotere) advies- & ingenieursbureaus moeten overwegen hun diensten te buigen en zich meer te richten op de kant van de aannemer, naarmate meer werk naar de markt verschuift met het geïntegreerde Bouwteam.
Verschuiven. Ten slotte waren de respondenten het er allemaal over eens dat er nog veel te winnen valt bij het verbeteren van hun netwerkrelaties, vooral met nauwe aannemer organisaties. Dit leidde tot de wens om te handelen en te verschuiven naar een meer integrerende rol. Ze geloven dat het geschikter is om voor bepaalde Bouwteam-projecten een integrator te zijn dan b.v. een aannemers organisatie door de van oudsher ontwikkelde kwaliteiten.

Conclusies en implicaties

Naar aanleiding van dit onderzoek kan stoutmoedig worden betoogd dat de consultant tot op zekere hoogte altijd een toegevoegde waarde heeft in een Bouwteam-project. Het moet echter ook duidelijk zijn dat de diensten van een consultant nooit gestandaardiseerd kunnen worden vanwege het grote verschil in de kenmerken van individuele Bouwteam-projecten. Niettemin werden drie mogelijke typen Bouwteam-projectspecifieke rolstructuren geïdentificeerd waar een consultant aan kan denken (**figuur 4**): (1) versterking van hun traditionele rol als specialist en vertegenwoordiger van de opdrachtgever; (2) Heroriënteren en buigen van hun traditionele rol naar de kant van de aannemer; (3) Een verschuiving van hun traditionele rol als jobber naar een meer integrerende en coördinerende rol.

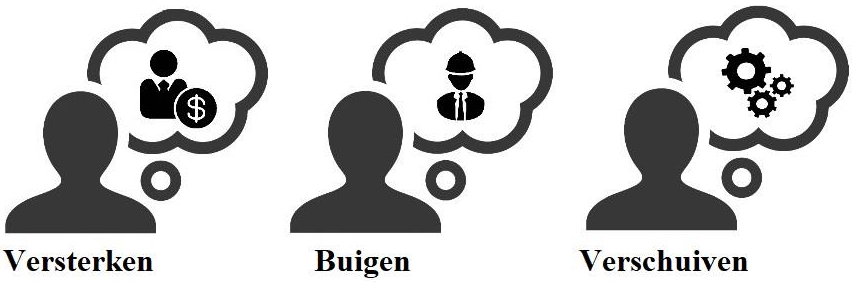

Figure 4: De ontwikkelingsmogelijkheden van de consultant in een Bouwteam

Dergelijke bevindingen geven een idee van hoe consultants hun professionele werk in inter-organisatorische Bouwteam-projecten kunnen aanbieden en onderhandelen. Het geeft een beter inzicht in hoe de consultant waarde probeert te verkrijgen op basis van de gevraagde en gewenste waarde in een Bouwteam. Bovendien beoogt het de advies- & ingenieursbureaus te helpen bij het aangaan van samenwerkingsuitdagingen waarmee zij in de praktijk worden geconfronteerd.

Uit dit onderzoek bleek dat het raamwerk zoals voorgesteld door Bos-de Vos (2018) niet alleen het professionele bureau kon helpen hun gevraagde en gewenste rol in een Bouwteam-project op elkaar af te stemmen, maar ook kon worden gebruikt om het vermogen om een overzicht te krijgen en te reageren op de uitdagingen van het Bouwteam-project. Bovendien heeft het betrekken van alle actoren bijgedragen tot een beter begrip van elkaars motivaties en beperkingen in het project, waardoor de noodzaak werd opgewekt om de huidige situatie te herwaarderen. Dit onderzoek voegt daaraan toe door negen praktische implicaties te bieden die een advies- & ingenieursbureau zou kunnen gebruiken om de huidige situatie te verbeteren:

Activiteiten & Verantwoordelijkheden

- Investeren in samenwerking
- Continu junioren ontwikkelen in een samenwerkingsgerichte projectomgeving
- Durf initiatief te nemen

Middelen & Vennoten

- Vestig strategische relaties met gewenste aannemers
- Verkrijg een meer holistisch beeld van het hele bouwproces
- Verbeter de bekwaamheid in kostenraming en planning
- Combineer de juiste middelen voor het juiste Bouwteam project

Samenwerkingsakkoorden & Verdienmodel

- Zet jezelf in voor de opdrachtgever
- Stuur (zelf) en eis altijd de juiste persoon

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List of Abbreviations

AG	Antea Group
BIM	Building Information Modelling
BVP	Best Value procurement
C&E	Consultancy and engineering
CoPS	Complex product systems
CVP	Client value proposition
DD	Detailed design
DNR	The New Rules
ECI	Early Contractor Involvement
FD	Final design
KIBS	knowledge-intensive business services
PD	Preliminary design
PSF	Professional service firm
PSU	Project Start-up
RAW	Rationalization and Automation Ground, Water and Road construction
SD	Structural design
UAV	Uniform Administrative Conditions
UAV-gc	Uniform Administrative Conditions for Integrated Contracts
VGBouw	Vereniging Grootbedrijf Bouwnijverheid

Chapter 1

Introduction

The first chapter of this research thesis focuses on the rationale of the research topic. It aims to initiate the research by presenting the background of the research (1.1), describing the problem context (1.2), defining the problem statement with the formulation of the research objective, research questions, and scope (1.3), explaining the relevance (1.4), and it concludes with a reading guide for the rest of the research thesis (1.5).

1.1 Background of the Research

In 1951, the first Dutch experiences with early contractor involvement in the design phase were gained during a social housing project in Rotterdam. The main arguments were to limit the duration of the preparation of construction, improving technical and organizational alignment between design and execution, and – more generally – enabling a continuous construction process (Chao & Jansen, 2019). This so-called Design Team[1] (in Dutch: Bouwteam) gradually grew into a common model in the Dutch construction sector, especially in the more complex projects. Nowadays, Bouwteam contracting is rising. According to leading Dutch construction websites (Cobouw, CROW & Bouwend Nederland) – more often than ever – construction clients recognize the advantages of Bouwteams and procure Bouwteam projects on the market.

In previous Bouwteam studies, the emphasis is mainly on the cooperation between the client and the contractor (Boijens, 2008; Nielen, 2010; Langemaat, 2015). However – in reality – the client often lacks sufficient knowledge to proceed by its own. In this case, he can be assisted or represented in the Bouwteam by another participant (consultancy & engineering (C&E) firms) acting as an advisor (Chao-Duivis & Koning, 2001). This external consultant (hereafter referred to as 'consultant') will then be an independent third party on the team. C&E firms provide knowledge-intensive services, thus there are various tasks for which the C&E firm can be called in: the process consultant focuses on one or more management aspects of the process: time, money, quality, organization, and information; and the technical consultant, focusing more on the engineering side of the project. The consultant can have a supporting role in which he/she collects, processes, and prepares decisions but can also fulfill a more coordinating role in which he/she coordinates decisions, activities, and participants. Strictly speaking, the consultant is not always necessary. However – in practice – this works often very conveniently (Chao-Duivis, Koning, & Ubink, 2013): e.g. if you disagree as two parties in a Bouwteam, the third party can mediate.

Prima facie, Bouwteam contracting seems to be a perfect method to foster collaboration and knowledge sharing. However – while using Bouwteam contracts – the relationships between the parties differ from traditional contracting methods. In the course of time, the position of the consultant has come under pressure. As a result, they are increasingly more often asked for a heavier liability and responsibility (ONRI, 2005) and a risk-bearing

[1] Design team: An extensive definition of the design team, hereafter referred to as the Dutch Bouwteam, is to be found in Chapter 2.3: *Definition of Concept*.

consultant is strongly suggested (de Koning, 2019). Consultants propel in a demand-driven industry, and as the clients' needs change, the industry – and the consulting firms within it – are forced to adapt quickly in terms of services, structure, and operations to survive (Consultancy.uk, 2017).

The question remains whether the current role of the consultants cannot be filled in differently. Currently, C&E firms in the Bouwteams mainly advise on/or execute the tender (preparation) for the client and/or advise the client in the post-tender phase. At the design stage, they are only involved to a limited extent in the development of the design and mainly have a testing role or are the guardian of their starting points. In general – at the execution phase – the consultant is not playing a role anymore or – sometimes – as a supervisor on behalf of the client. They (the C&E firms) are mentioned as members of the Bouwteam in the role of a consultant but otherwise, their (expected) contribution is not explicitly described, as is the case with the client and the contractor. This has consequences for the C&E firm, putting pressure on their profitability and business model. It will have to develop in order to avoid getting marginalized.

The C&E firms feel the pressure on their current business case. Therefore, they have to adapt their value propositions to needs, wished and demand. C&E firms can be considered as knowledge-intensive business services (KIBS) organizations. According to den Hartog (2000), these KIBS companies *relying heavily on professional knowledge, i.e. knowledge or expertise related to a specific (technical) discipline or (technical) functional domain, supplying intermediate products and services that are knowledge-based.* As private companies, KIBS are set-up to facilitate value creation for their clients. Perry and Rainey (1988) state, offerings of KIBS companies should be understood as value propositions, consisting of services, products or a mixture of both. These value propositions represent the potential value for the client (Grönroos, 2011). The value proposition is therefore highly depended on (1) the resources of the KIBS company used in the proposition and (2) the alignment between the provision and the value creation process of the client.

All-encompassing, it can be assumed that effective value propositions can be created if they have a detailed understanding of which values to emphasize on and when to do this during the value proposition process. Moreover, Kowalkowski (2011) complements this by stating that obtaining this requires understanding not only needs knowledge of own organizational structure and capabilities but also those of its client. According to Magretta (2002), a good business case answers Peter Drucker's[2] age-old questions, "*Who is the client? And what does the client value?*'' It is suggested that consultancy firms should experiment with their traditional business case to be able to meet the changing demands of the market and reinforce and/or expand their current position in the business environment (Wnek & Williamson, 2010; Christensen, Wang, & van Bever, 2013). Thus, more in-depth insights into the traditional business of C&E firms are necessary in order to set-up a strategy in order to redefine or expand their current value propositions in Bouwteam projects and meet future demands.

[2] Peter Ferdinand Drucker (1909-2005) was an Austrian-born American management consultant, educator, and author, whose writings contributed to the philosophical and practical foundations of the modern business corporation.

1.2 Problem Context

Antea Group (AG) Nederland is one of the main Dutch C&E firms that noticed Bouwteam contracting is making a comeback. AG advocates the application of the Bouwteams. However – whereas Bouwteam projects are on the rise – the situation for the AG becomes more complicated in this form of contracting. Currently, AG still plays a major role in the preparation, tendering and (contract) management at UAV-gc[3] contracts, RAW-specifications[4], or Best Value[5] procurement. However, they see their role shrinking with the selection of Bouwteam contracting. In the current Bouwteam approach, the client and the contractor continue to cluster together, squeezing out the share of the consultant. As a result, huge pressure on their current business model; AG is hired by a client based on an hourly rate with a fixed price (or a mark-up on the hourly pay-check) thus their profit is maximized by the largest number of billable hours in a project.

AG argues, consultants could be very valuable in a Bouwteam due to their in-house knowledge but – at this moment – their potential and benefits are not exploited in its entirety yet. In general, AG prepares a Bouwteam agreement with associated tender, whereby after, they only play a marginal role during the actual Bouwteam phase. AG does not fulfill a substantive role in the 'core team' but is sometimes involved in the Bouwteam as process guidance and can be deployed for the benefit of a second opinion. Often (read: actually always), the contractor within the Bouwteam include their own consultant who gives input during the Bouwteam phase albeit this is not what was intended with a Bouwteam practice. On the other side, the client could also hire a consultant for the Bouwteam, disregarding the specific expertise of the contractor and encouraging discussions between the consultant and contractor in the background (usually about time, money, and responsibilities). After the occurrence of these classic pitfalls, AG is approached to solve them, which is – obvious – often too late.

AG acknowledges the need to think thoroughly about a new role with an appropriate set of tasks for the consultant, who works on the basis of a new idea. The consultant will then no longer be a following party but becomes more steering and – perhaps even – risk-bearing in process and content. Expansion or a redefinition of their current value propositions – based on the needs and (own) wishes – could help the consultant to capture value and convince the other actors to involve them more in the Bouwteam process. They want to investigate whether it is possible to take steps to develop from their current position into a role to prove most of their added value in a Bouwteam

[3] The UAV-gc 2005 are a set of general terms and conditions that lay down the legal relationship between the contractor and the client. Under the UAV-gc, the contractor takes responsibility for the entire design process and execution.

[4] The abbreviation RAW stands for Rationalization and Automation Ground, Water and Road construction. The system as a whole - the RAW system - forms the basis for creating infra specifications using a standardized, uniform method.

[5] Best Value procurement (BVP) is an alternative to the traditional price-based and non-collaborative procurement methods. It makes use of demonstrable past performance indicators in order to identify a highly qualified contractor, who is best suited to effectively tackle potential risks threatening the qualitative and timely completion of public projects.

1.3 Problem Statement

Introducing collaborative project delivery methods such as the Bouwteam will imply multiple changes in the dynamics of the Dutch construction sector. This means a new market environment for the consultant, but also the client and contractor. The aforementioned problem context reveals that the current business case of C&E firms is increasingly becoming under pressure due to these changes in the construction market, negatively influence their revenue model. They are actively exploring opportunities to answer to this tendency to avoid the threat of becoming obsolete. C&E firms could be a valuable addition in a Bouwteam due to their extensive knowledge but are limited in their current role. The consultants need to reconsider their services and in which role they deliver them. Thus, there is a need for insights into opportunities to explore new role structures based on value propositions for the specific Bouwteam needs. From this position, the following problem definition is set:

> *In the current situation, the input of consultants in a Bouwteam tends to be marginal compared to what it could be. The consultant feels the pressure on their business case and searches for opportunities to capture their potential value. As a consequence, there is a need for insights into a different interpretation of the role of the consultant in a Bouwteam.*

Purpose of the study

The general purpose of this research has a twofold: It has a fundamental purpose to give insights into the position opportunities of the C&E firm, giving insights into newly expected value propositions to make this transition. Subsequently, it has an applied touch, aiming to resolve or improve a situation in practice by introducing a grip for a new consultant role. Based on the problem statement, this research aims to contribute to this still underdeveloped area. Therefore, the exploratory main research objective is to:

> *To generate insights that contribute to the understanding of the process behind the Bouwteam as well as emphasize the importance of the changing role and value of C&E firms relevant to practice and academia*

Research question

In order to achieve the aforementioned research objective, the main research question can be formulated. Based on the general objective, this question is considered as an exploratory main research question and is split into a twofold:

> *1: What is the potential added value of consultants in a Bouwteam project?*
> *2: How can the consultant capture and negotiate this potential value in a new role structure?*

Scope

Antea Group is an international engineering and consultancy firm specialized in full-service solutions in the fields of environment, infrastructure, urban planning, and water. With more than 3.100 employees in over 80 offices around the world, they serve clients ranging from manufacturers and global energy companies to national governments and local municipalities. Antea Group compromises the European (Netherlands, Belgium, France, Spain), North and Latin American (USA, Brazil) and Asian (India) engineering and consultancy operations. This research will be conducted within the contracting division of Antea Group Nederland. Antea Group Nederland is part of Oranjewoud (N.V.), a listed holding that also includes construction company Strukton. Antea Group Nederland operates from eight different locations: Heerenveen, Almere, Deventer, Maastricht, Oosterhout, Capelle a/d IJssel, Schoonebeek, and Goes. In the Netherlands, Antea group has six business lines that, either together or alone, try to contribute towards finding the best possible solution for their client. This research will be conducted within the contracting division of Antea Group Nederland at location Deventer, **Figure 5**.

Figure 5: Geographic research scope

1.4 Relevance

In a study about monitoring the results of a civil engineering project which was deliberately procured and contracted to experiment with more cooperative arrangements, Boes and Dorée (2013) recommend that an open discussion about the role of the consultant is important to connect the needs and expectations of the team members and investigate their possibilities for a more active role and a closer cooperation with the client and contractor. This exploratory research could thus be relevant for the current body of knowledge (increasing the understanding of the cooperative partnering topic) as well the use in practice (provide starting points for the discussion about the (new) role of the consultant).

Scientific relevance

This research is relevant as an addition to the literature due to the lack of a consultant's perspective in current cooperative partnering studies, which mainly focus on the relationship between clients and contractors (Boijens, 2008; Nielen, 2010; Langemaat, 2015). The consultant is regarded as an 'assistance' rather than a full-fledged member (Chao-Duivis & Koning, 2001). Therefore, this research will nurture a fuller picture in the scientific trajectory towards successful cooperative partnership implementation. This research investigates the complex and highly dynamic process of value capturing and role negotiating of the consultant in a project-based environment.

The current situation of the consultant does feel similar to the situation experienced by architectural firms in construction projects. Over recent years, the service delivery of the architects has undergone significant changes as well (Burr & Jones, 2010). The increased use of inter alia integrated project delivery (Lahdenperä, 2012) caused more diverse – and often marginalized – roles for the architects in these projects. As a response, Bos-de Vos (2018) wrote a doctoral dissertation that aimed to generate insight into the project-based value capture process of architectural firms. The findings of this study illustrated that a project-oriented and multidimensional perspective may be particularly useful to further developing existing value capture theories to encompass the dynamics and complexities that contemporary organizations must increasingly deal with, e.g. working in boundary spanning, temporary organizations such as a Bouwteam.

This study will build on the conceptual framework of Bos-de Vos (2018) and investigates if this framework is also appropriate to use for other professional service providers, such as consultants. This makes this research both topical and relevant, as it develops in-depth insights into the project-based value capture of consultancy & engineering firms. The recent calls for more research on value capture in project businesses (Laursen & Svejvig, 2016; Martinsuo, Klakegg, & van Marrewijk, 2017) and the lack of current studies about the consultant support the scientific relevance of this work.

Practical relevance

In order to start discussions about a new role with relating tasks and responsibilities for the consultant, a paradigm shift is needed. This research aims to provide insights into the added value of a consultant in a cooperative partnership, enhancing the confidence and positive attitude in a more equal partnership (as intended in the fundamentals of the Bouwteam model, see Chapter 2.3) between the different members by providing starting points that could feed as a constructive discussion about new responsibilities and roles.

The practical relevance lies in the fact that this research investigates a topic beyond the standard quo of the involved practitioners. In general, the consultancy & engineering firms propel in a market-driven by a 'survival of the fittest' mentality, causing a more internal way of working. However, to meet the new demands of collaborative project delivery, the consultant has to become an attractive collaboration partner to sustain competitively. This research will help practitioners to obtain a more holistic and external view which is necessary to achieve a mutual understanding of each other value. It aims to get a better alignment between the requested and the desired role in a Bouwteam project.

Social relevance

Deeper insights and understandings of the added value of the consultants in a Bouwteam project will not only result in a reinforcement of their market share, but it will also contribute to initiating a thought process about the sustainability of the consultancy profession in the Dutch construction industry. The trends emerging in a Bouwteam should trigger consultants to think about ways to realize added value as professionally satisfactory and financially viable as possible. This will make sure that consultants are not becoming obsolete as the field of construction continues to shift.

Moreover, the enhancement of individual consultancy & engineering firms directly influences other organizations as they improve their competitive advantage. It forces competitors to show their contribution to the built environment and wider society, fostering the market dynamics and continuously development. As a result, the consultants have to gradually grow in a more collaborative best-for-project kind of mind-set, which automatically improves the overall Bouwteam project performance.

1.5 Reading Guide

This thesis research is structured as follows: In Chapter 2, a theoretical framework is conducted with a subsequent conceptual model. Thereafter – in Chapter 3 – the research approach and methodology are described. In Chapter 4, the empirical findings are described and elaborated. Chapter 5 contains the overall conclusions of this research and Chapter 6 the discussion. In Chapter 7, the final implementations and recommendations are given. This thesis concludes with the acknowledgments and the bibliography of the used references.

Chapter 2

Theoretical Framework

In this chapter, a theoretical framework is conducted in order to create a conceptual model to guide the methodology of this research. In order to be able to create this conceptual model, three streams of literature are brought together (**Figure 6**):

- This first part of this chapter will provide knowledge on the practices of the Bouwteam topic. It will first introduce the more international known concept of early contracting involvement. Subsequently, it describes the historical background of (the lack of) cooperative partnership and the Bouwteam in the Dutch construction industry. Finally, an extensive definition of the concept of Bouwteam contracting is given in order to enrich the understanding of the reader for the rest of the research.

- In the second part, a definition of value – as considered in this research – is outlined. In this part is elaborated how the consultant can propose its value. It sets forth on the concept of value and gives insights into the traditional consultancy services with accompanying business model.

- In the final and third part, theory on the role of the consultant is distilled from the combination of project-based Bouwteam characteristics and the specific consultancy services. This part builds on the conceptual framework of Bos-de Vos where the emphasis lies on the role identity given in a project by both the project and the consultant itself.

