“A contrast on Cooperation as influenced in FIDIC & NEC3 international standard form contracts”

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I thank you all profoundly

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Executive Summary

The following thesis report details the research performed to investigate differences between the potential influence of FIDIC's Conditions of Contract for Plant and Design–Build (Yellow Book) (1999) and the NEC3's Engineering and Construction Contract (ECC) (2006) on cooperation between the contractual parties. As part of establishing the state of the art a definition is pinned for cooperation. In the context of this research cooperation is defined as: "behaviour that promotes the goals of the party to which one belongs, and forms out of a balance between 'alignment of objectives' and 'preservation of self-interest'". To allow for lessons learnt from international research to be appropriately applied to the Dutch construction industry the Dutch Organizational working culture was conceptualised.

The scope of potential influence on cooperation that the two contracts could have was defined with five aspects: Culture & Philosophy, Language & Structure, Flexibility, Specified Cooperation, Guidance. Each of these represents a form in which the contract can potentially facilitate better cooperation between the contractual parties. The two contracts (the documents themselves) were investigated for their differing capability to encourage better cooperation. It was found that the ECC presented a more innovative approach to bringing about cooperation. It did so through process-oriented methodologies and a simple to understand language and document format. The modularity of the contract also brought about significant benefits to setting the stage for better cooperation. The Yellow Book was found to be more rigid and formal in its abilities to influence better cooperation.

The core of the research then consisted of an aspect-specific comparison of the two contracts. This comparison comprised of discussion on several (coded) findings which resulted from Literature and Interviews. Each of these findings is taken from the phase in which it originated and cross-validated through Literature, Interviews and Questionnaires. Participants to these included project managers and lawyers in the Netherlands with existing experience in the contracts. Conclusions extracted from these findings suggested that the ECC made use of a collection of interesting methodologies (early warning, innovation) and innovative concepts (language, flowcharts), and in doing so better facilitated improved cooperation between the contractual parties. The Yellow Book also proved to have its merits on this subject, but suffered from a lack of not being innovative enough for the contractual parties.

1 Introduction

This report critically contrasts the potential influence on cooperation of two standard forms of contracts. The first is a contract from the organization FIDIC (French acronym for *Federation Internationale des Ingenieurs-Conseils*) and second is from the organization NEC (*New Engineering Contract*). Both these organizations provide contracts for the international construction and engineering industry and strive to become the recognised international standard form of contract.

Both FIDIC and NEC3 are *suites of contracts*. Each suite of contracts consists of several standard form contracts, each of which specialises in a type of engineering or construction project. As the term *suite* suggests, the groups of contracts consist of mutually consistent documents. Both FIDIC and NEC use this 'mutual consistency' to promote best practice in engineering consulting. The two specific forms of contract which were chosen for this research are:

FIDIC	NEC
Conditions of Contract for Plant and Design–Build (Yellow Book) (1999)	Engineering and Construction Contract (ECC) (2006)

As the two contracts, *Yellow Book* & *ECC*, are a subset of their respective suite of contracts, *FIDIC* & *NEC3*, all 4 of these terms are used throughout the report. Findings will not relate to the organizations' names. This is reflective of the fact that while some concepts are contract specific, being standard form contracts, there are also concepts which apply to the suite of contracts as a whole.

FIDIC	NEC	*Organization*
FIDIC ↙	↘ NEC3	*Suite*
Yellow Book ↙	↘ ECC	*Contract*

It is interesting for the construction industry in the Netherlands to investigate these two contracts because of their potential role in the future of the industry. Presently, public construction projects in the Netherlands are in the process of fully embracing the local Design & Build standard form contract, Uniform Administrative Conditions for Integrated Contracts 2005 (UAV-GC 2005). However, with the current strained economic situation in Western Europe, the involvement and financing of large construction projects is becoming more and more international (Breukel van Eijk, 2003). When these international clients/financiers are involved in large construction projects in the Netherlands it is normal for these parties to feel disadvantaged on the use of Dutch standard form contracts. Lacking in the experience and in-depth understanding that the local parties hold, these dominant international parties are keen to push for international contracts. Since this proposed trend is only just appearing, there has been no incentive for the Dutch construction industry as a whole to consider or study these internationally used contracts such as FIDIC and NEC3.

Cooperation has been a well-established success factor in the construction industry, both internationally and in the Netherlands. It was therefore chosen as the concept on which the two international forms of contract are contrasted.

The comparison of FIDIC's Yellow Book and NEC3's ECC takes place on a selection of 5 aspects. These aspects were created based on the topics used in literature to discuss contracts. The topics which were most represented in literature and in the opinion of this research best related to 'influencing cooperation' were chosen. This resulted in a list of 5 aspects:

Culture & Philosophy	As the research is based in an international setting, the alignment of the culture represented by the contract and the working culture of the host country is important towards the contract positively influencing cooperation. A misalignment would mean that no matter how theoretically brilliant the tools within the contract are, the host parties will not receive it well. Similarly an alignment or understanding of the core philosophies held by a contract will greatly improve reception of the tools for better cooperation in a contract.
Language & Structure	The language used in a contract has a strong influence on including or excluding parties. In an international context clear understanding of the contract is critical in allowing the parties to cooperate appropriately. Similarly the structure of the contract document can either greatly facilitate better cooperation or impede it.
Flexibility	The flexibility offered by allows the contractual parties to better tailor the contract to the specific project. It also indicates that the contract can be tailored to the desired situation between the contractual parties which can best facilitate better cooperation as opposed to rigidity.
Specified Cooperation	As well as the implicit cooperation under the other 4 aspects, the contracts also include explicit cooperation as prescribed, by clause, in the contract document.
Guidance	The guidance provided by the contract greatly helps the contractual parties find equal footing in their understanding and execution of the contract. Not feeling disadvantaged, the parties can better approach one another, facilitating better cooperation.

In a theoretical context all aspects are equally weighted and carry the same importance in influencing cooperation. The industry, and the practical realisation of a construction project are however not theoretical. The 5 aspects therefore carry different weighting which reflects their relative importance and potential impact in actually influencing cooperation. For this research this weighting scheme is imposed by the Dutch construction industry and allows for the success of the contracts to be evaluated through applied versions of the 5 aspects rather than theoretical ones. This is illustrated in Figure 1 below. In this report this concept is realised by referencing to the state of the Dutch construction industry and preferences therein when discussing the findings under the 5 aspects.

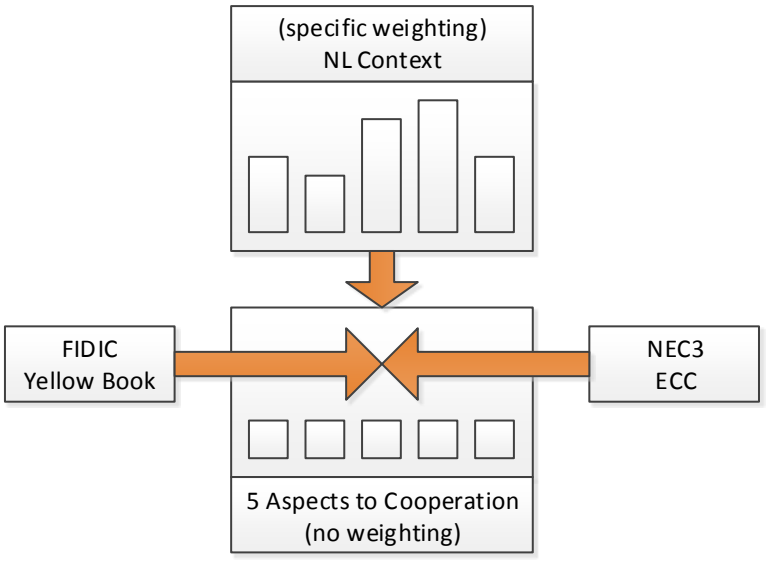


Figure 1 - Research contextual illustration

The use of these 5 aspects to group and interpret findings of this research allows for an assessment of how effective each of the two contracts is in influencing cooperation between the contractual parties. Under each of the 5 aspects a contract either succeeds of fails in influencing cooperation. Further the contract's successes, the method in which it does so can be explored and lessons learnt from it.

1.1 Context

On a global scale the two organisations FIDIC and NEC work towards establishing the leading international standard form of contract. As the two publish two distinct suites of contract, their comparison is of interest because of the contrasting philosophies underpinning each of the suites. While the style of project management procedures designed and supported by each of the legal frameworks is different, the scope on which the two families of contract apply displays significant overlap (see Table 1, pg.38).

The two suites currently vary on their level of establishment in the international construction market. FIDIC is the standard form of contract in use by a majority of International Organizations such as Development Banks (Thawrani, 2011, pg.2). In this context the Development Banks represent the most influential financier for big construction projects, given their broad portfolios, funds and decision making power. As a consequence FIDIC is seen by many as 'the international form of contract' (Seifert, 2005, pg.149-157); Roswell, 2011, pg.2; Thawrani, 2011, pg.2). There is however evidence to support the rapid rise in popularity and support for the NEC3 contracts and how these are establishing a position on the global construction market as the main competitor to FIDIC (Thawrani, 2011, pg.3; Patterson, 2007, pg.4-5) (NEC, 2014).

The FIDIC and NEC organizations both provide guidelines for drafting documents on construction projects for the purpose of "obtaining tenders, awarding and administering contracts" (Gerard, 2005, pg.80-81). They recommend structures which legally define the responsibilities and duties of the different contractual parties involved. In most cases these consist of:

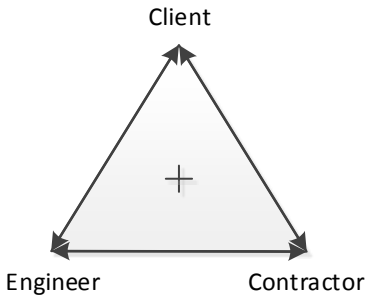


Figure 2 - Scope of Interaction, Contractual Parties

Though these documents relate strongly to law and are considered juridical documents, they also have reverberating consequences in the management of engineering and construction projects. In case of disputes the contract very much defines the playing field within which the interaction between involved parties takes place. This is particularly concerning when it emerges from exploratory discussion (interviews #10-13) that often individuals further down in the supply chain are unaware of the exact legal content of the contract they are operating under.

The concept on which this research centres is cooperation. It has become a widely established opinion that cooperation is a critical concept in the modern construction industry. In addressing the success of each of the forms of contract on cooperation, with the help of the comparison this research hopes to bring to light a better contextual understanding of the two contracts. It is important that the contrasting of the two forms of contract is not viewed as a competition which results in nominating the more successful form of contract. The successful lessons learnt in one form of contract potentially help, with experience and examples, to address shortcomings in the other.

1.2 Motivation

Inception of this research originates from a combination of initiative and interest shown by Arup as well as my personal interest in the role of international contracts. The concept behind this research was initiated by Job Verpoorte, Associate Director at Arup B.V. (Netherlands). Being involved in projects world-wide, Arup works with a variety of contracts both local and international. While its offices in the Netherlands have not yet worked directly on FIDIC or NEC3 projects in the Netherlands its project managers are amongst of practitioners who are noticing trends which suggest international contracts may come to play a bigger role in the Dutch construction industry. The research's focus on cooperation was further inspired by Arup International's company philosophy of excellence and maintained relations towards both projects and clients.

Arup's interest in the research lies in obtaining a better understanding of the benefits of the two suites of international forms of contract (FIDIC and NEC3) in the context of the Netherland, especially on the opportunity for the contracts to facilitate better cooperation between parties.

Lastly one of the background motivations behind establishing a theoretical framework for this research is that the framework can then easily be translated to other Western European countries in which this predicted trend may also appear (7.3 - Further Research, pg.95).

1.3 Research Goal and Objectives

It is the goal of this research to gain insight into the influence on cooperation of two prominent international forms of contract: FIDIC and NEC3 contracts. More specifically, the research focuses on two comparable contracts within these suites of contracts. Representative of FIDIC is the *Conditions of Contract for Plant and Design-Build* (1999). NEC3 is represented by its *Engineering and Construction Contract* (2006).

NEC3's *Engineering and Construction Contract* 2006 (**ECC**)	&	FIDIC's *Conditions of Contract for Plant and Design-Build* (**Yellow Book**) 1999

The goal of evaluating this influence on cooperation and drawing on their successes is best achieved by setting out and achieving a set of objectives. The main objective of the research is to identify the successful ways with which the Yellow Book and ECC influence cooperation; more specifically, how they influence cooperation under the 5 aspects through which this research suggests this can be done. To successfully achieve these objectives, the contract will be considered to do so successfully if its evaluation under a specific aspect is found to benefit or otherwise positively influence the cooperation between the contractual parties. To further refine the objectives this comparison and evaluation is done in the context of the international contract being applied in the Dutch construction industry.

1.3.1 Research Question

The research goal is the overarching concept which lends direction to the research. This broad and conceptual direction is formalised in the form of the research question. For more specificity a series of objectives are set out in the form of sub-questions. These objectives are more specific, and while they are qualitative, relate more specifically to the research subject, allowing their success to be mapped and tracked. In answering these, the research develops towards appropriately answering the research question and core of the thesis research:

How do the Yellow Book[1] and ECC[1] standard form contracts vary[2] in their influence on cooperation[3] between the contractual parties, on construction projects performed in the Netherlands[4]?

Before the research question can be divided into sub-questions it is important that the particular choice of terms and their function within the research question are better understood.

1. The two specific forms of contract which will be studied are the *Conditions of Contract for Plant and Design-Build* (1999) (Yellow Book) and the *Engineering Construction Contract* (2006) (ECC).

2. The word 'vary' was chosen to reflect the intent of this research to compare and contrast the two standard contracts. It has been established that they are comparable. Elaborated further in the Literature Study (see pg.37), it has suggested that the two contracts have different approaches to bringing about better cooperation.

3. The selection of cooperation and the influence which the contracts may have on this aspect of a construction project is discussed in Section 3 - Theoretical Framework, pg.25. Contracts are a legal tool but it can be argued that through the managerial consequences they enforce, the interaction between parties can be influenced. Cooperation is a critical aspect of the construction industry. It is established that it should continue to be promoted, see Section 2.2 - Cooperation's Role in the Construction Industry, pg.10.

4. The selection of the Dutch construction industry comes as a consequence of the thesis being completed in the Netherlands. The thesis is written as part of a Masters at the Technical University of Delft and with guidance and mentoring from the Arup office in Amsterdam. The construction industry of Netherlands is interesting to look at because it is experiencing the start of a peaking interest in international forms of contract while continuing to uphold its popular local Design & Build equivalent, the UAV-GC (2005).

As reflected at the end of the research in Section 7.2.3 - Utilization Potential, the contrast between the two contracts highlights opportunities and tools for the Dutch construction industry from within the well-established international standard form contracts.

The list below shows the formulated sub-questions. These reflect the various objectives which were set out for this research. The subsequent methodology chosen to achieve these objectives is detailed in Section 3.4 - Research Methodology, pg.32.

SQ1	**Can contracts have influence on cooperation between the contractual parties on engineering & construction projects?**

- Establishing that they can critically underpins the validity of this research. An elaborate research framework must therefore be set up in which the argumentation for why and how contracts influence cooperation is detailed and discussed.

SQ2	**How can the influence of contracts on cooperation between the parties be evaluated for their success?**

- Once it has been explained that there is influence on cooperation, the ways in which theses influences are realised needs to be defined. Tracking the contracts' various effects on cooperation needs to result in a list of aspects under which this influence can be investigated.

SQ3	**How do FIDIC's Yellow Book and NEC3's ECC differ in their approach to the aspects found above?**

- Having established aspects with which the two contracts can be evaluated on their success in influencing cooperation, the two documents are to be evaluated on their successes and shortcomings. To meet this objective, a series of 'success lessons' may be drawn from the comparison.

SQ4	**How applicable are FIDIC's Yellow Book and NEC3's ECC in their approach to the aspects identified as influencing cooperation, within the context of the current Dutch Construction Industry?**

- Having established successes in influencing cooperation from both contracts, the lessons learnt are to be evaluated against their applicability in the Netherlands and the Dutch Construction Industry.

2 Literature Survey – State of the Art

The Literature Survey forms the outset of the research and aims to establish an understanding on the key subjects related to the research goals and objectives. These include the specific type of construction project in which the cooperation is assessed as well as the current standing of cooperation in the construction industry.

2.1 Design & Build Contract	Design & Build contracts are a popular choice for larger internationally funded construction projects. In light of this type of contract being chosen as the constant between FIDIC and NEC3, it is important to understand what contractual parties this involves and what the consequences of such a set-up are.
2.2 Cooperation in Construction	Cooperation is the type of positive interaction chosen as the qualitative marker on which the two contracts are being evaluated and compared. Cooperation being a relatively-speaking soft-factor in the construction industry it is important to define this term, as understood by this research. The literature survey then proceeds to establish how important this factor has been in the construction industry, justifying the attention and focus the subject is receiving in this research.
2.3 Organizational Working Culture	The limited current experience with the Yellow Book and ECC contracts in the Netherlands has as a consequence that a majority of information for this research has to be brought in from outside the Netherlands. In order to appropriately transpose these opinions and views held on the subject research into the Dutch construction industry the Dutch working culture needs to be appropriately understood qualitatively.

Summaries of the interim findings as well as any consequences these may have on the direction of this research are presented in Section 2.4, pg.24.

2.1 Design & Build Contracting - Overview

Design & Build (D&B) is one of several possible procurement routes. In a Design & Build project a main Contractor is appointed and is considered one of the contractual parties. The Contractor then acts with sole responsibility for the design, management and delivery of the construction project. The Contractor commits to the Client, taking responsibility to deliver the project on time, within budget and in accordance with specifications given by the client.

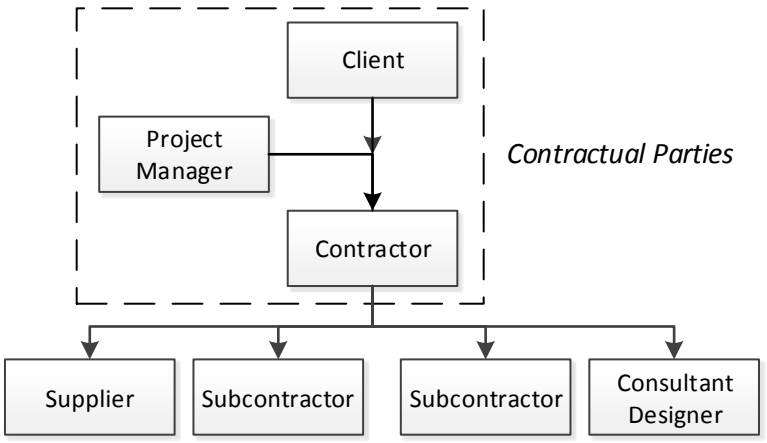


Figure 3 - Typical D&B Project Organisation

Source: (NEC3, 2009)

It is common for non-technical clients to involve a third contractual party. Under FIDIC contracts this contractual party is stated as the Engineer. Under NEC3 contracts this party is named the Project Manager. Both titles name the same contractual role, which is to represent the Client on the project, and with knowledge and experience represents a technical mediator between Client and Contractor.

There are several extended forms of Design & Build contracting. These include: Design & Build (D&B); Design, Build and Operate (DBO); Design, Build, Operate and Maintain (DBOM).

Design & Build procurement is one of the favoured routes chosen by governmental bodies for publically-funded project. Since international projects tend to be larger in scale than most local projects, it makes sense to assume the involvement of a governmental body (or development bank) in their financing. It is because of this that the D&B contracts were chosen as the specific forms of contract which this research looks into. The governmental bodies' preference for this type of procurement route is because of the integrated team which results under and around the Contractor. As the exemplar structure in Figure 3 shows, under D&B the key interaction between contractual parties is that between the Client, Project Manager and Contractor (representative of the integrated team). It is this interaction between the three contractual parties that forms the subject of this research.

The FIDIC and NEC3 suites each include a specific contract for Design & Build procurement. As indicated by the selection for this research these are the Conditions of Contract for Plant and Design-Build (1999) (Yellow Book) and the Engineering Construction Contract (2006) (ECC) respectively.

2.2 Cooperation's Role in the Construction Industry

When designing the setup of this research a key assumption is made: "Cooperation is a critical aspect of engineering and construction projects"; so much so that it is of particular interest to develop the research framework around it, designed to provide an insight into the opportunities of the two international forms of contract in the Netherlands.

Within the context of this research this is envisioned as:

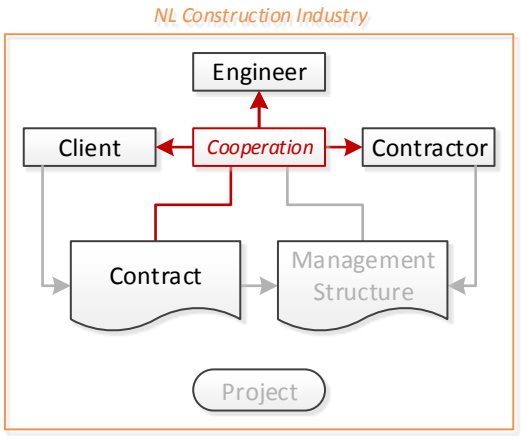


Figure 4 - Cooperation in the context of Research Framework

Information on the *Conditions of Contract for Plant and Design–Build* (Yellow Book) and the *Engineering Construction Contract* (ECC) will be extracted from existing experience within the Netherlands as well as from filtered (through understanding the culture) experience from abroad. To mirror this, criticality in the perception of cooperation in both the Netherlands and abroad is important.

2.2.1 Definition of Cooperation

Cooperation in the context of construction projects must first be better defined. As a study of literature on construction management theory reveals, to many researchers the terms cooperation and collaboration are taken to have the same meaning (Bresnen & Marshall, 1999, 229-237).

More elaborate research reveals that the definition of these two terms varies greatly and covers many distinct facets of construction management. One observation, as expressed in Thompson and Sanders (1998, pg.31-41) uses cooperation and collaboration to describe the same concept of positive interaction but with varying levels of alignment in partnering relationships. In their concept, collaboration defines a much higher level of 'integration between companies' than under cooperation. Other conceptualisations such as expressed by Love et al. (2002, pg.2-15) use the terms to describe "the longevity of alliances between organisations". Under this model long term alliances are viewed as more cooperative, while shorter lived alliances more aptly represent collaboration. As these two sample definitions show, the concepts attached to the two terms goes either way. As a result, both cooperation and collaboration will have to be clearly defined for this research, pinning down a specific understanding of the terms. This chosen definition will then be carried throughout the research.

As well as the longevity of the interaction between parties, it is also important for the definitions to account for the competitive nature of the construction industry. As proposed by Anvuur and Kumaraswamy (2006, pg.2-3) "collaboration has been the construction industry's response to project

uncertainty and complexity" (see also Shirazi et al., 1996, pg.199-212). Key to understanding cooperation and collaboration within the context of construction management is the competitive nature of the construction industry. Both terms, as concepts, suggest varying approaches to a party's 'own interest'.

Dulaimi et al. (2003, pg.307-318) argue in their research that each collaborating individual in a construction project is in their right to "pursue their own interests, sometimes even at the expense of others". Within the context of this research this concept can be extended to encompass the individual parties and their interests. Issue is taken however with the inclusion of "sometimes even at the expense of others". It is evident that such action, in its full capacity, would be detrimental to the positive interaction between the contractual parties. On the other hand, fully denying the contractual parties 'preservation of self-interest', by allowing for the fact that this may sometimes come at the expense of others, a would be a measure more appropriately associated with a partnership. Partnering falls outside of the scope that this research is interested in. Since neither of the extremes fits to appropriately encompass the concept of cooperation, it becomes apparent that the definition thereof lies in a balance between the two. In this research this is defined as a balance between 'alignment of objectives' and 'preservation of self-interest'.

It is in this balance between the two aspects that the contract can have considerable influence. It emerged from the various interviews (Fondse – Project Manager, New ICC Building, Bradley – Project Director, New ICC Building) that in its definition of roles as well as allocation of risks and responsibilities the contract establishes a framework on which all contractual parties agree to a specific set-up of 'alignment of objectives' and 'preservation of self-interest'. Both interviewees stated the importance of the parties communicating openly about their objectives as well as their stances on self-preservation. They argued that in doing so unwanted surprises and miscalculations between parties could be avoided.

In accordance with the literature and research (e.g. Smith et al., 1995; Tyler and Blader, 2000; Anvuur and Kumaraswamy, 2006) which lead to the choices and decisions presented above, this thesis research defines cooperation as "behaviour that promotes the goals of the party to which one belongs, without excluding the possibility that occasionally this may come at the expense of others, but implies that this occurs within the bounds of an agreed balance between 'alignment of objective' and 'preservation of self-interest'".

2.2.2 Perception of Cooperation in the Construction Industry

The Latham and Egan Reports are perhaps the two best known papers in regard to advocating the importance of better cooperation in the construction industry. Both these documents are investigated below. Though these reports are based on the construction industry of the United Kingdom, they hold value and relevance to the rest of the European construction industry. More specifically, the lessons learnt and propositions these reports hold can appropriately be translated to other western construction industries when done so with a clear understanding of the culture to which it is applied. This understanding of the organizational culture is expanded on in Section 2.3.

It has become a widely established opinion that cooperation is a critical aspect in the modern construction industry. This was first voiced in 1994 by the influential report '*Constructing the Team'* by Michael Latham, often referred to as The Latham Report.

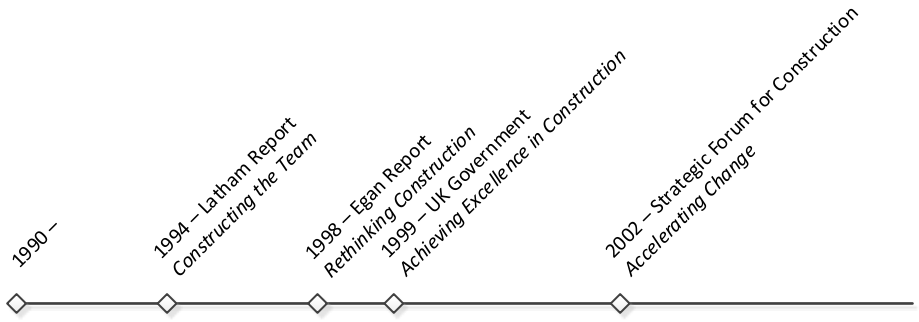


Figure 5 - Timeline of UK based Reports highlighting importance of Cooperation

The report reviewed procurement and contractual arrangements in the UK construction industry, urging reform and advocating partnering and collaboration by construction companies (Latham, 1994, pg.61-62). The industry at the time suffered from an array of crippling factors. Out of these Latham identified three critical aspects which lacked the necessary attention to detail: structure, communication and execution of each individual project. With the exception of the latter, these aspects can in fact be influenced by contract.

'Structure' in this case refers to the structure of the supply chain. While the triangle of relations created by the three contractual parties does not constitute the entirety of the supply chain, they do represent a critical part of it. When a contract establishes a well-defined structure between these key figures it sets a strong precedent for the rest of the supply chain. Similarly 'communication', as defined in this research framework may be influenced by the contract.

Also of interest is that among the 15 recommendations made in the Latham Report was the need for "the creation of standard forms of contract" (Latham, 1994, pg.40). The identification of a need for standardised forms of contract in the UK construction industry at that time was reflected in other Western European countries. Seeing this as a natural development of the industry the idea could be presented that international standard forms of contract are the next logical step in a sequence of development.