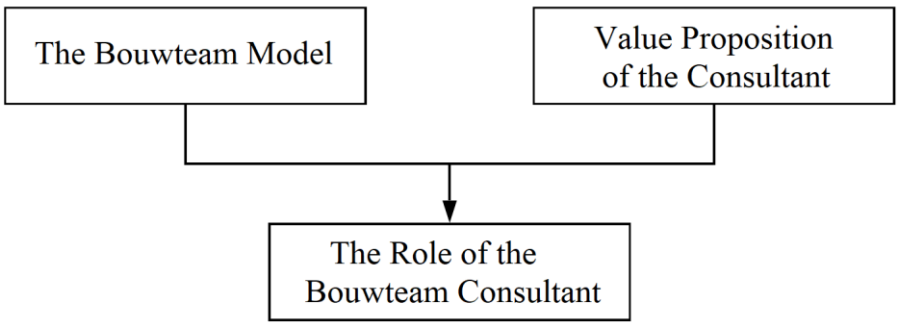

Figure 6: The outline of the theoretical framework

The Bouwteam Model

2.1 Bouwteam in International Perspective

The popularity in more collaborative relationships – commonly referred to as cooperative partnering – increased and has become an evident feature in many countries (Bresnen & Marshall, 2002; Chan, Chan, & Ho, 2003). The main reason is that higher levels of cooperative partnering approaches are generally considered as a potential solution for a range of issues (e.g. cost and time overruns, disputes and conflicts, quality and client satisfaction, and poor productivity) in the construction industry (Egan, 1998; Bresnen & Marshall, 2002; Walker & Lloyd-Walker, 2012). These benefits of cooperation are also recognized for the Netherlands (Bundgaard, Klazinga, & Visser, 2011).

In order to make this step towards a more cooperative partnership, Song et al. (2009) state that the involvement of the contractor in the early stages fosters cooperation amongst the participants in the project both during the design and construction stage (Song, Mohamed, & AbouRizk, 2009). This early contractor involvement (ECI) is defined as a form of partnering where a contractor is engaged in a project earlier than normal in order to help in planning, advice on planning, and give an input in design, allowing to the exploitation of a contractor's specialist knowledge of construction processes to the benefit of the design process (Mosey, 2009; Scheepbouwer & Humphries, 2011; Rahman & Alhassan, 2012). By the same token, the contractor could benefit from reduced costs during the tender process, as no further design nor cost estimations have to be made. Moreover, the contractor could also benefit from lower project risks, as this risk is often shared between the contractor and the client. Albeit – in order to achieve these benefits – openness and trust within the project organization is widely acknowledged as crucial elements and regarded as the primary challenge in ECI (Eadie, Millar, McKeown, & Ferguson, 2002; Scheepbouwer & Humphries, 2011; Rahman & Alhassan, 2012)

In the paper of Laryea & Watermeyer (2016), ECI publication sources in Scopus are summarized to show that the use of ECI in construction procurement is growing and successfully applied to maximize design efficiency and economy internationally. The Dutch construction sector is optimistic about the concept of ECI and recognizes the possibilities of ECI. They seem interested in its implementation as the direction towards more collaboration in the construction markets (Bundgaard, Klazinga, & Visser, 2011; Koenen & van den Pol, 2015).

Several sources in the literature state that a form of ECI has been implemented in the Netherlands, even before its actual use in the United Kingdom (Scheepbouwer & Humphries, 2011; Song, Mohamed, & AbouRizk, 2009). However, they seem to be unclear on what ECI in the Netherlands looks like. According to Dutch literature, the closest representations of what could be considered ECI in the Netherlands would be either a Bouwteam or interweaving[6] (Chao-Duivis, Koning, & Ubink, 2013; Lenferink, Arts, Tillema, van Valkenburg, & Nijsten, 2012). Furthermore, it could be argued that ECI is a form of integrated contracts as specified in the Dutch UAV-gc (Bundgaard, Klazinga, & Visser, 2011), however, this is not widely recognized in the literature. Especially the Bouwteam shows potential as a form of contracting in construction contracts fostering

[6] Procedure based on the principle of early contractor involvement, where the contractor is taken on board during the Environmental Impact Assessment procedure.

collaboration and is gaining popularity in the Netherlands. It is a contract form that aims to get the best out of all the parties who are involved.

2.2 Historical Background: Cooperation in the Dutch Industry

According to the sources mentioned in Section 2.1, the public sector and the Dutch construction industry could in potential benefit hugely from implementing cooperative procurement methods such as the Bouwteam. However, according to Duren & Dorée (2008), the majority of the construction projects (over 80%) are still being tendered in a traditional manner (design, bid, and selection based on lowest price). This statement is reinforced by the sparse use of quality-driven criteria in procurement (Boes & Dorée, 2013). To gain broad understandings about the dilemma in the Dutch construction industry of 'willingness' vs 'resistance' to the transition towards more collaborative ways of procurement; a short overview of the history of the Dutch construction collusion and its impact on the industry and its current state will be given.

In 2001, allegations of unethical behavior – such as collusion, bid-rigging, and corruption – within the Dutch construction industry came to light in a national television documentary broadcast[7]. As a response, a Parliamentary Committee was formed in order to investigate these allegations. The allegations and investigations have had an enormous impact on mutual trust and relationship between public sectors clients and construction Industry (Dorée, 2004). As a result, the Dutch Parliamentary Inquiry Committee on construction collusion adopted the principles of guidance of 'competition is good, more competition is better' that urged to restore the proper functioning of the market (Dorée, 2004). Since 2002, the proposed default approach for procurement in the public sector has been the selection on lowest price. However, as Dorée (2004) concludes, this tougher procurement policy with its continued reliance on the lowest bid may not result in a desired reforming of the Dutch construction sector as intended.

The Bouwteam model tries to move away from a culture with a relationship based on solely distrustful – if not antagonistic – market forces, causing fear of engaging in opportunistic behavior. In this desire, the Netherlands is not by itself; Dorée et al. (2003) mentioned that – based on the *Revaluing Construction* conference in 2003 – an international trend can be distilled that is moving away from adversary relationships and lowest price selection. This trend is towards quality and value-driven competition, long-term commitment, integrated team delivery, development of benchmark instruments, public-client leadership, and joint initiatives by private enterprises, public agencies, and universities (Dorée, Holmen, & Caerteling, 2003). However, they continue, whether a structured initiative along these lines will be introduced in the Netherlands remains unclear. The reputation of the construction industry – due to the collusion practices – stayed damaged, hampering the collaboration (Dorée, Holmen, & Caerteling, 2003).

Recently, the Dutch government recognized the need for action and released the Market Vision 2016 (in Dutch: Marktvisie) drafted by Rijkswaterstaat[8] in cooperation with

[7] Zembla: Sjoemelen met miljoenen; November 9th 2001; Nederland 3 21:10-21:55h; VARA Hilversum.

[8] The Directorate-General for Public Works and Water Management. Part of the Ministry of Infrastructure and Water Management of the Netherlands.

influential contractor and client organizations[9]. The purpose of this document was to guide the Dutch construction sector towards a culture of collaboration and mutual respect. This Market Vision shows the willingness of the involved parties to collaborate. However, lots of barriers still arise due to 'falling back into old behavior' (Dronkers, 2016).

Historical background: Origin of the Bouwteam

Having discussed the historical background of the Dutch construction sector regarding cooperative partnership, more insights into the origin of the Bouwteam model will be given.

In the traditional contracting model[10], the 'job-to-be-done' is tendered on the basis of a design as complete as possible. Only then, there can be a 'fixed' contracting sum and is a contractor able to make a price offer in the context of a tender. As a result, the design and implementation phases are strictly separated from each other. Thus, it is hard to take advantage of the specific expertise of the contractor during this design phase. In the subsequent years after the Second World War, this disadvantage of the traditional building method was a main reason for the development of the currently known Bouwteam method (van den Berg, 2010).

In these first few years after the Second World War, the building production – despite the considerable effort – lagged considerably behind the need, causing particular a worrying situation in the housing construction (van den Berg, 2010). The solution was sought by bundling all those involved in the construction process by setting up construction teams with the aim of achieving coordination between the client, designers, and contractors. In these so-called Bouwteams, they wanted to commission, design, and execute the functions through teamwork. In 1951, in social housing construction, the first experiences were gained in the city of Rotterdam in the field of team consultations with the design or Bouwteam. The main arguments in favor were to limit the duration of the preparation for construction, to improve the technical and organizational coordination between design and implementation and – more generally – enabling a more continuous construction process (Chao & Jansen, 2019).

After its introduction, the Bouwteam model gradually grew into a more common model in – especially – the social housing sector. Moreover, the Bouwteam model also managed to become recognized and used within the non-residential construction sector and the civil engineering sector, in particular for large-scale and technically complex works (Chao & Jansen, 2019). The importance of the method was underlined by the Vereniging Grootbedrijf Bouwnijverheid (VGBouw), which established a model for a Bouwteam agreement in 1992 that regulates the legal relationship between client and Bouwteam contractor.

It can be stated that working in a 'construction team' is a form of cooperation with the Netherlands as country of origin. Although, experiments with this method of cooperation also have been conducted in England and the United States without further being directly imitated (Bresnen & Marshall, 2002; Scheepbouwer & Humphries, 2011). These attempts

[9] Rijksvastgoedbedrijf; Bouwend Nederland; NL Ingenieurs; de Vereniging van Waterbouwers; MKB Infra; Techniek Nederland; Astrin.

[10] The traditional procurement method, often referred to as 'design-bid-build' (DBB) remains the most commonly used method of procuring building works. The client first appoints consultants to design the project in detail and then prepare tender documentation. Contractors are then invited to submit tenders for the construction of the project, usually on a single-stage, competitive basis.

that were made to work together in a construction team context remained stuck as soon as it concerned a 'partnership' of the contractor. The term Bouwteam – '*building team*' – does occur abroad, but it is understood that the building project is prepared in collaboration between architects, consultants, and constructors. An executive party is rarely involved in this cooperation. The model closest to the Bouwteam model used in other countries will be the ECI model mentioned in Section 2.1. This building method form is more or less similar in comparison to the Dutch Bouwteam model described above.

2.3 Definition of Concept

The Dutch construction fraud mentioned in Section 2.2 made the sector harder and less keen on collaborative contracts (Boes & Dorée, 2013). However, during the period from 2001 until today, it is also noticed that this same construction sector is slowly regaining trust and is showing a willingness to use more and more collaborative contracts such as the Bouwteam model (Chao A. , 2018). This section focuses on the broad definition of the Bouwteam model and its content.

Van den Berg & Assers (2007) defined a Bouwteam as: "*A temporary partnership on an equal footing between representatives of roles in the building process of initiation, design, and execution, where the participants in a coordinated manner perform the tasks arising from their particular roles and on top of this, where possible, assist their fellow members in addition to their tasks by giving advice*.'' As a complement to this given definition, Chao-Duivis et al. (2013) note explicit: the temporary nature of this partnership; the equality of the members; the coordination; and the advice given by the Bouwteam participants to their fellow members in addition to their own consultancy tasks.

The main characteristic of a Bouwteam – in a nutshell – is that the design is arrived at in cooperative partnership, with the contractor's input. Chao-Duivis et al. (2013) argue that precisely this input adds the most value for the client due to the practical know-how of the contractor to the design; the design is drawn with the execution phase in mind and thus more efficient. In addition, they mentioned that the efficiency also rises because the actual building work can start sooner. After all, the contractor is already involved in the design phase. Another advantage not to be forgotten is that it is very likely that the contractor will contribute with his costs expertise to the design, resulting in costs savings (Chao-Duivis, Koning, & Ubink, 2013).

Positions and roles

The Bouwteam consists of representatives of the main roles in the building process of initiation (client), design (architect, consulting engineer, etc.), and execution (contractor). From these particular roles, the members of the Bouwteam carry out the work in a coordinated manner and, wherever possible, assist fellow members to do theirs. This client is considered as the head of the Bouwteam and is often represented on it by a consultant or a specially appointed project coordinator or manager (Chao-Duivis, Koning, & Ubink, 2013).

The objective of the Bouwteam is described in Article 1 of the VGBouw Standard Bouwteam Contract[11]:

"*The Bouwteam is a cooperative partnership in which the members, each retaining his independence and responsibility, work together in order to prepare the project. To this end, each of the members is required to make the best use of his specific expertise and experience*.''

However, in her study, Chao-Duivis (2012) questioned the client's position in perspective of the characteristic 'working together on an equal footing'. She concluded that the Standard Contract is not based on equality between the members and the client in the Bouwteam. She continued: "*Insofar as there is equality within the Bouwteam, it relates mainly to the relationship other than the client, who is nevertheless a Bouwteam member in the Standard Contract. The equality of the Bouwteam members relates particularly to their individual independence as referred to in Article 1 of the VGBouw Standard Contract* (Chao-Duivis, 2012).'' Subsequently, Chao-Duivis et al. (2013) made a schematic representation that clearly shows the various aspects of the positions of the Bouwteam members and the special position of the client within (**Figure 7**[12]). The client enters into separate contracts with the Bouwteam members: with the co-designing contractor, the client can enter into a (often customized) Standard Bouwteam Contract 1992; with the designers (consulting engineer, architect, and other consults/designers), the client can enter into a contract based on The New Rules (DNR) 2011[13].

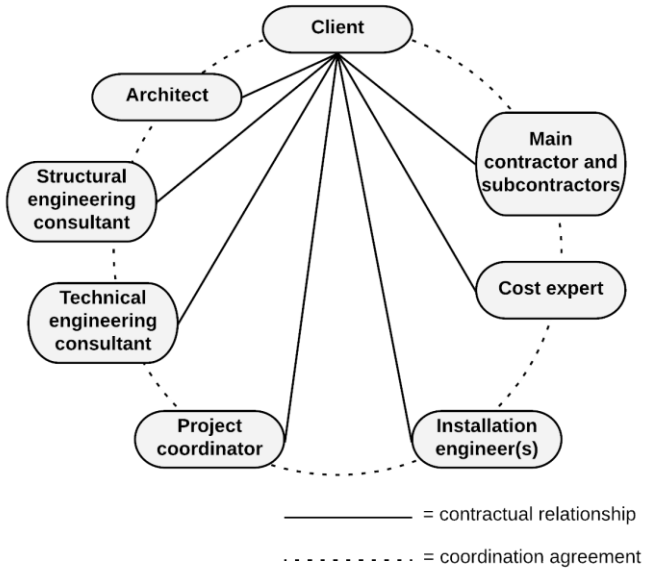

Figure 7: Schematic representation of the Bouwteam model (Chao-Duivis, Koning, & Ubink, 2013)

[11] To regulate the position of the construction company as a member of the Bouwteam, a Bouwteam Agreement Model was drawn up in 1992 by VGBouw.
[12] The dotted line represents the partnership between the members of the Bouwteam. It is possible for all members to enter into a coordination agreement albeit there is as yet no model for these kinds of agreements.
[13] In a traditional building process the client uses an architect and possibly other consultants to draw up a design for a building. This contract is usually governed by general terms and conditions, nowadays DNR 2011.

Liabilities

An important and complex aspect of the Bouwteam is the liability of various parties for damage suffered by the client. Because consultation takes place within a Bouwteam, partial designs are integrated into the entire design, mutual advice is given, and alternative proposals are made, a shift or mixing of liabilities arises, as well as uncertainty about the cause of the damage.

The Standard Bouwteam Contract 1992 from VGBouw regulates the liability of the contractor in articles 11 to 14. Article 11 stipulates that the contractor will perform his work in the Bouwteam to the best of his knowledge and ability. Article 13 emphasized that if the contractor is liable for the advice he issued, his liability will be governed by the provisions of Article 16 paragraph 4 of the RVOI 1987[14]. Moreover, Article 14 states that if a building contract is concluded by the parties as a result of this agreement, the UAV 1989 and – unless otherwise specified in the specifications – the liability regulations as laid down in Articles 12 and 13 will apply. The core of the regulation is formed by Article 12. That Article reads as follows:
"*The liability for advice and designs lies with the person on the Bouwteam to whose particular area that advice and those designs relate, provided that person has accepted and adopted that advice and those designs*.''
This settlement comes down to the conclusion that there is no joint liability of all members of the Bouwteam for what is created within the team. There is an individual liability, as is also known in the traditional models and also – for example – in the integrated contracts; liabilities are allocated to an individual in advance.

Reasoning this model, Chao & Jansen (2019) are questioning who this individual charged with liability should be. It would be conceivable that the regulation will place the liability for the input of a design or advice on the person who actually provides it. However, that is not the regulation of this model. The liability for the design or advice is laid down with the party in whose specific area the provided advice or design relate and if the receiving party accepted it and made it his own. In other words; if there is an advice from – for example – the contractor to design a structure other than proposed, then the contractor is not reliable for this advice if three conditions are met: (1) There is a participant in the team who can be designated as the one whose specific field this proposal relates to; (2) This participant accepts this proposal; and (3) This participant makes it his own. Chao & Jansen (2019) criticized this by asking whether it makes sense to argue that a design or advice has been accepted, without been taken it to own heart. They continue: "*Does participation in the team not entail that accepting by the relevant specialist also automatically means: taking it to its own heart*?'' The question is raised here but not answered given the literal text in the Standard Bouwteam Contract 1992 and because it is also conceivable that the specialist will find a proposal acceptable, but still wish to maintain some distance.

Concluding, it can be stated that – from a legal point of view – the division of liability is a difficult topic: on the one hand there are problems of legal nature, on the other hand the agreed division, which is a shift of liability from the person who makes the proposal to the person in whose specific area the proposal relates and who accepts it and make it his own, a complication from the situation that would apply without that shift. Moreover, the coordination of tasks and the resulting liability requires the necessary attention of the person who is responsible for coordinating all the parties involved in the Bouwteam.

[14] The former regulation of the relationship between the client and the C&E firm.

Process and phases

Sijpersma & Buur (2005) state that there are three main phases in the building process: the initiation phase, design phase, and execution phase. However, the design phase can to a certain extent be considered as a black box. They argue that the creative process that leads from nothing to a design cannot be caught in models or standards. In order to make the design process controllable, it is decided to distinguish the design phase in four sub-phases: the project definition, the structural design (SD, in Dutch: structuurontwerp), the preliminary design (PD, in Dutch: voorontwerp), the final design (FD, in Dutch: definitief ontwerp), and the detailed design (DD, in Dutch: technisch ontwerp). **Figure 8** visualizes wherein the building process the Bouwteam operates.

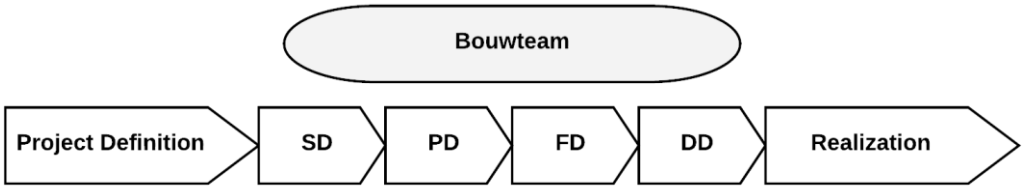

Figure 8: Visualization of the position of a Bouwteam in the building process

In addition to the regular phases in the building process, AG mention in their vision four different stages of a Bouwteam (**Figure 9**): the tendering, the design/Bouwteam stage, the pricing, and the execution.

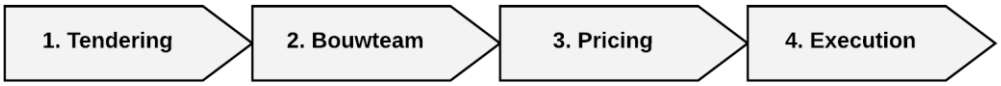

Figure 9: Visualization of the four Bouwteam stages

Explanation of the four stages[15]:

1. Tendering: In the tendering stage of a Bouwteam, the client will search ideal partners for cooperation. In the formation process of a Bouwteam, the client could use various tenders to these ideal partners. Based on the underlying principles, the potential Bouwteam members make an offer, in which they try to distinguish themselves on the basis of a low price and/or their demonstrable qualities. Contractors are also asked to provide, in addition to a design price, an offer for the tail costs of the contracting budget.
2. Bouwteam: In the Bouwteam stage, the Bouwteam starts to work together. When the design process had arrived at the structure or even pre-design level, the contractors are added to the Bouwteam. By including the contractors in the Bouwteam, the client expects the feasibility of the design to increase and thereby reduce the implementation risks.
3. Pricing: In the pricing stage, the price for the project is determined and the implementation agreement is made. The client promises contractors that after completion of the design, he can exclusively make a price offer for the realization

[15] Derived from Antea Group Nederland: Visie op Bouwteams.

of the design[16]. If the client is of the opinion that this price is too high, he may engage an independent construction cost expert, who also makes a budget for the realization. If it turns out that the price of a contractor is higher than a pre-agreed percentage of the independent price, it is accepted that the client hits the market with his design. However, this is undesirable for the continuity of the construction process.

4. Execution: In this stage, the project is physically realized. As soon as the design is ready for execution and the client has reached an agreement with the contractor about the realization, a new contract is entered into. Article 14 of the Standard Bouwteam Contract lays down that this contract is subjected to the UAV 1989. However, Chao-Duivis et al. (2013) state that it makes more sense to refer to the most recent conditions, the UAV 2012[17].

Integrated Bouwteam

"*A Bouwteam is an integrated building process organization in which the representatives of the building process 'take initiative', 'design', and 'execute work' together on the realization of the design* (Sijpersma & Buur, 2005).''

However, it could be argued that once the contractor is responsible for the design, there is no longer a Bouwteam contract but a Design & Construct, Design & Build, Turnkey, Public-Private cooperation, or any other integrated form of contract. In a column about Bouwteams, Meijer (2018) mentioned that clients mistakenly believe that a Bouwteam at the UAV is already an egg of Columbus, where the contractor is (co-) responsible for design errors. He states that this certainly not true. His (the contractor) duty to warn may be greater but it is settled jurisprudence that errors of architect, constructor and other consultant are attributed to their client. Eventually, the thunder still strikes the client.

For that reason, Meijer (2018) thinks that the idea of a UAV-gc Bouwteam is quite understandable. However, the question remains if it is possible at all. If the client in the Bouwteam hand everything over to the contractor, what about change that his design does not comply or if no agreement on the price is reached. In that case, the client will then be empty-handed because the contractor has all the trump cards (the design and the consultants). In her study about the Bouwteam model, Chao-Duivis (2012) state, if an integrated Bouwteam is chosen, account should be taken on a price formation phase with a resolutive condition for the implementation part. Including this important step, it seems that she sees potential in a UAV-gc Bouwteam.

In addition to this, an even more positive signal comes from de Koning (2018). He is an admirer of an integrated Bouwteam but argues that the VGBouw model is not enough and that a new model for this variant is needed. One point that, in his opinion, requires attention is the pricing. Moreover, the lump sum – agreed in advance for an interim termination – should be taken into account with the costs of the subcontractors and consultants. Attention also deserves to work in Building Information Modelling (BIM): a sound protocol, the detailing of the input, the distance of the right of retention in both the design and the execution phase, etc. Nevertheless, it will not be a huge legal operation. De Koning (2018)

[16] Article 15 of the Standard Bouwteam Contract 1992 lays down that the Bouwteam contractor must be given the prospect of being the first, and for the time being sole, candidate allowed to submit a quotation.

[17] UAV 2012 are the general terms and conditions often used for Dutch building contracts. The UAV are based on the traditional legal relationship between a client and a contractor.

state, on the contrary, with good sense and goodwill, the UAV-gc Bouwteam (or integrated Bouwteam) will quickly prove its right to exist. To achieve this, he continues, the contractor will also have to include in the contracts with his consultants, a number of additions and deviations on the DNR 2011, not only about their copyright but also for their liability.

In 2017, during knowledge sharing sessions about the tendering of Bouwteams hosted by Pioneering[18] and the University of Twente, Boes (2017) already distinguished two variants of the Bouwteam used in practice: the classic Bouwteam and the integrated Bouwteam. He mentioned the main characteristics of both variants (Boes, 2017):

- Classic: Client is responsible for the design; Contractor is the (cost) technical consultant; VGBouw model/UAV.
- Integrated: Contractor is responsible for (detailed) design; Client is consultant (and responsible for appearance); UAV-gc.

To illustrate the main difference in the building process, Boes (2017) made a model that showed the change of client involvement, **Figure 10**.

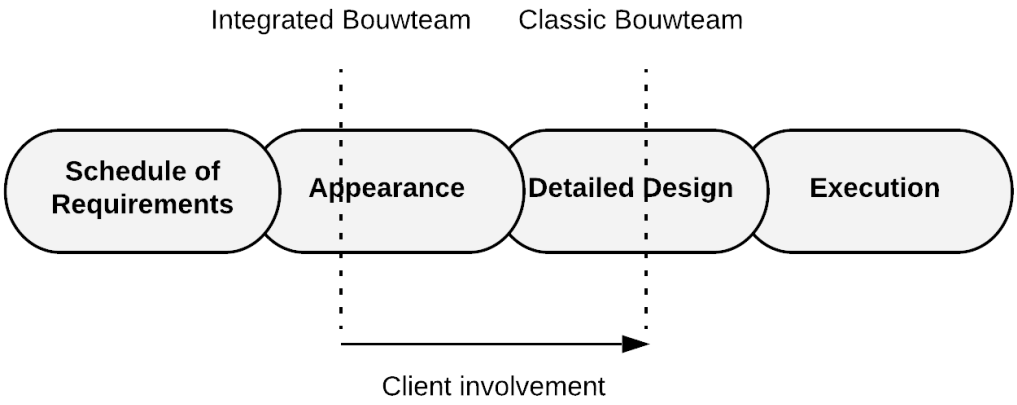

Figure 10: Client involvement in Bouwteam variants (Boes, 2017)

The integrated Bouwteam could have many definitions but – in general – means that the contractor does the design under DNR conditions and the execution with an UAV-gc contract. Therefore – in order to prevent further confusion – the variant of Boes (2017) is meant when referring to an integrated Bouwteam.

New Bouwteam model in 11 pages

On June 4th, 2019, a new Bouwteam model was published in the Cobouw (2019) on the initiative of Merema (PRO6managers) in close collaboration with Chao (Simmons&Simmons), de Koning (Witteveen + Bos), and Hoevink & Remmerts (both Tauw). The collective argued that there was a strong urge to replace the 'old fashioned' VGBouw model with a more contemporary one. The end result is a Dutch concept sized in just eleven (A4) pages – including the signature page – and without unnecessary fuss. It is based on both the traditional and integrated Bouwteam and is freely downloadable for every party who wants to participate in a Bouwteam, with this link. It should be kept in mind that's it's still a concept and will be further developed with the feedback of the work field.

[18] A platform for and from innovators in the construction industry.

Value Proposition of the Consultant

2.4 Value

As this research considers the value of a consultant in a Bouwteam, it is fruitful to introduce the concept of and use of value in general. In scientific literature, the understanding of the term '*value*' changed over time. Where it previously was construed as being embedded in resources to be exchanged, it is currently considered as the output of relational (in use) interaction between the company and the client in the form of a service. Adapting the definition of Porter (1991), resources are "*strengths a company can use to conceive of and implement their strategies*''. As complement to this definition, Vargo & Lusch (2004) distinct two types of resources: (1) Operand resources – on which an act or operation is conducted to produce an effect – and, (2) Operant resources, where resources are employed to act on such operand resources. Operand resources have the characteristics to be tangible, visible, finite, and finite whereas operant resources are often intangible, invisible, infinite, and dynamic (Vargo & Lusch, 2004).

Service-Dominant Logic

Since the late twentieth century, the importance of these operant resources is fully recognized (Vargo & Lusch, 2004). Vargo & Lusch (2004) state that it is acknowledged that it were not the operand resources that gave the input for production processes but rather the services that could be rendered from it, establishing the '*service-dominant logic*' concept. The main apparent difference compared to the previous '*goods-dominant logic*' is that service-dominant logic is client-centric and demand-driven. The efforts in this logic are aimed at the maximization of client benefits through relationship management and continuous learning from feedback. Value within the logic of good-dominant could be expressed in terms of '*value-in-exchange*', where the value is determined in a trade with another party. In contrast, service-dominant logic approaches value as '*value-in-use*'. Value-in-use can be explained as value whereby the service or product should be used before the beneficiary determination of the value of the provided service, specific for that client and its context (Vargo & Lusch, 2004).

Services do not provide any value until the client uses the service and learns, maintains, and adopt this service to its individual practices and needs. Therefore, the same service is able to provide different value to different clients, depending on the ability of the involved parties to align the provided service with the needs and practices of the client; ultimately, the value beneficiary (the client) is the one that determines the value of the service provided (Vargo & Lusch, 2004). Thus, a consult should only offer value propositions dependent on the characteristics of the clients.

2.5 Consultancy Services

It seems consultants exist to deliver value to their clients. However, today's consultancy business market could be tough. Clients are becoming increasingly demanding, which results that topics such as value generation, long-term relationships, trustworthiness, and active cooperation and interaction become critical criteria for the client decision with whom they will cooperate in the industrial market (Consultancy.uk, 2017). In other words, good

project management, know-how, relationship, and good references are becoming increasingly important.

As mentioned in Section 1.1, C&E firms can be considered as knowledge-intensive business services (KIBS) organizations (den Hartog, 2000). The services these organizations usually provide can be characterized as custom and complex; therefore, intensive client interaction is required for the delivery of the service in both new and already established relationships (Ojasalo, 2001). Due to the knowledge-intensive nature of consultancy services, abilities to accumulate and coordinate knowledge and codify items are important in the creation of value for the client (Lara, Palacios-Marques, & Devece, 2012). In C&E firms offering KIBS, it is crucial to possess the ability to combine multiple types of knowledge into novel, innovative offerings for the client as part of the '*value proposition*' (Payne, Storbacka, & Frow, 2008). Albeit, this ability is not per se considered a strength but rather as a typical challenge of KIBS. It should be kept in mind that not all the KIBS firms are alike; some rely on more general knowledge, whereas others rely more on unique tailored services, automatically influences their specific value propositions. This research empirical context is construction consulting work, which is usually realized in the form of unique and individual projects.

Value-in-use proposition

According to Perry and Rainey (1988), value propositions can consist of services, products, or a mixture of both. Given the fact that value can be expressed in both terms of value-in-exchange and value-in-use, it is evident that there is also a difference for these distinct concepts in value propositions. In light of this research, it would be logical that the focus will mainly lay on the '*value-in-use propositions*' due to the fact that services (especially consulting services) rely on value-in-use. Obviously, value-in-use propositions pose other requirements for the provider of the service (the consultant) compared to value-in-exchange propositions. Kowalkowski (2011) argued that the value-in-use proposition needs to prove itself and depends mainly on the degree of cooperation and co-creation of the value. As a response, he made an overview of provider- and customer-related factors determining the relative emphasis of value propositions (Kowalkowski, 2011).

To simply understand this offered value propositions, Kowalkowski (2011) state that it can be seen as a promise of reciprocal value between the service provider (the consultant) and their customers (the clients); since it is not possible for the consultant to deliver or create value by itself alone. These value propositions will guide the consultancy company to focus more on their offerings' perceived worth to clients. Once the consultant understands its clients' needs, he/she is able to make cleverer choices in the allocation of scarce resources (Anderson, Narus, & van Rossum, 2006).

2.6 Business Models in Consultancy

Recently, Christensen et al. (2013) suggested that the traditional consulting business model has become obsolete. The consultancy sector is in a period of radical change. Practically all existing consultancy disciplines are experimenting with other business models to meet this changing demand of the business environment (Christensen, Wang, & van Bever, 2013). In literature, the most common definition of a business model is *the way an organization creates, delivers, and appropriates value* (Osterwalder & Pigneur, 2010). Wnek and Williamson (2010) argue that a deliberated strategy will help to create a better

fit between the competence and knowledge of the consultant and the demand of the business environment through design, development, and delivery of a tailored value proposition to clients' demand. The creation of distinctive value propositions requires a proper client value study. This kind of study may require effort and time on the consultant's side. However – on the other hand – the determination of what the clients' businesses need to solve their problems would be invaluable for the consultant (Anderson, Narus, & van Rossum, 2006).

Consultants can provide distinct and captivating value propositions by tailoring them to elements and issues that matter the most to their target clients and subsequently communicate or demonstrate this value in a manner that conveys a deep understanding of the client's priorities (Anderson et al., 2006); a value proposition is considered efficient if it contains value that the client experiences as relevant. In knowledge-intensive businesses, the biggest challenge is that client are often unable to clearly describe their desires, wishes, and needs (which are sometimes unconscious or even still hidden), a fortiori objectivity to compare all the competing options (Ojasalo, 2001). Ojasalo (2001) continues: "*Professionals need to 'teach' their clients to see the value they could possibly gain by using them.*''

2.7 Business Model

Taking the definition of Osterwalder and Pigneur (2010), a business model determines the direction an organization creates, delivers and appropriates value; thus, a business model is directly tied to the strategy of an organization (Baden-Fuller & Morgan, 2010; Teece, 2010). An often recurring book mentioned in business model theory is Johnson's (2010) '*Seizing the White Space'*. In this book, Johnson made a conceptualization of business model characteristics, including four main elements: the client value proposition, profit formula, key resources, and key processes (**Figure 11**).

The client value proposition (CVP) is considered central in this model; it is the value an organization delivers to its client (Chesbrough, 2006). It are the successful companies who succeed to deliver unique value for the clients. Therefore, a company can use value proposition(s) as starting point of its profit formula; where a company determines the manner how the benefits and costs are realized and in which degree the value delivered to the client can be appropriated (Johnson & Lafley, 2010). Moreover, Johnson (2010) argues a company needs resources (tangible as well intangible) to provide this value. It is the way resources are combined in processes that help the determination of delivered value to clients and in which degree the company can appropriate.

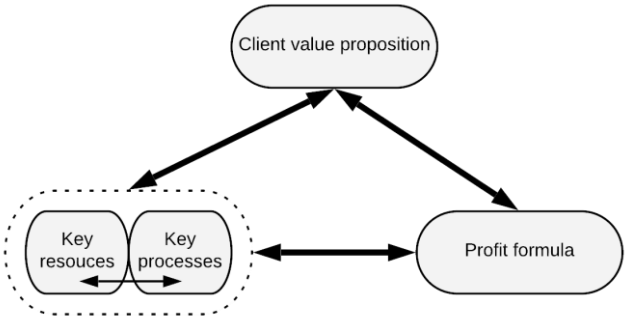

Figure 11: The four-box business model (Johnson & Lafley, 2010)

2.8 Traditional Business Model in Consultancy

In general, a traditional consultancy model is relying heavily on professional knowledge (den Hartog, 2000). It can audaciously be stated that the consultant is smarter than his client and precisely this deeper knowledge adds value. Consultancy companies have a variety of clients, enabling the transfer from best practices for one to another and thus contribute to the client's productivity (Chesbrough, 2006). Sorge & Witteloostuijn (2004) claims that adding research into this mixture may improve the advantage of the consultant's knowledge even to a greater extent. In addition, Schein (1999) argued that – next to this form of expert consulting – another important activity of the consult is consulting of the process; the support of implementation processes can foster improvement achievements. Finally – over time – various forms of secondment have come into existence; this gives value for the client by offering highly qualified employees on a temporary base, avoiding to get stuck with an expensive payroll.

Key resources

In the traditional models, the most important resources are the consultants themselves, especially the more experienced ones. The consultant's value increases due to their experience in the field; they acquire wider and deeper knowledge, become more effective in the acquisition, and improve the social side of client contacts (Turner, 1982). Hicks et al. (2009) state that an important manner to gain experience is training on the job, prioritizing knowing above knowledge to add client value. A second important resource is the available knowledge of the company itself – often laid down in models and reports – and regular used methods and processes. Lastly – not to be forgotten – is the overall reputation of the consultant and/or the company (Turner, 1982); good branding results in follow-up assignments or/and mouth-to-mouth advertisement.

Key processes

The process of consultancy can be considered linear: acquisition of a clients' assignment is followed by an intake. A study is undertaken into the clients market or site and is the input of a report. This report is used to obtain the project. However, a single assignment does not always cover the whole process; it is possible that consultant Alpha does the first part, while consultant Bèta does the second. In general, the consultancy process is characterized by personal, direct, and – often – intensive client contact (Turner, 1982).

Profit formula

In the Netherlands, the traditional revenue model is still the default one in the Dutch Order of Management Consultants Code[19]. It states: "*The fee shall be based on the hours spent on the assignment and the expenses incurred*'', allowing fixed price assignment with an agreed price based on a number of hours estimation. On the other hand, different kinds of agreements are also possible – compared with the past – due to the leeway which the code is explicitly proving. No matter what kind of agreement, the main cost item will be the salary of the consultant. The risks in this business model are for the client, becoming a more heard critique for consultants (as described in Chapter 1): whether the constant's performance is effective or not, the client has to pay for it (Sturdy, 2009). In addition Sturdy (2009) states, it is possible to apply success fees but these are rather an exception than a rule.

[19] The key code for knowledge-based services.

The Role of the Bouwteam Consultant

2.9 Key-Value Dimensions

Having discussed the definition of client value and the factors that influence the specific client value orientation in the consultancy sector, attention will be paid to how Bouwteam value propositions can be developed based on the model of Rintamäki & Kuusela (2007). In this model, they state that a value proposition is developed in three main steps: (1) Identification of the dimensions of the key-value(s); (2) Value proposition development; (3) Value proposition evaluation. The first step in the model of Rintamäki & Kuusela (2007) can be considered as the most complicated. Therefore, the chosen method to capture the value of the Bouwteam members should be thoughtfully thought through.

Value Capturing 'Toolkit'

In a recent doctoral thesis, Bos-de Vos (2018) argues that the value capturing of highly professional service firms (PSFs)[20] operating in projects are often defined by trade-offs of different kind of value dimensions (Bos-de Vos, 2018). In this thesis, the two dimensions described in Sector 3.1 are complemented with an extra dimension: '*professional value*'. The authors refer to the perception of the quality or utility of services (or products) important to realize the professional objectives of the PSF, as e.g. the overall reputation of the firm (Turner, 1982) and internal development (Hicks, Nair, & Wilderom, 2009) mentioned in Section 2.7. The study of Bos-de Vos (2018) adopted a project-specific perspective and this multidimensional perspective on value capturing of architects in order to better understand how these PSFs try to align value capturing to their strategic goals based on two interlinked Ph.D. projects. The main objective of their study was to facilitate PSFs – and in particular architects – in dealing with value capture challenges they encounter in practice (Bos-de Vos, 2018). The results of the study offer PSFs both broad knowledge and a specially designed tool to improve their business strategies in the field of construction management and project management. Especially the tool could be very interesting to understand the value capture of project-based actors.

The most important study findings of Bos-de Vos (2018) were merged into a toolkit that the practitioners could use to deal with the complexities caused by value capturing in their everyday work. This toolkit consisted of a framework for successful value creation in projects and tries to help PSFs within the construction industry to improve strategic activities to enhance their professional and financial performance (Bos-de Vos, 2018). The process for the development for this toolkit was following a design-thinking approach (**Figure 12**) based on theoretical and empirical evidence and validated by experts.

[20] The occupation in professional services in this study considered the architect. However, management consults and engineers are also widely recognized as PSFs as described later in '*Professional services in the construction industry*'.

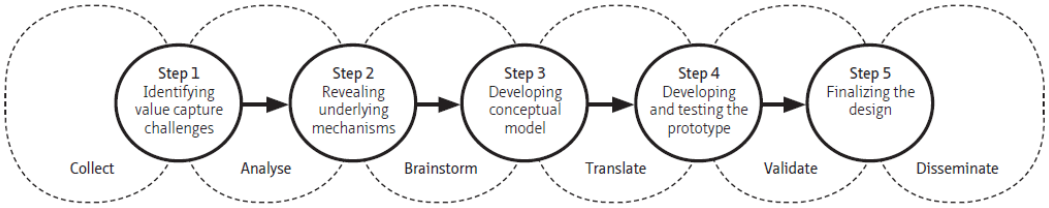

Figure 12: Toolkit development process (Bos-de Vos, 2018)

As shown in **Figure 12**, the final toolkit is based on a conceptual model. In this conceptual model, the emphasis lies on the role of the PSF given in a project by both the 'project' and the firm itself (**Figure 13**).

Bos-de Vos (2018) describes this conceptual model as follows: in the middle – visualized as 'id' – is the professional identity of the PSF, determining the desired role in the project expressed in expertise, goals, and risks (**Figure 13a).** Subsequently, this role is controlled due to the (1) goals set by the client and other stakeholders, (2) requested expertise or already available to achieve these set goals, and (3) risks that the project actors are willing or avoiding to make to realize the project (**Figure 13b**). Moreover, data of the study revealed that the desired and requested are often not aligned, causing tensions in the PSF's id. Therefore, the PSF may either demand or claim a role expansion in the project while this is not actually necessary (**Figure 13c**). In an attempt 'fix' this mismatch, Bos-de Vos (2018) recommends making deliberated decisions regarding (1) responsibilities and activities in the project, (2) resources and partners deployment, and (3) its collaboration agreements and revenue model. These elements should contribute to enhancing the ability of the PSF to capture value when performing a certain role and helps to specify and justify this role, providing opportunities to narrow the gap between the desired and requested role through negotiation (**Figure 13d**).