While the report evaluated the UK construction industry, it was by no means a unique case. Latham in fact believed that the problems he identified in "Constructing the Team" were indicative of problems existing in construction industries around the world (Latham, 1994, as referenced by King, 1998).

In the wake of the initiatives and momentum generated by the Latham Report another industry report came to be influential and critical in advocating the importance of cooperation in the construction industry: *Rethinking Construction*, written by John Egan and appropriately referred to as the Egan Report.

While this second report focuses more on the integration (among others) of processes and teams, the concept of collaboration was once again dominantly advocated (Egan, 1998, pg.27).

The Egan report's focus was very much on the potential and importance of partnering. While this goes somewhat beyond the scope of cooperation, it is none the less indicative of the direction which expert bodies saw it necessary to push the construction industry in. In 2001, following recommendations of the Egan Report, the Strategic Forum for Construction was set up in the UK. This organization was

chaired by Egan and features as the main point of liaison between the UK government and the major construction membership organizations. In 2002 it published “Accelerating Change”, a report which detailed the organization’s proceedings. This report however focused primarily on the importance of information technology in achieving greater integration.

This 2002 report indicated that the main drive behind cooperation in the UK construction industry had been surpassed by other areas of need. It should not be thought however that the aspect of cooperation has been abandoned in the UK.

While the need for better cooperation in the construction industry has long been advocated and promoted, scepticism also exists. Bresnen & Marshall (1999, pg523-535) question if cooperation between parties can truly be achieved. Research presented in Price’s (1996) “The Anthropology of the Supply Chain” suggested that team-work’s “fundamental challenges are social rather than technical, involving issues of trust, cooperation, power and politics”.

2.2.3 Perception of Cooperation in the Dutch Construction Industry

In the Dutch construction industry an equivalent though relatively delayed development can be seen. Haselhoff and Rijlaarsdam (1988) described the Dutch construction industry as an intricate web of parties who only converge on an ad-hoc basis. Rather than cooperation the researchers’ paper described organisations continuously competing, both in the construction industry and on individual projects. This dominant perception of a need for self-preservation led to undesirable practices within the sector. This strongly relates to the chosen definition of cooperation for this research: a dominant sense of ‘preservation of self-interest’ comes at the expense of ‘alignment of objectives’ and therefore has a negative effect on cooperation between the contractual parties.

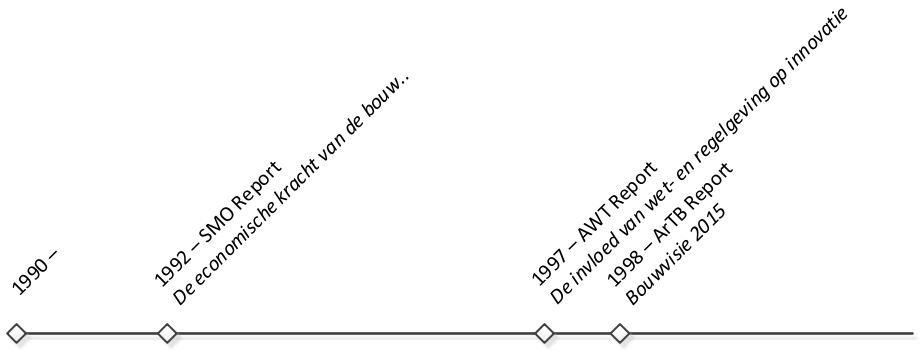


Figure 6 - Timeline of NL based Reports highlighting importance of Cooperation

It is interesting to note that the SMO’s 1992 “De economische kracht van de bouw: noodzaak van een culturele trendbreuk” stated that the fierce competition that dominated the building sector (Van Waarden, 1989) was all it needed, going as far as claiming there was little gain in attempting innovation. This comes in stark contrast to what Latham and Egan would identify in the UK construction industry two years later.

Later, in line with Latham (1994) and Egan (1998), Dutch studies and reports appeared to rather substantiate similar needs for development and reform of the construction industry (Doree, Holmen and Caerteling, 2003, 2-3) throughout the early 1990s (Haselhoff and Rijlaarsdam, 1998) as well as more recently ((ArTB, 1998) Advisory Council for Technology and Construction, the Hague (AWT, 1997) Advisory Council for Technology and Science Policy, The Hague). Central amongst these publications is

a desire for reform and movement away from adversial relationships (NAO, 2001); Revaluing Construction, 2003).

This trend does not appear to be isolated to the Netherlands or the UK (Doree, Holmen and Caerteling, 2003, p3). Instead an "international trend" towards value and quality-driven competition, integrated team delivery, long-term commitments, etc. It is this observation of an international trend, and the similarities in development of the respective construction industries that suggest that the lessons extracted from research on the UK construction industry are of relative relevance to the Dutch construction industry.

This validated argument underpins the suggested process of first interviewing the scarce but existing experience with the FIDIC Yellow Book and NEC ECC and then proceeding to augment this understanding with the knowledgebase that exists abroad on these two forms of contract.

That such initiative is being taken in the Netherlands is illustrated in approaches taken by large-reaching organisations such as Bouwend Nederland. Bouwend Nederland is an organisation consisting of members-companies from the construction and infrastructure sectors. With around 4300 members it presents the largest contractor organization in the Dutch construction industry. In this organisation's report "RRBouwraport 139 – Ketenwerking in de bouw" (2011) Bouwend Nederland presents a scale of 4 Levels for cooperation throughout the supply chain. Specifically relevant to this research are Levels 2 &3:

- **Level 2: Internal supply-chain mentality**
    - Professionalising of the supply chain organisation: within each division or team agreements are reached on agreed processes.
    - Within the 'island oragnisation' every unit works with its own system and procedures
    - Cooperation in relation to specific sub-sections of a project are structured, all other cooperation however takes place ad-hoc.
- **Level 3: External supply-chain mentality**
    - Uniform processes, procedures and systems throughout the entire supply chain.
    - Exchange of information and cooperation between the participating organisations.
    - Jointly formulated strategies and organisational goals are the foundation for cooperation.

While this research does not focus specifically on supply chain management, it is none the less of great value to acknowledge the context which this extensive organisation lends to cooperation. It does so through its definition of the various levels. As the extract shows, to Bouwend Nederland the concept which for this research is defined as 'cooperation' consists not only of direct communication but also of agreement on processes and procedures as well as the exchange of information.

The titles given to each of the levels are the part which perhaps best links to this research's chosen definition of cooperation. As the titles suggest, there is a distinct difference between an 'internal' mentality and an 'external' one. This distinction is comparable to the balance between alignment of objectives (external) and self-interest (internal) which this research pin-pointed.

2.2.4 Conclusions

This section has identified that the terms cooperation and collaboration are used interchangeably in the construction industry. For the purposes of scientific research, cooperation has been clearly defined as it is understood within the context of this thesis:

> **Cooperation** is "behaviour that promotes the goals of the party to which one belongs, and forms out of a balance between 'alignment of objectives' and 'preservation of self-interest'".

The Latham (1994) and Egan (1998) are two of the most influential reports advocating the need for reform and stronger focus on cooperation in the construction industry. While the two reports originated from the UK it has been established that common development trends between western construction industries are not dissimilar. This allows the cautious application of the lessons learnt in the UK to the Dutch construction industry. More directly, the construction industry of the Netherlands has also had research recommend reform and, among others, a stronger focus on cooperation.

2.3 Organizational Working Culture in the Construction Industry

The limited current experience with the Yellow Book and ECC contracts in the Netherlands has as a consequence that a majority of information for this research has to be brought in from outside the Netherlands. In order to appropriately transpose these opinions and views held on the subject research into the Dutch construction industry the Dutch working culture needs to be appropriately understood qualitatively.

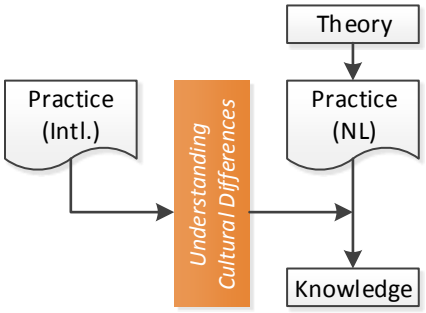


Figure 7 – Importance of understanding cultural difference within this research

Since the influence of the contracts on cooperation is evaluated from experience, an understanding of the culture underlying this experience (obtained through interviews and questionnaires) is important. It allows the opinion given to be dissected for bias and other influences.

In respect to the research subject (contracts and their influence on cooperation) only a selection of relevant cultural parameters and traits are researched below. Relevance is judged on the importance of the information in the context of interaction under contract and how this may influence cooperation.

2.3.1 Definition of Culture

For the purposes of this research two types of culture are considered: National Culture and Organizational Culture. National culture could provide insight into how the Dutch culture receives and perceives contractual obligations presented by the two chosen contracts. For the purposes of this research however it was decided that the commercial aspect to the construction industry is too influential and would effectively distort the national cultural characteristics too much to make them reliable. Instead, a choice was made for organizational culture. Organizational culture, much like national culture remains reflective of cultural values while taking into account greater commercial influence.

A variety of interpretations on ‘culture’ exist. Common among them is the importance that is associated to understanding culture. Under Hofstede’s Cultural Dimensions Theory, Culture influences ways of thinking, social action and mental programs (predictable behaviour). Similarly, culture as defined by McInnis (2001, pg.19), “may be thought as the set of attitudes that people at work share with each other and which affect how they do things on a daily basis”.

The importance of understanding culture was also highlighted by (Bresnen & Marshall, 1999, pg.229-237) in their paper “Partnering in construction: a critical review of issues, problems and dilemmas”. The authors understood culture as “a complex and multi-faceted phenomenon that arises and develops through on-going social interaction among members of a community “.

2.3.2 Organizational Culture

Following the choice to focus on Organizational Culture and its definition, this aspect can now be expanded. This will focus specifically on the cultural parameters' relevance to influencing cooperation through the contracts. In evaluating the relevant parts of organizational culture it is the objective for this report to achieve relevant understanding of the Dutch practices. This will allow information coming from an international context to be appropriately scrutinised and adopted before it is made part of this research.

Needle (2004) defines organizational culture as a representation of "the collective values, beliefs and principles of organizational members and [that it] is a product of such factors as history, market, technology, and strategy". Needle further acknowledges that national culture remains influential on organizational culture, but does so to a lesser extent than is considered under purely national values. Organizational Culture is not to be confused with Corporate Culture. This refers to a culture which is deliberately and artificially created by the management of an organization. This corporate culture is usually aimed at facilitating and achieving specific strategic goals that the organization may have.

For the investigation of the Organizational Culture as part of an organization, the Organizational Cultural Model (1990) of Geert Hofstede and Bob Waisfisz, was selected. Choosing this model over other options was influenced by previous experience and therefore understanding of Hofstede's Cultural Values (3rd Edition 2010) as well as the relevance of a selection of the model's criteria.

The Organisational Cultural Model consists of "six autonomous dimensions (variables) and two semi-autonomous dimensions. These variables (dimensions) are derivative of Geert Hofstede (1980)'s Cultural Dimensions Theory. Hofstede's 1980 research on cultural values looked at the variations in cultural aspects between 160'000 IBM employees in 50 different countries and three regions of the world. Amongst the goals of the research was identifying cultural aspects that might influence business behaviour.

While national cultural values are not expressly evaluated for this research, Hofstede's cultural values for the Netherlands have been summarised below:

Power Distance	38
Individualism	80
Masculinity	14
Uncertainty Avoidance	53
Pragmatism	67
Indulgence	68

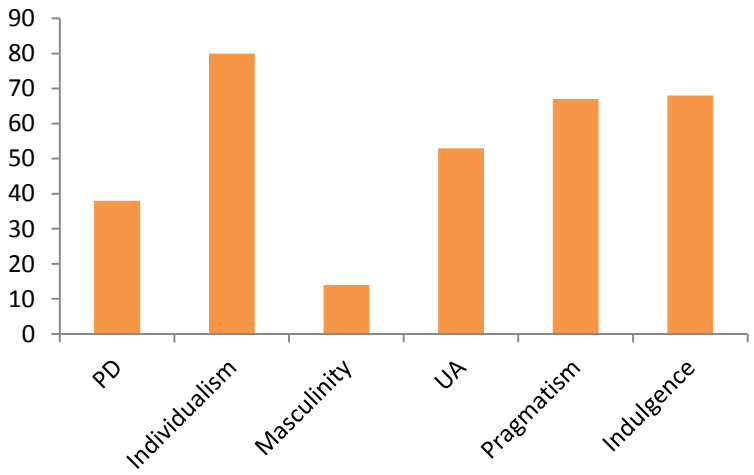


Figure 8 - Hofstede Cultural Values for the Netherlands

Hofstede however acknowledged that the "dimensions of national cultures are not relevant for comparing organizations" (Geert Hofstede Academic Website). He consequently suggested that while national culture is embedded in *values*, organizational culture is embedded in *practices*. A more elaborate description of this is found on Geert Hofstede's website (2014): "The research of Geert Hofstede has shown that cultural differences between nations are particularly found at the deepest level, the level of values. In comparison, cultural differences among organisations are principally identified at the level of practices. Practices are more tangible than values".

To understand this fully it is necessary to understand Hofstede's suggested "Levels of Culture/Organisational Culture". The representation below describes the various layers which Hofstede suggest constitute a culture.

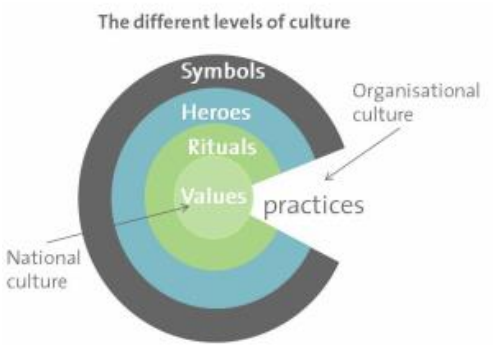


Figure 9 - Hofstede's Different Levels of Culture

Source: (Waisfisz & Hofstede, An organisational cultural perspective, 2014)

At the surface "culture consists in patterned ways of thinking, feeling and reacting, acquired and transmitted mainly by symbols". Further to the symbols, people within a culture hold to "exemplar distinctive achievements of human groups". These may be referred to as heroes whom they strive to emulate. According to Hofstede the "essential core of culture consists of traditional (i.e., historically derived and selected) ideas and especially their attached values" (All: Kluckhohn, 1951 as cited by Hofstede, 2001, p9).

With this concept in mind, an organisation (in the case of this research: a contractual party) may act according to two main principles: Core Values; and Practices. Where possible, the investigation will attempt to relate to either of the two concepts.

Detailed Evaluation

For this research, the theory of organizational culture is then evaluated and applied to the Dutch working culture. The evaluation by this research is realized in collaboration with a selection of Dutch working professionals. The selection was chosen to incorporate participants of different regions, backgrounds and age demographics. This diffuse sample was then asked to cross-check the 8 Hofstede dimensions and to react and respond to these. This semi-structured verification process ensured that the evaluation of the dimensions was not purely theoretical and detached from reality, yielding better representativeness.

A summary of the findings for this short comparison are presented in Figure 10:

	The Netherlands
Considered	
Means-oriented vs. Goal-oriented	Means
Internally driven vs. Externally driven	Internally
Employee- vs. Work-oriented	Employee-oriented
Open system vs. Closed system	Open System
Degree of acceptance of leadership style	High
Local vs. Professional	Local
Discarded	
Easy-going vs. Strict work discipline	Strict
Degree of identification with organisation	Low

Figure 10 - NL Organizational Culture

2.3.2.1 Means-oriented vs. Goal-oriented

This dimension is most closely related to the perceived effectiveness of a company. As defined on the Geert Hofstede website:

> "In a means oriented culture the key feature is the way in which work has to be carried out; people identify with the 'how' [...] In a goal-oriented culture employees are primarily out to achieve specific internal goals or results, even if these involve substantial risks; people identify with the 'what'." (The Hofstede Centre, 2014)

Based on the information investigated for this research the Dutch working culture leans towards being means-oriented. According to Hofstede and Waisfisz this suggests that these "people perceive themselves as avoiding risks and making only a limited effort in their jobs, while each workday is pretty much the same". It should be noted that this description represents an extreme.

Strongly underlying the Dutch working culture is the principle of preparedness (in the form of having all information available to you) and consequently planning. Eleonore Breukel is director at Intercultural Communication BV, an organisation specialized in improving the interactions in global settings since 1994. As expressed by Breukel and van Eijk in their published book "Wereldwijd Zakendoen" (transl. "Global Business Interaction): "In order to deliver good work, the Dutch like to consider the risks and consequences of everything they do, well in advance" (Breukel and van Eijk, 2003). Further sources support this point of view. In discussing this dimension with S. Van Hauwaert (interview #12), a sub-contractor with experience of both the Belgian and Dutch construction industry, a more relatable example was presented. It was presented that very often on construction sites the Dutch workers will first congregate and 'have their morning-coffee'. Far from discrediting though, this is more of a colloquial of labelling a 'pre-work' meeting. During this casual meeting, everyone converses and discusses the work they have planned to do on the day, or even the week. In sharing this information, informally, everyone becomes aware of what activities go on at site: an informal social-schedule is formed. The interaction does not end at merely planning though. It is here that the suggestion that the Netherlands is an Open System (see dimension 'Open System vs. Closed System') comes to bear. During this discussion of activities and tasks a consensus is again reached. Comparable to Belgian parties which would continue on with their given tasks regardless, the Dutch will try to reach

agreements to avoid standing in each other's way. In doing so, this social interaction which was at first perceived negatively comes to show that complications and disputes could potentially be diffused by this approach.

These point of views support the suggested ranking of the Netherlands on Hofstede and Waisfisz's "Means-oriented". Furthermore, under the proposition of this concept a Dutch party avoids uncertainty and risk through planning and structuring their approach.

While in the context of project planning and management the structuring and uncertainty-avoidance appears beneficial, it should be noted that this aspect also reduces their effective improvisation. In the context of the contracts this may be seen as beneficial. In first instance this holds, considering that no improvisation will be done on the works and this avoids changes, risks and misunderstandings. It however raises the question of how the Dutch working culture then fares when unavoidable changes or modifications (for the success of the project) need to be incorporated. Once the change becomes necessary it may become necessary for the Dutch party to embrace this change.

The concept of "Loss of face" is also of value in the context of this research. As expressed by Breukel (2012) "The Dutch expect others to be open and direct like them." Key to cooperation with these parties on a construction project is their consequential open criticism of work. Dutch working-people will speak their mind and criticize work indifferent of status, superior or subordinate. In return Dutch workers expect their work to also be criticized honestly and directly. If someone detects an error in their work it is important to them that this is pointed out. This feedback is seen by the Dutch as an opportunity to correct their mistakes and improve themselves, rather than criticism. As pointed out by S. Hofman (S. Hofman, 2014), it is important to recognise that this positive attitude does not over-shroud all negativity from criticism. While a Dutch organization or individual may expect criticism, they will not simply take the criticism openly. It is the negativity to the concept of 'loss of face' that is absent; the defensive reaction to criticism which is almost human reaction is still present.

2.3.2.2 Internally Driven vs. Externally Driven

> "In a very internally driven culture employees perceive their task towards the outside world as totally given, based on the idea that business ethics and honesty matters most and that they know best what is good for the customer and the world at large. In a very externally driven culture the only emphasis is on meeting the customer's requirements; results are most important and a pragmatic rather than an ethical attitude prevails." (The Hofstede Centre, 2014)

This dimension gives an indication of value held towards the satisfaction of the client or, in the case of this research, the commissioning party. Breukel and van Eijk (2003) identify that Dutch companies work hard to make the client's life easy, "but at a steep price because foreigners often have the impression that Dutch people are not very service-minded". Rather than this indicating that the client does not hold a preferential position over the sales party, this is attributed to the Netherlands providing goods and services on an equal basis. Parties therefore do not feel deterred to "openly disagree and criticise their clients" (Breukel and van Eijk, 2003).

2.3.2.3 Employee-oriented vs. Work-oriented & Open System vs. Closed System

Employee-oriented vs. Work-oriented –

> "This aspect of the culture is most related to the management philosophy per se. In very employee-oriented organisations, members of staff feel that personal problems are taken into account and

> that the organisation takes responsibility for the welfare of its employees, even if this is at the expense of the work. In very work-oriented organisations, there is heavy pressure to perform the task even if this is at the expense of employees." (The Hofstede Centre, 2014)
>
> Open System vs. Closed System –
>
> "This dimension relates to the accessibility of an organisation. In a very open culture newcomers are made immediately welcome, one is open both to insiders and outsiders, and it is believed that almost anyone would fit in the organisation. In a very closed organisation it is the reverse." (The Hofstede Centre, 2014)

This section results from a mixture of two dimensions because the discussion which follows was found to represent factes from both dimensions. The concepts and ideas discussed in this section were most appropriately captivated by a combination of the two.

It is proposed that the Netherlands is relatively Employee-oriented and Open System in its organizational culture. This practice relates to the effect of contracts on cooperation through its effect on cohesion within and between the contractual parties. Key to Dutch working culture are complex decision-making processes. Consensus is an important aspect to the Dutch and is brought about with long meetings (Breukel and van Eijk, 2003). Linking to Hofstede's value, it is important within Dutch firms that every individual is heard. Similarly it is important that by the conclusion of the meeting there is complete agreement on the progress of work from that point forward. An expected consequence of this is a smooth proceeding of works. However it also means that the process of change is a lengthy one.

This can become particularly consequential when one considers that change may be followed by claims or disputes. Amongst the major causes of dispute are differing interpretations of quantity or works agreed to under the contract (EC Harris, 2013). Applying this in the context of the Dutch working culture suggests that the compromise to change, or understanding of why the other party viewed the subject differently, may be difficult for a Dutch party.

Interviews (Project Manager #8, Project Manager #9) corroborated this idea but also showed that in the execution of NEC3 contracts a recommended solution had appeared. From the interviews it emerged that the Dutch value of consensus needing to be reached could not be so easily overridden. However it proved beneficial to focus on the prevention of disputes and claims. On the specific project this was achieved through early warning systems, risk registers and opportunity registers. By participating in these contractually established methodologies the contractual parties were able to decrease the likelihood of disputes and claims from having a negative effect on the interaction between parties. Focusing on preventive measures allowed the parties not to feel like agreement and consensus had to be sacrificed.

It should also be noted that this culture of striving for consensus also leaves the Dutch construction industry prone to inertia against innovation. If the organization's habit is to achieve consensus then an individual's innovative idea or process runs a high risk of being received as disruptive. This is of particular interest to this research when one considers that both FIDIC and NEC3 are new to the Dutch Construction industry and can therefore also be viewed as intrusive contracts which could potentially disrupt the currently established consensus.

2.3.2.4 Degree of Acceptance of Leadership Style & Local vs. Professional

Degree of Acceptance of Leadership Style –

> "This dimension tells us to which degree the leadership style of respondents' direct boss is being in line with respondents' preferences. The fact that people, depending on the project they are working for, may have different bosses doesn't play a role at the level of culture. Culture measures central tendencies." (The Hofstede Centre, 2014)

Local vs. Professional –

> "In a local company, employees identify with the boss and/or the unit in which one works. In a professional organisation the identity of an employee is determined by his profession and/or the content of the job. In a very local culture, employees are very short-term directed, they are internally focused and there is strong social control to be like everybody else. In a very professional culture it is the reverse." (The Hofstede Centre, 2014)

Within the context of this research this dimension can be rephrased to the way in which leadership is perceived to reflect the interests of the subordinates. Without exceptions, all discussions mentioned the non-hierarchical organization (horizontal organisational structure, in Dutch: Platte Organisatie) which Dutch organizations pride themselves with. It is a widely held opinion in the Dutch construction industry that Dutch organizations minimize hierarchical structures. The chain of command remains intact, but the perceived distance between the tiers as well as to the leadership is much less significant. As suggested by S. Hofman, Dutch leadership invest more heavily in motivation rather than intimidation or distancing. The consequence from this in the context of the research is that Anglo-Saxon contracts in which a strong hierarchical structure is implemented, are at a disadvantage when entering the Dutch construction industry.

Similarly, the responsibility of the leadership in a Dutch organization to lead through motivation has consequences in the application of the contract to organizational structure and interaction between parties. When it is expected that motivation comes from the leadership then so too will the expectation to introduce or apply consequences from the contract. It means that there is less likely to be a natural drive for individuals within the contractual parties to read up on or learn about the interactions influenced by contract on their own.

2.3.2.5 Easy-going work discipline vs. Strict work discipline

> "This dimension refers to the amount of internal structuring, control and discipline. A very easy-going culture reveals loose internal structure, a lack of predictability, and little control and discipline; there is a lot of improvisation and surprises. A very strict work discipline reveals the reverse. People are very cost-conscious, punctual and serious." (The Hofstede Centre, 2014)

This organizational practice poses weakly in the context of this research given that internal structure of the party cannot be influenced by the contract. Whether a contractual party is strictly organized or easy-going therefore does not present additional insight into the possible cooperation generated through contract.

2.3.2.6 Degree of identification with your organisation

> **"**This dimension shows to which degree respondents identify with the organisation in its totality. People are able to simultaneously identify with different aspects of a company. Thus, it is possible that employees identify at the same time strongly with the internal goals of the company, with the client, with one's own group and/or with one's direct boss and with the whole organisation. It is

> also possible that employees don't feel strongly connected with any of these aspects." (The Hofstede Centre, 2014)

This value was not included in this research because it was deemed to not contribute sufficiently to better understanding the context within which a contract may influence cooperation between contractual parties. This degree of 'identification with the organization' could be interpreted in such a way that it represents the degree to which individuals within the contractual party feel they belong within the organizational structure that is supported by the contract. It would give an impression of how involved and encouraged to participate in the processes brought about by contract. However the value of evaluating this within the context of how the contracts influence cooperation was deemed too insubstantial.

2.3.3 Conclusions

In order to more appropriately and accurately transport experience and knowledge from abroad and apply this to the Dutch construction Industry this research set out to gain insight into the organizational culture of the Netherlands. This evaluation was done in accordance with the cultural theory presented by Hofstede and Waisfisz. In accordance to this theoretical framework, the Dutch organizational culture was evaluated on 8 criteria (6 of which were deemed relevant to this research). The insight obtained through this is summarised below.

The Dutch organizational culture is very much means-oriented, which results in more focus given to resources and processes available rather than the end-goal which needs to be achieved. In terms of contracts this means that processes and management will be valued higher by the Dutch construction industry.

The concept of 'loss of face' is also less critical to Dutch organizations. As a consequence there is a certain expectation that criticism will be pointed out and brought to light rather than withheld. This again synchronizes well with the early warning systems present in both FIDIC and NEC3 contracts.

The Dutch organizational culture favours horizontal organizational structure rather than more hierarchical alternatives. This should once again be respected by the contract.

2.4 Interim Findings – Literature Survey

This marks the conclusion of the Literature Survey. With this literature-based research, the state of the art on Design & Build; Cooperation in the Construction Industry; and Organizational working Culture in the Netherlands has been established. The Literature Survey has investigated and defined the necessary contextual subjects as they are to be understood in this research.