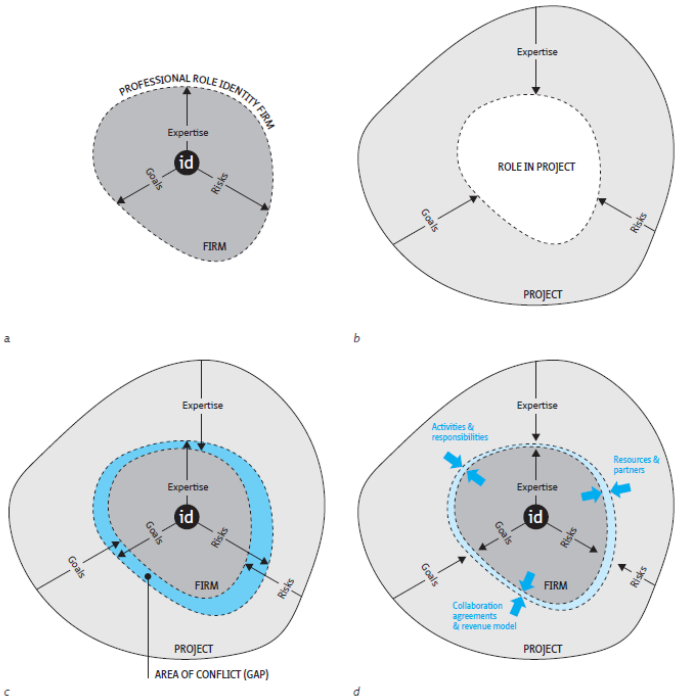

Figure 13: Conceptual overview of value capture of PSFs in projects (Bos-de Vos, 2018)

In the final step of the toolkit development process, the conceptual framework in **Figure 13** was adjusted to function as a board game. The board game consists of both project-oriented and process-oriented decisions oriented towards a specific case for which this framework is filled in (Bos-de Vos, 2018). The board game contains a set of cards holding questions about the PSF's offered expertise, project goals and risks, and how to safeguard this proposition by supporting activities, resources & partners, tasks & responsibilities, collaboration agreements, and revenue model for the project.

Professional services in the construction industry

In Section 2.5, consultancy services were introduced as knowledge-intensive business services. The proper definition of identities and roles among professionals is becoming of increasing importance within the construction industry (von Nordenflycht, 2010). Construction projects depend on several services of professionals, the so-named 'professional services'. This means for the consultant being responsible for knowledge productions at various levels within the construction industry (Koch, 2004). Stroe (2013) defines the professional services by a consultant in the construction as "*highly specialized activities of intellectual nature, which identify, select, organize, and apply (technical) knowledge for purposes of investment and production*'', which is similar to the definition of KIBS stated by den Hartog (2000). Moreover, Stroe (2013) outlines the core competencies of PSFs in construction to:

- *Environment and energy engineering*
- *Electrical, mechanical/HVAC and industry engineering*
- *Civil/Structural engineering*
- *Construction management*
- *Project management*
- *Architecture services*
- *Multidisciplinary engineering*

According to Stroe (2013), consultants are able to provide all of these services depending on the nature of the C&E firm or in which phase of the project the consultant is engaged. Despite the time of involvement and type of service, the business of the consultant consists of complex, creative, and customized problem solving (Stroe, 2013). Therefore, Stroe (2013) stresses to change the perception of consultants as professional service providers towards high knowledge-based customized solution providers.

Whereas her framework is originally intended to support architectural professional services in construction projects, Bos-de Vos (2018) states that it could also be helpful for any other actor as it "*increases the ability to gain an overview and respond to the challenges of the project.*'' Furthermore, she concludes that the board game can also help to generate an overview of the needs of all actors involved and identify potential areas of conflict and misalignment, contributing to "*the creation and management of shared goals and a better understanding of each other's motivations and constraints in the project*.''

Thus, these words express – in no uncertain terms – the potential of the conceptual model as a framework for consultancy services in a construction project from different actor perspectives. In order to validate this presumption, the designer of the board game – Bos-de Vos – was contacted and confirmed the appropriateness of the conceptual model for the consultant.

2.10 Construction Consultant Role Identity

As mentioned by Stroe (2013), the field of consultancy in construction can be very complex and broad. Traditionally, consultants perform a clearly defined role in consultation with other actors (Section 2.7). However, in a Bouwteam, this role has become increasingly diversified due to the new dynamic setting. The professional role identities of a consultant cover a wide spectrum of contemporary project-based work. Therefore – within the time limitations of this research – it is not feasible to investigate/determine all the factors impacting the role of the consultant. As described in the conceptual model of Bos-de Vos (2018), the desired and requested role of the consultant in a project is constrained by goals, expertise, and risks. Each Bouwteam project should be considered as a temporary endeavor. Therefore, these role elements differ per project and make the exact role of the consultant very hard to define in general. However – similar to the case with architects – Burr & Jones (2010) state that a determination of the direction of the project can provide valuable indicators, giving an idea what is soon to come for the consultant. In other words, these indicators can show the fields of interest where the consultant could operate with his knowledge-intensive professional services.

Moreover, the study of Burr & Jones (2010) also showed that the lack of communication and collaboration between involved parties is a main cause of unsuccessful role division in a partnering type of construction project. A shared perspective among all parties will most likely improve the formulation of proper roles of the different participants per construction project (Burr & Jones, 2010). In this light, Song et al. (2009) recommend that different actors who have been involved on (un)successful projects with early contractor involvement can provide experience and knowledge that could help in the understanding the fields where consultants play a role. This chimes with the principles of Ashley et al. (1987), holding the belief that the success of a construction project is repeatable. Thus, researchers and practitioners should pay attention to understand the decisions about the role elements of a Bouwteam project that contribute to this project success.

Bouwteam Consultant Role Identity

From this point, it is logical to investigate beforehand with the actors which factors influence the requested role of the consultant in a Bouwteam project. This means that the professional role of the PSF – central in the conceptual model of Bos-de Vos (2018) – will not per se be a default, but strongly related to specific Bouwteam expectations and characteristics. These factors can be seen as ‘the primary role factors’, determining the role dimensions of a consultant scoped by goals, expertise, and risks in a Bouwteam project from multiple actor perspectives. The field wherein the consultant can play a role should counteract the faced challenges in a Bouwteam and embrace the needs, resulting in a requested role. According to Bos-de Vos (2018), all other participating actors should ask themselves three main questions to find this requested role:

1. *Which goals do you set in this Bouwteam project?*
2. *Which expertise is requested or already available to achieve these goals?*
3. *What is the amount of risks that you are willing or avoiding to make to realize the Bouwteam project?*

The answers to these main questions will depend on the role fields of the consultant determined by the different actors involved in a collaborative project. In the thesis of Bos-de Vos (2018), four generic role identities are differentiated: the ‘*initiator*’, the ‘*specialist*’,

the '*product developer'*, and '*integrator*', which are briefly described in **Table 1**. Although, Bos-de Vos (2018) explicitly stresses that these roles are not exhaustive and could be broken down in various sub-forms; However, these role identities should be able to cover a wide spectrum of (current/near future) contemporary architectural project-based work (Bos-de Vos, 2018). It should be kept in mind that these professional role identities are based on architectural work and not consultancy work. However, based on the core competencies of PSFs in construction (Stroe, 2013) and the confirmation of Bos-de Vos to use the toolkit for other PSFs, these professional role identities will probably revolve around similar issues for the consultant on an abstract level.

Table 1: Role identities of professional service firms (Bos-de Vos, 2018)

	Initiator	**Specialist**	**Product Developer**	**Integrator**
Example descriptions	Creator of the inventor of a project	Consultant, idea factory	Maker, the advice provider	Spider in the web, guardian of quality
Characteristics				
Key activities	Identify, seize, and sell a project opportunity	Deliver and master a fixed set of activities	Develop and execute a business case and design for a product	Bring together and coordinate different disciplines
Key responsibilities	Create support among stakeholders	Become and remain a frontrunner in a certain domain of expertise	Compose an effective co-creation team	Create a common understanding and shared goals
Key professional values	Feels responsible for addressing societal problems	Feels responsible for advancing the project, client and/or field on the basis of expertise	Feels responsible for providing a solution to client needs	Feels responsible for safeguarding product and process quality

2.11 Bouwteam Value Proposition Development

The next step is to negotiate the roles with the development of new value propositions based on specific project needs. Bos-de Vos (2018) advised making judicious choices regarding responsibilities & activities in the project, resources & partners deployment, and its collaboration agreements & revenue model. However – it should be kept in mind that – the application of a collaborative delivery approach – such as the Bouwteam model – reduces the separation between the consultant and contractor. Through this increased input of the contractor, the consultant has to become more flexible towards new fields of knowledge, creating a paradigm shift for all the Bouwteam parties to change their traditional manner of working to enable an effective collaboration (Chiocchio, Forgues, Paradis, & Iordanova, 2011).

Consequently, C&E firms will have to sharpen their focus on creating stronger and sustainable relationships with the other organizations in the construction industry. When working in collaborative projects, Dubois & Gadde (2002) state that one responsible party should take care of the integrated process of coordination. Systems integration is needed in the whole system in order to integrate the different aspects of complex construction projects. The definition of the systems integrator concept originates from the complex products (CoPS) industry, where – according to Winch (1998) – the construction industry also belongs to. In these CoPS industries, both physical and human resources are scattered among various organizations. Although the consultancy and engineering firms are not

considered to be able to fulfill the requirements and demands of system integrator as described in current literature yet (Dorée & van der Veen, 1999; Grooters, 2018), it could create possibilities for the consultant.

In a comprehensive partnering literature study, Bygballe et al. (2010) conclude in their research that especially the contractors will have increasing possibilities to coordinate and integrate resources of different organizations, as the client shifting more and more his responsibility to the market when applying collaborative project delivery. As a result, the so-called prime contractor will require special knowledge and capabilities that not belong to their core competence, thus consequently has to be acquired from suppliers (Rutten, Dorée, & Halman, 2009; Bemelmans, Voordijk, & Vos, 2012). As a repercussion, Lieftink et al. (2014) state that – in the best case scenario – this will lead to increased business opportunities for the consultant, requiring additional services, increased collaboration efforts, and new target markets.

With this given, it can be concluded that the consultant not only has to develop value propositions in the current field of knowledge and competencies but also needs to explore new business model innovation as a professional service firm. The consultant should be considering value expansion by utilizing their full potential to avoid becoming a commodity.

Summary Theoretical Framework

The objective of Chapter 2 was to create a conceptual model for consultant value proposition formulation to negotiate their role in a Bouwteam based on scientific literature to able to set up the methodology of this research. Following the previous conceptions in literature, the conceptual model designed by Bos-de Vos (2018) – to determine the value capturing and role negotiating strategies of architects – could lend itself to be used for Bouwteam consultants as well (Stroe, 2013; Bos-de Vos, 2018). The toolkit distilled from this conceptual model of Bos-de Vos (2018) will be used as the core of the conceptual model for this research. However – in this model – the first step to successfully expand (or redefine) Bouwteam value proposition(s) depends on the needs, wishes and/or demands for new value propositions in a Bouwteam derived from the encountered challenges. In order to overcome these Bouwteam challenges, the gap between the requested and desired value of the consultant should be narrowed down. Therefore, the potential (new) value propositions of the consultant should be determined based on six main elements:

- The challenges, demands, and needs of Bouwteam projects based on expertise, goals, and risks;
- The nature of the currently requested value and the existing perception of the value that consultants provide in a Bouwteam;
- The desired added value of a consultant according to its own competencies and knowledge;
- The overlaps and gap between the currently existing (and perceived) proposition and the desired new value proposition;
- The potential value of the consultant in a Bouwteam to develop, reinforce, and negotiate new role propositions based on: Activities & Responsibilities, Resources & Partners, Collaboration Agreements & Revenue /model;
- The organizational implications for the consultancy & engineering firm.

The conceptual model displayed in **Figure 14** will be used to guide the methodology of this research.

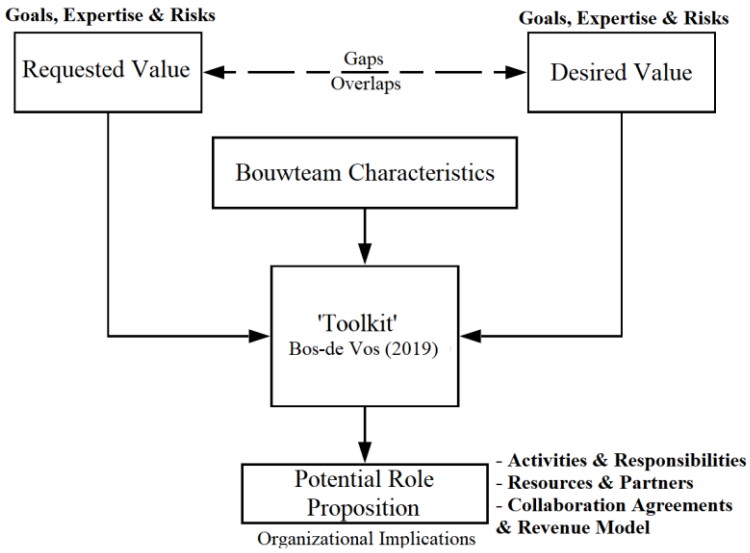

Figure 14: Conceptual model of Bouwteam consultant role negotiation

Chapter 3

Research Approach

The purpose of this research is to generate insights that contribute to the understanding of the process behind the Bouwteam as well as emphasize the importance of the changing role and value of the C&E firms and which are relevant to practice and academia. To address this purpose, it is chosen to divide the research in two main parts: A qualitative empirical research – to contribute to the scientific literature by focusing on obtaining a refined understanding of the value of C&E firms in an inter-organizational Bouwteam project, and an implication part – aiming to translate the findings from the empirical part into a starting point of the strategy that practitioners can use to deal with the complexities of establishing value propositions in their everyday work. There will repeatedly be alternated between the empirical part and the implication part. This will enable to construct the empirical research around themes that are relevant for the design of the strategy and vice versa. **Figure 15** presents an overview of the research design used in this study.

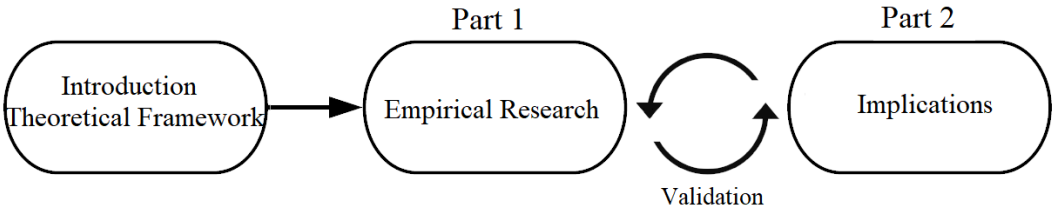

Figure 15: Research design

3.1 Methodology

In the empirical research part, a primarily qualitative study will be conducted with organizations active within the Bouwteam. The reasoning behind this choice of method is to obtain more insights into how these organizations capture value and see/use the value of consultants, as Shiu et al. (2009) argue that qualitative research is used in exploratory designs to gain insights into decision problems and opportunities. Moreover, they state qualitative data plays an important role in understanding and resolving business problems. Within this research, a qualitative method is applied to understand the process behind the Bouwteam as well as emphasize the importance of the changing role of the consultant. In addition, the use of a qualitative data will result in 'richer' data in comparison with a quantitative approach (Shiu, Hair, Bush, & Ortinau, 2009), providing a safety net in case the respondents misunderstand the question or lack accurate knowledge.

Qualitative data lend itself to be categorized and is commonly generated through the use of interviews (Saunders, Lewis, & Thornhill, 2012) Therefore, the main data collection method will be interviews with the relevant individuals. The empirical research will investigate where the value potential of the consultant lies in a Bouwteam.

The conceptual model created in the theoretical framework incorporates the course of the methodology of this research. Two main sources of input data are required based on the framework proposed by Vos-de Bos (2018): (1) The current perception of the requested value proposition of the consultant by the other Bouwteam actors and (2) The current and desired value proposition in a Bouwteam by the consultant himself. To acquire this data, it is chosen to split the empirical data collection into two parts: (1) An exploratory preliminary interview study with Bouwteam actors/experts – to get broader insight into Bouwteam role factors and a holistic understanding of the current value perception and requested value proposition of the consultant in external view – and (2) A case-based in-depth interview study with AG consultancy experts – to understand the desired value, value capture, and value creation potential from an internal view. An overview of the data collection methods of the empirical research part is given in **Figure 16**.

	Method	**Result**
Preliminary	Bouwteam Discussions (Section 3.2)	Bouwteam Consultant Role Factors (Section 4.1)
	Client/Contractor Interviews (Section 3.3)	Requested Value Proposition (Section 4.2)
Case-based	Consultant Interviews (Section 3.5)	Desired Value Proposition (Section 4.5)

Figure 16: Outline of the empirical research

Preliminary Interview Study

Due to the limited availability of scientific literature regarding the collaborative design phase of construction projects, and especially the role of the consultant, empirical data has to be collected at an early stage of this research. As a supplement to the theoretical framework, explorative discussions and interviews with Bouwteam actors/experts will be conducted. The purpose of this exploratory study is twofold: identifying Bouwteam related factors which influence the requested role and the requested value to fulfill this role. Therefore, a three-stage interview process will be followed:

3.2 Bouwteam Group Discussions

First, different project teams were invited to discuss which goals they set, which expertise is requested to achieve these goals, and to what extent they are willing to take risks in a Bouwteam project. The objective of these initial Bouwteam discussions is to obtain a comprehensive explorative understanding of the fields wherein the consultant could play a role and to produce a list of factors that mainly influence these role decisions. This method is in a way similar to a focus group discussion (Krueger, 1998). This way of collecting data helped to solicit both the common narrative as well as their differences in perception during such open rounds of discussion. Although the Bouwteam discussions are not one-to-one comparable with a focus group, the underlying reasoning stays the same.

Sample

A purposeful sampling technique of maximum variation as described by Patton (2015) is used to obtain the research sample for the group discussion. This sample aims to cover the different types of Bouwteam coalitions (experienced and inexperienced) in the Dutch construction industry to investigate how they make decisions regarding the set goals, requested expertise, and risk allocation. This resulted in two different Bouwteam coalitions: Bouwteam coalition Alpha and Bouwteam coalition Bèta. According to a study of Guest et al. (2017), a sample size of two to three groups will likely capture at least 80% of themes on a topic – including those most broadly shared – in a research with a relatively homogeneous population using a semi-structured protocol, which will possibly even higher due to the fact that the sample involves experts in the field.

The respondents of the group discussions were gathered after their regular Bouwteam meeting at the corresponding location. Five Bouwteam members of coalition Alpha were present during the focus group (three of the contractor's side and two of the client's side) and four Bouwteam members of coalition Bèta (three of the contractor's side, one of the client's side, and an external consultant). **Table 2** shows the present respondents with their function (in the Bouwteam) and their organization.

Table 2: Respondents of Bouwteam coalition Alpha and Bèta

Respondent	Role in the Bouwteam	Organization
$Co\alpha_{.1}$	Chairman	Contractor
$Co\alpha_{.2}$	Project manager	Contractor
$Cl\alpha_{.1}$	Project manager/sustainability consultant	Client
$Co\alpha_{.3}$	Planner	Contractor
$Cl\alpha_{.2}$	Project assistant	Client
$Co\beta_{.1}$	Project manager	Contractor
$Co\beta_{.2}$	Design manager	Contractor
$Co\beta_{.3}$	Work planner	Contractor
$Cl\beta_{.1}$	Project manager	Client
$EC\beta_{.1}$	Consultant	External

Data collection

In this part of the preliminary interview study, all parties of the Bouwteam coalition were interviewed at the same time in order to cross-validate their views and to introduce topics of interest in the following interviews. A semi-structured focus group guideline is used to address the different themes. First, some introductory questions about their recent Bouwteam project were asked. Subsequently, the respondents were questioned to reflect on different types of Bouwteams about standard project management themes and the themes emerged from the theoretical framework (goals, expertise, and risks). Finally, they were asked to reflect on the Bouwteam process and how they see the future of Bouwteam contracting. Each discussion lasted approximately 60-80 minutes. The discussions were not recorded but extensively minuted by hand to keep records of 'who said what to whom'. Subsequently – at the end of the discussion – the core information was summarized to be validated by the group and where necessary complemented. Both group discussions were conducted in Dutch. This causes that the transcribed data (including citations) are translated into English for this thesis.

Data analysis

The interviews are analyzed by simply looking at what the people literally said, keeping in mind that the group – rather than the individual – is the unit of analysis, and make comparisons between the involved groups. The transcripts of the written notes of the discussions are used as the primary source of data for this analysis. The main objective of the analysis was to identify cross-validated key Bouwteam consultant role factors for an effective Bouwteam project based on the set goals, requested expertise, and the risks the actors are willing to take. This resulted in the discovery of a number of common value factors in the Bouwteam projects in the area of their role elements.