2.1 Design & Build Contract	The Design & Build procurement route was established as the preferred form of contract for large international projects, seeing as it allowed the governmental bodies and development banks which usually fund these projects to remain relatively outside of the realisation of the project. The design and construction on these projects rests with the Contractor, and often a Client representative is brought in, the Engineer/Project Manager. These are the three contractual parties of interest to the research.
2.2 Cooperation in Construction	Cooperation is defined as: "*behaviour that promotes the goals of the party to which one belongs, and forms out of a balance between 'alignment of objectives' and 'preservation of self-interest'*". It is established that cooperation is an important factor in the construction industry and one which still needs to be monitored and encouraged.
2.3 Organizational Working Culture	An understanding of the Dutch organizational working culture was established. With it, presumed priorities held by the Dutch working culture have been identified. While these do not have direct consequences on the establishing of the research framework, their understanding is important when collecting data from international sources. In understanding the philosophies and culture held by the Dutch working culture information from international sources can be appropriately transposed to the context of the Netherlands.

3 Theoretical Framework

The research has established its goal, and the objectives with which the success in achieving this goal can be qualified. Further to this, the Literature Survey has created an understanding of the key terms which this research handles. These include ‘cooperation’ and ’organizational working culture’.

It is important to establish how these terms and their concepts, apparent from the literature survey, can be structured into a framework. This framework must be such that the successful influence of the contracts on cooperation, all of this within the Netherlands, can be evaluated and discussed.

The illustration below (Figure 11) conceptualises a simplified set-up of the contractual parties and the potential influences on their interaction on a construction project (Design & Build specific due to the chosen contractual parties). The contractual parties are those defined in the standard form contract of both FIDIC’s Yellow Book and NEC’s ECC (ECC names the Engineer: the Project Manager). The three contractual parties can interact in various ways ranging from positive to negative interaction (Figure 13). For this research the positive form of interaction, namely cooperation, is chosen as the single form of interaction on which this research will focus. The research proposes that to some extent this interaction is influenced by the contract. Other influence may come from the chosen management structure. These two items vary in that the contract is often predominantly chosen by the Client while the project’s management structure is partially a result of the Contractor’s choice. It is also identified that the Contract, in defining roles, responsibilities and requirements will also have influence on the Management Structure. The contract may be viewed as the legal translation of the management structure to which the parties have agreed beforehand.

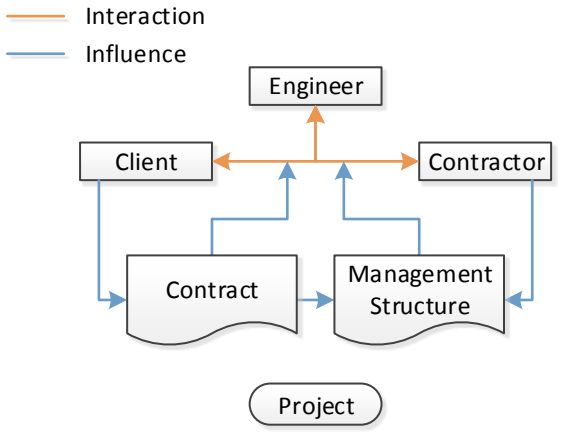


Figure 11 - Simplified Construction Project Set-up

At the outset, this research would focus on the interaction between the contractual parties. At the end of realising this framework a specific level of positive interaction was chosen, namely cooperation. Figure 12 highlights the two components of this framework which play a role in influencing this cooperation. It also shows which parts of the framework are discarded as falling ‘outside’ of this research. This exemption is considered the funnelling and refinement of the research focus.

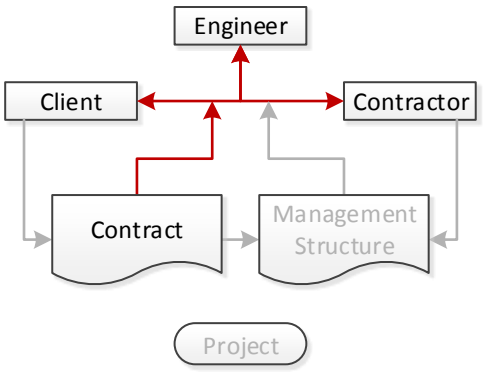


Figure 12 - Isolation of Research Focus

As indicated, some parts of the initial framework have been deemed to fall outside of this research and will not be considered past the establishing of this framework. It was established that the project-specific management structure can influence the cooperation between the contractual parties. The management structure can be shaped in part by defined structures from within the contract; this potential influence was however discarded because the management structure did not relate enough to the specific contracts in question. Similarly, from exploratory discussions, the bearing of the management structure was deemed insufficiently determinant in its potential influence. That is to say the management structure, unlike the contract has much less legal standing. Its influence on cooperation is less dependent since it is not prescriptive like the contract directly. The secondary influence of the contract on cooperation, as influenced through prescribed management structure is therefore seen as not sufficient to include in this research.

Similarly, the specific influence the Client may have on the selection of contract is also not considered. This component may be viewed as the precedent to this research, and also forms the basis for the *industrial value* of the research. The research centres around the comparison of two forms of contract for their varying influence on cooperation.

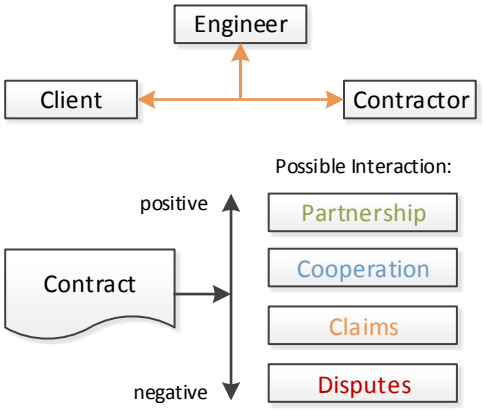


Figure 13 – Potential Interaction between Contractual Parties

Represented in the research goal, and one of the key components of this framework, is the interaction between the contractual parties. This interaction covers the day to day interaction between parties, on-site or through correspondence and documentation. Figure 13 acknowledges that the interaction which can take place under a generic contract can place anywhere on a spectrum which ranges from positive to negative interaction. As outlined in Section 4, cooperation is defined as a positive form of interaction both to the project and the parties involved. Disputes represent negative interactions as

these arise from disagreement on terms of contract or works. The titles that were used to populate the spectrum in Figure 13 are only exemplar. Their relevance and justification occurred through the literature survey (Meng et.al., 2011) (Anvuur & Kumaraswamy, 2006) (Bouwend Nederland, 2011) (Bresnen & Marshall, 1999) and exploratory interviews (#10, #11, #12, #13): The 4 forms of interaction outlined in Figure 13 were chosen because of their terminology being reflected in the contracts, facilitating the connection to how these then influence the interaction. In the case of this research this was chosen as 'cooperation' which is a level identified in the positive side of the spectrum of potential influences.

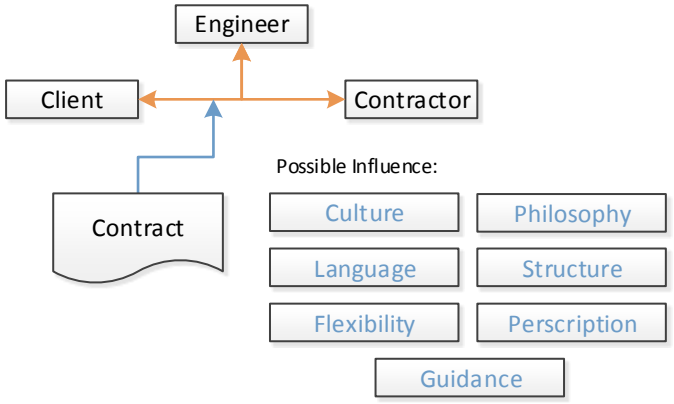


Figure 14 - Possible Influence of Contract on Interaction

The second key component is the qualitative evaluation of how the contract may influence cooperation between the contractual parties. While cooperation has been defined, there is no established connection between it and the contract documents yet which would allow the evaluation of how the contracts influence cooperation successfully. To do so, a series of aspects had to be defined (see Figure 14). How these were selected is detailed in the next section. This framework presents the idea that each of the above aspects (which can be found in any generic contract, including the Yellow Book and ECC) is represented in the contract. Each of the contracts approaches these aspects differently though, allowing for successes and shortcoming to be identified.

Each of these categories is chosen on the basis of its relevance to contracts having an impact on cooperation. The next section elaborates on their importance and selection.

3.1 Selection of Aspects

The step taken in Figure 14 is elaborated further in this section. The list of aspects under which a contract can influence cooperation needs to be defined. This list of aspects represents a part of the framework with which the two contracts can be consistently be evaluated. In addressing the contracts' performance under each of the aspects their success or shortcoming can be evaluated as well as compared to the other contract. Using such a structure allows the two contracts to be compared fairly. It also organises the various potential influences of the contract into qualitative blocks which can be weighted to represent the national priorities or focus of a country (as is being done for the Dutch construction industry in this research).

The list of aspects, established below, has been populated on the basis of their appearance in existing, publishes literature, which is then also valuated through the exploratory discussions at the beginning of the research. Their acceptance in existing research and literature is taken as a strong indicator that the criteria are relevant in assessing and structuring the evaluation of the contracts for their influence on cooperation.

For this research the aspects are chosen form the study of 14 literature sources discussing the application of either form of contract. These 14 literary sources represent a balance between exploratory articles and guides on both the Yellow Book (1999) and the ECC (2006). These articles and guides were chosen because they detail and evaluate various facets of the contract, discussing its content and in some cases elaborating on the practical consequences thereof.

Yellow Book	Both	ECC
(McInnis, 2001)	(Heaphy, 2013)	(Lloyd, 2006)
(Jaeger & Hök, 2010)	(CIDB, 2005)	(Broome & Glover, 1997)
(Glover, 2008)	(Fabich, 2011)	(Eggleston, 2008)
(EIC, 2003)	(IBA, 2007)	(Ferrara, 2011)
(Shnookal & Charrett, 2010)		(Gerard, 2005)

The first criterion in the selection process is that the aspect applies to both the *Conditions of Contract for Plant and Design-Build* (1999) and *Engineering Construction Contract* (2006) and is not exclusive to one form of contract. Putting together a list of all aspects on which the contracts were discussed results in the listing of 19 unfiltered aspects on which the contracts can be evaluated and compared on an unspecified subject.

Unfiltered Selection of Aspects

Language	Variations/Extensions	Process
Structure	Claims	Governing Law
Flexibility	Dispute Resolution	Risk Allocation
Partnering Opportunities	Culture	Cooperation
Document Content	Philosophy	Tender vs. Contract
Roles & Responsibilities	Guidance	Limitations of Liability
	Subcontracting	

Out of this list those most relevant to identifying parts of the contract with which the document could potentially influence cooperation between the contractual parties were selected. This is done by identifying whether the aspect, in how it controls a certain facet of the project, relates to the

interaction between contractual parties. More specifically, the aspect is chosen if its effect on the contract is such that it brings about a more positive interaction: cooperation. In a similar way if an aspect was identified as not being significantly related to the interaction between the contractual parties it was discarded. This resulted in a listing of 10 criteria. Some aspects were later merged into joint categories (e.g. Culture & Philosophy and Language & Structure) because of their closely related contents and concepts.

Final Selection of Aspects

Culture	Philosophy	Structure
Language	Flexibility	Specified Cooperation
	Guidance	

This process of elimination results in the collection of 5 aspects which have previously been introduced. The representativeness and validity of this subset of criteria was evaluated through a series of short exploratory discussions with experienced and active practitioners. Under ideal conditions, the validation of the subset would have been performed by experienced practitioners with experience on *both* the Yellow Book and the ECC. Unfortunately at present no such elaborate experience-base exists within the Dutch construction industry.

For each of the chosen 5 aspects, their direct relation to the contract's influence on cooperation is understood as explained below:

Culture & Philosophy	This aspect addresses the underlying philosophy of the contracts and how cooperation (as resulting from the contract) features in this. In addition this aspect also addresses the contracts' susceptibility to the culture within which they are applied. Both contracts have ambitions for international use and will therefore be under such influence.
Language & Structure	This aspect looks into the language as a tool within the structure of the contract. Language is seen as an important aspect because of its influence on how parties interpret the contract. Similarly the type of language may have an effect on inclusion (or exclusion) of participating parties. In addition the structure of the contracts is evaluated.
Flexibility	This aspect will reflect on the flexibility within the contracts themselves rather than on the scope of services covered. It has already been established that both suites of contracts cover a variety of works. This aspect is relevant because flexibility in a contract can be viewed as allowing for the (currently) non-standard situation where cooperation is facilitated / influenced.
Specified Cooperation	This aspect will investigate the contracts' specific facilitating of cooperation. In this case, different to the research as a whole, this will be stretched to the extreme situation: namely in influencing towards partnerships.
Guidance	The application of an international standard form of contract in the Dutch construction industry is a new occurrence which has yet to indicate a substantiated trend. These specific standard form contracts are still new to the industry and its practitioners and are therefore susceptible to problems on translation to local ways of working.

3.2 Limitations

Prominent among the limitations for this report was the as of yet limited availability of experience with FIDIC and NEC projects realised in the Netherlands. While this scarcity disallows any statistical validity to this research, it was none the less important for the research to proceed as it investigates an interest expressed in a potential trend in the industry. This interest relates to aspects of added value from the international contracts which may aid the Dutch construction industry. The research is instead seen as purely explorative and qualitative.

Regardless of the interest however this brought about a series of limitations which have to be appropriately addressed. The issue of international forms of contract surfacing in the developed construction industries is a new trend and as such may be considered an anomaly. As with any new observation the framework within which it is analysed and evaluated will highlight crushing deficiencies against the new occurrence. The existing framework with which established processes and occurrences are evaluated should not however be allowed to defer the study and observation of new trends.

Limited Experience – The relatively new nature of FIDIC and NEC in the Netherlands poses a limitation on the experience of the professional practitioners who are being interviewed. This has as a consequence that the interviewees will have to carefully scrutinise their experiences so that their opinions and experience appropriately align with the Dutch construction industry. This is done in the evaluation of the results of the interviews themselves as opposed to distinguishing between two types of contracts. Establishing an understanding of the Dutch organizational working culture serves exactly this purpose: allowing for discrepancies or misalignments to be identified and accounted for in the presentation of the findings.

Limited Case Studies – Hand in hand with limited experience, there were also a limited amount of case studies which could serve for this research. The limited use of both forms of contract means that the existing projects in the Netherlands are too varied. the variation in parameters of the projects were so significant that the decision was made to discard the idea of using case studies as a means of augmenting this research. Being unable to establish constants or comparable parameters in the cases available meant that they would contribute weakly at best. As such the decision was made that case studies would not be used a method of verification of data found in the literature.

Agendas and Bias in Literature – Professional guides such as “FIDIC – A Guide for Practitioners” (Jaeger & Hök , 2010) and the “EIC Contractor’s Guide” (EIC, 2003) provide helpful insight into the application and stance of different industry-associations towards the standard forms of contract. As is explained in later findings, for the execution of the Yellow Book these guides are even relied on. When using these as sources it is important to realise that these are never without some form of bias or agenda (Kitchin & Tate, 2000). These may stem from the type of work the association performs, their experience pool, etc. This bias is not necessarily negative but does mean that aspects of the commentary on the contracts and their execution must be appropriately removed from their context before being incorporated into the research.

3.3 Establishing the current Dutch Experience-Pool

In accordance with the research methodology, the first step in data collection consists of establishing the experience pool from which the current perception of the Yellow Book and ECC can be established. This is done through semi-structured interviews and questionnaires with active practitioners who have experience in the execution and management of contractual parties under FIDIC (Yellow Book) or NEC3 (ECC) contracts.

The research recognizes that establishing the stance of a national construction industry cannot be achieved within the context of a master thesis research. It is therefore accepted that the national stance established herein may not be exhaustive. While not statistically significant towards establishing a global stance, when the small number of interviewees represents the totality of existing experience in the Netherlands then the views extracted from this are none the less significant.

3.3.1 NEC3 in the Netherlands

To the knowledge of the writer and further parties involved in this research, to date, the "International Criminal Court (ICC) Permanent Premises Project" is the only project in the Netherlands which has been executed under an NEC3 contract. This pioneering case study has therefore been summarized and presented in 9.3 - [Apdx] NEC3 Case Study – International Criminal Court Permanent Premises, pg.100. As a consequence of this knowledge it is assumed that the parties involved in this project constitute the full NEC3 experience-pool with practical experience in the Netherlands. In the context of this research these parties are represented by the heads of the three contractual parties involved:

Interviewee	Role	Company
N. Bradley	Client	ICC
P. Fondse	Project Manager	Brink Groep
B. van Eijk	Contractor	Courtys

3.3.2 FIDIC in the Netherlands

It is considerably more difficult to establish the existing experience pool for FIDIC contracts in the Netherlands. Since no national statistic exists on this, a high-level estimation was done. It has become apparent from interviews and discussion with practitioners who hold existing experience with FIDIC in the Netherlands that the majority of training for this contract is done in- or comes from Brussels, in particular from ECV Consultants. ECV is a British company, "providing specialist training and consultancy on the use of FIDIC Contract Conditions" (ECV, 2014) and has been providing training in Brussels for over 10 years. Contact was made with T. Glover, Director at ECV.

Glover was able to confirm that there is strong participation from the Netherlands in their training courses, but stated that no statistics on participation are kept. On the basis that 4 courses are provided per year and the average participation from the Netherlands is between 5 to 6 members per course, an estimate can be set up that there have been around 200 participants from the Netherlands who have the potential to execute construction projects based on FIDIC contracts.

While this is a considerably high number, no such active experience-base was evident or available to this research. It should also be stated that while training prepares the participant, active experience in a project is necessary to be able to contribute to the research.

3.4 Research Methodology

The following chapter develops the approach to the research that will be adopted throughout the thesis. Methods of data collection are hereby scrutinised for their strengths, shortcomings and the effect each of these may have on this research. Key amongst the decisions for research strategy is the distinction between quantitative and qualitative research. Selecting which strategy to pursue is dependent on the type and availability of the required data. Qualitative research holds a more subjective view, assessing experiences, descriptions, opinions, perceptions and attitudes towards the variables in question.

This research is qualitative in nature. It takes the qualitative approach to collect data based on descriptive articles, professional guides and opinions from interviews and questionnaires. This qualitative data is processed through this research. It is recognised that this research is inductive and exploratory in nature, attempting to navigate through opinions of stakeholders on the perception of cooperation in the two contracts under research.

3.4.1 Research Strategy

In light of the choices made on qualitative data the consequent research strategy is designed.

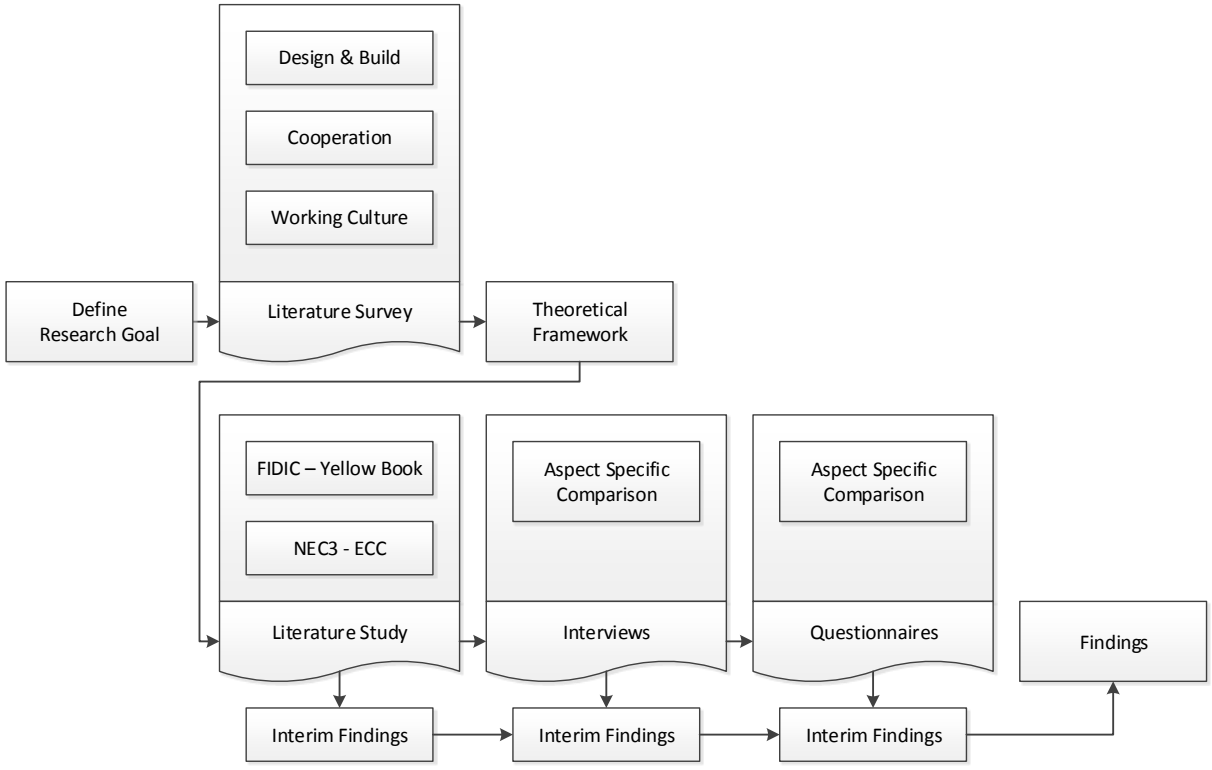


Figure 15 - Detailed Research Strategy

In following this structure, key phases of the research are proposed. The research process consists of realising each of these phases, highlighting interim-findings and ensuring that these are pursued throughout the three phases.

3.4.1.1 Literature Study

The literature study is the first study and establishes the foundation on which the new research builds on. The Literature study brings together and studies existing theories, observations and suggestions. These are identified, studied and discussed, with the main focus being on how these fit into the proposed framework previously established. For this research the literature study investigates the Yellow Book and ECC contracts. Their study is both document- and clause-specific, since parts of both can facilitate the contract's influence on cooperation.

In concluding the Literature Study on the Yellow Book and ECC a series of points which are important or interesting to the research are identified. This allows these points to be processed throughout the phases that follow the literature study.

Interim Findings: Section 4.7, pg.53

The literature study aims at collecting and critically reviewing existing documentation. Much like in the literature survey, different existing views are established and the state of the art (standard of the industry, common practices, etc.) is defined.

In order to be able to effectively analyse the use of the various contract forms and professionally interview the various experts, an in-depth theoretical understanding of the standard contract forms themselves must be obtained. For this research this is achieved not only through the study of the contracts themselves but through literature based on the practical application of these standard forms. An example of this is *FIDIC – A Guide for Practitioners* by Jaeger & Hoek (2010), which presents in depth insight into the application of FIDIC throughout various European countries. Further such guides include the European International Contractors Guide to the FIDIC Conditions of Contract for Plant and Design-Build (2003) as well as The New Engineering Contract: A Progress Report (2006). These will be scrutinized and findings drawn together into the new context of comparison between the two forms of contract.

In regards to selecting a literature study for this research it is important to note that at the time of this research there was only one readily available literary comparison between FIDIC and NEC3: *NEC versus Fidic* by I Heaphy (2012), published by the UK's Institute of Civil Engineering. Similar to this research, the article does a high-level comparison of the two suites of contract on a selection of aspects which the author deemed relevant to international standard contracts.

3.4.1.2 Managerial Interviews

Interviews represent the most direct form of data collection to appropriately establish the perception of how the two contracts can influence cooperation in the Netherlands. The semi-structured interviews were seen as more appropriate than fully structured interviews. This choice was made considering that pre-interview sessions highlighted a considerable rift between literature and practice. Respecting this, a structured interview runs a risk of being structured on topics which are not relevant to the interviewee. The prescribing nature of the structured interview seems more appropriate if the interviewer has knowledge on the subject, on-par or more than the interviewee.

Since the subject of the research is largely comprised of interaction and points of view, the collection of information is of a sensitive nature and needs specific methods of extraction. Methods such as questionnaires lack the finesse, but above all the ability to press and pursue the important subjects as

they arise. Interviews however can be perceived as manipulative since the interviewee as well as the interviewer will unwillingly have personal agendas and backgrounds which may shape their participation in the interview. While it can be that this form of research does not successfully lead to truth, it does lead to insight into what professionals and the industry think and do (Longhurst, 2009, pg.580-584).

Findings: Section 5, pg.55

Interviewee Profiles 9.7 - [Apdx] Interviewee Roster: Table 5 - Interviewee Roster, pg.105
Interview Summaries 9.8 - [Apdx] 1st Round Interviews – Summaries, pg.105

Note: Legal & Managerial

In light of parameters which only became apparent once the research had been initiated there were some modifications which needed to be made to the original strategy: Lack of clause-specific knowledge amongst interviewed practitioners - While the selection of Project Managers were familiar with the contracts and their execution, their experience and knowledge was not to the extent where they could give clause-specific opinions on aspects of this research. The interviewees were happy to discuss the effects of parts and sections of the contract, but made it clear that specific clauses rarely came up in interaction and proceedings which affect interaction. As expressed by all of the interviewees, specific clauses are only referenced when the interaction had severely deteriorated.

On a variety of aspects there was a distinct difference between arguments made by the literature and those in the interviews. This difference in stance is attributed to a difference in the professional background of the respective writers/participants. Literature on these contracts and their evaluation is primarily written by professionals with a legal background. The interviews on the other hand consist primarily of managers. This does not present a misalignment in research set-up. Instead it is representative of this research which investigates a practical concept (cooperation) as influenced by a theoretical document (contract). To obtain the appropriate information from both sides, the legal and managerial side had to be involved. As it stands this still presents a linear research process in which the literature findings (of a primarily legal background) are verified by the interview findings (of a primarily managerial background) but not yet vice versa. As such a second round of data collection/verification is introduced in which participants are once again of a predominantly legal background. This closes the cycle of verification for the findings.

3.4.1.3 Legal Questionnaires

The participants in the interviews were predominantly project managers. This had as a consequence that the results and observations from this phase were predominantly managerial/practical. This served the purpose of the research in that it highlights the more direct and practical consequences of the contract's influence. On its own the results representing the managerial side alone are incomplete though. The construction contract has both a legal and managerial side. To be able to present a more complete picture of the contracts' influence on cooperation the legal side also had to react to the findings.

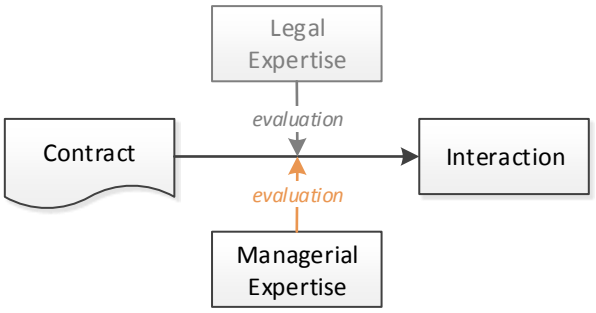


Figure 16 - Wholesome evaluation of influence on cooperation

The questionnaires very much continued the process of the interviews. They differ only in the depth with which the address the same subject. The second, legal, round could not be expanded to equally detailed interviews due to time and resource constraints on realising the thesis. Instead the legal professionals who offered to participate were involved in filling out a questionnaire. The questionnaire was designed to be yes/no, but allowed for more detailed responses from the participants, should they feel able to contribute in more detail. While this methodology missed out on the more detailed data collection of the interviews, it none the less allows for a balance between the managerial and legal sides. The findings from the legal questionnaires were also used to verify the findings from literature and the interviews.