3.3 Individual Bouwteam client/contractor interviews

Secondly, in-depth semi-structured interviews (Bryman & Bell, 2011) are used to investigate the Bouwteam-based processes of the 'other' Bouwteam actors in retrospect and get more depth and detail on the themes that appeared in the group discussions. In these interviews, the focus will lie on a recent project in which the interviewee had been involved.

This specific case focus will allow gaining rich data on the needs in that project, while also encouraging the interviewee to contrast these experiences to other projects. This experience is important due to the fact that the respondents can reflect on the Bouwteam processes earlier in their career (less experienced with working in a Bouwteam) and later in their career (more experienced with working in a Bouwteam) so that a wider spectrum of needs and challenges is featured. The main objective is to get a holistic understanding of the perceived and requested value of the consultant in an external view. Therefore, the unit of analysis will be the client as well as the contractor side, as they are representative of the 'other' project actors. This approach and method are useful to gain deeper insights into the perspectives of individuals that work in the context of the research topic (Saunders, Lewis, & Thornhill, 2012).

Sample

To ensure a comprehensive scope of the existing needs, demands, and challenges in the current Bouwteam approach. The interviewees were chosen from recent Bouwteam projects that were realized in the Dutch construction sector. Moreover, the interviewees are experienced in working in Bouwteam projects so that they could be considered as 'Bouwteam experts' and reflect their most recent project in retrospective with earlier projects and were able to make deliberated judgments. The interviews conducted concern a broad selection of construction projects that had been ongoing for a sufficient while or had been recently realized no longer than a couple of years before the interview to make sure that the interviewee is able to properly reflect on the Bouwteam process. The interviews were used to explore the respondents understanding and rationale of the requested and perceptible value of the consultant in external view.

The sample consists of representatives of two types of organizations: three public clients and three contractors, all of which are/were very active in the use of Bouwteams. Due to the fact that the Bouwteam phase is just a part of the whole project process, this sample was enough to reach information saturation. This is in line with the argumentation of Boyd (2001), where he suggests that saturation often can be reached after interviewing two to ten participants of a homogenous group (Bouwteam actor experts). **Table 3** presents an overview of the research sample.

Table 3: Bouwteam actor expert sample (client/contractor)

Respondent	Type of respondent	Type of organization
Team manager	Client	Municipality
Project leader	Client	Municipality
Project leader	Client	Water authority
Chief foremen	Contractor	Construction company
Project leader	Contractor	Construction company
Project, process & risk manager	Contractor	Self-employed

Data collection

In this part of the empirical research, both the client as the contractor side were interviewed in order to cross-validate their views and to introduce topics of interest. For each actor, a different semi-structured interview protocol is used to address the different role identity dimensions: from the client's starting point as an auxiliary service and the contractor's

starting point as an extension piece of their organization. First, some introductory questions about their recent Bouwteam project were asked and the findings of the Bouwteam group discussions were verified and validated. Subsequently, the respondents were questioned to reflect on different types of Bouwteams about standard project management themes and the themes emerged from the findings of the group discussions Finally, they were asked to reflect on the Bouwteam process and how they see the future role of the consultant in a Bouwteam project. Each interview lasted approximately 45-60 minutes. All the interviews were audiotaped. As this method allows to check the written notes afterward, it is considered as a desirable form of triangulation. Furthermore – per interview – a brief holistic report is written and send back to the interviewee for the validation of the gathered information. All interviews were conducted in Dutch. This causes that the transcribed data (including citations) are translated into English for this thesis. Lastly, all interviewees agreed with the fact that they could be approached to verify, validate, reinforce, or elaborate findings afterward.

The interviews will be analyzed by continually switching between individual interviews and cross-case comparisons, to identify overarching patterns in the Bouwteam projects of multiple experts while keeping in mind the insights of the individual offerings. The transcripts made of the written notes and audio records of the interviews with the clients, contractors, and consultants will be used as the primary source of data for the analysis. The main objective of the analysis is to find requested value proposition themes to focus on from the perspective of the other Bouwteam actors.

All interviews were jointly compared and coded to find overlapping patterns. In these argumentations, there was made a clear distinction between the client and contractor perspective. Subsequently, all the interviews were jointly compared and coherently grouped in value-in-use factors – as these factors are client-centric and demand-driven (Vargo & Lusch, 2004).

3.4 Bouwteam expert meetings

Finally, independent external Bouwteam experts are approached to verify and validate the content of the findings by presenting them in statements. Prominent Bouwteam experts – who were recently (and nationally) active – are approached to share their profound knowledge. Due to their recent activity regarding the Bouwteam, it can be assumed that these experts are well informed and up-to-date with the current tendency in the Dutch construction sector. All the three carefully chosen external experts are well known and respected professionals in the field of Bouwteam procurement, see **Table 4**.

Table 4: Independent Bouwteam expert meeting sample

Respondent	Specialization	Organization
Project manager	Contracts and projects	Project management firm
Managing associate	Projects and procurement	Law firm
Senior consultant	Contracts	Consultancy & Engineering firm

Case-based Interview Study

The toolkit proposed by Bos-de Vos (2018) as explained in the theoretical framework – to identify important choices with regard to own business operations and cooperation with other parties in a project – is used to find the potential of the consultant in a project. The game aims to give more substance to the role entity of the consultant, which reduces the difference between what the consultant ideally wants to do and what he actually can do in a project (desired value). In order to keep the scope in the problem context as described for Antea Group, only consultants of AG are invited for the interviews. Therefore, this part can be considered as a single case study (Yin, 2009):

3.5 Consultant expert interviews

In this empirical research step, the interview was conducted in two stages. First – in order to reveal the alignment between the perception of the other actors and the consultants themselves – the statements made in the preliminary study were submitted and discussed with the individual respondents.

In the second stage of the case-based interviews, it is chosen to translate the toolkit of Bos-de Vos (2018) into an in-depth semi-structured interview. First, the professional role identities AG is able to perform are determined. Subsequently – based on this 'professional identity' and their given answers on the statements– their desired role is discussed based on goals, expertise, and risks. Lastly, the respondents are motivated to elaborate and argue their role negotiation strategy. The interviewees are multiple AG consultants from different disciplines to obtain a full picture from all perspectives in internal view. Similar to the client/contractor interviews, the interview starts from a recent/current Bouwteam project followed-up by earlier projects.

Sample

In total eight in-depth semi-interviews were conducted with construction industry professionals representing different fields of expertise, see **Table 5**. The research case of the study is C&E firm Antea Group Nederland. Therefore, the consultant of AG is the main unit of analysis. As mentioned in the theoretical framework, the identity of the consultant could be very broad. Consequently, multiple consultants from different disciplines are involved to obtain a full picture from all perspectives in internal view. All the consultants approached are issued by AG as experienced Bouwteam participants.

Table 5: Internal Bouwteam expert sample (consultant)

Respondent	Specialization
Project manager	Infrastructure
Consultant	Water
Consultant	Contracts
Project engineer	Infrastructure
Project manager	Construction
Project manager	Construction
Consultant	Contracts
Project manager	Contracts

Data collection

In this part of the empirical research, the main objective is to complement the current theoretical framework with Dutch construction industry practice, the interviewees were asked open-ended questions and encouraged to share their personal views and experiences on collaborative Bouwteam project delivery. In order to 'trigger' the discussions about their value creation and capture abilities, each interview contains unpolished statements (based on the preliminary interview study) to comment on. Throughout the following discussions, the respondents were asked which roles they (currently) fulfill, how they try to capture value, and how they can improve their position in the market. As distilled from the toolkit of Bos-de Vos, the discussions are shaped by the related activities & responsibilities, resources & partners, and revenue model in a Bouwteam project. Each interview lasted approximately 45-120 minutes. The majority of the interviews were audiotaped (the rest were written down directly after the interview), one interview was with the use of Skype, and one interview was by phone. Again, all interviews were conducted in Dutch. This causes that the transcribed data are translated into English for this thesis.

Data analysis

As mentioned in the data collection section, the Bouwteam consultant interviews were fed by statements. Through the very explorative nature of this research, each interview enriched these statements and provided a fuller picture until this picture was complete. The respondents were considered as a single case study. Consequently, it is important to establish a company-wide vision which is borne by all respondents. Thus, all the individual interviews were analyzed cross-case in order to make a collective point of view. A three-step iterative process was chosen to analyze the data. This process started with reviewing the individual transcripts and the development of potential codes based in their complemented answers and views per statement. In the next step, all interviews were jointly compared and the recurring codes were grouped. A primary vision of what the participants of the case jointly considered crucial was found. The third – and final – step of the analysis is aimed to investigate the overarching dimensions per statement in the multiple perspectives of the desired value. This revealed how the desired role of the consultant could be translated into a potential role.

Chapter 4

Findings

This chapter shows the findings of the interview studies. As mentioned in Chapter 3, the interview study is conducted in two main steps: (1) a preliminary interview study, which include the Bouwteam discussions, the individual client/contractor interviews, and the verification and validation of these interviews with experts, and (2) a case-based interview study, which include individual interviews with the consultants of the case firm Antea Group.

- First, the Bouwteam consultant role factors (which influence the decisions of involving an external consultant) are determined by means of group discussions. Subsequently – with these factors – the requested value from the 'other' Bouwteam actors is explored in individual interviews. Lastly, the findings are verified and validated by independent external Bouwteam experts and translated into statements that could be used for the case-based interview study.

- The next step shows the findings of the case-based interview study. As mentioned earlier, Antea Group consultants are the unit of analysis. First – with the use of the statements made in the preliminary study – the gaps and overlaps which exists between the current perception and requested value of the other actors and the AG consultants are discussed. These statement discussions aim to align the requested value with the desired value in the last part of the interview. In this last part, the toolkit of Bos-de Vos (2018) is used to determine the potential value as a result of the requested and desired value of the AG consultants in a Bouwteam project.

The course of the elements of the findings in this chapter is visualized in **Figure 17**.

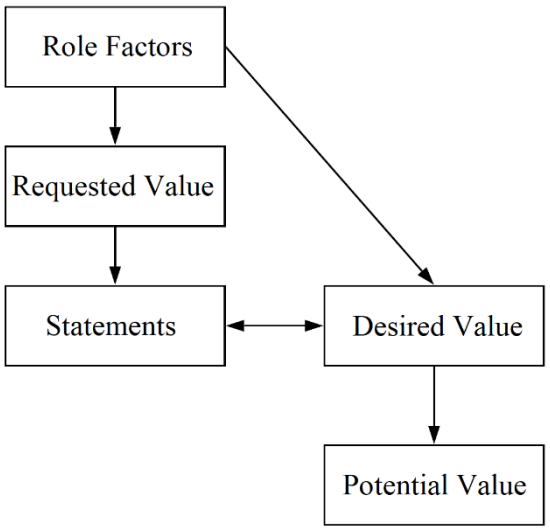

Figure 17: The outline of the empirical findings

Preliminary

4.1 Bouwteam Consultant Role Factors

The main objective of the initial Bouwteam group interviews was to extend the currently available literature with Bouwteam consultant role factors that influence the decisions about when an external consultant is requested in a Bouwteam project. The findings of this empirical part are summarized and made visible in **Figure 18** and explained in depth further on in this section. However, it should be kept in mind that the different consultant role factors are strongly interlinked and thus also influence each other.

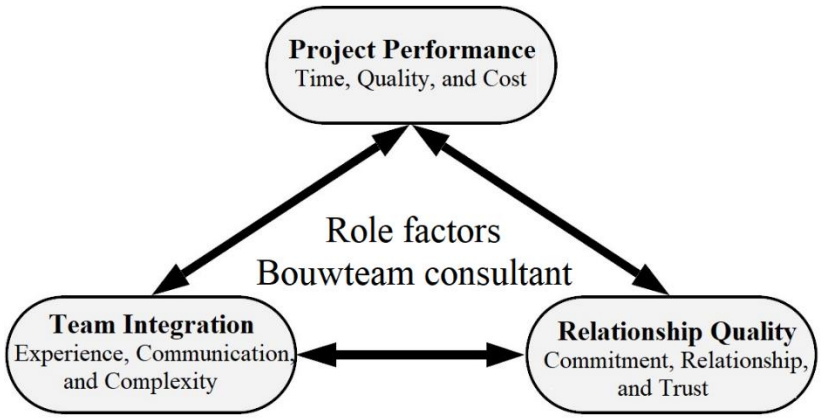

Figure 18: Role factors influencing the need for an external Bouwteam consultant

Project performance

A recurring phrase during the focus groups was that a Bouwteam project could be regarded as a one-time task scoped by time, quality, and cost. They state that – as a rule of thumb – the success of a project depends on how well these factors are balanced. Therefore, it is not a surprise that the biggest challenge faced by the parties is to harmonize these time, quality, and cost in a Bouwteam project, which is difficult due to the relationship between these factors so that the change in one influences on the remaining two. The respondents typically try a way to balance the three factors when aiming to meet the project goals but are often forced to make various trade-offs among them in the implementation to actually meet these objectives and expectations. The set goals are often placed central to the project and its success is directly linked with the performance of the project.

"*Despite the importance of soft criteria (e.g. collaboration), the success of a project is always determined on the basis of the quality of the product delivered. (...) This quality is always limited by the available time and budget. If the project threatens to end, this will cost extra money or it will be at the expense of quality*''

Project Manager ($Cl\alpha_{.1}$)

The main reasons mentioned by the respondents for the choice of a Bouwteam collaboration variant is often related to one of these three 'performance' factors. The most frequent reasons mentioned were: Innovation: "*A Bouwteam is unnecessary for projects requiring a simple and straightforward way of construction*'', Creativity & Unclear Scope: "*Other disciplines allow new views on certain phenomena and challenges*'', Constructability & Cost Control: "*Earlier involvement of the contractor brings extra execution knowledge*'', Planning: "*Earlier involvement of the contractor allows a smoother transition to the execution phase*'', Overall Project Outcome: "*Bringing together the involved parties allows the alignment of expectations*'', and Complexity & Risks: "*The more complex the project the more collaboration is required to control the risks between the parties.*''

Albeit the reason 'why a Bouwteam' is generally carefully thought-out beforehand, the individual intentions often differ per Bouwteam project. Therefore, all parties mentioned that it is of great importance to set clear goals by means of the time quality, and time – commonly referred to as the Iron triangle (Swan & Khalfan, 2007). The Iron triangle offers – according to Swan & Khalfan (2007) – an outstanding method to continually evaluate the process of the project. However – in reality – the respondent mentioned that – unlike time and cost – quality is difficult to review due to the open-minded and flexible Bouwteam agreement.

"*Contractors often incline to first look at the available budget and how long they have for it and on the basis of these numbers they determine the quality*''

Project Assistant ($Cl\alpha_{.2}$)

"*Although the budget and time are usually 'fixed', most clients do not yet know what they want, they often describe this in the project requirements under a name vague terms such as innovation or suchlike*''

Project Manager ($Co\beta_{.1}$)

Regarding the quality, it is of importance that the result fits the expectations, which should be plainly aligned. These expectations do not only determine the desired time frame, budget, and level of quality but also influence the requested – or already available – expertise to achieve these set goals and the risks that the project actors are willing or avoiding to make to realize the project.

"*It is important for the client that he first clearly knows what he desires to achieve before he starts a Bouwteam project without thought or form*''

External Consultant ($EC\beta_{.1}$)

All-embracing, in a successful Bouwteam it is assumed that all the involved participants share (sufficient) common goals to warrant a better collaborative performance. For example, both the client and contractor are interested in completing the Bouwteam on time. Neither party wants to de rework. Moreover, they both prefer to avoid costly litigation. Each wants to try to reduce the costs without a compromise of the quality. When a third party is involved, its main task is to guard those goals. The existence of such common goals between the members influences indirectly the overall Bouwteam outcome. at the same

time, inherent and conflicting interests can threaten a positive Bouwteam outcome. Both the client and consultant argue that the contractor tends to have a strong cost focus. As a result, familiar, simple solutions rather than innovative and creative may be chosen. A main challenge is this to ensure that each party agrees on united goals and continually pursue these in a collaborative manner.

Team integration

As mentioned above, the goals beforehand are set to achieve a certain quality within an estimated time frame and budget. Therefore, the Bouwteam variant is chosen for its characteristic to combine the expertise of different kind of members. According to the respondents, it is senseless to choose a Bouwteam if it's not clear why this variant fits the project instead of another kind of contract.

"*The Bouwteam becomes a bit of a buzzword. Due to the increasing popularity, a conduction project is often being procured as a Bouwteam, while a different form or contract might fit better*''

External Consultant ($EC\beta_{.1}$)

A huge advantage of working together in a Bouwteam is the opportunity to combine all the forces of the participating parties at an early stage and supplement each other's weaknesses. "*Knowing what you can and cannot do*'' is often mentioned as an important aspect for putting together a Bouwteam. The requested expertise is therefore highly dependent on the degree to which the team is composed: team integration. Furthermore, it also emerged from the interviews that putting together a well-functioning Bouwteam depends on the experience of the parties involved, the extent to which they can efficiently transfer knowledge and the degree of specialization of that knowledge.

The respondents cite a large number of different Bouwteam variants as a hindrance to the expectations for the various parties. "*One Bouwteam is not the other*'' and "*no Bouwteam or project is exactly the same*''. It is therefore difficult for the parties to determine which expertise is and is not needed. A telling quote is "*this may something researchers don't want to hear, but in the construction, decisions are mainly made based on experience and insight*''. Beforehand (for the Bouwteam project is procured) is determined what is needed for each project and adjustment in later stages with or without contributions of third parties. Henceforth, it can be underlined that the need for expertise is aligned with the understanding and experience of the Bouwteam model among the practitioners.

Another important point when inquiring about expertise is the ability to communicate this expertise to the rest of the team. As the client, contractor, and third parties have different ambitions and interests in a Bouwteam project, they will try to influence the team according to the role they play in relation to the project. Where the aim is to "*let each member put their part of the puzzle*'', an often-heard phrase is that it is in their nature to "*hold* – in the earlier stages – *their cards close their own chest*'', which is a Dutch saying for not being transparent with all the available and vital information. This is completely opposed to the fundamental principles of a Bouwteam – namely, working in a partnership. Therefore, the ability of the members to communicate and share knowledge between them is an important factor for determining to whom and which expertise is requested.

Lastly – a more obvious one – is the degree of specialization required for the job. As said before, no Bouwteam project is one-to-one comparable with another. However, the

respondents state that the degree of specialization required could be similar or different between Bouwteam projects. Therefore, the requested expertise is interlinked with the complexity and size of the project.

"*The more complex and/or bigger the project, the more specialization is needed in the Bouwteam'. For example, an experienced client-contractor combination with sufficient specialized knowledge and adequate communication will most likely divide most of the required expertise between them, while a less experienced client-contractor combination with few specialized knowledge probably needs more help of additional experts*''

Project Manager ($Cl\alpha_{.1}$)

Relationship quality

While discussing the goals, expertise, and – especially – the risks, it was clear that the opinions per organization differ. The risk topic appeared to be the most 'sensitive' one. The risks that the participants of the Bouwteam were (un)willing to take very much depend on the other members. The main challenges in implementing a good risk allocation arise from the commitment, relationships, and trust present in the Bouwteam. The respondents emphasize that especially the quality of the relationships affects the risks of the project. The main reason mentioned is "*that at the early stage of a construction project, little is still known about the execution and activities. Meaning the uncertainty is at its highest point in this stage (and thus also the risks), especially for projects based on a Bouwteam*''.

Mosey (2009) named the improvement of risk management by engaging contractors earlier in the project as one of the core principles. It should put the project team in a position to identify and allocate the potential risks more effectively. However – according to respondents – in order for a Bouwteam project to be as successful as possible, the practitioners need to be jointly committed to achieving best-for-project outcomes. An often-heard phrase from the side of the client and contractor was that the commitment of the members could increase by the share of risks and opportunities. The collaboration in a Bouwteam should "*produce a win/win outcome*''. Where the "*gain share pain share mechanism is fair for both sides*''. According to the respondents, it will stimulate the parties to find more innovative and efficient solutions.

The consultant ($EC\beta_{.1}$) – however – think that the risks should be allocated fairly to the different parties. They state: "*Each part should take a realistic part of the risk*'' However, they also admit that each party should also be committed to warning the other parties on time when facing a certain risk. This showed that Bouwteam demands a great deal of willingness from the participants to change their traditional mind-set and behavior. This kind of changes can be perceived as threatening and – hence – hard to handle.

As a more 'relational' model, the Bouwteam requires a closer relationship between the team members. Those closer relationships will help in the long term as 'these relationships increases trust among the parties so that it provides solid ground for later Bouwteam projects'. All parties state that trust is a keyword and needs to exist between the members for a successful Bouwteam. Lack of trust can sometimes exist due to a not existing relationship. All parties agree that the more certainty is needed, the lower the confidence. Collaboration in a Bouwteam fluctuates between 'giving' and 'taking', which can be more difficult when no good relationship is established/present.