Findings: Section 5, pg.55

Interviewee Profiles	9.7 - [Apdx] Interviewee Roster: Table 5 - Interviewee Roster, pg.105
Questionnaire Summaries	9.9 - [Apdx] 2nd Round Questionnaire - Summary, pg.110

3.4.1.4 Traceability

Having three phases of qualitative data collection, the traceability throughout these stages is critical. Catering for the necessary transparency, it is important for it to be evident how and where the findings came up and where they were picked up on in consequent stages of the research.

For this research such transparency was achieved through coding of the individual findings and maintaining similar (chapter) structures throughout its reporting. The codes are alphanumeric and follow the titles of the aspects under which the findings are made. This coding is used throughout each of the phases and identifies how the subject of specific findings has been picked up on in each phase.

Culture & Philosophy	**CP #**	
	CP1	Perception: Contract or More
	CP2	Contract vs. Setting Culture
	CP3	Legal vs. Managerial
	CP4	Similarities to UAV-gc
Language & Structure	**LS #**	
	LS1	Form of English
	LS2	Structure
	LS3	Clarity vs. Legal Certainty
Flexibility	**F #**	
	F1	Purpose of Design
	F2	Flexibility through Modularity
	F3	Modularity as Incentive for Strategy
	F4	Inflexibility as Benefit
	F5	Modification of Clauses
Specified Cooperation	**SC #**	
	SC1	ECC Clause 10
	SC2	Yellow Book Sub Clause 4.6
Guidance	**G #**	
	G1	Guidance on Execution
	G2	Pre-Award Guidance

This process of validation and transparency has been detailed on a findings-specific level in the illustration under 9.1 [Apdx] Traceability, pg.99. As the illustration shows findings were picked up on in all three phases of the research where possible.

4 Literature Study

The Literature Study forms the first of three phases of data collection on the Yellow Book and ECC contracts. Unlike the interview and questionnaire phase, the literature study's main aim is to establish a professional understanding of the research subject: Engineering Construction Contract (2006) (ECC) and Conditions of Contract for Plant and Design-Build (1999) (Yellow Book).

The literature study draws on the perception of specific aspects and tools within the contract documents, highlighting their benefits and drawbacks. While eventual findings of the literature study as discussed in Section 5 are specific to the contracts' influence on better cooperation, this stage presents a broader detailing of the contracts.

Literary sources include: High-level comparisons between various international suites of contract; Guides on the usage of the Yellow Book and ECC respectively; and Published articles reacting to either of the contracts exclusively. For the full listing of reference material please consult the Bibliography on pg.96.

4.1 Feasibility of FIDIC & NEC3

It is important to the relevance of the comparison between a FIDIC and NEC contract that the two organizations are proven to be worthy equals, justifying the comparison. It is therefore relevant to acknowledge a major international conference in 2011, for the heads of procurement and decision-makers of the world's leading multilateral development banks. Amongst the most influential employers of the international standard forms of contract are international banks, development agencies and governments. Targeting these influential employers is essential to the recognition of these international standard forms of contract. It has been FIDIC which, to that point, was used by most development Banks (Seifert, 2005, pg.951-972; Thawrani, 2011, pg.2).

The 2011 event was held at the Asian Development Bank in Manila. It was important because it presented the first time that the NEC Board had been invited to speak at such a conference. Amongst the attendees were the Asian Development Bank (ADB), the European Bank for Reconstruction and Development (EBRD), the European Investment Bank (EIB), the Islamic Development Bank (IDB) and the World Bank. Throughout the event, the main benefits of using NEC3 were presented (Thawrani, 2011, pg.2). In having been invited to talk at this key conference, the NEC showcased itself as a very competent contract on the global playing field and established itself as competition for the FIDIC contracts. This opinion had earlier been echoed on the African continent as far back as 2005. Developing regions such as Africa are of particular relevance because they represent the main markets in which international standard forms of contract compete and thrive. It is these developing regions which have no local standard form contract that see increasing usage of standard forms such as FIDIC and NEC3 (Mbolekwa & Meyerov, 2011). Arguing in the same direction is a statement made in "Standard form contracting; the role of FIDIC contracts domestically and internationally" which is a report presented in 2010 to the Society of Construction Law Conference. In it Shnookal states: "Perhaps the largest rival to the FIDIC contracts on the world stage is the NEC suite of contracts, the New Engineering Contracts" (Shnookal & Charrett, 2010, pg.5).

It is this challenge to FIDIC which suggests that comparison between FIDIC and NEC is certainly relevant and valuable.

4.2 Feasibility of Yellow Book & ECC

The Yellow Book and ECC are both contracts from within their respective suite of contracts. They apply to similar types of project, making the contracts comparable. While there is overlap on the type of works covered by the two contracts it is important to note that they are by no means identical. At the inception of the research, the two were presented as critically different on their perceived approach to interaction between the contractual parties. This is in part what prompted Arup's interest in this research and why the aspect of cooperation was chosen as the subject of the research.

FIDIC	NEC
Professional Services	
Client/Consultant Model Services Agreement (White Book) (2006)	Professional Services Contract (PSC) (2005)
Works	
Conditions of Contract for Construction (Red Book) (2005)	**Engineering and Construction Contract (ECC) (2005)**
Conditions of Contract for Plant and Design–Build (Yellow Book) (1999)	"
Conditions of Contract for EPC/Turnkey Projects (Silver Book) (1999)	"
The Short Form of Contract (Green Book) (1999)	The Engineering and Construction Subcontract (ECS) (2005)
Conditions of Subcontract for Construction (1st Ed, 2011)	The Engineering and Construction Short Subcontract (ECSS) (2005)
Form of Contract for Dredging and Reclamation Works (Blue Book) (2006)	

Table 1 - Relation of FIDIC and NEC3

Source: Heaphy, 2011

Formative towards the selection of these two specific contracts is an existing high-level comparison presented in the article "NEC versus FIDIC" (Heaphy, 2012). This comparison is of relative significance because it constitutes the only (relative to the information available to this research) direct comparison between the two suites of contracts which has considerable backing in the industry. Considerable support for the UK article is shown through its publishing by the Institution of Civil Engineering (ICE). The article having been published by the ICE means its content has undergone a considerable amount of in-depth scrutiny by active and leading professionals throughout the UK construction sector. The article presents a high-level comparison of FIDIC and NEC as well as elaborating specifically on the *Engineering Construction Contract* (ECC); FIDIC's *Conditions of Contract for Plant and Design-Build* (1999) (Yellow Book); and *Conditions of Contract for Construction* (1999) (Red Book).

This article represents the starting point for the comparison of these contracts is so far as it uses headings similar to the aspects selected for this research and compares the contracts under these headings. The comparison is however high-level and can therefore not be used as a foundation for this research to add to. In addition to a few other high-level comparisons, the bulk of the data collection for this research is consequently based on individual documents and literature which deals with the ECC or the Yellow Book.

As expressed by I. Heaphy (2012) the *Engineering Construction Contract* (ECC) is the most widely used form out of the NEC suite of contracts. Similarly, though reserved to Heaphy's personal experience, it

is suggested that FIDIC's *Conditions of Contract for Construction* (1999) (Red Book) and *Conditions of Contract for Pant and Design-Build* (1999) (Yellow Book) see most frequent use from within the FIDIC suite.

Free from debating their success, revisions are implemented to better cater for the industry and its practices at the time of revision, subject to the opinion of the publishing organization (FIDIC, NEC, etc.). NEC issued an adjusted revision of its *Engineering Construction Contract* in 2013. For the purposes of this research however the 2006 version will be used. This decision is taken in light of the research's choice of using interviews as a means of data collection. Choosing for interviews means that evaluation of the contracts is based on experience. Since practical experience with FIDIC and NEC3 within the Netherlands is limited, choosing to review the 2013 revisions runs the risk of further alienating an already scarce experience-pool. It is therefore decided that the 2013 version of the FIDIC family of contracts is too recent to consider for this research.

Perception of the Contract – One of the main distinctions between the FIDIC Yellow Book and the NEC3's ECC was the perception of the two international standard contracts. The ICC Project in The Hague (see Section 9.3, pg.100) was a valuable opportunity to evaluate the uninfluenced perception of the two international contracts among Dutch parties. The contractual Project Managers (Brink Groep, Interview #8) and the Contractor (Courtys, Interview #9) were new to both the Yellow Book (1999) and ECC (2006) contracts. In accordance with the client's wishes (the International Criminal Court) the two parties were left, uninfluenced by the client, to explore both alternatives. Both followed training courses and were allowed to form an opinion (based on their existing experience in the industry) of the two contracts. By these means the perception of two sides of the integrated construction project team could be heard.

The Yellow Book was very much received as a regular contract by the Project Manager and Contractor alike. The Client shared this view but was influenced by their work experience background. In contrast, rather than being received as a proverbial contract, the NEC3's ECC was referred to by two of the three parties as "a refreshing methodology for successful project management" (Interviews #3, #8).

By being perceived as a methodology which more closely relates to management (and therefore the practical execution of the project) the ECC is more likely to be approached by the contractual parties without reservation. This more open approach by the parties to entering into such a contract and executing the processes prescribed therein is more likely to generate closer, open cooperation. Consider the opposite scenario where the parties approach the contract more wearily because they know that it will place the parties into a top-down hierarchical structure with relatively little form of innovation. Bitter and defensive the parties will be less open and receptive to being influenced by the contract towards better cooperation.

4.3 FIDIC – Overview

FIDIC is one of the global representatives for the consulting engineering industry "promoting the business interests of firms supplying technology based intellectual services for built and natural environments". It promotes these goals and ambitions primarily through its standard forms of contract for the engineering and construction industry (FIDIC, 2014).

In 1994, acknowledging anomalies and new shortcomings in their single contract, FIDIC establishes a task force to renew and revise its traditional standard form of contract. Drivers behind this initiative included: A want for impartiality of the engineer even though they are in the employ of- and paid by the employer; A need for standardisation within FIDIC forms of contract; A want for simplification and clarity (Brunni, 2005, pg.487-490; Glover, 2008, pg.2-3; Besaiso, 2012, pg.36-38). Resulting from the task force's efforts was the publication of a new series standard form contracts. These forms became known as the 'FIDIC Rainbow' (Hillig et al., 2010). It has been pointed out in the literature (Brunni, 2005, pg.487-490) that the 1999 edition brought about an important change in approach to purpose of design among the FIDIC forms. Pre 1999 the forms of contract represented a division between 'books' according to the type of project. From the 1999 edition of the Yellow Book the forms of contract were now divided according to the party which does the design. It is with this in mind that the 1999 revision of the Conditions of Contract for Plant and Design & Build (Yellow Book) is chosen as the subject of this research.

4.3.1 History of the Yellow Book

Standard forms of contract like FIDIC's suite of contracts often undergo revisions in order to account for development in the international construction industry. The Yellow Book too has seen 4 revisions (1980, 1987, 1999), these have been time-lined below (Glover, 2008, pg.1-2).

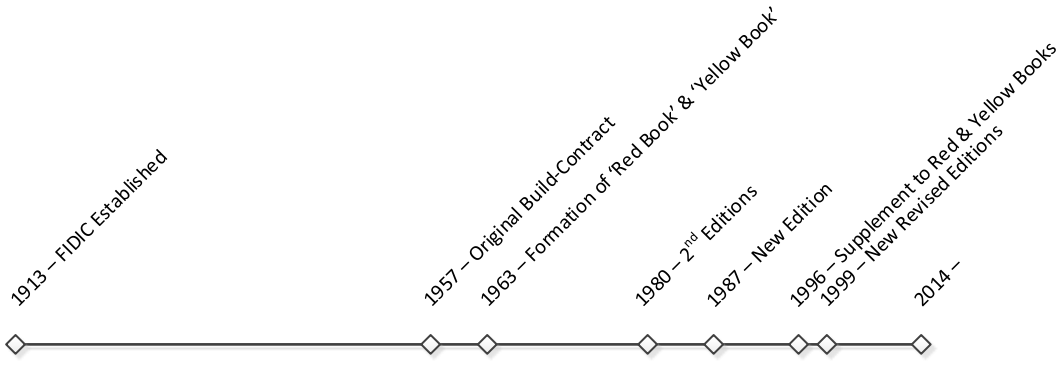


Figure 17 - Revisions and Development of FIDIC Red- and Yellow Book

As the timeline shows, in more recent years the revisions and editions have become more frequent, culminating in the 1999 new revised edition. This development between 1963 and 1999 only partially addresses the criticism that the FIDIC Yellow Book has not been updated in the last 15 years. It may be argued that the many revisions it underwent between 1963 and 1999 no longer appropriately apply to the current, more modern industry.

4.4 Yellow Book: Conditions of Contract for Plant and Design-Build

The FIDIC Conditions of Contract for Plant and Design & Build 1999 (Yellow Book) emerged from a lack of suitability of its traditional form of contract. This was in relation to the emerging Design & Build procurement route. The previous version of the FIDIC contract, the traditional contract, appeared to not appropriately cater for electro/mechanical engineering projects in the form of an integrated contract form (CIDB, 2005, pg.2). It also did not appropriately cater to works in which major items of the plant were manufactured off-site and then installed on-site (Glover, 2008, pg.1-2). To more appropriately cater for this practice in the industry FIDIC developed the original Conditions of Contract for Plant and Design Build (1963) Yellow Book. This new form of contract more appropriately emphasised testing and commissioning.

4.4.1 Structure

The Yellow Book follows the well-established FIDIC system which is consistent throughout the contracts that make up its suite:

General Conditions - The specific list of General Conditions, consisting of 20 core clauses which also serve as sections for the document (Bunni, 2005, pg.490). To provide an overview of the structure of the document these sections have been listed in the Appendix (see Section 9.3, pg.100). It has been pointed out in the literature (Heaphy, 2011, pg.23) that "more use has been made of sub-clauses to make the document easier to read and the flow of the document is more logical than previous editions". It is (Heaphy, 2011)'s opinion that the clauses, while "comprehensive", contain a "high level of detail" which "may lead contractual parties to need some study to fully understand". It is this requirement of 'study in order to understand the structure of the contract' that is of interest to this research. If the level of study required is too high contractual parties will be tied up in it for too long; during this time they will be apprehensive and not interact with the level of openness and transparency required to allow for better cooperation.

Particular Conditions - The Particular conditions are intended to provide opportunity to adapt the General Conditions to applicable national and/or international law. Conditions laid out by the contract should never contradict the applicable law. The Particular conditions also allow the contract to lay out special requirements for the project.

Other sections which have no recognised effect on the subject of cooperation include: **Guidance for the Preparation of Particular Conditions**, **Annexes: Forms of Security**, **Forms of Letter of Tender, Contract Agreement and Dispute Adjudication Agreement.**

4.4.2 Language

An evaluation of the language used in the Yellow Book is discussed in the Findings, see 5.3.2 - Language & Structure, pg.66.

4.4.3 Roles & Responsibilities

As described in the Design & Build procurement route (see Section 2.1, pg.9) under this form of works the design and execution of the works are performed solely by the main Contractor and their integrated team.

4.4.3.1 The Employer

In the Yellow Book the Client is addressed as the "Employer". The contractual responsibilities of the Employer, relative to those of the Contractor are considerably less. This is to be expected from the D&B projects, but should by no means be misinterpreted as a reason for unreasonable proportions of risk to rest solely on the contractor.

The most direct prescription of cooperation to the Employer is pointed out in the literature (Jaeger & Hök, 2010, pg.181) under the heading "Employer's Duty to Cooperate". They aknowledge that there is no direct definition of cooperation in the contract, stating that "subject to the governing law the Employer may be under a duty of good faith […] consistent with good faith". This adherance to governing law is key to the aspect of "Specified Cooperation" and is detailed further as a part of Finding SC1 (see pg.76). Jaeger & Hök explain that common law judges are often "more reluctant to rely on the term of good faith". This suggests that while 'acting in good faith' (seen as conducive towards better cooperation) may be perscribed through the contract, there is little to no guarantee that this is appropriately and equally understood by the contractual parties. It therefore becomes important to investigate this further in the conscutive rounds of data collection (intrviews & questionnaires).

Literature (Jaeger & Hök, 2010, pg.183) points out that while all parties "shall at all times use all reasonable endeavours to minimise any delay in the performance of the Contract as a result of Force Majeure", this duty is not an overriding duty. This comes contrary to the suggestion that the success of a project will strongly depend on exactly this cooperation from the Employer. While this may be seen as a missed opportunity for the contract to influence cooperation, Jaeger & Hök point out that should the Contractor consider to be impeded in the performance of the Contract by the Employer, they can rely on sub-clause 8.4 [*Extension of Time for Completion*]: "The Contractor shall be entitled […] to an extension of the Time for Completion if and to the extent that completion […] is or will be delayed by any of the following causes: […] (e) any delay, impediment or prevention caused by or attributable to the Employer, […];"

Evidence of a rebalancing of financial risks between the Client and the Contractor is pointed out by (Bunni, 2005, pg.491): "Under sub-clause 2.4 […] the risk of inadequate employer's financial arrangements has been recognised and, upon the contractor's request, the employer is required to provide evidence that, if the employer fails to comply with this requirement, then the contractor is entitled to suspend, or reduce the rate of, work and ultimately to terminate the contract". There was no such provision in revisions of the Yellow Book prior to its 1999 revision. With sub-clause 2.4 [*Employer's Financial Arrangements*], there is a shift towards a fairer distribution of risk between the Client and Contractor. In allowing this security to the Contractor, they will be more at ease and willing to trust and cooperate with the Client.

4.4.3.2 The Contractor

The Contractor is addressed as the "Contractor". As the sole party responsible for the design, management and delivery of the construction project the responsibilities of the Contractor are more extensive:

It is suggested in the literature (Hök, 2009, pg.23 et seq.) that whether precontractual duties exist for the Contractor, and to what extent these obligations between the parties "as to the way they have to behave" do exist "is questionable". The literature (Jaeger & Hök, 2010, pg.191) points out though that "FIDIC forms of contract clearly create retroactive obligations". According to sub-clause 4.10 the

Contractor "…shall be deemed to have inspected and examined the Site, its surroundings, […] and other available information, and to have been satisfied before submitting the Tender…". Similarly it is pointed out (Jaeger & Hök, 2010, pg.191) that according to sub-clause 5.1 [*General Design Obligations*] "he (Contractor) shall also be deemed to have scrutinised the Employer's Requirements". With clauses like sub-clause 5.1 the Yellow Book (1999) allows for contact back from the Cotractor to the Employer. Without such reciprocity the interaction between the parties would be considerably more top-down and one-way. The contractual obligation of the Contractor to scrutinise information from the Employer allows for two way interaction, and thus better cooperation.

Also conducive to a more defined interaction and therefore better opportunity for cooperation are the time limits set under sub-clause 20.1 [*Contractor's Claims*]. By this sub-clause the engineer is required to respond to the notification of a contractor's claim "within 42 days after the contractor became aware of the event or circumstance giving rise to the claim…" §20.1. As pointed out by (Bunni, 2005, pg.493) "such strict time limits are also imposed on other notices, for example the contractor must give 28 days' notice of the intended commencement of each sub-contractor's work (sub-clause 4.4) and the employer is required to give not less than 7 days' notice of the commencement date (sub-clause 8.1)". In setting out these precise timeframes, the contract helps create transparency and certainty between the contractual parties. In turn the parties will be able to approach each other with less reservation and interact in a more beneficial manner since expectations and replies can be planned for. This can be seen as the contract promoting better cooperation between the contractual parties.

It has to be pointed out, as argued in the EIC Contractors Guide to the Yellow Book, that the appropriateness of these durations can be debated. As explained in (EIC, 2003, pg.6) the specified duration of 28 days under sub-clause 4.4 [*Subcontractors*] "has changed for the worse" (for the contractor). It can therefore be debated that specifying duration for actions is conducive to the contract's influence on cooperation, the appropriateness of the number of days specified is open to interpretation and depends on the contractual party that evaluates it.

4.4.3.3 The Engineer

One of the "most controversial and yet characteristic features of the FIDIC suite of contracts" (Baker, 2009, pg.268) was the historical 'dual role' of the Engineer. As mentioned in the description of Design & Build (see pg.9), the Engineer fulfils the role of representing the Client on the project. More specifically, the Engineer facilitates between the Client and Contractor with knowledge and technical expertise. As representative of the Client on the project site the Engineer also monitors the works performed on site.

It has been pointed out in the literature (Glover, 2008, pg.2) (Bunni, 2005, pg.490-491) that while contractually the Engineer represents the Client on the project, the Yellow Book also required the Engineer to act impartially "when giving a decision or taking any action which might affect the rights and obligations of the parties" (Glover, 2008, pg.2). This is no longer the case. In previous versions this meant that the engineer had a dual role to play: the party acted as an agent of the Client in issuing directions and supervising the works, but was also required to fulfil the role of an independent certifier and assessor in respect to the assessment of claims and issuing certificates (Collier, 2013, pg.4). The impartiality of the Engineer greatly influences his stance towards the other contractual parties, and therefore the cooperation between Engineer, Employer and Contractor.

The 1999 revision of the Yellow Book however saw this conflict retracted somewhat. Under the new version of sub-clause 3.1 [*Engineer's Duties and Authority*] the Engineer acts as an agent of the employer exclusively: §3.1 "Whenever carrying out duties or exercising authority, specified in or implied by the Contract, the Engineer shall be deemed to act for the Employer;"

As the EIC Contractor's Guide to the Yellow Book explains, "The Engineer is now required to act for the Employer (Sub-clause 3.1) and no longer has a duty to act impartially" (EIC, 2003). The Guide expresses that this "is a change for the better because it recognises what has long been established custom and practice in the industry" (EIC, 2003). Awareness of the dilemma of this dual role was also expressed in interviews (#1, #4, #5). The interviewed project managers shared that this conflict of interest on the Engineer's side often led to their attitude being more protective. As a consequence situations would arise where this protective nature of the Engineer would undermine attempts at openness and cooperation between them and the Contractor's party.

The role of the Engineer is further defined by clause 3.5 [*Determinations*]: "Whenever these Conditions provide that the Engineer shall proceed in accordance with this Sub-Clause 3.5 to agree or determine any matter, the Engineer shall consult with each party in an endeavour to reach agreement…". As stated in the clause, the Engineer's role is underpinned by this requirement to consult with the other two contractual parties, striving to "reach agreement". This suggests that the Engineer, in their role, are required to cooperate and bring about cooperation when an agreement needs to be reached.

Further to clause 3.5 [*Determinations*] it has been pointed out in the literature (Bunni, 2005, pg.474) that "if agreement cannot be reached, the employer's representative is required, under clause 3.5, to determine the matter 'fairly, reasonably and in accordance with the Contract'". The terms 'fairly' and 'reasonably' are once again suggestive that it is the contract's intent to bring about a degree of cooperation between the Engineer and the other parties.

4.4.4 Flexibility

The flexibility offered by the Yellow Book is primarily in its payment options (Heaphy, 2011, pg.24-25). In terms of systems of reimbursement, the Yellow Book is usually based on a lump sum price, and very rarely features re-measurement prices (CIDB, 2005) (Heaphy, 2011, pg.24). Under a lump sum payment scheme payments are made according to the achievement of milestones, as and when certified by the inspection of the Engineer. Under both schemes of reimbursement use is made of the agreed Schedule of Payments, "or on a percentage complete type basis" (Heaphy, 2011, pg.25). As could be expected from Design & Build procurement this system of reimbursement places the risk of changes in cost arising from design solely on the Contractor. This presents an inequality between the Employer and Contractor which can deteriorate the cooperation between the two parties.

It is also pointed out in the literature (Bunni, 2005, pg.343) that while the Employer and Contractor may prefer a fixed completion date, which would provide more certainty, "the reality of the construction and sensitivity of construction activities to delay events beyond the control of the contractor […] mean that flexibility in respect of the completion date is typically provided for in all standard forms of construction contracts". In the Yellow Book one instance of such flexibility is the "right to grant and be granted an extension of time" (Bunni, 2005, pg.343-344). Bunni points out that the right to an extension of time "obviously benefits the Contractors, since he will not be liable to pay liquidated damages for delay during the period for which time is validly extended". This is according to sub-clause 8.4 [*Extension of Time for Completion*]. This sub-clause entitles the Contractor to an

extension of time subject to sub-clause 20.1 [*Contractor's Claims*] and 10.1 [*Taking Over the Works and Sections*].

Regarding the limited discussion on flexibility of the Yellow Book in the appropriate literature available to this literature study it is evident that this subject will have to be picked up primarily from the Interviews and Questionnaires.

4.5 New Engineering Contract - Overview

Nomenclature It is important to note that NEC is a brand name for the suite of contracts produced by the equally named NEC, which in itself is part of a subsidiary of the Institution of Civil Engineers (ICE).

The New Engineering and Construction Contract (NEC) is a UK-based organization that was established in 1993. It was in this year that the first edition of the New Engineering Contract form of contract was published. The inception of this development started as far back as 1879. It resulted from a felt need in British civil engineering to formalise its approach to contracts. This led the Institution of Civil Engineering (the national leading body for civil engineers) to produce the 'ICE formalized set of conditions'. These were the standard until 1986 when the ICE commissioned the development of a new standardized form of contract. This resulted as a response to dissatisfaction in the [UK] construction industry because of prevailing adversarial relationships throughout the supply chain. It became evident that the industry had developed a 'claim culture' which brought about rising levels of disputes and consequent project failure (Broome, 1998; Eggleston, 2006; Perry, 1995).

As made apparent by the formation of the NEC, the industry decided to stand behind a philosophy which "focuses on good management to improve cooperation and reduce confrontation" (Eggleston, 2006). Broome & Hayes (1997, pg.255-261) identify that "the industry felt there was a need for a form of contract that had clearer language, clearer allocation of responsibiies and reduced opportunities for contractual gamesmanship". The modern philosophy of the New Engineering Contract is now based on a philosophy of flexibility, simplicity, clarity and providing a stimulus for good project management (Eggleston, 2006).

It was not until 1991 that this initiative was formalised in the consultative form of the New Engineering Contract form of contract. The first edition of the NEC form of contract was issued in 1993 under the title, *The New Engineering Contract*. In 1995 a second edition was published and brought about certain renaming: the main contract form was changed to the Engineering and Construction Contract (ECC). Meanwhile the term NEC was retained as a brand name for the collection of contracts that were being developed by the NEC.

The NEC has since matured as a contract seeing its second edition NEC2 published in 1995 and the newest third edition NEC3 in 2005 (with an amended version in 2006).

It can be argued that there has been a surge of global interest in the use of NEC. This trend has certainly been supported within the UK in large part by the support and endorsement of recognised institutions such as the ICE, Thomas Telford Limited and the NEC Panel (all civil engineering bodies in the UK). In their provision of administrative and commercial support for the drafting, reviewing, publishing and training activities, these organizations have developed confidence in the competence of the NEC forms of contract (Li, 2006).

While it enjoys a success story in the UK, the NEC was designed with international usage in mind. The benefits of this are now being experienced worldwide (Roswell, 2011b, p2). The NEC has been accepted throughout the UK and 30 other countries throughout the world (Thompson et al., 2000). It is noticeable however that the majority of these countries were once part of the British Empire. This suggests that there is certainly a cultural element to the successful spread and acceptance of such standard forms of contract.

4.5.1 History of the ECC

Like the FIDIC suite of contracts, the NEC suite has grown from a single contract into a series of documents which cover a variety of types of construction works. Key amongst the perceived characteristics of the NEC3 contracts is their contractual flexibility (Lavin & Potts, 1998, pg.1-9).

The timeline below appropriately summarises the different revisions of the Engineering Construction Contract (ECC). (Thomas Telford Ltd, 2005)

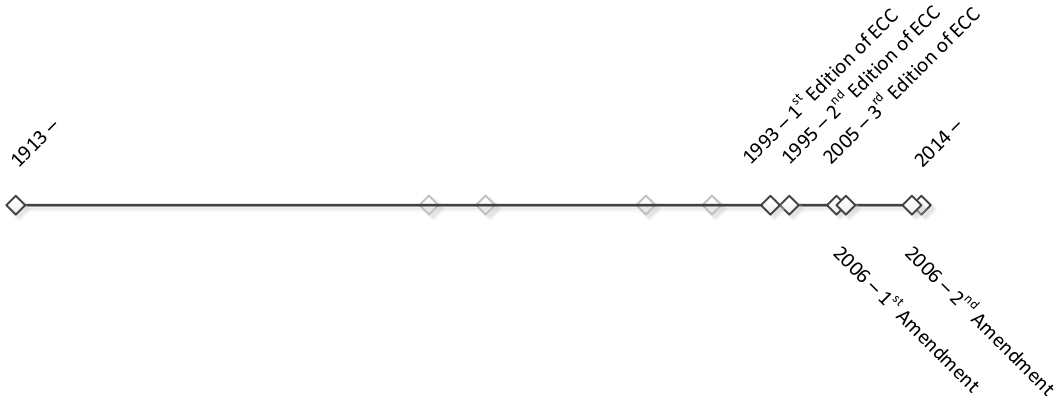


Figure 18 - Revisions and Development of ECC

As the timeline shows, the development of the ECC has been much faster and more recent when compared to the development of the Yellow Book.

4.6 ECC: Engineering Construction Contract

It is pointed out in the literature (Heaphy, 2011, pg.24) that the ECC has been noticeably drafted as a versatile contract which is adaptable to various situations and options. In the opinion of Heaphy this places "high reliance on the contents of the works information, which is the ECC equivalent of specifications and drawings. This suggested fundamental style of contract however lends this contract the flexibility to "accommodate any level of design allocation, allowing it to be used for build only, design & build and engineer procure and construct type arrangements" (Heaphy, 2011, pg.23). More than its flexibility however, cooperation is argued to be the core principle in the ECC documents. As pointed out in the literature (McInnis, 2001, pg.69-70) "the role of cooperation in the NEC [contracts] is arguably the most important principle underlying the operation of the contract system". It has already been pointed out though in the description of the Yellow Book that while expected levels of cooperation may be described in the contract, these often do not serve as clearly defined obligations. (McInnis, 2001, pg. 69-70) points out that in the contracts "there is no additional obligation or duty to cooperate in the performance in classical contract theory". It therefore becomes important to identify how contracts like the ECC may indirectly bring about better cooperation through their contract systems.

4.6.1 Structure

The structure of the ECC is reflective of the modularity it is promoted for (Heaphy I. , 2011). It is pointed out in the literature (McInnis, 2001, pg.115) that the ECC document exhibits "a higher level of generality than is the case under most other standard forms of contract". McInnis describes how this was a conscious decision made by the NEC in order to facilitate the flexibility of the contract. He also points out though that this generality of the contract cannot omit "the details which are essential to

provide certainty in a contract" (McInnis, 2001, pg.115). This aspect of sacrifice of legal certainty for flexibility will be picked up in the interviews and questionnaires.

The ECC contract consists of 7 sections detailed below. It is explained in the literature (McInnis, 2001, pg.115) that "the ECC has elected to address both aspects of significant contractual detail and procedures in the 'works information' rather than the 'conditions of contract'". In doing so, the contractual parties are reminded that "the information [in the conditions of contract] is important but is not essential to the regulation of their legal relationship" (McInnis, 2001, pg.115). In the context of this research this means that the cooperation between the contractual parties is eased up kept as free as possible from too many defining aspects on the interaction between the parties. Further highlighting the idea of a non-complex contract is the ECC's structure of core clauses and optional clauses. This is best put by the literature (McInnis, 2001, pg.115) which states that "The parties are reminded that there are only nine essential issues that must be dealt with by them. The secondary option clauses structure then invites the parties to consider a further approximately forty matter as essential for the legal regulation of their relationship". In doing so, the ECC places considerably less legal definition and obligations on the parties, which it could be argued alleviates their interaction and allows for more opportunities for better cooperation.

The ECC (2006) documents consist of:

1. **Core Clauses**
   These are always enforced, regardless of the customization of the contract.
2. **Main Option Clauses**
   These clauses are dependent on the Option chosen (see below) for the ECC contract, and determine the payment and part of risk allocation.
3. **Dispute Resolution**
   Two types of clauses are offered here, one for international context, the other for in the UK.
4. **Secondary Option Clauses**
   These clauses are used to further customize the contract to better suit the chosen procurement strategy.
5. **Schedule of Cost Components**
   This section defines, with a set of rules, the exact components of the Contractor's costs which are included in the defined costs.
6. **Shorter Schedule of Cost Components**
7. **Contract Data**
   This section is the equivalent of the Yellow Book's Appendix to Tender.

Source: Heaphy "NEC vs FIDIC", 2011

4.6.2 Language

See Section Findings – Aspect-specific: 5.3.2 - Language & Structure, pg.66.

4.6.3 Roles & Responsibilities

Under the ECC (2006) three main contractual parties are named with corresponding duties and responsibilities: the Employer; the Contractor; the Project Manager.

4.6.3.1 The Employer

In the ECC the Client is addressed as the "Employer". As in the Yellow Book, in the ECC the Employer is placed under mandatory obligations. It is pointed out in the literature (Broome, 2001, pg.157) that key among these is the Employer's obligation "to act in a spirit of mutual trust and cooperation". This is in light of the ECC's key clause 10.1 [*Actions*], which attempts oblige the contractual parties to act in a manner that better brings about cooperation.

It is explained in the literature (McInnis, 2001, pg.158) that the Employer is given the rights to use the contractor's design (22.1 [*Using the Contractor's Design*]), take over the site (35 [*Take over*]), acquire title to plant and materials (70 [*Employer's title to Plant and Materials*]), insure (87 [*Insurance by the Employer*]), and terminate the contractor (90.1 [*Termination*]). The literature (McInnis, 2001) continues to explain that these important rights of the employer "exist independently of those that the employer exercises through the project manager. The effect this has is that the employer plays a more significant role in the operation of the contract than in the Yellow Book" (Construction Management Forum Report and Guidance, University of Reading, 1989, section 2.0, pg. 12-13; as referenced by McInnis, 2001, pg.158). The more extensive involvement of the Employer should not be seen for the powers it gives them, but rather as a more involved party. It disallows the employer to become a distanced party, which would have severe detrimental consequences on the cooperation between the three parties.

As a further example, in accordance with clause 14.4 [Project Manager & Supervisor], the Employer has the authority to replace the project manager, in line with the fact that the Project Manager is employed by the Employer. In the context of the ECC however, this is one of the few top-down obligations on the contractual parties, which better allows for a cooperative atmosphere between the parties.

4.6.3.2 The Contractor

The Contractor is one of the contractual parties of the ECC. As the sole party responsible for the design, management and delivery of the construction project the responsibilities of the Contractor are more extensive than those of the Employer or Project Manager. It is pointed out in the literature (McInnis, 2001, pg.171) that the contractor's main responsibilities are set out under the second core clause. The obligations, being somewhat more extensive than those of the Employer or Project Manager, include: "provision of works, contractor's design of works, contractor's design of equipment, people, cooperation, subcontracting, approval, access and instructions" (McInnis, 2001, pg.171). Different to the responsibilities of the Project Manager and Employer, it is interesting to note that the Contractor's obligations are all contained in a single, separate, core clause. Unlike the Contractor's core clause 2, the obligations of the Employer and Project manager "are set out across the form" (McInnis, 2001, pg.171). In doing so, a presumed balance is established where the Contractor (party bearing the most risk) received contained instruction from the contract, while the other two parties (more adaptable) fit in around the contractor. In establishing such a balance, the stage is set for better relations and eventual opportunities for cooperation.

It is pointed out in the literature (McInnis, 2001, pg.171-172) that the principle of cooperation, as defined throughout the ECC also "finds expression in terms of the contractor's relations with 'Others'. This is in under clause 25.1 [*Working with the Employer and Others*], for which the term 'Others' has been defined and refers to "people or organizations who are not the employer, the project manager,

the supervisor, adjudicator, the contractor or any employee, subcontractor or supplier of the contractor (Clause 11.2 [*Identified and defined terms*]) (McInnis, 2001, pg.178).

4.6.3.3 The Project Manager

In the ECC contract the role of the previously defined Engineer is named the "Project Manager". As a contract for a Design & Build project, in the ECC the Project Manager plays a key role in administering the ECC contract (Gerard, 2005, pg.84-85). This is corroborated in the literature (McInnis, 2001, pg.159) which explains that the Project Manager "is responsible for management of the project on behalf of the employer and fulfils an exceedingly important role in the ECC, discharging some 110 or so duties". The role of the Project Manager is however not purely managerial as such. It is pointed out in the literature (McInnis, 2001, pg.159) that a good project manager "should also be expected to have some business acumen. On many occasions commercial judgement in assessing risk will be necessary, valuing compensation events and accepting quotations". This diversification of the project manager's skills results, in part, from the increasing extension of project management as a key element of the ECC contract (McInnis, 2001, pg.160).

The project manager's powers over the conduct of the 'works' under the ECC are far-reaching (McInnis, 2001, pg.161). Interestingly McInnis points out that the project manager "may or may not seek the views of the employer in fulfilling the majority of these powers" (McInnis, 2001, pg.161).

Similar to the Yellow Book contract the Project Manager is expected to be on site at the project, if not "sufficiently close to the work" (Gerard, 2005, pg. 84-85).

4.6.4 Flexibility

It is pointed out in the literature (McInnis, 2001, pg.38) that "the flexibility of the ECC is said to derive from four principal factors". These include:

- The ECC was intended from the outset as a contract for works across the traditional disciplines (civil, electrical, mechanical and building).
- The ECC can be used unhampered by the level of design responsibility that the Contractor takes on.
- The ECC provides options for all "current types of contract" in the construction industry.
- The ECC is applicable in the "UK and other countries" (Guidance Notes, NEC, 1).

Source: McInnis, 2011, pg.15

As pointed out in the 3rd factor, the ECC's extensively perceived flexibility is particularly attributed to its use of Options. Each of the NEC3's contracts (ECC, PSC, ECSC, etc.) can be further refined with the relevant selection of Options. For an extensive table linking the contracts and options see Appendix 9.5, pg. 104. These options vary in the pricing strategy they impose on the project and include:

	Form of Reimbursement
Option A: Priced Contract with Activity Schedule	(Lump Sum)
Option B: Priced Contract with Bill of Quantities	(Re-measurement)
Option C: Target Contract with Activity Schedule	(Target-price, based on Lump Sum)
Option D: Target Contract with Activity Schedule	(Target-price, based on Bill of Quantities)
Option E: Cost Reimbursable Contract	(Cost Plus)
Option F: Management Contract	

It is the opinion of this research that the flexibility of the standard form contract can positively contribute towards better cooperation in that the contract can better be tailored to the specific project. In better catering to the project, the contractual parties are placed into positions that do not feel forced or incomplete. In doing so, their attitude to the project and the other parties can develop with less adversarial influence.

Systems of Reimbursement – The system of reimbursement under the ECC is governed by the Option chosen and consequent 'Main Option Clauses'. Effects of these Options are discussed in Finding F2 in Section 5.3.3 - Flexibility, pg.70.

4.6.5 Specific Features

In addition to the structured topics which have been discussed in the exploration of the Yellow Book and ECC, the ECC presents two features/tools which can be considered innovative and in their execution also have an influence on better cooperation.

Early Warning – It is pointed out in the literature (McInnis, 2001, pg.216) that the NEC "introduces a system of early warning that requires the contractor to give notice of events that may increase cost of or time for the work". This obligation is enforced with clause 16.1 [*Early Warning*], and obliges the contractor and the project manager to give early warning by notifying the other as soon as either becomes aware of any such matter. The early identification of potential problems feature is "designed to ensure both that problems are identified at the first opportunity and actions can be taken quickly to minimise their likelihood or impact" (Broome & Hayes, 1994, pg.255-261). The tool represents an intermediate step between risk management and risk monitoring. These early warnings are to be brought up by the Contractor and are to be discussed with the Project Manager on the Employer's behalf.

Perry (1994, pg.130) points out that this procedure "is designed to motivate the parties to ensure, so far as possible, collaborative problem solving". In accordance with Perry's opinion it is therefore recognised in this research that involving the parties in actions or obligations together, rather than with a single party, serves as a potential tool for bringing about better cooperation. This concept will be put forward in the interviews and questionnaires.

Flowcharts – Strongly related to the structure of the ECC contract system, it is pointed out in the literature (McInnis, 2001, pg.125) that the ECC "comprises and indeed was based upon flow charts, which set out the procedures that are to be followed by parties to the contract" (NEC flow charts, preface). The flowcharts of the ECC are designed to help the contractual parties to "see how the clauses of the various options come together to produce clear and precise sequences of actions for the people involved" (ECC Guidance Notes Consultation Document, pg.3). For this research then it is suggested that aiding the contractual parties in forming a clearer idea of the logical processes behind the options and their clauses allows for a less adversarial environment. In a setting where all parties are aware of the process that stems from the contract they will be more inclined to consider the other parties and adopt better cooperation.

The ECC's flowcharts come as a separate document to the main contractual documents. It is pointed out in the literature (McInnis, 2001, pg.125) that the flow charts are not one of the contract documents (NEC flowcharts, preface). However it is suggested by McInnis that the can clearly "assist in both

understanding of the contract and training in its operation". In the context of the contracts being new to the Dutch construction industry this can be an incredibly successful factor in favour of the ECC's successful influence on cooperation.

The flow charts in the document show that most procedures under the ECC are based on good management practice and often differ from current practice in some engineering and building disciplines. It is noted that the flowcharts, while useful in summarising the processes of entire options and clauses, do still use an element of cross-referencing resulting in the user to have to follow progress across several pages and sections.

4.7 Interim Findings - Literature Study

This marks the conclusion of the Literature Study. The following section lists particular findings from the literature under each of the contracts which were deemed interesting and important to continue to evaluate in the next phase of the research (Interviews/Questionnaires). These topics were chosen based on their potential to influence cooperation and their interest to the practical industry. In tracking these topics the research ensures that topics which are deemed potentially valuable are tracked through the three phases of the research. For better traceability, the interim-findings have been labelled with the appropriate code under which the topic has been picked up in the interviews and questionnaires.

Interim findings for the literature study include:

Yellow Book (1999)

LS2	**Need for in-depth study before understanding the contract**
	The structure of the Yellow Book (1999) has been pointed out as potentially complex and highly detailed, with as a consequence that the contractual parties may require in-depth study in order to understand its structure. While the legal framework of such structure is advantageous, its complexity runs the risk of alienating certain parties from the process that results from the contract. This complication from structure is seen as potentially disadvantageous to the contract's influence on better cooperation. This concept will be picked up in the Interviews and Questionnaires.

SC1	**Prescribing Cooperation**
	In addressing the responsibilities of the Employer, the concept of prescribed "good faith" and how effective such text in the contract could be arose. Literature suggested that its effects both legal and managerial are not entirely black or white. The perceived strength and effectiveness of such concepts amongst practitioners with experience will therefore be further explored in the Interviews and Questionnaires. The potential of a clause which dictates an element of cooperation is important to this research because it represents one of the most direct influences on better cooperation between the contractual parties.

X1	**Involvement & Relation of the Employer**
	From discussing the roles and responsibilities of the Employer, Contractor and Engineer it became apparent that one of the best potentials to influence better cooperation was on creating a more equal standing between the Employer and the Contractor. While the responsibility for design and works evidently still rests on the Contractor (Design & Build) this does not mean that interaction from the Employer should be top-down. This hierarchical prescribing process is not received well by the organizational working culture identified in the Netherlands.

F4	**Flexibility of the Yellow Book**
	Regarding the limited discussion on flexibility of the Yellow Book in the appropriate it is evident that this subject will have to be picked up primarily from the Interviews and Questionnaires.

ECC (2006)

LS2	Simplicity & Sacrifice of Legal Certainty
	The ECC was found to be greatly commended for its conscious choice for simplicity and clarity both in its structure and use of non-legal English. While the generality of the contract can be seen to aid in facilitating better cooperation, it is essential that the details of the document provide certainty in the document. It is therefore important for the interviews and questionnaires to establish how this potential lack of legal certainty can be crippling for the contract document. The aspect of sacrifice of legal certainty for flexibility will therefore be picked up in the interviews and questionnaires.

SC2	Legally Defining Cooperation
	The specific definition of cooperation was found in both contracts. It was suggested that while 'acting in good faith' (seen as conducive towards better cooperation) may be perscribed through the contract, there is little to no guarantee that this is appropriately and equally understood by the contractual parties. It therefore becomes important to investigate this further in the conscutive rounds of data collection (intrviews & questionnaires).

F2	Flexibility through modularity
	In describing the modularity of the ECC contract and its extensive use of options the suggestion was established that an appropriate degree of flexibility could be established through modularity in the contract. This flexibility is perceived as being conducive to adapting the contract to the project and its parties. In more appropriately meeting the specifications of the project, more opportunity is created for transparency between the contractual parties. This transparency allows the parties to invest less energy in guessing the stances of the other parties, acting adversarial and rather investing their energy, resources and trust into better cooperation.

F1	Purpose of Design
	It was pointed out that the ECC, from the outset of its drafting was intended as a contract for works across the disciplines. In light of this, it was argued that the contract more appropriately catered to the different roles that are brought together in the ECC contract.

5 Findings – Yellow Book & ECC Contrasted

5.1 Introduction

The following section details the findings from the contrast between FIDIC's *Conditions of Contract for Pant and Design-Build* (1999) (Yellow Book) and NEC's *Engineering Construction Contract* (2006) (ECC) on their respective influence on cooperation, as obtained from the managerial Interviews and legal questionnaires.

In the set-up of both the interviews and questionnaires care was given to follow up on each of the interim-findings identified at the end of the literature study (see Section 2.4, pg.24).

Different to the Literature Study, in the interviews and questionnaires each of the phases is structured around the 5 aspects under which the contracts can influence cooperation (see Section 3.1 - Selection of Aspects, pg.28). Observations are consequently categorised under each of the five aspects.

Culture & Philosophy	Addresses the underlying philosophy of the contracts and how cooperation (as resulting from the contract) features in this. Also addresses the contracts' susceptibility to the culture within which they are applied.
Language & Structure	Investigates the language of each of the contracts, and how this serves or hinders the contracts in their influence on cooperation between the parties. In the Dutch context (non-English) this is of special importance. The effect of the varying structures of the contracts is evaluated.
Flexibility	Reflects on two levels of flexibility, that of the suite of contracts and the within the contract itself. The flexibility offered by the contracts is seen as allowing the parties more opportunities with which to appropriately adapt the contract the project and through this facilitate better relations between the parties. This aspect is relevant because flexibility in a contract can be viewed as allowing for the (currently) non-standard situation where cooperation is influenced.
Specified Cooperation	Investigates the contracts' specific facilitating of cooperation. Different to the other aspects which influence cooperation indirectly this aspect focuses on parts where the contract specifically states the intended cooperation.
Guidance	The application of an international standard form of contract in the Dutch construction industry is a new occurrence which has yet to indicate a substantiated trend. These specific standard form contracts are still new to the industry and its practitioners and are therefore susceptible to problems on translation to local ways of working.

In light of the closely interrelated nature of observations and findings in each of the phases, as well as the desired process of cross-validation between the interviews and questionnaires, the findings of these two phases have not been divided into separate chapters. This prevents the connection from

literature, to interviews, to questionnaires from being lost within separate phase-sections. Each of these observations is presented in a container (can be seen as fact-sheet).

<Code>	***<Relevant Contract>***
<Descriptive Title>	
- **General**	
- **Literature Study**	
- **Interviews**	
- **Questionnaires**	

5.2 Validation

As defined in the methodology, the process of data collection for this research follows a 2 step verification methodology. As per requirement for this methodology two rounds of validation are desired. Under each of these rounds observations and findings from each of the phases must be validated by a panel of professionals (in this case on an individual basis) in the following phase. The following process was designed and followed:

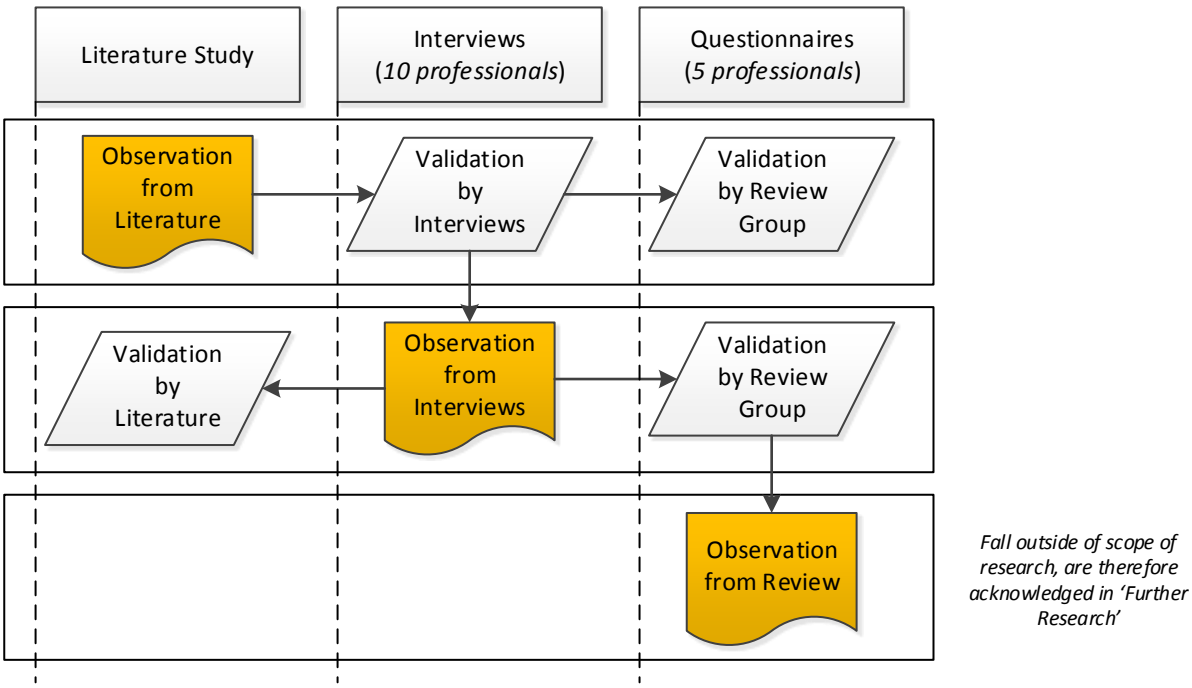


Figure 19 - Research Structure for Observations & Validation

Figure 19 illustrates the process that starts with the collection of data and opinions expressed in literature. While the literature study generically serves to establish an understanding of the research subject in this research the literature study also populates the findings and opinions on the Yellow Book and ECC. These represent observations in the wider, global industry as opposed to just the Dutch construction industry. The 1st Round consists of interviews which provide new findings as well as verify the findings from literature. The findings and observations newly made in this round can then be forwarded to the 2nd round questionnaires, but also backtracked to find literature which validates the observation or opinion made by the professional practitioners. Finally the 2nd round consists of questionnaires which were sent to the 2nd panel of professionals. With these questionnaires the

information found in literature (Section 4.7, pg.53) as well as the 1st round could be verified and reacted on.

This validation is of importance because the knowledge extracted from literature is of an international (foreign) nature to the setting of the Netherlands. With the validation of concepts from literature through the interviews and questionnaires, the two rounds can appropriately transpose the ideas and knowledge from abroad to the context of the Dutch construction industry.

5.3 Findings – Aspect-specific

All aspects focus on the specific contracts chosen for this research. In these cases the Yellow Book (1999) and ECC (2006) will be referred to. Since these contract are part of wider suites though, when concepts apply to the overarching suite rather than just the specific contract it would be misleading not to use the terms FIDIC and NEC3.

5.3.1 Culture & Philosophy

The culture and philosophy of a contract are relatively abstract concepts and should not be considered in the context of their dictionary definition.

The culture of a contract may be understood as the cultural background from which it originates and which will consequently have an influence on the 'way of working' that it promotes. While it may be that with international contracts it is easier to label the culture of the contract with that of the area where it was drafted, this is not always the case. FIDIC originates from the Francophone region of Western Europe (Belgium, Switzerland, France) and yet its rigid hierarchical structure is often compared to that expected from Anglo-Saxon working culture (#1, #5, #6). In contrast the NEC3, which originates from the UK, is often described as uncharacteristically non-Anglo Saxon in its non-hierarchical nor prescriptive approach (#5, #8, #9). In realising that culture can have an effect on the way of working it is reasonable to project that the culture too influences the way of cooperation between the contractual parties.

The philosophy of a contract will never be referenced directly in the contract document. It refers to the principles and ideals held by the organization that created them and could be labelled as their 'intent and focus'. Though the contracts are standard forms and therefore intended as 'blank' documents, the ideals held by the authors will none the less permeate through. As such, the philosophy of a contract becomes apparent in the writing style, tone and structure of the contract. This suggests that the aspect of Culture & Philosophy is closely related to the aspect of Language & Structure. As the latter shows with its findings, this holds true: Both choice of language and chosen structure of contract reflect the intent of their authoring organizations. The underlying philosophy of a contract and its author organisation will also influence the style of cooperation that is promoted in the contract and with what urgency this cooperation is promoted.

In the case of the FIDIC organization, this philosophy is appropriately stated in their intent to "publish Conditions of Contract that adopt an approach of fairness and balanced risk allocation between the parties" (FIDIC, 2014). For the NEC organization, the fundamental philosophy which has always guided its NEC3 is often summarised in three points: Flexibility, Clarity & Simplicity, and Stimulus to Good Management (NEC, 2014; Shuibo, 2008, pg.13; CIDB, 2005, pg.8-10). It is interesting to note that while these intentions can be misconstrued as intangible 'soft' concepts, their basis is rational. The NEC promotes these three points on the basis that their successful implementation reduces transaction costs involved in the execution of the contract (Shuibo, 2008).

When assessing the potential of an international contract in a local industry, the perception of the contract's culture is important to its successful acceptance and consequent application. In the context of this research, the case is considered where this acceptance enables the contract to more successfully influence cooperation. This is especially relevant for countries which already have an

established and, in the case of the Dutch UAV-gc (2005), modern standard form of contract for Design & Build projects.