"*It really depends per project which degree of risks is taken. If I have worked with someone before, fewer contractual agreements are needed and I am prepared to take more risks. If there is a less good relationship, then we simply build in more collateral to cover risks*.''

Project Manager ($Cl\beta_{.1}$)

"*To achieve the optimal risk allocation, an environment of mutual trust between all parties should exist*''

Planner ($Co\alpha_{.3}$)

The role of the consultant also largely depends on the relationship between the client and the contractor. The discussions with the two Bouwteams revealed that the need for a third party increased if there was little to no trust. The third party is then deployed in a controlling/testing role to look at the contractor's activities.

"*It would be naive to take everything from the contractor. A second opinion could save you a lot of misery in some projects*''

External Consultant ($EC\beta_{.1}$)

4.2 Requested Value

"*In an ideal world, there is a perfect balanced symbiosis between the client and the contractor. Otherwise, an external third party is advisable*''

External Consultant ($EC\beta_{.1}$)

The quotation of the consultant of discussion group Bèta suggests that – unless the situation is 'perfect' – there is a certain demand for an external consultant. This conception **Figure 19** is the starting point for this section. It shows that if the balance between the factors is 'high', the demand for a consultant is low and vice versa. In this section, the current perception and requested value of the consultant in a Bouwteam according to the 'other' Bouwteam participants are elaborated by investigating the 'Bouwteam composition' based on the role factors from the findings in Section 4.1.

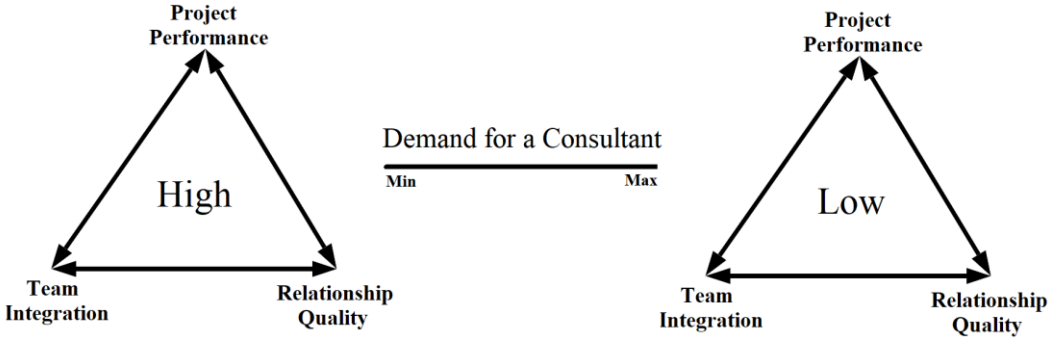

Figure 19: The requested consultant involvement in a Bouwteam based on the balance of the role factors

The main objective of the preliminary study was to investigate the current perception and requested value of the consultant in an external view. Six Bouwteam actors with rich Bouwteam experience were interviewed in-depth and requested six primary consultant-related value factors, as shown in **Table 6** and explained henceforth.

Table 6: Focus on the requested value

Bouwteam Consultant-related factors	
• Extensive knowledge of Bouwteam operations and needs; • Competences and commitment in delivery complex offerings; • Sophisticated experience and communication;	• Strong operational-financial-strategic risk management skills; • Bouwteam-centered culture and management mind-set; • Potential to build trust and a strong relationship with Bouwteam actors over time.

Extensive knowledge of Bouwteam operations and needs

A shared notion among all experts is that the consultant should have a more holistic view of the whole process when engaged in a collaboration project. Consultants are often perceived as inexperienced, arrogant, and unfamiliar with the business. The respondents stress a need for a mutual understanding of the role of the respective project parties. Both the client and contractor side claim that the consultant often not knows what is going on outside their field of expertise. A client gave an example of an attended presentation about Bouwteams given by consultants: "*This presentation made clear that the consultants have another conception about Bouwteams, which is not completely aligned with those of ours* (the client and contractor).'' The main reason would be the lack of knowledge outside the actual Bouwteam phase of the project. A contractor states: "*The credibility of consultants in Bouwteams are often exposed due to their lack of experiences during the actual realization*'' […] "*Consultants should pioneer outside their traditional scope to not losing out completely*.'' The clients agree on this statement and suggest that it will be very interesting if C&E firms try to reinstating and expand their position with more executive knowledge. Furthermore, they think that there is still a lot of ground to cover at the front side of a Bouwteam: "*It would be fruitful for C&E firms to examine the clients' organization in more depth and really understand their needs*'' […] "*The main struggle is to organize the Bouwteam beforehand; What does the Bouwteam project need?; When?; Where?; How do we create clear roles and responsibilities?*'' […] "*An ally that deeply understands our organization is more than welcome*.'' Therefore, it can be concluded that it is important to try to move away from a 'blaming culture' and rather create a mutual understanding of each contribution.

Competencies and commitment in delivery complex offerings

The core strength of the consultant is his intensive knowledge. However, it seems that a paradigm shift is taking place. The bigger contractor (and client) organizations are adapting to demand and try to break away from traditional role boundaries. These organizations have established in-house business sectors to (partial) take over the traditional C&E tasks. As a result, the knowledge competition has become so fierce that only in-depth works of specialization are outsourced. The contractors wonder why might a Bouwteam hiring a consultant when they could just as easily get the job done using its own in-house staff*?* One contractor argues: "*C&E firms which offer a full range of general services are slowly dying*'' […] "*To avoid becoming a commodity, they* (C&E firms) *should specialize more and more to maintain the knowledge areas to cover*.''

Moreover, the respondents added that it could be beneficial for the consultant to redirecting their focus and commit themselves towards the smaller sized clients and contractors without sufficient in-house capacity. It's a common understanding that 'early contractor involvement' requires more specialized knowledge from the consultant, which could be a source of revenue. Instead of the 'traditional' task outsourcing of the client, the contractor can handpick consultants for 'work packages', based on their specialized experience and knowledge.

Sophisticated communication and experience

In order to deliver complex offerings to the Bouwteam, good communication is very important for successful interaction between the consultant and other Bouwteam members. The respondents argue the need for consultants with good communication skills and integrity who can constructively discuss with the contractor and the client. A one-way perspective could be a huge threshold for finding new innovative solutions. The danger of developing a tunnel vision from own interest can lead to silo working and overlooking details. Bouwteams often need a second opinion, especially when making tough decisions.

A client argues: "*The consultant – if acting as an independent third party – may be in the ideal position to suggest time or cost-saving alternatives and to evaluate suggestions made by the other Bouwteam members*'' […] "*Especially a consultant who is familiar with working in Bouwteams could be of value as team member'* as they […] "*Can use their experiences from other Bouwteams with different organizations, facing a similar problem*.'' Thus – given this experience – a consultant could often bring new and innovative ideas or even challenges to the table that the rest of the Bouwteam probably wouldn't have been able to see on their own. One of the contractors reinforces this statement by saying: "*Due to our new advising role* (in the Bouwteam*) we sometimes tend to rush through the process to the realization phase*'' […] "*Mistakes could always occur. After all, it remains the work of human beings*.''

Bouwteam-centered culture and management mind-set

Since consultants are positioned in a business driven by generating profit and revenue, it is commonly perceived that the job-to-be-done in a project is sometimes been conducted in a way that it may lead to subsequent work by the C&E firm. The client claims: "*However, they* (the C&E firms) *will never openly admit it, there is always a strong monetary motivation to be immoderate in the amount of manpower and time put against a job*.'' The contractor side adds from the starting point of working in a Bouwteam: "*The consultant should purchase less profit and more collaboration*'' […] "*Consultants might discuss together with the other Bouwteam members how they jointly could create value*.'' There is a strong consensus that the consultant should make the step from the traditional time-based billing concept towards a more performance fee concept per delivered product or service. A client state: "*Unleashing the traditional revenue model could definitely increase their* (the consultants) *responsibility and 'team thinking' mind-set*.'' Thus, collaborative Bouwteam projects create the needs for the consultant to adopt a 'best-for-project' mind-set at all the levels of the Bouwteam organization.

Strong operational-financial-strategic risk management skills

One of the most heard criticism of the business model of consultants in the Dutch construction industry is the distribution of risks and liabilities. Both the contractor and the client-side agree that the consultant will never be a full-fledged Bouwteam member unless they are willing to abandon the limitations of their liabilities. A client states: "*A skewed distribution of risks and liabilities affects the mutual relations*'' […] "*It is hard to work on an equal footing when the stakes are not the same for each individual*.'' A majority of the respondents suggested a concept where all parties share in profit or loss so that everyone will pull together at the same level. However, both parties won't see this happen any time soon because C&E firms have often insufficient financial capital and are seen as '*stubborn to change*'.

However, the clients mentioned that the consultant may play an important role in managing risks in more complex Bouwteam projects. One states: "*Contractors tend to have a strong focus on cost and schedule, affecting the degree of innovation and quality*'' […] "*In more demanding and complex offerings, a consultant could act as a 'watchdog' to make sure that the goals are not endangered*.'' The consultant should thus have strong managerial skills in order to reduce both the risks of the client and contractor as well as their own risks in case they are able (and willing) to take more liabilities.

Potential to build trust and strong strategic and operational relationships with the Bouwteam over time

Several respondents argue that many consultants have the belief that it's only the contractor-client relationship that matters. Instead, it is the idea that the Bouwteam is as important as a whole, working alongside each other towards their shared goals. This requires a fundamental change in behavioral attitude and culture in how consultants perceive their role. The traditional project drivers like cost, time, and quality – 'known for causing adversarial relations' – are key challenges for a team engaged in a Bouwteam. The "*consultant should* – instead of staying in the back seat – *move to the front seat and become a part in controlling the outcome of the Bouwteam*.''

Another important theme is the traditional interaction of the consultant with the client and contractor. This traditional role of the consultant is to work on behalf of the client. However – according to the respondents – this role often results in a defensive attitude, impeding the collaboration as a 'team'. A member of the contractor side state: "*An external consultant implies his role as a kind of 'advocate', aggressively representing the client's points of view*.'' One of the clients complements this statement in a more nuanced manner: "*The whole point of working together in a Bouwteam on an equal footing is to leave behind the traditional distrustful relationships and start working on the base of trust*'' […] "*Disputes fuelled by discussions between consultants and contractor will only stress the collaboration.*''

In general, it seems that the (professional) relationship between consultant and contractor is recognized as an increasingly important topic to consider. As the contractor will have more and more power when involved earlier in the project, the consultant's position becomes vulnerable. As a result, a stronger strategic relationship with the contractor could be of huge importance for the consultant in a construction market with more collaborative projects. Strong strategic relationships between contractor and consultant are potentially needed to obtain effective collaboration and bridge knowledge in a Bouwteam project. From this point, work experience with specific contractors or contractors, in general, will become very valuable for the consultant, according to the interviewees.

4.3 Statements

The preliminary study in Section 4.1 & 4.2 is based on exploratory semi-structured interviews on a – in certain sense – unstudied and still a developing topic. It is impossible to make rock-hard conclusions based on this preliminary study. Therefore – instead of making conclusions – various statements were drafted from the preliminary study to use in the case-based interviews. These statements are reviewed and slightly adjusted based on interviews with the expert sample mentioned in **Table 4** and shed light on some specific aspects regarding the consultant in Bouwteam projects:

Statement 1: The external consultant needs to have a more holistic picture over the whole construction project process when engaged in a collaborative Bouwteam – due to increased communication with the other actors – to join substantive discussions.

Project Manager & Senior Consultant

Statement 2: Working in close collaboration with the client and contractor demands more complex and specialized knowledge of the consultant.

Senior Consultant

Statement 3: C&E firms should provide, flexible, structured, and open-minded participants who fully understand the collaborative setting when engaged in Bouwteam projects.

Project Manager, Managing Associate & Senior Consultant

Statement 4: The current revenue model of C&E firms does not fit the idea of collaboration in a Bouwteam.

Project Manager

Statement 5: There is an increased need for a suitable contract frame and strong governance mechanisms in Bouwteam projects.

Managing Associate & Senior Consultant

Statement 6: Developing longer-term relations with the contractor side becomes more important when using Bouwteam projects.

Project Manager, Managing Associate & Senior Consultant

4.4 Gaps and Overlaps (Rebound to the Statements)

In order to find gaps and overlaps, the statements resulted from the preliminary interview study are presented to each respondent. Each statement provoked a discussion that revealed in which scale the AG consultants agreed or disagreed.

Statement 1: A holistic picture of the whole construction

The overall consensus between the respondents is that steps should be taken to improve the substantive knowledge when participating in Bouwteam projects. Especially the management part that the consultant could fulfill demands way more '*field knowledge*' compared to – for example – a standard UAV-gc contract, where you can stick to the rules and controlling methods. In a Bouwteam, the involved consultant should be able to join substantive discussions to prove its value to achieve Bouwteam objectives. In order to close the gap between management and realization, several AG consultants suggest a 'test team' containing AG consultants of the required discipline to constantly guide managers in what is and what isn't possible.

However, others argue that – if you want to be a good manager in a Bouwteam– you need sufficient substantive knowledge yourself. Without this substantive knowledge, the manager is an "*empty box manager' who moves the box from point A to point B without knowing what happens inside*.'' Often, fictions that occur while managing a Bouwteam contract are about losing the agreed scope or troubles in that scope caused by substantive matters. If you're not able to join the discussion on the content, the consultant could only fall back on the set planning, costs, and quality. However, behind these factors, there is always a substantive component which is causing the problems. Practical experience revealed that in a Bouwteams the managers of AG not only need enough affinity, but also sufficient knowledge.

Statement 2: Complex and specialized knowledge

The AG consultant state that a Bouwteam is ideal for complex projects, innovative projects, projects with complex surrounding areas, technical complexity, and projects with many/difficult stakeholders involved. Multiple consultants state that the Bouwteam should be used in its full strength – namely – when there is already from the beginning an unclear scope. In the Netherlands, there are relatively many consultancy and engineering firms or a combination of both. Therefore, competition is always present: "*If you don't add value, there are enough competitors to take over the job*.'' This value lies in the area where the consultant can supplement the client and contractor in competencies and skills. The experience of all AG consultants is that the more specialized jobs are outsourced because this knowledge is too expensive for the client and contractor to have in-house. From this point, the consultants agree that there is a lot of potential for specialized consultants in Bouwteams due to its complex nature. However, the consultants also argue that they still have to fulfill similar jobs in a Bouwteam, especially when working for the client's side: "*The* (public) *client becomes more and more the director with a bag of money, but without expertise or capacity. As a result, an increasing role as a representative of the client*.''

Moreover – due to the tense market – the consultants are also often hired by the contractor because of the lack of in-house capacity. There are many sorts of clients and contractors, each with their own capacity. There is a lot of demand and a few offerings. Easier tasks in Bouwteams (e.g. a contract) has to be conducted by someone. The AG consultants are convinced that certain jobs are in their strength and will never diminish.

Statement 3: Flexible, structured, and open-minded participants

The success of a Bouwteam lies in seeing mutual interests and really putting the effort in doing it together. This may sound a bit cliché, but the consultants really believe that there is still much to be gained in this topic. Especially the generalizing image of distrust of the parties in each other does not fit the thought of a Bouwteam: "*If there would be more understanding of each other's roles and interests, it is easier to also take each other more into account when making decisions*.'' They state that more sharing and open attitude will improve collaboration. It would solve a lot of the frustrations and misunderstandings. A collaborative attitude is partly determined by habits and culture but can be stimulated by providing proper facilities for an open attitude.

In the initial phase, it is of importance to show in the tender document that collaboration and openness are seen as an important element in the Bouwteam phase. A tender phase fuelled by a contract based on suspicion and conflict can most likely already damage the changes for a good collaboration. Well begun is half done, as the saying goes. The Bouwteam participants should be well aware that from the initiative in starting the project, a collaborative mind-set has to be present. To obtain insights into each other's personalities, it is advised by the respondents to do a joint Project Start-up (PSU) as a start of the collaboration and to share the expectations and direction.

Moreover – when reflecting their own abilities to work in a more collaborative setting – the consultants see possible points of improvement. As an addition to the answers given in the first statement, there is more need for a more hybrid consultant. In Bouwteam projects, there is a need for consultants with more substantive knowledge (***Statement 1***). However – in general – the '*hardcore*' engineer is not seen as suitable due to his lack of communicative skills. There is a need for a consultant who knows the content, doesn't get stuck in details, and is able to make decisions. This means that you need someone on project management who can translate the content in an understandable language and is able to work in a team. This is not necessary just one person who possesses everything, but the consultants should be willing to take the time and effort to send the right persons in the right phase of the Bouwteam (even though this is expensive or difficult to plan).

Statement 4: The current profit formula of C&E firms

The preliminary interview study revealed that the other Bouwteam actors are bothered with the hour-invoice concept of consultants. They believe that this 'more hours is more money' principle has opposed the principles of the Bouwteam: working together to find optimizations to e.g. reduce the total time. It was argued that the C&E firms are not the appropriate actors to fulfill a project or process manager role to improve the project performance in a Bouwteam.

All interviewees understand this notion, but state it is a perfunctory way of thinking. First, it is important to set the priority of the manager straight. In the short term, it is worthwhile to make lots of hours and thus more money. However – in practice – is this not the picture that the AG consultants have of themselves. They believe that if you carry out the work

properly, other actors will be satisfied, which could result in succeeding work in the longer term. Moreover – and this is also mentioned several times in the preliminary study – each human being has no desire for an adversarial and distrustful work environment. From this point, it would feel not right to 'boycott' the collaboration. From their hearts, the AG consultants dare to state that they – when participating in projects – emphasize themselves with their clients, and operate completely in their best interest.

The AG consultants claim that they rather lose an x-percentage turnover or margin in order to get a satisfied client who is very keen to continue the cooperation. The consultants are aware that this sounds like the 'perfect world' and may be construed as 'empty words'. Therefore, AG uses client satisfaction surveys distilled from their '*Thousand Days Plan*' (in Dutch: Duizenddagenplan[21]). AG rather creates an image of a good partner than making x-percentage more billable hours. Nevertheless, it is mentioned that they never should lose track of their own interests, but the client should be priority number one. It will be naïve to think that the consultants never wants to increase their role, create more space and openings, '*who doesn't?*'. This is considered under the AG consultants as a healthy way of working if undertaken openly – without devious tricks – from both sides.

Statement 5: Suitable contract frame and strong governance mechanisms

Each organization in the Dutch construction sector (and probably in the world) is searching for the 'perfect' contract. At the moment of doing this research, the Dutch construction sector is in a period of buoyant activity. According to a majority of the consultants, this is a main reason why the Bouwteam (which is a more traditional form) is currently raising in its popularity. Where the policy of the government is to transfer more responsibilities and risks to the market with integrated contracts, the market is starting to oppose this way of working. An overall consensus was that the Dutch construction industry already "*worked together when misusing the UAV-gc''*, while the foundation of this contract is considered as good. The consultants state that the government is transferring too many risks without the willingness to pay for them. Consequently – in periods of prosperity – contractors want to take as little as possible risks and as much as possible profit. Thus, declining UAV-gc contracts if there is enough demand for construction works. At the same time, the clients want to reclaim their influence on the design and quality of the solutions offered. As a result, the comeback of the Bouwteam as a sort of '*hybrid in-between model*'.

Another important benefit of the current tight construction market is the willingness to improve relationships. The terms 'collaboration' and 'partnership' are becoming hypes and an objective by itself. Precisely this rose-tinted perspective could also be a huge pitfall for the Bouwteam. The respondents agree that contracts based on conflict prevention should be replaced by contracts based on partnership and collaboration. However, "*you should never let yourself seduced by naivety*''. There should always be a legal commitment in the form of a contract, no matter how good the relationship. Whereby the best contract is drafted, signed, and never used. The question remains how to draft a fair contract suitable for the Bouwteam.

Nevertheless, each participant can make or break the Bouwteam, regardless of how well the contract is drafted. Fines never actually work and are more damaging than being a solution. In the core of the Bouwteam, each participant is strongly dependent on each other.

[21] A plan drafted by Antea Group in order to become the best C&E firm of the Netherlands. One of the main objectives is to put the client even more central.

The strength of the Bouwteam is to connect yourself as a real partner. According to the consultants, here lies the danger in the current Bouwteam; the contractor is sitting on '*pole position*'. In the worst-case scenario, the contractor could put the client with his back to the wall at the end of the Bouwteam by demanding more money. Another scenario is that the contractor does not participate in the Bouwteam process as he was supposed to do. Due to time pressure, the client has limited power (keeping in mind that fines do not have the desired effect) and the contractor will be kept on the job. The idea of a Bouwteam is that there isn't a fixed price at the beginning, but there has to be some 'price guideline' that will be elaborated during the Bouwteam phase (the scope becomes clearer with regard to the Bouwteam phase). Thus, it is important to make the cost estimation parallel to the development of the design.