C&P1	NEC3
Perception: Contract or more?	
When evaluating the potential influence of the contracts on cooperation the perception and consequent attitudes towards the contract, held by the parties, was found to be of high importance when assessing contracts' potential influence on their cooperation. This is particularly relevant because the international contracts come into the context of this research as a 'non-obligatory alternative'. The contracts are considered an alternative because it is the firm belief of this research that the international contracts will not viably replace the existing system. Instead they can only hope to bring about innovation in the existing standard forms. The international contracts, more specifically the practices that they advocate, are in direct competition with the local UAV-gc, which is already well-established and a functioning standard form contract. Because of this, if the Dutch construction is to show any interest in or invest effort into these 'new' international contract, the lessons learnt from them need to provide a sense of added value in order for them to be a success. The finding C&P1 is of importance because the successful embrace of the contract is a prerequisite for the tools for better cooperation within the contracts to actually come into effect in the Dutch construction industry. Without an interest in the contract, the lessons learnt within them would never be considered. Aversion or reluctance in the perception of the contract suggests that no matter how well designed the better cooperation the contract promotes will have difficulty being applied successfully. Establishing the importance of how the contracts are perceived was established through both the literature study and the 1st round interviews, with later verification in the 2nd round questionnaires. The origin of the idea that this is an important factor however came up during the exploratory discussions: These unstructured interviews and discussions were conducted with project directors (#3, #10) and project managers (#5, #6) who had experience with the application of international contracts 'abroad'. Part of the topics discussed during this feasibility study was the importance of acceptance of the international contract on cultural level (C&P2) as well as on broader mechanics. These broader mechanics included how the international contract is perceived on its execution, in comparison to the established local contract.	
Literature On the philosophy behind a contract the NEC3's ECC features considerably stronger. NEC3 openly advocates its position as a tool for project management, and does so most notably through the extensive use of its flowcharts. As the International Bar Association explains in its publication "Standard Forms of Construction Contracts" (IBA, 2007), the NEC was developed "with the aim of introducing a new form of non-adversarial form of contract strategy, which would contribute towards the more effective and smoother management of projects" (IBA, 2007, pg.7). Indirectly, this contribution towards smoother management will also contribute towards better cooperation between the contractual parties. Keating Chambers, one of the industry leading barristers providing dispute resolution services in the UK (construction and engineering specific), corroborates this focus of the NEC3 contracts, stating that "one of the NEC's perceived strengths is the emphasis on project management and partnership" (Boulding QC, 2006). More precisely it is suggested that the contract, in its design, encourages the proactive resolution of difficulties. According to Keating Chambers it does so through use of the ECC's characteristic early identification and resolution of problems. Further sources such as (Heaphy, 2012) further support these views. The predominant opinion that can be	

extracted from the literature sources on the NEC3 and its ECC contract is that it was designed to bring something new to the table.

In contrast, neither FIDIC nor its Yellow Book made claims to be anything other than the international standard form contract it has established its reputation on thus far.

1st Round - Interviews

The importance of the perception of the contract was further verified in the interview phase. Interviews with the Project Director (#3), Project Manager – Engineer (#8) and Project Manager – Contractor (#9) highlighted the high relevance of the ECC's modern approach to project management. "Key to the underlying philosophy of the NEC's ECC contract is the standard form's deviation from conventional contract structure" - Project Director (#3). Both the Engineer and Contractor's parties were established Dutch firms and new to the NEC3 contract. In this they represent the ideal demographic with which to judge the animosity or acceptance of the contracts in the Dutch construction market. As described in Section 9.3 (pg.100), the parties were encouraged by the Client to consider both NEC3 and FIDIC. Both party representatives expressed that the study of both contracts left them with the distinct opinion that:

a) FIDIC Yellow Book (1999), while a strong contract with international repute, was too standard and alike the local UAV-gc (#8, #9).
b) NEC3's ECC (2006) felt innovative and presented an entirely new approach to the project. Both project managers pointed out it focusing more on the project management than other contracts they had experienced thus far (#9): "A methodology for successful project management" (#8).

In more applicable terms this means that the ECC, by design, promotes the aspect of cooperation as critical to the successful management of construction projects. This difference in perception of the document has as an effect that there is less animosity towards it from the participating parties (PMs for Client and Project Manager).

2nd Round - Questionnaires

4/5 participants agreed that the ECC's structure was innovative in its strong focus on promoting a good management methodology. As participant #16 elaborates, the ECC does so with still enough terms and conditions to qualify it as a grounded contract. Participant #15 however warned that while the theory (or experience outside the NL) indicates it does indeed provide a good methodology for management, its limited application in the Netherlands has still to prove that this also works effectively amongst the Dutch working culture. In promoting a better methodology for management, it is this research's opinion that the possibility for better cooperation is established.

In the case of the ECC this is particularly the case since its methodology for management is heavily based on its obligatory processes of early warning meetings and risk register, both of which have been credited (#14, #16) as greatly encouraging better cooperation between the contractual parties. It was proposed that these processes do this by obliging the parties to sit together and share, inciting open communication.

C&P2	FIDIC	NEC3
Culture of Contract vs. Culture of Setting		
Similar to criteria C&P1, an alignment of the culture behind the contract and that of the host country plays an important role in allowing the devices of the contract to effectively influence cooperation. This role extends from the parties' acceptance of the contract, and consequently allowing their interaction to be influenced by the contract. The culture behind a contract is a complex parameter with which to label each of the international contracts; none the less it plays an important role in the perception of the contract in a 'local' market. Just like the market, the actors within it (in this case the contractual parties) have an under-pinning culture which influences their priorities and ways of working. An alignment between the culture of the parties and that of the contract simply improves the potential influence the contract can exert on the cooperation between the parties.		
Literature The aspect of culture did not feature in literature and to the knowledge of this research has not been formalised. As identified in the Section "Organizational Working Culture of the Netherlands" (see Section 2.3, pg.16) there has been qualitative research on identifying cultural parameters, both on a national as well as organizational level (Hofstede, Waisfisz). These theories however only go as far as identifying and classing patterns of behaviour, values and priorities. No verified literature was found on the consequent evaluation of these parameters against which this research's characterization of the Dutch working culture could be compared (see also Section 7.3 Further Research, pg.95).		
1st Round Interviews The main drive behind the inclusion of this topic was the pre-interview discussions that were held with project directors (#3, #10) and project managers (#5, #6). From these open discussions, in the international experience of those interviewed, the success of an international contract is dependent on its successful fitting to the culture of the host country. This suggestion was picked up in consequent interviews as a non-aspect-specific question. 9/11 of the interviewees were willing to confirm that they agreed with this suggestion. One of the notable opinions which emerged from the interviews was that a contract cannot simply be 'enforced' into a local setting. If such a stance was to be taken the contract could not successfully influence cooperation between the contractual parties. This was a stance backed by all 4 interviewees (#3, #4, #6, #10) who had international experience in project and contract management. In their opinion, an international contract is more likely to successfully influence cooperation if it reflects or allows for the local working culture of the host country to identify with the contract or see particular added-value in it. Relating back to the Theoretical Framework (pg.25) the alignment of culture and contract can be seen as the same alignment suggested therein. In the framework it was suggested that a weighting that represents priorities in the Dutch construction industry can be extracted and that this must align. In identifying facets of the Dutch working culture and popular priorities the information on the international standard contracts can better be transposed. As can be expected from international standard forms of contract, no significant clashes were noticed between the local and international contracts in terms of the philosophies that underlined them and the culture to which they fit. Both FIDIC and NEC3's goals and the trends in the international construction industry that they promoted aligned with those currently being pursued by the Dutch construction industry. None of the twelve interviewees could identify such a misalignment. None the less, FIDIC's Yellow Book was criticised to be considerably hierarchical, and that that as a starting structure does not		

positively encourage the cooperation that is currently desired in the Dutch construction industry (#1, #2, #3, #5, #6).

2nd Round - Questionnaires

In absence of this concept having been discussed in literature, it was important for validation of this observation to be provided by the 2nd round Questionnaires. The question was also posed to the second round of the Delphi Methodology and posed as follows:

> *"For the potential of an international standard form of contract within a local industry, in this case the Dutch construction industry, the perception of the contract's underlying culture is important to its successful acceptance and consequent application"*

5/5 participants agreed that alignment needed to be reached between the working culture of the participants and that of the contract. More specifically, as expressed by participant #16: "especially if such reference includes the legal system and commonly used procedures". In addition to accepting the concept from which this question arose, indirect reference is made to the situation identified under SC1 where consideration must be given to the local legal system. Though in agreement, participant #14 expressed the necessity for alignment differently; expressing in their opinion that it is essential for the contractual parties to understand and agree on the principles of a contract.

The unanimous agreement from the 2nd round validation lends confidence in having established that an alignment between the culture of the contract and that of the local industry plays an important role in the success with which a contract may influence cooperation. As such, the previously established situation is further supported and the ECC contract appears to have more potential at influencing cooperation.

C&P3	FIDIC	NEC3

Perception: Legal vs. Managerial Background

The observations that led to C&P3 lined all three phases of the research, literature, interviews, and questionnaires. Contrary to other observations made, this is a subject which does not directly affect the subject of the research, but rather has influence on how the other findings and observations are perceived. Under this observation the apparent misalignment between the legal and managerial approach to the contracts are discussed. Both its consequences to the influence on cooperation as well as the setup of the three phases of data collection are discussed.

Literature

Throughout the research no substantial difference in the level of detail of discussion became apparent. Both literary sources and interviewees held substantial knowledge about the international contracts as well as their execution and consequences. Their approaches to discussing the contracts however varied greatly. Literary sources, while more detailed, focused on the direct legal interpretation of the contract. That is to say, interpreting the text of the contract and the consequences thereof. Examples of these include: "EIC Contractor's Guide to the FIDIC Conditions of Contract for Plant and Design-Build" (EIC, 2003) and "FIDIC – A Guide for Practitioners" (Jaeger & Hök , 2010). Differently, the interviewees found the text of the contracts themselves less relevant and instead saw more consequences and observations from within the structure of the contracts and their more practical execution.

1st Round Interviews

As such, a substantial rift between opinions expressed in the literature and those held by the persons interviewed appeared. More specifically this was noticeable when assessing the underlying philosophies of the contracts (values, focus points and intent of the organizations) and the stances taken by the authors/interviewees on approaching a situation as it arises in a project. This difference was particularly noticeable on the issues relating to extent and detail necessary in a contract, as well as the approach to risk.

In trying to understand and explain this misalignment of approaches, a closer look was taken into the professional background of all participants. This included authors of the articles used in the literature study, participants in the interviews and valuation questionnaires.

Literature Study (24)	**Interviews** (12)	**Questionnaires** (5)
7 Project Management	10 Project Management	
17 Legal		4 Legal
	2 Contract Management	1 Contract Management

In having identified that different views are held by managerial and legal professionals on what is important to have influence on in a construction project, the consequent role of the contract can be better understood. Without attempting to place the one side above the other, the collaboration between the two may be described (in an oversimplified model form) as: The contract is written by lawyers, who see the construction project in one light. This is represents the standard form contract. This tool is then handed over to the project managers who, within the allowed confines, can alter and apply the contract. This is the contract as it is tailored for the specific project. Conceptually this represents a division between the writer/producer and the end-user.

While the difference in views seemed to stem primarily from the educational/work background of the individual interviewees, the influence of culture could not be completely discarded. Looking at the nationalities of the various sources for this research it was established that the majority of authors of relevant literature could be considered to have experience of a UK nature (Anglo-Saxon background). Of the interviewees only 3/11 could match a background and work experience which could be considered as Anglo-Saxon. Instead, the remaining 8/11 were of a Dutch background. Note that in both cases the individuals have international working experience. The background that is identified here is rather the cultural background which may influence their 'way of working', views and expectations.

While this rift is not detrimental to the process of this research it is none the less interesting to see that project managers may hold the view that the contract does not yet properly fit the construction project. This is however considered to fall outside the scope of this research, and will therefore be picked up on in Section 7.2 - Relevance, pg.93.

2nd Round Questionnaires

In part as a consequence to the apparent divide in professional background between the literature (legal) and 1st Round interviews (managerial) the 2nd round questionnaires were populated with a panel of legal professionals with experience in the Netherlands, as shown in 9.7 - [Apdx] Interviewee Roster, pg.105.

4/5 participants disagreed with the suggestion that such a rift exists. While they acknowledged that a potential rift exists between the two approaches, they explained that this misalignment is not at severe as may have been proposed. They acknowledged that the different perspectives

come from the different focuses each 'profession' holds. As participant #14 explains, the focus of a contract for project management is to allocate tasks, plan and control execution of these tasks within a timeframe. The legal profession however is more interested in risk allocation.

While these arguments may be valid, and the misalignment may not be too negative between the two professional perspectives, it still highlights the point that was made through the literature and interviews: that the focus of the drafter of the contract and those who execute the contract do not align completely, and that this does pose a misalignment.

C&P4 FIDIC

Similarity to UAV-gc

When addressing the philosophy and culture of the FIDIC Yellow Book (2006) one of the interviews is of particular interest. The interviewee (#1) was a trainer of FIDIC contracts in the Netherlands and an avid supporter of FIDIC contracts as well as the equivalent Dutch Design & Build contract, UAV-gc (2005). The Project Manager recommended a particular table from the document "Veranderende rollen: een inleiding in nieuwe contractvormen in het bouwrecht" (Chao-Duivis, Koning, 2001, p.403-407), suggesting that the UAV-gc is comparable to the FIDIC Silver and Yellow book.

Literature –

In the table from this document, a clause-based comparison is made on a selection of topics deemed relevant to projects realised in the Dutch construction Industry. The table features, amongst others, the UAV-gc (2000) and the FIDIC Yellow Book/Silver Book (1999).

Closer inspection and evaluation of the table suggests that up to 76% of the selected topics were appropriately covered by both the UAV-gc and FIDIC Yellow/Silver Book. This results in 10% of topics which were only addressed by the FIDIC contracts and 14% which were only addressed by the UAV-gc.

Transponering Tabel		
76%	Matched	47
10%	FIDIC, non-matched	6
14%	UAV-gc, non-matched	9
	Σ	**62**

It is particularly interesting to note that there is such a close link between the two forms of contract. Such a similarity in the clauses addressed, suggests that the two standard forms share in their approach to an underlying philosophy. More importantly however this leaves a smaller chance that the Yellow book can provide innovative and new forms of influencing cooperation.

1st Round Interviews –

As presented, this similarity in form and culture may work against the FIDIC contract's opportunities in the context of the Dutch construction industry. As three of the Interviewees (#8, #1, #2) discussed in their respective interviews, the Dutch reluctance to investigate FIDIC may very well be bolstered by its lack of "bringing something new to the table" (#8). It is suggested that it lacks insight or new material to successfully influence cooperation, which would make it worth the energy and resources to investigate this international standard.

2nd Round Questionnaires –

Amongst the participants who disagreed with the proposal presented above, the general consensus was agreement that features of the ECC such as the obligation to Early Warning and the

Risk Register had added value, but warned that these needed to be evaluated in a practical context as opposed to simply for their theoretical merit as processes. As stated by participant #16, the ECC "requires extensive administration and communication". Its success is therefore relatively dependent on the environment in which the contract is to be used. While this argument holds value, the as of yet limited use of the ECC contract means that it can only be evaluated for its theoretical merit. This should most certainly be revised on the Dutch construction industry has more experience and case studies on its execution.

Participant #14 also expressed concern that while the Yellow Book contract closely resembled the UAV-gc, its application on international projects had been tested and proven, The ECC however still very much catered to the UK legal system. In essence they warned that while the features of the NEC3 provided added value, their underlying system of law should not be disregarded as having considerable influence too.

Supporters of the suggestion that ECC was more interesting for the Dutch construction industry than the Yellow Book did so with care, stating only that the Yellow Book had little added value next to the UAV-gc.

5.3.2 Language & Structure

The FIDIC *Conditions of Contract for Plant and Design-Build* (1999) (Yellow Book) and NEC3's *Engineering Construction Contract* (2006) (ECC) are both documents which are officially in English, with no official translations currently being recognised. As FIDIC states under its Foreword of the Yellow Book: "FIDIC considers the official and authentic texts to be the versions in the English language" (FIDIC, 1999). However the two vary greatly in their use of the English language. This difference centres primarily on context, clarity and ease with which the process can be followed.

Relevant research by Chong and Zin (2009) in the paper "A case Study into the language structure of construction standard form in Malaysia" successfully highlights the impact language can have within standard forms of contract. Key among their findings is the argument that one of the main causes of disputes is misinterpretation of contract clauses, as well as making a case that this can successfully be prevented with the use of plain English. While the ECC has embraced this concept into its governing philosophy and opted for the use of 'common language', FIDIC's Yellow Book has continued throughout its revisions with the use of legal English and specialist engineering terminology (Heaphy, 2012).

The ability of the language used in a contract to cause or prevent confusion and disputes highlights the relevance of language used towards influencing cooperation between contractual parties: The Yellow Book and ECC display different attitudes towards the use of language as a tool for influencing cooperation.

L&S1	FIDIC	NEC3
Form of English		
Literature – The use of legal English in FIDIC contracts is scarcely brought up for discussion in literature. It is noticeable that sources which discuss FIDIC contracts often fixate on the fact that English is the official language of the contract, but do not venture further into the type of English language. This makes it difficult to explore how the use of English can contribute or harm the potential for better cooperation under this contract. Exemplar of this is the "Contractor's perceptions of contract provisions for infrastructure work financed by the EU" Report, presented at the Dispute Resolution Board Foundation (DRBF) European Conference in 2011 (Fabich, 2011). The report discusses various aspects of the Yellow Book, but on language it falls short, stating only: "FIDIC considers the official and authentic texts to be the version in the English language." Reference is made to the European International Contractors' "EIC Contractor's Guide to the FIDIC Conditions of Contract for Plant and Design-Build" (2003) which corroborates Fabich's argument with the statement "International contractors recommend the contractual language to be English" (EIC, 2003). That literature on FIDIC only superficially addresses the aspect of language used may seem weakening in its comparison to NEC3's coverage thereof. It is the writer's opinion however that this difference is strongly related to the development history and current standing of the two international contracts within the global market. As shown in Section History of the Yellow Book (pg.40), the development of FIDIC occurred further into the past than the considerably more 'modern' development of the NEC3 suite of contracts. Therefore the levels of reception of the contracts by the 'market' differ and focus lays in differing stages. FIDIC contracts have been relatively well established, in light of their maturity levels, the contracts have reached a stage in their global use where local markets are considering translations of the document. These localised adaptations represent a certain stage of maturity in the adaptation of the contracts on the global stage. In contrast, NEC3's use has largely still been limited to countries which class as British-		

Colonial regions (NEC, 2014). With this market, the development of the NEC3 has not yet had to deal with translations of its document, allowing for its focus of development and discussion to be put elsewhere: The use of standard English. It can therefore be argued that the different cultures in the markets which FIDIC and NEC3 have managed to conquer have had a strong influence on the aspects on which the respective organizations focus their development.

As Jaeger & Hoek (2010) suggest in 'FIDIC – A Guide for Practitioners': "It is critical to realise that the English language used by FIDIC involves the understanding of legal English." (Jaeger & Hoek, 2010, p. 101). Legal English is further defined in the same literature as "a professional language aimed at achieving certainty of meaning". The above guide continues, admitting that such Legal English "is a kind of long-winded jargon used by lawyers which may prove difficult to understand," (Jaeger & Hoek, 2010, p.101). It is this level of complexity which was pinpointed as hindering a more successful embrace of FIDIC contracts in the Netherlands (#8, #3). In relation to cooperation this means that participants within the contractual parties may find themselves in differing levels of understanding. This difference in understanding and confidence with the contract is detrimental to the cooperation of the parties.

In comparison to the ECC form of contract it is also apparent that the FIDIC Yellow Book makes use of standard construction terminology. Heaphy observes that this suggests a benefit to experienced professionals. Furthermore he suggests the format of the contract is "still very legalistic, once again potentially distancing inexperienced parties" (Heaphy, 2012). The use of standard construction terminology is seen in this case as positive, allowing the participating parties to cooperate in a familiar setting and with terms familiar to their way of working.

In defence of the FIDIC contract, it makes very efficient use of its Clause 1 within which the most important terms are clearly defined (Jaeger & Hoek, 2010, p.108).

Jaeger & Hoek also indirectly make a significant remark within the context of this research: "If anyone is to be held irrevocably to meaning what he says, he must be very careful to say what he means" (Jaeger & Hoek, 2010, p. 101). While this statement is made in support of a different point, it also highlights the inherent complexity that comes with involvement with the contract. This is an aspect which has been unanimously criticised/pointed out by all interviewees in relation to both FIDIC and NEC3. The perception of the role and purpose of a contract in the context of a construction project varies monumentally between Project Managers, Contract Managers and Lawyers.

1st Round Interviews –

A contract where the use of a legal dictionary is critical to understanding the exact meaning of a contract term is off-putting to the industry. This suggestion surfaced in the interviews (#1, #2, #5, #8, #9), further supporting that the perception of FIDIC standard form of contract is notorious for its use of language, more specifically its use of legal English. It is this 'professional language' which many of the interviewees point out. Interestingly there was a divide amongst those interviewed. A selection of interviewees (#3, #5, #8) attributed the complex but precise language of the Yellow Book as beneficial to a project, while the remaining interviewees (#1, #2,) pointed out that such language, in the context of the Dutch construction industry could come across as overbearing.

2nd Round Questionnaires –

This observation was verified through the 2nd round questionnaires with question 2. Language & Structure – A. The following statement was presented:

"Research (Chong & Zin, 2009) suggests that one of the main causes of disputes is misinterpretation of contract clauses. From the research one can argue that this can partially be prevented with the use of plain English."

Amongst the participants who disagreed with the statement (4/5) the opinion was held that the use of 'plain English' would not necessarily avoid misinterpretation. As expressed by participants #14 and #16, the use of plain English without understanding the issues and interests of the other contractual parties would just as well cause misunderstanding and consequent disputes.

On being asked whether the use of legal English may be advantageous to international parties while placing the local ones at a disadvantage, 2/5 participants agreed and 3/5 disagreed. Amongst the arguments brought up by the disagreeing participants was that local parties too are in a position to get themselves up to speed on the use of FIDIC based contracts. Another argued that the learning curve for the Yellow Book's use of legal English is not that different to the jargon used by the ECC, and that in a comparison the two therefore require equal amounts of study to come up to speed.

L&S2	FIDIC

Structure

Literature –

The literary study of the contracts' structures is covered in Section 4 - Literature Study, pg.37.

1st Round Interviews –

It appears from the interviews that the Yellow Book's clause structure is comprehensive. Each makes use of a high level of detail which, in the opinion of interviewees (#1, #4, #5, #6) greatly facilitates clarity. In exchange for this clarity however it was admitted that this may lead to practitioners requiring some study in order to fully understand these.

While such a requirement facilitates higher quality, it also comes at the expense of ease of use. While all contractual parties will have understanding and appropriate expertise on the contract available to them, as suggested in an interview with a Dutch project manager with international experience, there is a difference in aptitude and immersion into the contract between the different contractual parties. This means that while a more complex (linguistically) contract may cover the project situation in more ways and in greater detail, it may subtly alienate certain parties.

2nd Round Questionnaires –

When questioned on the subject of use of cross-referencing, 2/5 participants agreed that the Yellow Book makes extensive use of cross-referencing. It is important to note they did not agree completely though. They stated that once familiar with the contract, the cross-referencing once again poses little impediment to the contractual parties.

Similarly, the two participants disagreeing with the statement also argued that "with a bit of understanding it can be followed" (#16). It is their opinion however that the cross-referencing required to navigate and complete the Yellow Book is not substantial. A distinction is made between explicit cross-referencing, which is good, and implicit cross-referencing; The latter potentially presenting more problems.

L&S3	NEC3

Clarity vs. Legal Certainty

Literature –

Similar to its sibling contracts, the ECC's language displays considerable clarity. Following close examination of the NEC3 contracts, Broome & Hayes (1997) recommended that the NEC3's language was much easier to understand when compared to other forms of contract.

While Broome & Hayes' research proved interesting, the research did not specify to what party this easier understanding related to. If the administration of the contract remains the task of a few specialists, the easier language would be of limited benefit. Much rather, the simpler language would encourage further-out-tiered members on a project to become more aware of the contract. If such a situation is achieved then the contract can more effectively influence the interaction between the parties. The problematic situation where a minority of project participants are aware of the contract was expressed on several occasions in pre-interview discussions (P. Coughlan, J. Verpoorte, M. Stoelinga, N. Bradley).

An interesting statement was made by (Brunni, 1986), stating that at the time "only 86% of sentences in FIDIC contract could be understood by 4% of the population". This equates to the population with an IQ of 130or more. While dated, the statistic none the less indicates the serious impact the language of the contract can have towards alienating participants, and through this deteriorating the cooperation between them.

The clarity does not however come without its risks: An opinion expressed by Eggelstone (2006) questions whether the NEC3 sacrificed legal certainty with its pursuit of a new contract system. This is a concern echoed in Boulding's (2006) "The New Engineering Contract: A progress report". In the report Boulding emphasises that there is apprehension regarding legal interpretation of the ECC contract.

1st Round Interviews –

As interviewees (#1, #2, #5) pointed out though, in the handling of a contract there will always be uncertainty. As they put it "dealing with construction and contracts, nothing will ever be completely black or white". If this statement is validated then this would detract from the severity of the trade-off between clarity and legal certainty. It suggests that while legal certainty is not to be traded off completely, it is important not to prevent other aspects from being weighted equally, even if this may come at the cost of some legal certainty.

2nd Round Questionnaires –

This observation was presented and verified to the panel of the 2nd round with the question 2. B.

5/5 participants disagreed with the statement that use of plain English would come at the expense of legal certainty. They accepted that some of the legal certainty may be sacrificed but continued to state that this would not be to the extent where it hinders the successful application of the ECC contract. As expressed by participant #15, this sacrifice of legal certainty is of particular importance when considered from the perspective of the employer or lender. This is because the lack of legal clarity presents the most direct risk to their investment/control of the project.

Viewed in the context of this research, the situation can be seen as a trade-off: the use of plain English may encourage better cooperation by use of transparency, but comes at the cost of some legal certainty.

5.3.3 Flexibility

The aspect of flexibility is more particular to address because it consists of various levels of the contract on which flexibility applies. Before investigating the aspect of flexibility, these varying levels are defined. On a high level there is the flexibility of the suite of contracts from within which the contract originates: As previously established both FIDIC and NEC3 are considered suites which cater to a multitude of different types of project strategies ("Design – Build" DB; "Design & Build" D&B; "Design, Build and Operate" DBO; etc.). This flexibility can then be further refined to encapsulate the flexibility of the specific contract. In the case of this research these are the Yellow Book (FIDIC) and the ECC (NEC3) which cater to a Design & Build strategy.

The selected contracts however also consist of two levels/stages: One can consider the flexibility offered by the contract form in its standard (blank) form. On this level the standard provisions of the contract can be considered and evaluated. Flexibility on this level consists mainly of the options and choices made available to the drafter of the contract. When the contract is taken on for a construction project often modifications and choices need to be made with which the contract is refined to best cater to the project in question. These amendments and further specification will usually originate from the Client. Once these modifications and choices are made the contract gains specificity and thus loses another step of flexibility. It is therefore of interest to consider the flexibility that remains at this last stage.

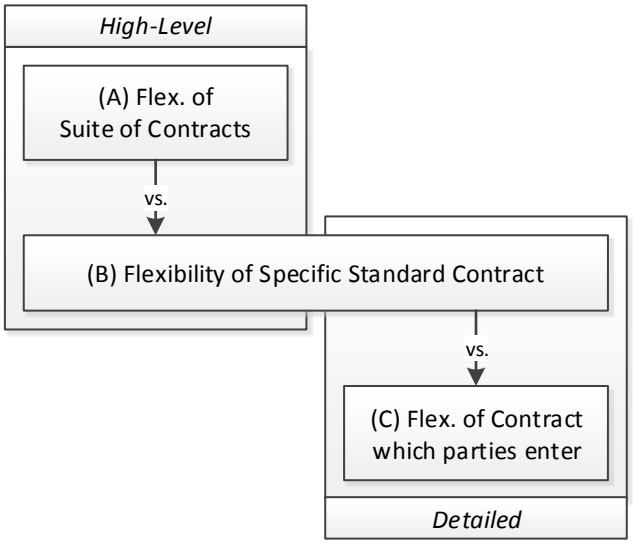


Figure 20 - Levels of Contract Flexibility

Contrast and overlap on this level is displayed in Table 1 - Relation of FIDIC and NEC3, pg.38.

F1	FIDIC	NEC3
Purpose of Design		
Literature – In understanding the works to which each of the suites attempts to cater one can begin to understand the intentions and thinking behind the specific contracts. This catering to different works comes in the form of each of the standard form contracts pursuing specific project strategies (DB; D&B; DBO; etc.).		

As previously suggested while FIDIC and NEC3 are comparable standard forms of contract, there is a substantial difference in their purpose of design (see 4.2 - Feasibility of Yellow Book & ECC, pg.38): FIDIC comes from a civil engineering background, made evident with its original 1957 Red Book (DB strategy), but has since been developed to cater for a wider variety of works: Yellow Book (D&B), Silver Book (EPC), Gold Book (DBO), etc. Differently, the NEC, which also comes from a civil engineering background, was published from the start with the intent to cater for any type of construction work (Bennett & Baird, 2001): Engineering and Construction Contract, Engineering and Construction Subcontract, Supply Contract, etc.

It should be noted that the expansion and development of both contracts, though backed by different philosophies will have been greatly influenced by the development of the 'generic/global construction industry'. While every western European country's construction industry develops at a different pace, there are trends which transcend geographical boundaries. This is in large part due to sharing of knowledge and intertwined markets. An example of this is the development of cooperation as an important factor to the industry. Such trends and development include the surfacing of Design and Build (D&B) approaches in contrast to the traditional Design Build (DB) approach. Later developments also include the emergence and now strong consideration of Design, Build, Finance, Maintain and Operate (DBFMO)'s. It is noticeable from the two organisations' development of new contracts (FIDIC & NEC3) that these trends have substantial influence on the contracts throughout their revisions.

It is in its purpose of design that much can be learnt about how the contracts were meant to be perceived. It was discussed on three occasions with Project Managers (#1, #5, #6) whether it might have been this development of FIDIC to gradually increase its scope of works covered from revision to revisions that may have had an influence on its perceived rigidity. That is to say that in focusing on one type of project at a time and drafting a 'complete' legal framework (contract) for it, FIDIC may not have held the concept of allowing for alterations and variations in the forefront of the process. While the suggestion could not be verified in the interviews, it was brain-stormed and received positively.

In contrast the NEC3's ECC, both in its approach and underlying philosophy, is much rather perceived as a methodology for project management than a purely legal contract. Amongst many intentions, this is one which may have greatly benefited from the decisions to cater for a wider variety of works. The NEC3 contracts display this in that their contracts apply on broader terms, catering to specific relations and structures within a project rather than specific project types. As presented by Heaphy (2012) the NEC's ECC "has the flexibility to accommodate any level of design allocation, allowing it to be used for build only, design and build and engineer, procure and construct type arrangements". This gives an indication of the contrasting setups of the Yellow Book and the ECC. The latter, having a shorter history of development (1993-present; FIDIC Yellow Book 1963-present), has chosen to tackle a wider scope of projects with its modularity. An interesting question that arises from this is whether the modularity of the ECC is extensive and visionary enough to cater for future trends and development in the industry. (See Section 7.2 – Further Research)

F2	FIDIC	NEC3
Flexibility through modularity		
Literature – For this research the flexibility of the specific standard contract is more relevant than that of the suite of contracts. From the opinions voiced in the addressing of flexibility in the various literary sources (LLoyd, 2009); (Heaphy I. , 2011); (CIDB, 2005)) it becomes apparent that flexibility in the standard contracts is most frequently attributed to the modularity of the contract.		

On the second level of flexibility, focusing on the Conditions of Contract for Plant and Design-Build (1999) (Yellow Book) and Engineering Construction Contract (2006) (ECC), it was strongly supported by literature and interviews alike that the flexibility offered in the Yellow Book could not compete with the ECC's modularity.

The figure below lists the 'options' with which the Engineering and Construction Contract (2006) can be customised to become most suitable to the client.

It is the intent that with the selection of an option the client can find the best value for money for their desired project. "At the heart of the contract conditions are the core clauses, which contain the essential common terms" (NEC3 – Procurement and Contract Strategies, 2009). The main Option selected and added to this then defines the particular payment mechanism.

ECC

Option A: Priced contract with activity schedule
Option B: Priced contract with bill of quantities
Option C: Target contract with activity schedule
Option D: Target contract with bill of quantities
Option E: Cost-reimbursable contract
Option F: Management contract

Figure 21 - ECC Option Structure

The core clauses remain the same throughout the NEC3 suite of contracts. The ECC differs from its sibling contracts (the ECS, PSC, TSC, etc. See Table 1, pg.38) in its "allocation of financial risk between parties" (NEC3 – Procurement and Contract Strategies, 2009). As mentioned in the description of the ECC (pg.51), the different forms of the standard contract differ in their systems of reimbursement.

Between the options offered under the ECC the distribution of financial risk also varies. As the NEC3 – Procurement and Contract Strategies (2009) explains, Options A and B are priced contracts in which the risk of carrying out the work within the agreed prices is largely borne by the Contractor. This conforms to the principle of Design & Build. Options C and D and target cost contracts in which the financial risks are shared between the Client and Contractor to a previously agreed ratio. Finally Options E and F are cost reimbursable contracts in which the Client is the main bearer of the financial risk.

To date, the FIDIC Yellow book does not comparatively cater for pricing strategies based on Bill of Quantities, Cost Reimbursable or Target Cost (CIDB, 2005, pg.14)

From these Options it is Options A and B which most closely resemble the traditional distribution expected for a Design & Build contract. However, as the ICC case study (see pg. 31) suggests, opting for Target Contracts allows the Client and Contractor to share risks at agreed ratios. This balancing of risk distribution suggests that better cooperation can be achieved between the two parties. Furthermore, creating a situation where both Client and Contractor shoulder comparable amounts of risk may act as an incentive for both parties to reduce costs and improve quality.

2nd Round Questionnaires –
5/5 participants agreed with the statement that flexibility in a contract is successfully achieved through modularity. There was unanimous agreement that modularity greatly aids in providing flexibility. Furthermore, it is suggested by participant #14 that prescribed modularity is also an effective way prevent the contractual parties from dragging out negotiations on tailor-made clauses. It is precisely this 'dragging out' which is detrimental to the cooperation between the contractual parties. By preventing such occurrences, this aspect of the contract facilitates cooperation.

More specifically on the modularity of the ECC, the participants were asked to react to the statement:

"Continuing on the idea of modularity providing flexibility, the NEC3 is hailed as providing the most choice and flexibility through its extensive use of modularity"

2/5 participants agreed, 2/5 disagreed with this statement. In this division two main arguments were brought forward: Supporting the statement was justified on the basis that the ECC's "X Options, combined with the additional Z clauses provide more flexibility" (#16). On the other hand, it was argued that the same flexibility should be possible to achieve when deviating from the Yellow Book, which #15 remarks they have seen many times.

F3	NEC3

Modularity as incentive for strategy

1st Round Interviews –
The modularity of the ECC is also believed to benefit the more direct execution of a construction project. It was proposed by Interviewee #5 that the modularity of the NEC3 contracts, more specifically the multitude of choice which it provides to the client encourages this contractual party to really consider what it is they wish to achieve with this project and what the conditions are that they as the client want to define the project. In contrast to this FIDIC's Yellow Book, being perceived as more rigid, runs the risk of not encouraging the client to consider what it is they specifically want out of this project to the same extent.

To conceptualise: The ECC provides a diverse range of opportunities, which encourages the contractual parties to scrutinise the project more in order to get the end contract that best fits theirs and the project's needs. In contrast, the inflexibility of the FIDIC Yellow Book runs the risk of encouraging the parties to take contract as it is and therefore not scrutinise the project details in as much depth.

This idea was then supported in an additional 4 interviews and formalised as: the modularity of the ECC contract and the multitude of options it provides encourages the client and other contractual parties to consider the project more strategically. This will not only benefit the realisation of the project but also the behaviour and cooperation between contractual parties.

The ECC's much promoted modular format is critical in allowing the contract to be adapted to the specific demands of the project and the client. Further to these two dominant parameters the ECC's modularity also strongly supports the NEC3's underlying philosophy (Bradley, 2014). Allowing for "considerable flexibility in the creation of a contract to suit the specific requirements of a project" it allows the user to tailor the contract through a series of choices (See Section 4.4 - Yellow Book: Conditions of Contract for Plant and Design-Build, pg.41; 4.5 - New Engineering Contract - Overview, pg.46).

2nd Round Questionnaires –
The idea presented with this finding was presented to the participants for their reaction: 4/5 participants agreed, 1/5 disagreed. The one participant who disagreed with this statement argued that the Client should set out their strategies and goals regardless of whether the ECC's modularity encourages this or not. While this is a valid point, the research adopts the same stance as with the definition of cooperation: While such a provision may not have any legal bearing, the fact that it incites the Client to do so can be seen as positive. This is the stance taken by the 4/5 participants who supported this statement. They agreed that the modularity could certainly encourage this strategic planning in the Client, but were sure to note that as a device it carried no legal weighting to it and still required human intellect on the Client's part.

As such, the validity of the ECC's modularity aiding cooperation through the incentive for strategic planning (from all contractual parties) was verified and holds as a valid finding which will count towards the ECC in this comparison.

F4	FIDIC	NEC3

Inflexibility as benefit

1st Round Interviews –
In comparison to the ECC the Yellow Book, like other FIDIC standard form contracts, may be perceived as comparatively inflexible. It is interesting to note however that this inflexibility, and implicit rigidity and clear definition, are surprisingly one of the characteristics of all FIDIC contracts which are appreciated amongst practitioners. 6/8 Interviewees concurred that, relative to the client's stance and the surroundings to a project, the "Anglo-Saxon" rigidity of the FIDIC contracts is exactly what the client or financiers desire (#3, #5). One of the interviewees (#5) describes:

On a wind-farm project off the Belgian coast two forms of contract were considered: FIDIC and NEC3. NEC's ECC offered considerable flexibility but was eventually discarded by the financiers because the flexibility it offered was perceived as too loosely defined. They instead felt comfort in the established rigidity of the FIDIC contract.

It should therefore be realised that while enhanced flexibility is not necessarily always perceived as beneficial. Instead the backgrounds, interests and concerns of the different parties must be acknowledged. From the interviews two processes which must be considered in relation to flexibility became apparent:

1. The first is flexibility as it influences the exterior of a project, that is to say, the global/local environment to the project, the contractual parties, etc. This represents the contract in its standard form.

2. The second is flexibility as it influences the interior of a project, which include the processes that take place in the project itself: works, alterations, disputes. This is the contract as it is agreed to by the contractual parties.

This example with flexibility highlights an important concept which must be kept in mind when addressing any of the other aspects. This is that the evaluation of these aspects is not so black and while, since there are multiple stakeholders involved both within and outside of an engineering or construction project. Like with the aspect of flexibility, the aspect can be viewed

as beneficial in the exterior ring, but then equally lack in ability to address current and modern issues as they may arise on the interior ring of a project.

2nd Round Questionnaires –
The participants were asked:

"Some interviews suggested that the use of legal English and a firm structure greatly benefits the FIDIC contracts, stating that the rigidity of structure put the financiers and client at greater ease"

4/5 participants agreed with this statement, explaining that the Yellow Book's focus on risk allocation and risk control (focus leant to it through the use of legal English and structure) provides a better basis for risk assessment. To the Client and financiers this is one of the major points of focus and carries the most weighting in their evaluation.

It should be noted that this potential success of the Yellow Book only benefits one of the contractual parties. As such, it could be argued that this aspect of the Yellow Book actually discourages better cooperation since it deviates away from a concept of transparency.

F5	FIDIC

Modification of Clauses

1st Round Interviews –
FIDIC attempted to create similar flexibility in its 1999 editions by "allowing users to select whether certain clauses apply by referencing them in the *Appendix to Tender"* (FIDIC Q/A, 2014). The tailoring of clauses however is not a wholesome method for a contract to provide flexibility. As an interviewee (Contract Manager #5) explained, the instant a clause is modified all parties involved will flock to it with aversion since a change in a standard form contract may often be viewed as a breaking of the previously established balance.

2nd Round Questionnaires –
The participants were presented with the statement that parties were weary of changing clauses outside of the framework for which the publishing organization provides guidance. As such any flexibility lent to the project through unguided changes to clauses works against the principle of creating better cooperation. 4/5 participants agreed with this statement. It was stated that in most cases the modification of clauses in unavoidable. This is necessary to adapt the contract to the specific project (#14, #17). Participant #16 presented that the problem was "modifying one clause may have unexpected effects on other clauses and it causes uncertainty". They did however also present that the best way to go about making these modifications was to go about discussing the background of the modifications and trying to resolve them jointly between the contractual parties. In essence this highlights once more the importance of good cooperation.

5.3.4 Specified Cooperation

As stated by McInnis (2001) "the current [UK] construction culture is perceived by some as suffering from enhanced attitudes, poor communications, lack of trust and generally adversial relationships at all levels". The situation which this statement describes is one found also in the Dutch construction industry, as established in Section 2.2.3 - Perception of Cooperation in the Dutch Construction Industry, pg.13.

The NEC suite of contracts entered the spotlight in the UK in the wake of Latham's 1994 call for better cooperation in the UK construction industry. Latham's "Constructing the Team" directly recommended the NEC "should be adopted by clients in both private and public sectors" (NEC, 2006). Since this key development (at the time NEC2) the NEC3 is largely advocated as having cooperation as one of its core principles, largely centred on its Clause 10 – Spirit of Mutual Trust. This clause forms part of the NEC2 (1995) and later revisions (NEC3; 2005, 2006, 2013). There is however the opinion which question whether the contract's 'spirit of mutual trust and cooperation' is a realistic concept. Bingham (2009) questions whether a clause "to be nice to each other" can have any actual influence on cooperation. International project manager (#6) suggests however that Clause 10 and the concept it represents may need to be taken less at face value, and rather as the legal wording to the idea behind an alignment of objectives and rewards, as touched on in Section 5.3.3's F2 finding.

A similar concern is expressed by Heaphy (2012), arguing that a contract cannot bring about specific behaviours in participating parties. This is however stated in relevance to a partnership, which as defined in the research framework is one step up from the positive interaction (cooperation) selected for this research (see Figure 13, pg.26). Indicative of the choices made in this research, it is instead suggested that the term 'collaboration' be used. In Heaphy's opinion, a viewpoint which is widely supported (Project Managers #3, #5, #8, #9), the ECC is a contract that successfully "encourages collaborative working between parties" (Heaphy, 2012, pg.25).

SC1	**NEC3**
ECC - Clause 10 - Spirit of Mutual Trust	
Literature – In addressing the aspect of cooperation, as it appears in contract and is facilitated by such, there is one clause in the ECC which it is important to fully understand. This is Clause §10 (1) Spirit of Mutual Trust. §10 (1): *The Employer, the Contractors, the Project Manager and the Supervisor shall act as stated in this contract and in a spirit of mutual trust and co-operation.* §10 (1) is widely regarded as the key clause of the ECC by many of its supporters (Bingham, 2009) (Boulding QC, 2006) (Eggelston, 2008) (Ferrara, 2011). It brings to bear two very important issues: All of the contractual parties named and involved must do as the contract says, as well as do this in a spirit of mutual trust and cooperation. The clause reads "and" between the two elements rather than giving an option of the one or the other. In doing so, the contract prescribes the parties to do so in a trustful and collaborative manner. The general obligations in §10 (1) are framed using mandatory language. As elaborated in "The New Engineering Contract: A Legal Commentary" (McInnis, 2001) that is the word 'shall' is used instead of 'may' which is framing by permissive language. When addressing Clause 10 within the context of this research (Dutch construction industry) it is important to note that there is a substantial difference in legal setting. NEC3's origin is the UK,	

where Common Law is dominant in construction cases. In contrast, in the Netherlands construction cases are dominated by common law. In the Netherlands the concept of cooperation between the contractual parties is covered by 6:248, paragraph 2:

> **Article 6:248 Legal effects arising from law, usage or the standards of reasonableness and fairness**
> **- 1.** An agreement not only has the legal effects which parties have agreed upon, but also those which, to the nature of the agreement, arise from law, usage (common practice) or the standards of reasonableness and fairness.
> **- 2.** A rule, to be observed by parties as a result of their agreement, is not applicable insofar this, given the circumstances, would be unacceptable to standards of reasonableness and fairness.
>
> **Source: Dutch Civil Law – Dutch Civil Code, 2014**

As discussed in the publication "Contract Law in the Netherlands" (Hartkamp, Tilleman, & Ter Heide, 2011) this article "applies to the principle of good faith to contracts" (pg.50). With it the view is adopted that "even express terms of a contract can be set aside where their enforcement would be grossly unjust in the circumstances" (pg.50). It therefore becomes clear that under Dutch contract law the defined cooperation in a contract will always be subject to the civil law and would not, as under case law, supersede as a contractual agreement.

As a consequence, unlike in the UK where an express statement of cooperation in the project's contract is necessary, a project in the Netherlands is subject to the common law in addition to the law enforced by the contract. In case of a conflict between the two, common law is dominant. This has a consequence that a specific statement of cooperation in the contract bears less force in the Netherlands, since all parties are bound to appropriate cooperation by the law beyond the contract.

It was consequently suggested by interviewed project and contract managers alike (#5, #6) that specifying such a clause, while not as necessary from a legal perspective, may none the less stimulate cooperation. Its effectiveness would be less reliant on law, but rather managerial, where §10 (1) is based on the idea that following the contract should heighten the understanding and awareness between the contractual parties, consequently siding the process of "mutual trust and cooperation".

McInnis (2001) suggests that §10 (1) displays ECC's wording at its broadest (the possible deficiency of the ECC's language has been expanded in Section 5.3.2 - Language & Structure, pg.66). §10 (1) "seeks to set not only the 'tone' of the relationship among parties but also the nature of general obligations that are being imposed". Telser (1980) argued that certain contracts "could be 'self-enforcing' when adherence to the contract is more advantageous than breaching it" (McInnis, 2001). This concept relates to the ECC, where more positive cooperation can be seen as a result of adhering to §10 (1).

Atkinson Law (2002) argues that it is not clear what effect §10 (1) is to have on the interaction between the contractual parties and their obligations. Atkinson presents that the clause creates a contractual obligation to positively cooperate.

It is further suggested that "these provisions are clearly intended to affect the legal relations of the parties, despite the use of the phrase 'in a spirit of' and could therefore be the basis of claims for breach of contract in appropriate circumstances" (Atkinson, 2002).

Within this research, §10 (1) presents a very direct attempt by the NEC3 contract to influence interaction between contractual parties. Possibly the most direct attempt at this between the two forms of contract, §10 (1) makes the positive interaction stipulated in Section 1.3 a contractual obligation rather than a philosophy which is recommended.

In more practical application the clause presents and interesting inquiry for the interviews. As suggested by Heaphy (2012) there is evidence where "this clause has been quoted effectively to make the parties compromise or alter their approach with positive results". Regarded as one of the key clauses by supporters of the ECC contract, its validity is often questioned by legal circles. The argument is: is it legally enforceable?

The advantages of §10 (1) are presented in several sources, as well as its potential drawbacks. Key amongst these is the question of legal enforceability. Better understanding of this balance should be obtainable through the interviews and experience in enforcing said clause.

2nd Round Questionnaires –

The effectiveness and value of the ECC's clause 10 was questioned during the 2nd round questionnaires. 4/5 participants agreed that the clause was valuable, while only 1/5 participants disagreed. The disagreeing participant argued that only just defining mutual trust and cooperation is not enough to incite positive interaction between the contractual parties. The remaining 4 participants agreed, specifying that in the Dutch context such a clause would indeed only serve as an incentive, and that these were rather designed for the sake of Anglo Saxon (Common) law countries.

Further to the ECC's clause 10, 4/5 participants agreed that the contract also greatly encouraged better cooperation through its use of obligatory processes. It was agreed and stated by all participants (who answered) that the ECC's use of obligatory early warning- and risk reduction meetings greatly contribute to the cooperation between contractual parties (#16). As Participant #14 explains, the contract is very much focused on open communication, following the idea of "putting your cards on the table".

In addition to accepting the statement made under question 1A of the questionnaire, indirect reference is made to the situation identified under this here SC1. As part of C&P2, an alignment is necessary between the contract and the local industry. It is further elaborated that this alignment is important to appropriately identify whether clauses such as Clause 10 are left without legal enforceability.

SC2	**FIDIC**

Yellow Book - Sub Clause 4.6 - Co-operation

Literature –

The Yellow Book's sub-clause 4.6 spells out the obligations of the Contractor in respect to cooperation.

§4.6 "*The Contractor shall, as specified in the Contract or as instructed by the Engineer, allow appropriate opportunities for carrying out work to:*

(a) the Employer's Personnel,

(b) Any other contractors employed by the Employer, and

(c) the personnel of any legally constituted public authorities,

who may be employed in the execution on or near the Site of any work not included in the Contract."

Interestingly no equivalently obliging definitions exist on the Employer. This includes situations where the Employer should really "secure that his "other contractors" cooperate or coordinate with the Contractor" (EIC, 2003). This lack of reciprocity between the parties considerably lowers the Yellow Book's capability to positively influence the interaction between the contractual parties. More specifically, while the clause is titled "cooperation" the one-sidedness of the cooperation it enforces lacks in direct influence towards the cooperation sought after in this research.

It may be argued though that a direct clause in the contract is not necessary for the contract to have influence on eventual cooperation, which forms an assumption made at the outset of this research.

The clause is given further consideration in the document "Amending FIDIC Contracts — A Dozen Key Issues" (Henchie, 2011). The context of this document is that of the United States, but can none the less be learnt form. Henchie suggests that on large scale projects "which may involve expansion of existing facilities or work at existing premises, or in instances where the project has been divided into a number of separate Engineering, Procurement and Construction (EPC) contracts", the employer may prefer to include more extensive cooperation provisions. These can centre around providing that each contractor coordinate and cooperate with other contractors employed by the employer. It is suggested that provisions for such amendments are becoming increasingly elaborate, but place the risk on the contractor by demanding they coordinate their works with other related contractors.

5.3.5 Guidance

Guidance is an aspect which was added to the original listing despite not having appeared in this specific form in Literature. In line with the differing priorities held by the legal and managerial parties involved in the background of the international contracts, this is an aspect which was brought up frequently during the interview phase (#1, #2, #5, #8) but which was not covered by literature. This can appropriately be explained when considering that the context for these two stances varies. Literature discussion, specifically on the execution of the contracts (CIBD, 2005; Eggleston, 2008; EIC, 2003; Heaphy, 2011; Lloyd QC, 2009), operated in an international context in which considerable understanding of the contracts could be assumed. In contrast the interviewees operate in a context where the contract, in the recent past, was 'foreign' to them. In the latter context it is understandable that clarity and extent of guidance provided play a major role, while literature does not specifically concern itself with this subject.

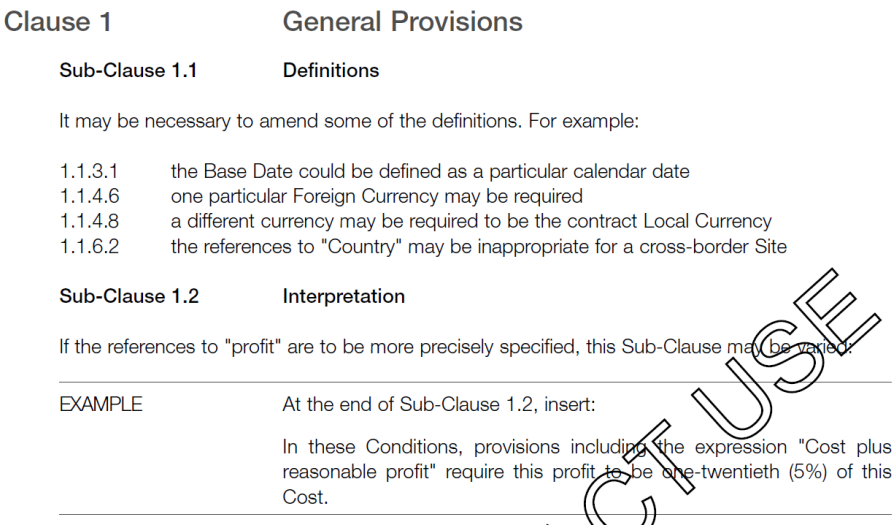
The application of international standard forms of contract in the context of the Dutch construction industry is a new occurrence. In light of this need that exists in this Dutch context, which is also the context of this research, the level and extent of guidance provided by the contracts was also evaluated. Within the framework of this research the guidance provided has a positive influence on the interaction between the contractual parties. It is assumed that the more guidance is provided by a knowledgeable entity (FIDIC organization who drafted the standard for contract) the more confident the contractual parties will stand in the construction project. In doing so, it is suggested that they will act less apprehensive and suspicious towards one another. This idea was verified by interviewed project managers #5, #6, #8.

G1	FIDIC	NEC3

Guidance on Execution

Literature –

Guidance in the Yellow Book (1999) comes in the form of a separate chapter titled “Guidance for the Preparation of Particular Conditions”. The 30 page chapter to the Yellow Book is structured in to mirror the General Conditions (for listing see 9.3, pg.100). Each of the core clauses form a chapter and an arbitrary number of its sub-clauses are discussed. It is notable that the guidance provided focuses on the actual preparation of the particular conditions as opposed to advising on the practical execution and consequences under each of the clauses.



Clause 1 General Provisions

Sub-Clause 1.1 Definitions

It may be necessary to amend some of the definitions. For example:

1.1.3.1 the Base Date could be defined as a particular calendar date
1.1.4.6 one particular Foreign Currency may be required
1.1.4.8 a different currency may be required to be the contract Local Currency
1.1.6.2 the references to "Country" may be inappropriate for a cross-border Site

Sub-Clause 1.2 Interpretation

If the references to "profit" are to be more precisely specified, this Sub-Clause may be varied:

EXAMPLE At the end of Sub-Clause 1.2, insert:

In these Conditions, provisions including the expression "Cost plus reasonable profit" require this profit to be one-twentieth (5%) of this Cost.