As a result, the respondents expected that the role of the contract and the process manager will be increasingly important, especially concerning the costs. At the beginning of the Bouwteam phase, their input will be the highest (lots of uncertainty) and this input will ideally linearly descending till the realization phase is reached. Furthermore – to utilize the strength of the Bouwteam – the contract manager should include a section in the tender documents which stimulate a '*pro-active attitude*' to achieve an '*improved*' result of the Bouwteam phase. In these documents, the contractor has to substantiate how he will use his input to make a better design and is governed by the consultant.

Statement 6: Longer-term relations with the contractor side

As described in ***Statement 5***, the consultants mentioned that there lies a danger in the claimed cooperation within Bouwteam projects. Over the whole construction industry, there is a positive vibe where the Bouwteam is seen as the perfect collaboration method to solve the majority of the current problems. In the real world, this perfect cooperation is not always the case. They state that in the basic, a Bouwteam gives far too much strategic power (especially in the public sector) to the contractor. A good reputation and relationship with the contractor could work as a precaution.

Especially in a tense market with few offerings is a Bouwteam model suitable to get more commitment from the contractor. Where in the past every single project was engulfed with contractors desperately looking for jobs, this now completely turned around. Public clients are happy that they will get a contractor for the demanded work at all. Therefore, the fierce competitive attitude makes space for a more relational attitude. This is not just true for the contractors, but also for the clients and consultants. In essence, each participant will benefit from good collaboration. When working for the contractor, a good work history could automatically result in follow-up assignments, especially when more and more specialized knowledge is demanded. However – even more interesting – is the raise of e.g. climate change issues (water levels, drought, etc.), wherein the different actors are supposed to work more and more together to encounter these common problems.

4.5 Desired Value

Now the consultants were confronted with the statements to force themselves into a discussion about their current role. As a result, two different roles emerged: their improved current role and a new role as an integrator.

The 'improved' Specialist

Traditionally, when thinking of a consultant who fulfills an assignment or task for the client (or contractor), collaboration may not be the first thing that comes to mind. However, all parties involved in the Bouwteam process are screaming for a better collaborative effort from each other (as explained in ***Statement 3***). The consultants realize a movement is ineluctable to keep up with the current transitions in the market (***Statement 1, 3, and 6***). At this moment, a C&E firm is seen as the external specialist who needs to work objective, independent, and insensitive for political issues. Their role is passive and reactive; a party is approaching them when necessary, hindering the value creation potential of the consultant. The interviewees agree that a more '*pro-active*' and '*collaborative*' attitude could lead to more successful complementation of a Bouwteam project.

An important issue to keep in mind is that a C&E firm could work for both the client and the contractor organizations. As a rule of thumb: when working for the client, it is not possible or desirable to also conduct work for the contractor, as "*a double-hatted consultant will most probably suffocate in conflicting responsibilities and interests*.'' Therefore, it is worth considering to think beforehand about which side to choose. As mentioned in the statement discussions, there arise opportunities on both sides. Where a C&E firm traditionally works for the client, the contractor could become a more interesting partner (***Statement 2 and 3***). This results in an identity split of for the C&E firm: reinforcing their traditional role or bending more towards the contractor's side.

Reinforce traditional role

At this moment, the strategy of most C&E firms – such as AG – lies in reinforcing their current and traditional role. All the respondents are not afraid of competition and have faith in their own primary role with corresponding activities and responsibilities. One of the respondents mentioned that their motto is to "*playing on Champions League level with the best players in the work field*.'' This means an internal investment independent of the dynamics of the market; relying on its own strengths and reputation. This means that their business model remains about similar for each individual project: each disciple offers their specific specialization with proven consultants for an hour-billed paycheck and limited liabilities. Subsequently, the C&E firm could reinforce its competitive position by evaluating finished projects and using its previous performance to obtain following-up works and showing its added value to its clients: "*Feedback = King*.''

Bending traditional role

The opinion about what's best within the organization differs. According to the interviews, the consultants are proud and stand behind their strategy based on their capabilities and competencies (***Statement 2***). However – on the other hand – they recognize that their profession is subject to change and are willing to keep pace with ongoing developments. This could mean that they will be adaptive and resign to the role available in a Bouwteam project. Whereby they want to adopt a flexible attitude and see for each Bouwteam project which activities and responsibilities fit best within the total: "*you could better settle for opportunities you will get offered rather than claim a role that isn't available*.'' They

accept that they need to focus on the cooperation with all parties in a Bouwteam project and consciously examine where their specific expertise can be used for a better overall result. This means – with more opportunities shifting to the market – also more collaborative efforts are requested towards the contractors.

Furthermore, this will change their internal vision in a more external one. Their strategy becomes more Bouwteam specific with more effort on collaboration and team-thinking. Especially in a Bouwteam project, the interviewees think that a collaborative working approach will reduce the natural silos present between the different disciplines, both within the whole project organization as well as between the areas of the C&E firm itself. According to the respondents, this should "*further help to create an environment for continuously sharing of knowledge and competencies between their individual members and other project parties*.''

Moreover, the consultants agreed that working in collaboration with the contractor would help to gain the desired and important construction knowledge, as they "*enabling them to get a more holistic overview over the whole project and prepare them for future Bouwteam projects*.'' When collaboration with the contractors, the consultants stress the need for competent project management as a fundament for the success of a Bouwteam project: "*The manager is the figurehead of the company*.'' For the consultant, this means a high production knowledge as well as 'knowing how' to interact with the contractor. The respondents argue that this new collaborative environment of interaction with the contractor requires Bouwteam consultants with competences, integrity, and experience that "*allow a constructive dialogue with the contractor organization throughout the entire project*.''

The main expertise added in this role will remain similar to their traditional role: specialism. However, according to the consultants, a challenge to comply with the requested value from the other actors is to find the most suitable resources to meet the demands of specific Bouwteam projects. They forecasting difficulties in securing the combination of right competencies with sufficient experience and still meet the financial prerequisites of the contract, as an "*experienced' consultant almost always implies a higher cost*.'' Due to the significant size of big C&E firms – similar to AG – with their multiple tiers of governance, the consultants don't see a shift in their current profit formula; This would require a complete '*in-house culture change*', which could be feasible for little engineering/consultancy firms but not for the bigger ones. Therefore – for example – wants to offer a complementary mix of junior and senior resources. The senior resources could provide the requested security and experience, while the juniors could provide new points of view and – at the same time – develop own competencies in a collaborative Bouwteam setting. The respondents believe that the achievement of collaboration success requires the right people that support the fundamentals of trust, openness, and flexibility. They state, that "*a Bouwteam needs socially competent individuals who are led by equally competent managers*.'' Each participant should show trust and work with an 'open book' mentality and attitude, bringing up questions and challenges to moment they occur, creating a work environment with mutual respect between the consultants and the other members of the Bouwteam.

Specialist vs Integrator

An important consequence of the new integrated policy of the government is that the responsibility further and further shifts towards the market. Remarkable is that in general, the traditional builder (contractor) is shifting to a role as a kind of integrator, whereby these contractor organizations buy new in-house knowledge or hire design capacity. According to the literature (Rutten, Dorée, & Halman, 2009; Bemelmans, Voordijk, & Vos, 2012; Lieftink, Bos-de Vos, Lauche, & Smits, 2014), this transition will eventually open most of the possibilities for the external consultants, which is also mentioned several times by different actors from the interview studies. There is a general belief that this transition forces the external consultant to focus on and reinforce their role identity as '*specialist*', who possess supplementary and complex knowledge.

However, the consultants of AG stress a huge asset of their firm; namely, Strukton. As mentioned in Section 1.3, AG is part of the holding Orangewoud, which also includes contractor organization Strukton. In combination with their consultancy and engineering capabilities, the majority of the consultants believed that AG is lagging behind the present situation: "*Where contractors are expanding with a new role as an integrator, the consultants stick to their traditional roles as specialists without integrating their strengths on a regular base.*'' A new role as 'integrator' could be the response to the contractor (and some clients) who are establishing own engineering and consultancy services, according to the consultants. This is precisely what allows C&E firms to take initiative, with their in-house conceptual strength and to "*offer their clients new concepts to anticipate on their requirements*.''

Goals

Where the consultant as a specialist is mainly searching for continuity in capacity and turnover, an integrator needs to arrange continuity within its network to be able to stay a competitive party who actively positions itself in the construction market. In other words, the main task of the consultant as an integrator is to set up (and maintain) strategic networks within the market. Brady et al. (2005) state that these strategic networks are mostly sustainable and long-term relationships, which are formed by sharing information, trust, transparency, and openness, in which the involved actors have the same long-term goals. Thus, it is of importance for the specialist to consciously set up a stable network. According to literature, this means that it is important to select other parties which are trusted and known complementary statically bilateral dependent and have social embedding (Ploegmakers, 2017). This is exactly where the respondents see their advantage in a Bouwteam; working together without adversarial relationships for the best project outcome. For example, where this normally is considered as '*perfect world*' or '*naïve*', AG could take control in their own hands by including Strukton in a more strategic way.

The AG respondents mentioned the fear of losing other partnerships as a main reason why Strukton and AG are not working together on a regular base. Reasoning as 'they belong together' could persuade other contractor organizations to not consider AG appropriate for the job as they represent a competitor. A huge potential subsequent risk could be that this partnership with Strukton could backfire: "*You can't put all your eggs in one basket*.'' […] "*If you have a strong relationship with a contractor, you could end up with empty hands when not awarded the contract*.''

In reality, the AG consultants noticed that their already growing relationship with Strukton does not affect their relationship with other contractor organizations. "*We used to hold off*

Strukton as a close partner.'' […] "*However, lately, the relationship between us (*Antea) *and Strukton improved but we didn't perceive hostile reactions*.'' […]"*Indeed, other contractor organizations kept increasingly asking us for our individual services*.'' As a side note, they mentioned that this could also be the result of the currently tense market and the need for consultants. In this case, the respondents argue it would be beneficial for AG to have still multiple strategic relationships with several contractors instead of just one. AG should carefully think through in which Bouwteam projects they propose themselves as specialist and in which as an integrator.

Expertise

AG wants to offer a total solution so that they can regain control and have more impact by moving beyond its current role as a specialist. AG wants to become the main contractor organization responsible for design and integrating service and product components supplied by Strukton into a functioning system for the Bouwteam client and actively involved in the process to match the constantly changing demand of the client in a Bouwteam. However, the respondents agree that some of the Bouwteam projects are more appropriate to become the integrating party than others. The question when to be a specialist and when to be an integrator depends mainly on the type of Bouwteam contract: UAV or UAV-gc. As mentioned a couple of times before, the AG consultants believe that each actor should act from their own primary core strength; "*Builders should build and designers should design*.'' This will mean the consultants are the more obvious choice to take the lead in the more integrated Bouwteams, while the contractors advantage in the traditional ones.

Risks

Acting as an integrator will bring other risks and liabilities than acting as a specialist. Dorée & van der Veen (1999) concluded in earlier research that it is not considered that consultants will develop in an integrator due to their insufficient financial capacity to be able to offer risk-bearing integrated solutions. However, especially the Bouwteam can be used to find a better balance between risk allocation and freedom in the design. After all, relatively much freedom and knowledge of the market can be used and involved with this model, without losing the complete influence on the design. In addition, a more realistic and better-supported risk allocation can be agreed within a Bouwteam; wherewith the UAV-gc "*sometimes (incorrectly) too many risks are allocated to the market*.'' The respondents agreed that the consultant will have a heavier liability than in its current role, but also mentioned that insurers can accommodate this by "*proving appropriate policies*.'' Moreover, they argue that it may be fruitful to focus on the Bouwteam projects at a municipal scale when acting as an integrator. These projects often contain lower risks and fewer uncertainties, while the role as a specialist is '*barely*' worth it. In this way, the C&E firm is able to pioneer and develop a different role in a Bouwteam without taking irresponsible high risks.

Chapter 5

Conclusions

This chapter will provide a summary of the primary conclusions of this thesis. In this summary, both the research questions drafted in Chapter 1 will be answered.

5.1 Summary of the Findings

In order to explore how consultant & engineering firms can deal with threats of marginalization in collaborative delivery projects, it was studied how they could propose and negotiate their professional work in inter-organizational Bouwteam projects. The purpose of this research was to gain knowledge on the value capturing of consultancy & engineering firms to better understand how consultants could open up the ability to diminish the current role barriers within these projects in order to play a more valuable role. The temporary nature and dynamics in Bouwteam projects complicate the value negotiations for consultants, especially since their traditional role structure in these projects has become increasingly unstable. Therefore, the main research questions (drafted in Chapter 1) should be answered:

1: ***What is the potential added value of consultants in a Bouwteam project?***

According to the literature, a collaborative project delivery method such as the Bouwteam could be a potential solution for a range of issues encountered by participating actors (e.g. cost-time overruns, disputes & conflicts, insufficient quality, low client satisfaction, poor productivity, high project risks, lack of openness & trust, lack of collaboration, and lack of mutual respect. In order to get insights into how consultants (in a Bouwteam) can use their overall value to help in overcoming these issues, their potential added value in these projects is examined by looking at the requested value in external view and desired value in internal view.

As mentioned before, the consultant & engineering firms should not only look at their internal desire but have to focus more on their offerings' perceived worth to the 'other' actors in the project. Therefore, it was chosen to approach these actors before starting the case-based part of this study. In order to examine in which dimensions the external consultant could be of value, the role factors are discussed which influences the need for the involvement of an external consultant. As a result, they confirmed that the external consultant could play a valuable role in facing project performance, team integration, and relationship quality issues.

Since it was made clear that the external consultant could be of potential value to solve issues in a Bouwteam project, the continuation was to investigate the conditions so that the other actors are able to make use of that value. These 'Bouwteam consultant-related factors' represent the requested value of the consultant in external view. In this part, six primary factors appeared: Extensive knowledge of Bouwteam operations and needs; Competences and commitment in delivery complex offerings; Sophisticated experience and communication; Strong operational-financial-strategic risk management skills; Bouwteam-centered culture and management mind-set; Potential to build trust and a strong relationship with Bouwteam actors over time.

2: ***How can the consultant capture and negotiate this potential value in a new role structure?***

In the next step, the case-based interview study gave insights into the internal desired value in light of the external requested value. To do so, the requested value was translated into 'provocative' statements to stimulate the thinking process of the consultant to align the requested and desired value in order to capture the potential value of the C&E firm in a Bouwteam. As a result, two new potential business cases to capture value emerged: one as a Bouwteam oriented specialist and the second as an integrator. In its traditional role, C&E firms are mostly deployed as a specialist working for the client's side. However, according to the respondents, the (larger-scale) C&E firms should consider to shift their services and focusing more on the contractor's side, as more work shifts to the market with the integrated Bouwteam. Furthermore, the consultants champion the idea that there should be a paradigm that changes the internal culture of the external consultant to a more collaborative when participating in a Bouwteam project.

Moreover, the respondents all agree that there is still a lot to gain in improving their network relationships, especially with close contractor organizations, such as Strukton (from the same holding as AG). This led to the desire to act in a more integrating role. They believe it is more suitable to act an integrator for certain Bouwteam projects than e.g. a contractor organization. Especially integrated Bouwteam at a municipal scale would be very interesting due to the need for design capabilities and (initial) lower risks.

All-embracing, the analysis of the empirical part of this research revealed three types of role structures a C&E firm could think about to negotiate a more pivot role in Bouwteam projects in an attempt to reconcile requested and desired values: reinforce their traditional role, bend their traditional role, and shift their traditional role.

Reinforce traditional role. The first opportunity for the consultant is to reinforce their current role as the representative or specialist of the client. According to the 'other' Bouwteam actors, the consultant is able to increase their value and position within his traditional/current role by considering a more Bouwteam-centred mind-set. This will mean that the mind-set of C&E firms should focus more on the external collaborative setting of the team rather than the internal independent setting of the firm itself.
Bend traditional role. The second opportunity of the consultant is to rethink the options it has in particular Bouwteam projects. This lies in line with the previous point, the consultant has to explore where in a Bouwteam project his value is encapsulated the best. This could result in work that should be conducted for the contractor instead of the client. Thus, it could be in favor of the consultant to act as flexible as possible to bend to the most appreciate work packages and to make judicious decisions about who's side to work for.
Shift traditional role. The last opportunity is a more radical one. However, it's probably the best way to enforce a more pivot role in the whole Bouwteam; Taking the law into own hands. In order to become a full-fledged member of the Bouwteam, the consultant can decide to act as an integrator. The consultant will place himself centrally in the team and will take control of the whole coordination process. The appropriates of this role differs per C&E firms. Thus, deliberated choices should be made about when and how this role will be appropriate for the consultant in a Bouwteam project.

Chapter 6

Discussion

This penultimate chapter presents a critical reflection on the interpretation of the findings in this research. The validity and the role of (uncertainties in) the research approach on the outcome of this research are evaluated and the findings resulting from the analysis are discussed. This chapter ends with a train of thoughts; Interesting points of view of the interviews, which not had completely widespread support among all respondents but should at least be mentioned.

6.1 Reflection of the Research Approach

The important overall goal of the research approach was to gain insights into the Bouwteam project-based value capture of consultancy and engineering firms in the Netherlands that are relevant to both academia and practitioners. However, the methodology of this research involved a number of uncertainties. In the following sections, some important reflections on the appropriateness of the used approach are presented.

Personal Bias

The danger of qualitative research lies in the personal biases of the researcher and the units of analysis. In this study, the researcher (I) lacked a strong bias due to my academic background in civil engineering with no practical work field experience nor relations. However, during a period of six months, this thesis was written at an external location; namely, at the office of Antea Group Deventer. Therefore, first biases were uncontrollably formed in the natural setting of a consultancy & engineering firm. During the entire process of research design, data collection, data analysis, and data interpretation, I consulted with employees of Antea Group on a regular basis. Conversely, regular meetings were planned with my two supervisors from the University of Twente to reflect on myself and my work. Due to these consultations, I learned how to pursue the scientific rigor crucial in order to generate findings that are relevant to academia, without losing the practical applicability for the consultant.

Moreover, the findings of both empirical studies are – if not stated otherwise – based on collected information through interviews. From this point, it is of importance to understand and acknowledge that personal opinions will be present that might not reflect the common perception of the industry in general. In order to avoid biases that could arise from mirroring the views and opinions of the respondents who might pursue their own agendas, it was decided not to focus on specific cases, but investigate the more generic topics of Bouwteam project-based value capture across the different actors and projects. It was tried – to the highest extent possible – to separate (the more obvious) personal opinions from the general results.

Another kind of bias that accompanied the involvement respondents was related to the case study; Antea Group. Especially in the preliminary interview study, the respondents were often found within or with help of the network of Antea Group. This means that the respondents already had an opinion about the case firm beforehand, which could positively

or negatively influence their answers. Albeit, Antea Group is the case firm, it was desired to have more generalizable findings in the preliminary study. Therefore, I introduced myself as representative of the University of Twente and did not name Antea Group explicitly as a case during these interviews. This resulted in more general answers based on a broader spectrum of consultancy & engineer firms.

Collection methods

In this research, data had to be collected in two phases. Due to the specific scope, the limited availability of scientific literature caused a need for an additional exploratory study beforehand. The manner in which the data is collected in this primary part could raise some questions. To begin with, the sentence of first group discussions and then individual interviews should be discussed. It could be argued that conducting individual interviews before the group discussion is particularly more appropriate when less familiar with the interview topic or the units of analysis. However, this was not the purpose of these interviews. In this specific context, I found it very fruitful to begin with group discussions and then use the broad themes that were generated in the groups to narrow in and delve more deeply through one-on-one interviews. In this way, I was able to scope the more generable problems in more detailed statements.

Moreover, the semi-structured interview design was made in a way that it could reveal higher-level concepts that would be helpful to practitioners which could create the possibility to overlook innovative and insightful findings that may stem from the more 'scientific' structured works. However, since the aim of this was to do relevant rather than really ground-breaking research, sufficient freedom for the respondents was necessary during the interviews to obtain a proper overview of the practical issues. A semi-structured interview seemed to be the best choice as I was able to steer the topics of interest without hindering the respondent's own input.

The last step of the exploratory interview study was to verify and validate the findings of the group discussions and individual interviews. It would be more preferable to establish an expert panel, who were able to hold an open discussion among them. However, this part of the study was conducted right before the national holiday period, resulting in congested personal agendas and limited time slots. Furthermore, the respondents were located in different cities with significant travel distance. Therefore – due to the time restraints – I decided to have individual expert meetings instead. This is defendable because the experts were not used to produce 'new' knowledge but to verify, validate, and (in certain cases) slightly adjust the findings from earlier interviews.

In the second phase, the case-based interviews were done in just a single step: individual in-depth interviews. These interviews were translated from the toolkit of Bos- de Vos (2018). In her doctoral thesis, she gave three important recommendations to make the most when using the toolkit:

1. Discuss and think aloud;
2. Involve and external moderator;
3. Dare to choose and dare to be different.

Especially the first point is a topic of discussion. It was highly recommended to use a group setting for engaging in value capture-related strategizing. This would not only lead to more substantiated strategies but would also help to create a more shared understanding of the reasons to choose a certain strategy. However, in this research, it was chosen (due to similar reasons as the expert meetings) to translate the toolkit (board game) into an interview format. This automatically increased the importance of the second point; the role of the external moderator. It was chosen to strengthen this role with the information gathered in the preliminary interview study. The statements resulting from this study were used to enabling a constructive discussion with the respondents as a replacement of the first point.

Sample

Due to the recently upcoming popularity of the Bouwteams, it is harder to identify and approach an appropriate sample. For group interviews, Guest et al. (2017) state that three to six group interviews will reveal 90% of the themes (instead of 80% with two to three). Moreover, Guest et al. (2006) found in their study that twelve interviews – assuming it considers a homogenous group – is needed to reach information saturation in individual interviews. However, the available time and population restrictions make it too hard to research such numbers at this moment. Therefore, the used sample mainly filled with respondents experienced in working with Bouwteams. It is thus important to acknowledge that these respondents might not be completely representative of all actors who do– or want to –work with Bouwteams in the Dutch construction sector. It would be more desirable to work with a larger and more diverse sample.

6.2 Reflection on the Findings

Due to its explorative character, the findings of this research should be put carefully in reasonable perspective. Thus – brief discussions about the scope, role factors, requested value proposition, the statements, and the desired value proposition are given.

Scope

In order to determine the applicability of the findings of this empirical research, credibility should be set. The most important factors to keep in mind are the setting and environment of this research. First of all, this research is based on the Dutch construction industry with specific characteristics. Secondly, the type of contracting – namely, the Bouwteam model – is of Dutch origin and cannot completely one-to-one be compared with similar foreign models. The last important factor is the size of the consultancy firm. As mentioned in Chapter 1, Antea Group Nederland is used as a case for this research. Antea Group Nederland is a top 5 consultancy and engineering firm with approximately 1.800 employees. Therefore, a strategy special made for Antea Group Nederland (who is also part of the Orangewoud holding) will – most likely – not fit in its whole for the smaller consultancy firms or firms with another culture.

Role factors

In order to determine the ‘role factors’ which have an influence on the decision if an external consultant should be involved are based on the decisions about the set goals, risks allocation, and needed expertise distilled from the requested role as proposed by Bos-de Vos (2018). This resulted in three dimensions: relationship quality, team integration, and project performance. It would make sense that each of the three decision criteria was directly linked to one of the dimensions. However, while discussing the different criteria, it became clear that the lines between these decisions were very thin. Decisions (and thus the answers) about goals, risks, and expertise were strongly interlinked and could not be seen completely separately. As a result, the dimensions of role factors did also influence each other. Therefore, this research is not able to make prognoses how a Bouwteam affects these factors separately. However, these results can be used to explain that if there is an imbalance between the dimensions, an external consultant is requested. The findings from the group discussions had to reveal themes that would open up the argumentation in the individual interviews. The role factors found in the Bouwteam discussions complied with this purpose but could not be used (yet) to describe other relationships.

Requested Value Proposition

The requested value from the other actors in a Bouwteam is based on the need for an external consultant. It was chosen to create value-in-use propositions, as these factors are client-centric and demand-driven (Vargo & Lusch, 2004). In the theoretical framework, three value dimensions are mentioned (value-in-exchange, value-in-use, and professional value) in order to determine how value can be captured. However, this part is not about the value capture strategies of the other actors, but about what they request from the consultant. To keep generable findings, it was chosen to leave out the other value dimensions as those may differ too much per organization; Due to the small sample, the specific organizational-related requested value would make the findings unusable. Furthermore, it could be argued that the consultant-related requested value-in-use propositions are in a way so general that they are also applicable to another kind of collaborative projects. This may be, but due to its strongly Bouwteam-based background, this cannot be assumed without further research.

Statements

It cannot be emphasized enough that the findings of the exploratory interview study (the statements) are a tool to come to the purpose of this research and aren't a result itself. The main aim of the statements was to trigger a discussion with the case-based consultants to let them renew their perspectives. Therefore, it was chosen to summarize the findings on the exploratory study as statements and not as conclusions, as these findings are not considered as a general truth.

Desired Value Proposition (Toolkit)

The core of this research was built on the conceptual framework of Bos-de Vos (2018). In the theoretical framework, a line of argument was given to defend the appropriateness of the toolkit for other professional service firms such as the consultancy & engineering firm. The theory and the designer of the toolkit mentioned the potential to use this toolkit as the departure of the problem of this research. However – to the best of my knowledge – this is the first time that this toolkit is used for this specific topic. It would make no sense to draw the conclusion that this is the 'best' manner to capture value for these firms, as this research is still at a very explorative level. To make such conclusions, the toolkit should be tried on a higher scale with different C&E firms and in the appropriate way as is recommended by Bos-de Vos (2018).

6.3 Train of thoughts (Trade-offs)

During this research, different types of Bouwteams actors were interviewed. Each of them had his/her own perspective on the Bouwteam model with supplementary vision and opinion. This resulted in a huge amount of qualitative data, which had to be filtered for getting to the more general findings. However, it would be a shame to withhold some of the sharp criticisms given by the individual respondents. As mentioned often before, the construction sector is mainly positive about the Bouwteam; criticism is hard to find and the market allows more freedom. However, I separated points of critic which made me think a little deeper on this Bouwteam topic. I decided to describe these points as fields of tension. Those three fields of tension regarding the Bouwteam will be described below:

Collaboration vs Cooperation

Despite it isn't a new practice, collaborative Bouwteam project delivery is still a developing concept and not yet fully mature. Collaboration has been a big word in the construction lately. In the period of writing this thesis, many organizations have tried to create and adjust different models of Bouwteam collaboration, yet all with the aim to create a greater extent of collaboration between the project actors. Bouwteam articles and publications rose night and day like hornets around a hornets' nest; each of them more or less similar to its predecessor. Collaboration seems in this way more a marketing term such as 'sustainable' and 'circular', which organizations have to use to sell their service.

According to literature, introducing collaboration and engaging different project actors at an earlier stage of the construction project process is one way to achieve common goals and create better relationships between the consultant, client, and contractor (Mosey, 2009; Song, Mohamed, & AbouRizk, 2009; Walker & Lloyd-Walker, 2012). This academic 'prove' is welcomed with open arms by practitioners and used in their current business strategy. However, they tend to enthusiastically confuse collaboration with cooperation. Where cooperation is important in projects where individual actors exchange relevant information and resources in support of each other's goals, collaboration is seen as working together to create something new in support of a shared vision. It could be interesting to see the findings of this research in light of these 'proper' definitions.

Each interview of this research was concluded with the same questions: (1) *Are you a proponent of the Bouwteam projects*?; and (2) *Do you see a bright future for Bouwteam projects*? As an outcome that all of the respondents were positive about the idea of a Bouwteam and thought it had huge potential. However, the reasoning behind this positivity was remarkable; it was almost merely based on own interests which conflict with the often named best-for-project attitude. This chimes with the study of Scheepbouwer & Humphries (2011), they suggest that professionals within the construction industry commonly see themselves as members of their individual organizations rather than as a member of the project team. This also supports a main requested value found in the preliminary study: the consultant needs a more holistic picture of the different project processes and more insights into the overall project. This critique is based on the collaboration ability of consultants as trust and mutual understanding are fundamentals for successful collaboration (Bresnen & Marshall, 2002; Walker & Lloyd-Walker, 2012). Developing trust also requires individual consultants to adopt the collaborative setting with an open mind-set, not hesitating to work in new ways, and embracing the changing dynamics of the respective project roles while keeping a best-for-project mind-set (Chiocchio, Forgues, Paradis, & Iordanova, 2011).

From this point, it could be defended that collaboration is irrespective of the kind of contract. True, a Bouwteam is – in essence – a perfect way to foster a cooperative setting where the parties could help each other to achieve individual goals. However, in order to obtain a collaborative setting, the involved parties need to change their internal culture and establish shared goals. It would make sense for practitioners is to distinguish cooperation and collaboration. Where cooperation is the main reason to choose a Bouwteam, a Bouwteam reveals the underlying desire for collaboration.

Trust vs Naivety

Another interesting field of tension that occurred in the findings of the empirical part is the one between well-established and suspicious relationships. Especially, the role of the contract differs in the opinion of the respondents. In the eyes of the gullible, a contract is a necessary evil; it feeds the distrust among parties and hinders the collaboration. On the other hand, it's a safety net in case of the worst-case scenario, you will be happy to have. It is still up to the procuring party (client) to decide the contractual framework of the other parties, as this represents the steering mechanism for the project (Mosey, 2009). Here starts the dance; are you being distrustful or naïve?

According to von Nordenflycht (2010), the professional norms of a professional service firm could be used as an inhibitor for commercial competitiveness. This will be the case as client satisfaction and trust is often valued higher than profit. All the respondents swear on their 'big blue eyes' that they are trustworthy when engaged in a collaborative project. Although I deeply believe in the goodness of human beings, it should be kept in mind that these statements were made in a (recorded) interview setting. One of the respondents mentioned that these morals can break when political pressure is applied from top-down.

Of course, a good reputation and relationship will be beneficial for subsequent projects, but is it really possible to exclude the bad ones? If we take the private sector, the answer will be yes. However, this research considers Bouwteam projects which are publically procured. This means that everyone is allowed to make an offer and will start at the same level. On the contrary, it is not even allowed (formally) to give penalty points to a contractor who has performed terribly in a previous project; If this will come out, the court will act it the contractor's favor. So if a good reputation is considered that important, how do you prove this in a tender? One of the respondents named the 'past performance grades', which were mainly used by Rijkswaterstaat to determine the level of collaboration skills. However, he also mentioned that this was not done consistently and thus unreliable; one organization could have lots of scores and others could have none. Moreover, the question could be asked how representative is that score?; A client could have drafted a poor contract causing the bad performance of the contractor.

It's clear that the involved actors have to find a good balance between trust and rational thinking. Completely relying on a contract or trust could work in certain situations, but will most likely result in an irresponsible naivety. The sector seems to show a willingness to slowly move towards a more trustful environment, but actors always tend to fall back in old behavior during economic hard(er) times (Dronkers, 2016).

Friend vs Fraud

The mentioned dangers of the Bouwteam in this study are mainly based on adversarial relationships and distrust, but what if turn this though around? It should not be forgotten that in 1992, the Bouwteam model became a standard choice on the Dutch contracts menu (Chao-Duivis, 2012) and lost its popularity after being associated with the Dutch construction collusion in 2001 (Boes & Dorée, 2013; Chao & Jansen, 2019). It is partly due to this construction fraud that there is mistrust in the market and that fewer Bouwteam contracts have been concluded. In the years following the construction collusion, most of the public authorities wanted to prevent mutual agreements in the construction by closing contracts and tendering without prior interaction with the market.

However, the relationship between the design and implementation phases in a Bouwteam is strongly influenced by the mutual relationships. As found in the empirical part, a Bouwteam will not succeed if the actors don't have a good mutual understanding, because, strictly speaking, it is difficult to get all the responsibilities watertight and flawless in a contract. And with that, a Bouwteam has an enormous dependence on the most difficult aspect of a construction project: a good, open, cooperative, pure, and business-oriented relationship. Organizations working together as 'friends' is, at first sight, a nice concept, but it should not give a party an unfair advantage.

As a result, two critical questions arose during the interviews when advocating the Bouwteam: (1) How do you still remain and guarantee the free-market function?; and (2) How can you avoid a new collusion in the next coming years? Too little emphasis is placed on the current market the Bouwteam is operating; Namely, and overstrained one, a market where there is a lot of work. Interesting will be the development in the more critical and turbulent times, where organizations have to fight to survive and still need to collaborate.

Chapter 7

Implications & Recommendations

This final chapter will consist of two parts: First, theoretical and practical implications are given. Subsequently, recommendations are made for Antea Group and future studies.

7.1 Theoretical Implications

As recommended by Boes and Dorée (2013), an open discussion about the role of the consultant is important to connect the needs and expectations of the team members and investigate their possibilities for a more valuable role and closer cooperation with the client and contractor. The findings of this research contribute to the understanding of organizational value capture in temporary projects by providing insights into the dynamics of Bouwteam-based value capturing by consultancy and engineering firms.

This research builds on the previous work of Bos-de Vos (2018), who used the classic distinction between value-in-use and value-in-exchange (2008) and complemented this with 'professional value' as the third dimension in this interaction. With this conceptual model of multidimensional value, specific insights into how consultancy and engineering firms acting as a professional service provider (Stroe, 2013) try to capture value are gained. This research revealed the framework as proposed by Bos-de Vos (2018) could not only help the PSF to align their requested and desired role in a Bouwteam project, but could also be used to increase the ability to gain an overview and respond to the challenges of the Bouwteam project (Section 4.1). Furthermore, involving all the actors helped to generate a better understanding of each other's motivations and constraints in the project, triggering the need to revaluate the current situation (Section 4.2). This research thereby adds to the toolkit by showing its potential for another kind of PSFs and other project actors.

Moreover, the findings of this research show that the described tendency of construction works moving towards the market (Bygballe, Jahre, & Swärd, 2010) is true, but also slightly exaggerated. It is true in the sense that there will be more opportunities at the contractor's side, as they will require more specialized knowledge and capabilities (Rutten, Dorée, & Halman, 2009; Bemelmans, Voordijk, & Vos, 2012). However, this research shows that there is a risk that large contractors start integrating backward and develop own consultancy and/or engineering departments, as the Bouwteam becomes increasingly applied. Where literature only mentions two paths to take for the consultants (1) develop their internal competence profile or (2) create more strategic relations with contractors (Lieftink, Bos-de Vos, Lauche, & Smits, 2014), this research adds the potential for a new path: to coordinate and integrate resources of different organizations. In previous scientific literature, the consults were estimated as not suitable to perform the role of an integrator (Dorée & van der Veen, 1999; Grooters, 2018). However, with the increasing pressure on their business model, the consultants are more and more willing to abandon their traditional role boundaries and shift towards a role as an integrator. Especially the bigger firms have the potential to develop themselves in this role.

To return to the recommendation of Boes & Dorée, this research definitely showed the potential to use the toolkit of (2018) and involve all the different actors to align the requested and desired value of the consultant in order to enable closer cooperation.

7.2 Practical Implications

It was suggested in Chapter 1 that C&E firms should experiment with their traditional business model to be able to meet the changing demands of the business environment. To meet these new demands of collaborative construction delivery, the consultant has to become an attractive collaboration partner. Through this thesis, several differences in the traditional role of the consultant in a Bouwteam were identified. These differences can be translated into strategic implications for C&E firms. These strategic implications are an attempt to fix the 'mismatch' between the requested value from the other Bouwteam actors and the desired value from the consultants. Therefore, the strategic practical implications are based on deliberated decisions regarding:

Activities & Responsibilities

- Invest in collaboration: the consultancy & engineering firm should be proactive and be able to identify suitable consultants for Bouwteam projects and train them in the dynamics of design collaboration. By securing collaborative consultants, the firm will always be prepared for an engagement in a collaborative project, which helps the firm to be an attractive choice for clients and contractors.
- Continuous development of juniors in a collaborative project environment: It has to be clear that engaging flexible and open-minded individuals – who do understand the collaborative setting of Bouwteams – is crucial. Thus, the C&E firms should actively develop there (especially) junior resources in collaborative Bouwteam projects. By introducing resources to the collaborative environment of a Bouwteam, at an early stage, the available base of consultants in the firm which are suitable for Bouwteam projects is secured.
- Dare to take initiative: A Bouwteam could be the perfect chance to break with the traditional role barriers in a project. As contractors are already trying to find openings in expanding their role, consultants should not be afraid to push back. If the consultant really wants to become a dominant actor, he should start to take initiative. This means a more steering and risk-bearing role. To explore this new role, it is recommended to start with an integrating and coordinating role at municipal level procured with an integrated Bouwteam. In this way, the risks are not too high and the consultant can work in his own primary strength.

Resources & Partners

- Establish strategic relationships with desired contractors: In collaborative design set-ups such as a Bouwteam, the contractors are involved earlier and to a higher extent and could become the 'new client' for the consultant. Therefore, C&E firms should develop (better) strategic relationships with preferred contractors of choice. However, it should be kept in mind that there lies a risk involved with the development of too strong relationships with certain contractors, as it could lead to exclusion if another contractor than the partner is awarded. Furthermore, delivered choices have to be made beforehand, as a partnership with the contractor means that it will not be possible to work for the client in a project.
- Obtain a more holistic picture over the whole construction process: The main differences compared to other 'models' is that design decisions are made with all the participating Bouwteam actors. In order to have constructive discussions, it is desired that all the participants have sufficient substantive knowledge about the content and mutual understanding of each other. Therefore, it seems more important to bring the right person at the right time to the table, no matter how hard or costly this could be.
- Enhance cost estimation and planning abilities: As was mentioned in Statement 5, the ability to estimate and plan the costs during the Bouwteam phase is becoming more and more important; as late cost estimations and difficult price negotiations could form

a huge hindrance for the collaboration. In order to improve the price indications for the tender, make clear agreements on that price, and eventually let cost estimation run smoothly parallel next to the development of the design; a cost expert is becoming increasingly important.

- Combine the right resource to the right Bouwteam project: It is clear that the C&E firm has more opportunities to be of value than its traditional role. Therefore, deliberated decisions should be made on how to allocate the available resources and when. It was suggested to specialize the knowledge/service to an extent that would be very valuable for the Bouwteam. The C&E firms should develop (internally) a business strategy that helps to decide what kind of knowledge should be used and who will be the client per Bouwteam project.

Collaboration Agreements & Revenue Model

- Commit yourself to the client: The reputation and image of a C&E firm have a huge influence on the perceived trust. As trust is a keyword in a Bouwteam, this reputation will be the starting point of the collaboration. In order to enhance (or sustain) a certain reputation, the consultant should strive for a best-for-project outcome. It was made clear that for the bigger firms, it is impossible to get rid of the profit formula 'billable hours'. Therefore, the consultants should convince the other actors by completely commit themselves as a representative, who is thinking about the bigger picture.
- Send and demand the appropriate person: In order to avoid unpleasant surprises at the end of the Bouwteam, all the participant should keep each other up to the mark. This means that all the parties should be (contractually or morally) obliged to play a demonstrable part in the value-creating process. The C&E firms could combine resources experienced in collaborative environment supplemented with the right experts (on the right time). When representing the client, the consultant should not be afraid to demand significant input from the contractor. Together the Bouwteam should strive to achieve the goals of the Bouwteam.

7.3 Recommendations for Antea Group

The interviews in the case-based study revealed that Antea Group is ready to take the first steps towards a new role with complying activities and responsibilities. Antea Group could for sure benefit from the general implications for the consultants. However, the presence of contractor organization Strukton in their holding could make the role of integrator even more interesting. To explore this new role, it is recommended to start with an integrating and coordinating role at municipal level procured with an integrated Bouwteam. In this way, the risks are not too high and the consultant can work in his own primary strength. Of course, Antea Group could also consider to build up a wider network with multiple contractors. Indeed, this will spread their chance to participate in a project. However, the involvement of Strukton could result in a unique scenario, where the collaboration could be carried out internally and independent. This could eventually foster the collaboration and shared vision of the organizations. It is recommended to remain their traditional role (or bend it to the contract's side) in the bigger and more complex Bouwteam project (regional and national level) during this transition and gradually grow in the role as an integrator.

7.4 Recommendation for Future research

This research stems from a prospective problematic situation for the consultant. As no one can see into the future, this research can be considered highly explorative. It would make no sense for a C&E firm to draw a complete strategy on these findings – especially due to the limited timeframe and used sample. However, it revealed and showed lots of insights into the development possibilities of the consultant. Therefore, this thesis research is well suited to underpin subsequent future research. To begin with are the more general recommendations such as using this method for other PSFs, improve this method with other C&E firms, use a bigger sample, or other collaborative contracts. However, the main recommendation resulting from this research lies in the new role as an integrator. As mentioned in academic literature, the consultants were not considered as an appropriate party to take this 'systems integrating and coordinating role'. Although, this research showed that the argumentation used to substantiate this are too short-sighted due to the huge diversity of the C&E firms. AG as the case in this research proved that there is actually potential and desire to fulfill this role. The next step will be to investigate the path a C&E firm has to follow to turn from a jobber into an integrator. The initiation and coordination required in this role demand a well-organized plan and structure whereby the C&E firms remains a competitive player within collaborative Bouwteam project delivery in the Dutch construction industry. Especially for the case firm, the field of tension 'cooperation vs collaboration' could be an interesting topic of interest in e.g. the internal holding between Antea Group and Strukton.

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