As the sample above shows, the guidance can be relatively superficial and often takes the form of recommended amendments and required further specification. As FIDIC clarifies in the introduction of the document “As far as possible, example wording is included, between lines. In some cases, however, only aide-memoire’ is given” (FIDIC, 1999). Where applicable, the guide makes use of examples. However as the tone of their introduction suggests (“however”, “only”), these examples nearly always follow from suggested further specification and only detail the wording with which the sub-clause may be modified. As mentioned, there is no guidance or examples on the consequences of executing said clause, which FIDIC names ‘aide-memoires’. All of these forms of guidance form the basis of the exercise detailed below.

The guidance offered on the Yellow Book (1999) offers varying options for modification, specification, and other to sub-clauses under the General Conditions.

The frequency with which each of these appears in the guidance section has been quantified below. In quantifying the occurrence of each type of guidance, a picture of the general support provided with the contract can be established. The focus of the guidance then indicates what the publishers of the contract find important and on which parts of the contract they see the parties focusing or developing on. It is important to note that the number of guided modifications per section is no substantial indicator of how flexible particular sections of the contract actually are, but rather how the FIDIC organization, as its author, envisaged the contract to be amendable. There is a substantial difference between amendments made under guidance of FIDIC and those made ad-hoc on individual projects. We therefore distinguish between regular flexibility of the contract and ‘intended flexibility’.

Clause		Amend (11)	Specify (18)	Other (12)
1	General Provisions	III	I	IIII
2	The Client		I	I
3	The Engineer	I		
4	The Contractor	III	IIIIIII	
13	Variations and Adjustments		II	
14	Contract Price & Payment	I	IIIIII	IIII
17	Risk & Responsibility			I
20	Claims, Disputes and Arbitration	III	I	II
	total of 41 guided modifications	**27%**	**44%**	**29%**

Table 2 - Relevant Selection of Guidance Note change type exercise

This exercise indicates that under the clauses deemed relevant to potential influence on interaction between contractual parties (for full listing see 9.6 [Apdx] Guidance Notes – Type of Changes Exercise, pg.104), the focus in the Yellow Book Guidance Notes (44%) is to further specify details on sub-clauses rather than amend (27%) or add to (29%). Further specifying clauses may add to flexibility of the contract, since it suggests that the contract is broadly applicable and is then specialised to the project. It can also be seen as a lesser form of flexibility though when compared to more intensive modifications or NEC3's Options. As such the exercise concludes with the statement that while the Yellow Book's Guidance Notes allow certain guided flexibility it is focused on further specification as opposed to amendments, and therefore not considerable.

Guidance provided by the ECC comes in the form of the document "Guidance notes for the Engineering and Construction Contract" and is not dependent on which Option is selected. Like the contract itself it was published in 2005 with amendments in 2006. The Guidance Notes work in conjunction with the Flow Charts provided in the ECC contract document (see 4.6 - ECC: Engineering Construction Contract, pg. 47)

In addition to the discussion of its sub-clauses, the ECC Guidance notes also offer guidance on other more practical-execution related parameters to a construction project. These include:

- **Project Organisation**: This section details the roles for which the ECC has set out responsibilities and roles. The contractual parties covered therein include: the Employer, the Project Manager, the Supervisor, the Contractor and the Adjudicator. Innovative in this guidance is the use of diagrams, with which the ECC appropriately illustrates the envisioned system of contractual parties.
- **Contract Strategy**: This section relates to the selection of an appropriate Option for the project. Once again the choice of Main Options, Dispute Resolution Options and Secondary Options is once again clarified with the use of a simple and clear flowchart.
- **Preparing the tender documents**

It is only after the above sections that the Guidance Notes commence with a detailed and legal-toned discussion of the clauses. Much like the Yellow Book it discusses opportunities for amendments, further specification and other actions.

Communications 13

13.1 The phrase 'in a form which can be read, copied and recorded' includes a document sent by post, telex, cable, electronic mail, facsimile transmission, and on disk, magnetic tape or other electronic means.

13.3 & 13.4 These clauses establish the use of a *period for reply* wherever the term (identified in the Contract Data part one) is used in the *conditions of contract*.

In some circumstances it may be appropriate to specify more than one *period for reply* in the Contract Data. The obvious example is for a response by the *Project Manager* to submissions of the *Contractor*'s design. Such specific cases should be described by reference to specific clauses of the contract, and it should be made clear that the 'general' period of reply applies to all other cases. Relying on Clause 13.5 for this purpose may not be sufficient, as the *Contractor* may not agree, and it is better for the *Contractor* to know how long the *Project Manager* will need to review design submissions when he is preparing his programme.

13.5 This clause provides for extending the *period for reply* by agreement. Where other periods for action are stated in the ECC, provisions for their extension (if any) are stated in the relevant clauses.

Different to the Yellow Book however additional commentary is offered on practical execution and the consequences of the clauses on project management. In reading said guidance in the ECC one is strongly reminded of the discussion on practical execution which for the Yellow Book is only offered in separate, non-referenced publications. These include "EIC Contractor's Guide to the FIDIC Conditions of Contract for Plant and Design-Build" (EIC, 2003) and "FIDIC – A Guide for Practitioners" (Jaeger & Hök , 2010). As a consequence of the additional practical description the ECC Guidance Notes become a 154 page addition to the ECC Contract document.

A similar exercise as the one done with the guidance offered by the Yellow Book was attempted for the ECC's Guidance Notes. It soon became evident though that their approach and stance toward guidance were so distinct that the exercise could not appropriately be completed for the ECC.

The ECC's Guidance Notes varied in both its language and form, resulting in a completely different effect of flexibility offered. In line with the ECC's choice to use plain English the language and tone of the guidance notes already reads differently. Rather than prescriptive or commanding these guidelines present cases and possible scenarios. As such there are no examples where an amendment is recommended (Amend), or further specification is required (Specify). It is noticeable that the focus of the guidance is also on the practical rather than the preparation of the contract. This can be argued is a leisure it can afford itself due to the use of plain non-technical language throughout its contract document. In its guidance offered, the text often lays out the parties involved and how these may react, or what their interests may be in relation to the specific clause.

G2	FIDIC

Pre-Award Guidance

An interesting point is raised in the interview with a Contract Manager (#5) who with 8 years of experience of FIDIC contracts in the Netherlands holds (relative to current Dutch market) considerable knowledge on the application of this international contract in the Netherlands. When discussing the guidance provided by the Yellow Book this contract manager pointed out that the process which the guidelines provide assistance on only starts from the award phase onward.

It is true that the Yellow Book contract does not provide specific guidance on the pre-award phase. Within the introduction to the "Guidance for the Preparation of Particular Conditions" reference is made to another FIDIC published document entitled "Tendering Procedure". As FIDIC explains, this document "presents a systematic approach to the selection of tenderers and the obtaining and evaluation of tenderers" (FIDIC, 1999). The latest (2nd) edition of this document was published in 1994 and only applies to the 1992 revision of the Yellow Book. For the execution of the 1999 Yellow

Book, FIDIC recommends the use of "The FIDIC Contracts Guide" which gives advice on tendering procedures for users of these contracts. While this means that FIDIC contracts do provide guidance on the pre-award phase this guidance is from a separate book and therefore not appropriately integrated. This is a situation that is reflected in many aspects of FIDIC contracts, that coverage is provided by external documents, and is probably best explained by Heaphy: "There is extensive experience in the industry of the FIDIC forms […] which has led to a wealth of knowledge being developed and supporting documentation, systems and processes being created" (Heaphy, 2011). When compared to the integrated approach of the ECC, the Yellow Book appears to have rather opted for guidance to remain external.

1st Round Interviews –

Based on the interviewee's experience they held the opinion that the FIDIC suite of contracts could benefit greatly from more substantial and integrated guidance to the pre-award phase. This was not directly in relation to the content of the contract itself, but rather in the translatability of the contract to local procedure and working customs, an aspect which is highly relevant when considering the relatively new status of the contract in the Dutch industry.

Similarly it was suggested by the contract manager (#5) that the difficulty of transposing the international contract's pre-award workings to the Dutch construction industry, through the use of the guides, were not centred around potential difficulties in the use of legal English; "… rather, it is the novelty of the contract that required substantial study and enquiry" (#5).

It was not possible, within the frame of this research, to appropriately quantify or qualify a comparable difficulty with the guidance provided by the ECC within the execution of a project in the Netherlands (see Section 3.3 - Establishing the current Dutch Experience-Pool, pg.31).

2nd Round Questionnaires –

The following statement was presented to the participants:

"Literature suggests that the guidance offered in FIDIC's Yellow Book is limited in that it only covers the preparation of particular conditions as supposed to the practical execution of the contract, which the NEC3's ECC does."

3/5 participants agreed, 2/5 disagreed with this suggestion for additional guidance on the Yellow Book. Those participants who supported the argument stated that the guidance offered under the Yellow Book was indeed somewhat limited, and could benefit from expansion. It was however pointed out by several participants (#16. #17) that a substantial amount of guidance books and booklets are available on the preparation and execution of the Yellow Book. They agreed however that these were indeed not standard part of the contract form.

With this observation the research proposes the idea that in order for a contract to more effectively influence cooperation it cannot rely on external publications to be found by the contractual parties. Instead a more holistic and integrated approach seems appropriate wherein the contract provides guidance from within its documents, guaranteed and approved by the publishing organization (FIDIC/NEC).

6 Conclusions

Having studied the Yellow Book and ECC under the five aspects with which the contracts can influence cooperation, the research proceeds to summarise the most relevant findings and to definitely compare and contrast the two contracts on their potential influence in the Dutch construction industry. Continuing the format of the Findings, the conclusions too will follow under the 5 aspects.

Table 3 summarises the titles of the selected findings. Greyed out findings indicate findings which were not deemed sufficiently verified or valuable to the research and are consequently not picked up into the conclusions.

Culture & Philosophy	Language & Structure	Flexibility	Specified Cooperation	Guidance
(C&P1) Perception: Contract or more?	(L&S1) Form of English	~~(F1) Purpose of Design~~	(SC1) ECC - Clause 10 - Spirit of Mutual Trust	(G1) Guidance on Execution
(C&P2) Culture of Contract vs. Culture of Setting	(L&S2) Structure	(F2) Flexibility through modularity	(SC2) Yellow Book - Sub Clause 4.6 - Co-operation	(G2) Pre-Award Guidance
(C&P3) Perception: Legal vs. Managerial Background	(L&S3) Clarity vs. Legal Certainty	(F3) Modularity as incentive for strategy		
(C&P4) Similarity to UAV-gc		(F4) Inflexibility as benefit		
		~~(F5) Modification of Clauses~~		

Table 3 - Tabulated Headings of Findings

6.1 Culture & Philosophy

C&P1	It was identified that the perception of the contract would have significant consequences on how successfully either of the contracts could influence cooperation between the contractual parties in the Netherlands. This was concluded as a consequence of the Netherlands already having a well-established standard form of contract for Design & Build projects, UAV-gc (2005). As well as competing with each other, the Yellow Book and ECC would have to be received as enticing enough to be considered. This existing situation led to the decision that the Yellow Book and ECC would never really replace the existing UAV-gc, but should rather be studied for potential lessons learnt. Some of these potential lessons learnt are identified with this research. Throughout literature, 1st round interviews and 2nd round questionnaires it was NEC3's ECC which stood out as the more enticing contract into which to invest time and resources for its study. The Yellow Book did not stand out as innovative in terms of its philosophy of 'fairness and balanced risk allocation'. In contrast, the ECC was presented (in literature) and perceived (in interviews) as 'something new'. The core principles of its philosophy indicate this with the specific inclusion of "stimulus to good management". This very appropriately catered to project managers who were of the opinion that too much focus of other contracts is going to the legal side, neglecting the managerial side of a construction contract.
C&P2	In relation to an alignment between the culture of a contract and that of the setting in which it is executed, it was identified and verified that this plays a role. The culture behind the FIDIC contracts, though of a francophone origin, was more frequently compared to the Anglo-Saxon culture. This is due to the relative rigidity perceived by most practitioners and the hierarchical, top-down air of the contract. No significant differences were found between the culture of the current contracts in circulation in the Netherlands and the Yellow Book. Regardless though, as C&P1 explained, the contracts chosen for this research are not only subject to a comparison with one another, but are also required to bring something new to the table outside of what the current UAV-gc already offers. In comparison the ECC, while of Anglo-Saxon origin, was perceived as modern and free of a specific culture. Its culture was found to be adaptable and did not clash with the established Dutch organizational working culture. More accurately, the adaptable culture of the ECC aligned successfully with aspects such as for example 'reaching consensus' and 'openness towards the client' which were identified for the Dutch working culture.
C&P3	A rift was identified between the demands and approach to a construction contract by the legal and the managerial profession. This observation does not add substantially to the comparison between the two contracts, but is important to understand and be aware of when evaluating the comparison in other aspects. In comparing literature and interviews, a significant difference in approach to the contract was noticed. Further investigating this revealed that the views held by legal professional and managerial professionals varied. This difference centred on the scope of possible scenarios, eventualities and precautions which the contract needed to cover. While the legal side (authors of literature) appeared of the school of thought that the contract should cover any and all eventualities, the managerial (project managers in 1st round interviews) side saw this as over complicating the contract at the expense of workability.

C&P4	Since the chosen contracts are required to present concepts beyond the services currently being provided by the UAV-gc, a clause-specific comparison between it and the Yellow Book was evaluated. Given the newness of the NEC3 contract in the Netherland, no such comparison could be done between the ECC and the UAV-gc. The comparison revealed a 76% match of clauses, strongly strengthening the previously made argument that the Yellow Book simply does not bring new concepts or processes which could be interesting for the Dutch Construction Industry to consider.

6.2 Language & Structure

L&S1	Key to the findings on the form of English used was the opinion expressed in both the interviews and questionnaires that that use of plain English could not be directly linked to a better avoidance of misinterpretation. Both rounds stated that the use of plain English was beneficial, but not in avoiding misunderstandings altogether. Instead it was proposed that the use of plain English helped promote a sense of transparency between the contractual parties. In doing so, the contractual parties would be less mistrustful, since there is no wording for one party to hide behind or interpret very differently from another. This increased transparency, it is suggested, helps further encourage better cooperation.
L&S2	On the aspect of the structure of the contracts facilitating smoother, better cooperation no clear comparison could be made between the Yellow Book and the ECC. While both contracts adopt a very different structure, both had merits and wielded little advantage over the other. The use of cross-referencing was used by both and was seen as valuable and not overwhelming, but could not be evaluated as contributing to better cooperation.
L&S3	Because of the Yellow Book's long standing legal certainty (focus on risk allocation and risk control), the ECC's use of standard English was criticised for its sacrifice of legal certainty. The Yellow Book's use of legal terminology and professional industry terms means that it is perceived in legal circles as the more certain contract, securing the project more than the ECC would. This perspective was seen as highly valued by the Client and Financiers, but could not be attributed as aiding cooperation. In comparison, the ECC's potential sacrifice of some legal certainty was seen as a valid trade-off for the transparency it created between the contractual parties. This transparency in turn facilitates better cooperation. Further to the trade-off between transparency and legal certainty, it was validated in both interviews and questionnaires that the sacrificed legal certainty was as detrimental to the validity of the ECC contract as it was made out to be. A good point was raised in the interviews which stated that there will always be 'grey areas' in a contract when seen from a legal perspective and that legal uncertainty can never be achieved wholly.

6.3 Flexibility

The research highlights that flexibility is applicable on various levels of the contract. Key to appropriately evaluating this aspect was the understanding that there are three levels of flexibility:

1. Flexibility of the suite of contracts in terms of works covered
2. Flexibility of the contract itself as a standard form of contract
3. Flexibility of the contract as it is agreed to by the contractual parties, following modifications, revisions and specifications.

Key to the aspect of flexibility is the suggestion that the freedom and applicability that the flexibility of a contract offers, better caters to the parties involved. In doing so, the parties do not feel forced into a hierarchy in which roles and interactions have already been pre-assigned, but rather feel the openness to shift into place and appropriately develop their cooperation between the contractual parties.

The Yellow Book was found to be relatively in-flexible with only few options to modify and adapt the standard contract to the construction project. It is important to note that this observation and consequent evaluation addresses only the scope of flexibility outside of the standard. Since the contracts are both internationally accepted as successful standard form contracts it is irrelevant to approach the argument that the contracts are not applicable to the projects at all. Therefore in terms of flexibility outside of the norm, it can be said that the Yellow Book offers little extra room, while the ECC's modularity makes it strive on this aspect.

Under the NEC3 contracts the aspect of flexibility takes one the form of modularity, allowing for significant mixing and matching within the structure of the standard contract. The modularity of its Options, and further possibilities for refinement, make the ECC a very adaptable standard form of contract.

F2	Key to the flexibility of the ECC contract is its modularity. With it, the contract offers a series of Options with which the contract can be adapted to best suit the particular conditions of the construction project. This modularity was not found in the Yellow Book. A major influence to both the high-level and detailed flexibility for both contracts is the Purpose of Design of the suites of contract from which they come. The Yellow Book was identified as specific contract, catering exclusively for Design & Build projects. It was however suggested that in its specialisation, the Yellow Book had specialised itself to such an extent that adaptation to the project could sometimes only be achieved through custom modification of the clauses. This was seen as detrimental to cooperation. In comparison the ECC, while appropriately cater to Design & Build projects displayed a high degree of adaptability to the project with its use of Options. With this form of guided/approved customization of the project the parties will react less adversely. This sets the stage for better cooperation between the contractual parties.
F3	Further to F2, the 1st round interviews also brought attention to the idea that the modularity of the ECC contract places the contractual parties (primarily the Client) in a position where they must carefully consider their strategy for the project. Instead of filling out the contract as it is, they are put in a position where they must carefully consider how they want the project to develop. This strategic thinking could of course come about without this incentive, but much like the clause on cooperation, the contract successfully makes sure this occurs. In

	aligning their strategy, the contractual parties can better understand one another and align interests or strategies, greatly improving cooperation between them.
F4	Though the flexibility available in the standard forms of contract has been presented as a positive factor to the successful influence on cooperation, this finding presented that there is an alternative way of looking at it: Inflexibility as a perceived benefit. In the exploration of this statement, the point of view of the financier or client was taken. This is the stakeholder with the highest ambition to have the project succeed as requested. As such it was argued that excessive flexibility of the contracts could be perceived as a liability by the financing body (e.g. world banks) or the Client. While better cooperation is an ambition pursued by the practical industry, it is less of a priority for the owners of the project. As a consequence the clear realisation was made that while thus far the Yellow Book's inflexibility had been viewed as ranking it below the ECC in terms of influence on cooperation, this view is very much susceptible to the stance taken. It must therefore be noted that for a Client or financing body the inflexibility of the Yellow Book may bring reassurance and perceived benefits to cooperation between them and the other contractual parties.

6.4 Specified Cooperation

In light of this research's focus being the influence of the two contracts on cooperation, the effects of directly prescribed cooperation are also of interest. The comparison focuses on the success with which the two contracts prescribe the principle of cooperation between the contractual parties.

SC1	In the ECC the specified cooperation came primarily from its Clause 10 – *Spirit of Mutual Trust*. New in its use of permissive language, the clause effectively instructs the contractual parties to act respectfully and fairly towards one another; this without the coming at the expense of a party's self-interest. The clause is both praised and criticised in literature. It was noted however that the clause's effect on influencing cooperation varies greatly between the UK and the Netherland. In the UK common law is deciding, while in the Netherlands, no matter what cooperation is contractually enforced, if it goes against the national law it is superseded by the latter. Dutch Law already includes clauses which define the cooperation that is requested (6:248[2] CC and 6:2[2] CC). 1st round interviews however suggested that while not as legally powerful as it would be when governed by common law, the explicit specification of the level of cooperation expected from the parties would none the less be beneficial to overall cooperation. In stating the level and extent in the contract, all parties are informed without fail of how the other parties will behave and the behaviour that is expected from them. Therefore, while the effectiveness of prescribing 'fair and mutually trusting' behaviour may be criticised by the legal supporters, it does hold significant value in terms of managerial influence on cooperation.
SC2	The Yellow Book too contains a specific clause (Sub-Clause 4.6 – Cooperation) which details the prescribed stance and behaviour of the Contractor. It is noted however that little is specified in the contract on how this cooperation is to be returned by the other contractual parties. As argued in literature, the general opinion is that the Yellow Book's sub-clause is not effective enough in stimulating the level of cooperation that would make the Yellow Book stand out above either the ECC or the UAV-gc. Therefore on the aspect of specified cooperation the Yellow Book is deemed too one-sided in its demands of the Contractor, and falls short behind the ECC contract.

6.5 Guidance

The aspect of guidance presented an investigation into the support provided by the contracts in their completion and execution. This was seen as a relevant aspect in the context of the Dutch construction industry being new to the contract. A lack of guidance from the contracts' organizations would have forecast complications for the Dutch contractual parties. In doing so the priority of good cooperation would naturally be pushed to the background, while focus is given primarily on grasping the more core-workings of the contracts. Instead, if adequate guidance is offered on the preparation, execution and consequences of the contract the parties will be more open to the contracts' influences on cooperation.

G1	The Yellow Book (1999) and ECC (2006) vary fundamentally in their approach to guidance offered through the main contract document. Both contracts make use of 'guidance chapters' which are structured in accordance with the contract's clauses and include varying degrees of explanation under each of the clauses. From there on forward however the two contracts vary greatly. FIDIC's Yellow Book provides guidance on the preparation of the document primarily in the form of suggested amendments and further specification. These were found to be sufficient by the participants of the 1st round interviews. It was expressed however that the contract would benefit greatly from expanding its focus to also include guidance past just the preparation of the contract, namely on the practical execution of the contract. In contrast, the ECC covers this as well as investigating the consequences (in terms of practical execution) of its clauses. It does so in the spirit of its "promoting stimulus to good management" philosophy. As a consequence it is suggested that the ECC is better set up to more directly encourage cooperation between the contractual parties, since the discussion of practical consequences of the clauses are available to all parties and extend before and beyond the preparation of the document.
G2	The two contracts also varied on the stages for which they provide guidance. One of the main criticisms that was expressed during the 1st Round interviews was that the Yellow Book only provided guidance from the project award phase onwards. In itself this is not a shortcoming of the contract. However, when seen in the context of the host market (Dutch construction industry) being new to the contracts, guidance on the pre-award phase could greatly help prepare the contractual parties. In turn this better preparation and openness sets a better stage for the contractual parties to focus on and develop better relations and cooperation.

6.6 End Note

With these conclusions the research now has sufficient backing to address the research question:

How do the Yellow Book[1] and ECC[1] standard form contracts vary[2] in their influence on cooperation[3] between the contractual parties, on construction projects performed in the Netherlands[4]?

The Yellow Book and ECC were found to vary considerably on the aspect of influencing better cooperation between the contractual parties. The ECC was found to better facilitate improved cooperation between the contractual parties by being perceived as innovative and bringing to the table new methodologies. The ECC's focus on process was also seen as refreshing and conducive to enabling better cooperation.

Following the example exercise which formed part of the evaluation on the ICCPP Project (Figure 25, pg.102), the comparison of the two international standard forms of contract can be summarised as follows:

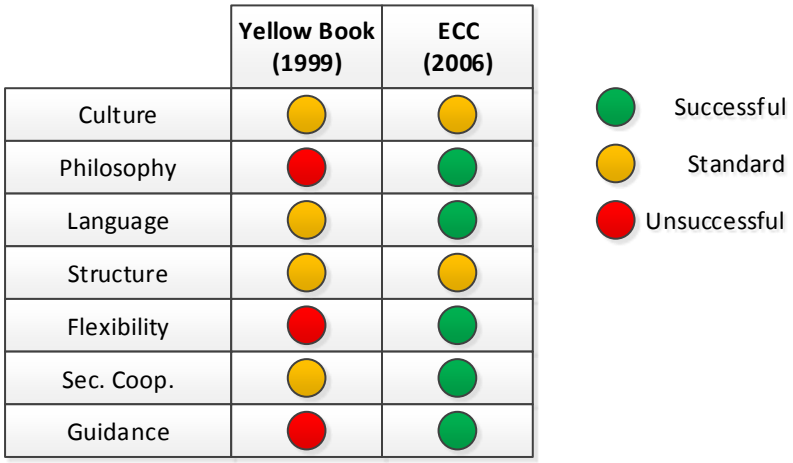


Figure 22 - Summarised 5 Aspect Evaluation of YB & ECC

The results above have been evaluated specifically in the context of the Dutch construction industry as it was interpreted by the various interviewed project managers (representing Client, Engineer and Contractor). Both FIDIC Yellow Book and the NEC3 ECC are successful international form contracts and are not being questioned in this research. Both their successes and shortcomings in these findings are specific to the aspect of influencing cooperation between the contractual parties, not the contract as a whole.

It should be noted that while there were not enough interviewees to lead to statistical significance in these early stages of a potential trend, where knowledge and involvement is through choice, these opinions give an indication of the present state of this potential trend.

7 Reflection on Report

7.1 Further Recommendations

As Section 6 - Conclusions summarises the findings in the context of the research framework, this chapter will summarise the findings in an industrial/practical context.

The research has established that better cooperation between contractual parties remains an important factor in the Dutch construction industry and that there is considerable interest in promoting this parameter on construction projects.

A proposal was also made that in the future the Dutch industry may see an increased use of international contracts for its bigger construction project. This would come as a consequence of funding and clients coming from more international background. As two of the most established international standard forms of contract, FIDIC and NEC3 are the most interesting contracts for the industry to investigate. As the research reveals however, the jump to studying and executing the international Yellow Book or ECC may yet be premature. Interviews and opinions with practitioners revealed that the state of the Dutch construction industry may not be at the stage where it is realistic to start considering the wide-spread use of international contracts.

During the process of this research, investigating literature and interviewing practicing professionals, it became apparent that the progress of the Dutch construction industry operates in two distinct layers. Interviewees identified the industry as traditional and slow to adopt and change. While all recognised that there was interest and curiosity for innovation and new concepts, the possibility for change was always down-played. In stark contrast, literature research revealed that there are a number of significant initiatives (Bouwend Nederland, 2014) with which the industry indicates that there is in fact a significant push for innovation and development on an industry-wide level. In a generic form the industry can therefore be described as two-layered, where the theoretical layer of the industry is faster moving than the practical layer which lies slightly behind it in terms of innovation. It can therefore not be said that the Dutch construction industry is static, but it should also not be approached overzealously with the idea that the industry is ready to consider international contracts as a viable alternative.

Similarly it was evident that the Netherlands, like other western European countries which have their own local standard forms of contract, will be slow to embrace external contracts. An overwhelming reason for this being that there is little incentive to change an already working system.

Instead it is recommended that this comparison of the two international contracts be seen as a study of potential ‘lessons learned’ and innovative new processes and practices. The findings on how the FIDIC Yellow Book and NEC3’s ECC can successfully influence cooperation should be strongly considered as tools with which the local standard form contract, UAV-gc (2005), can be further augmented.

As the findings reveals (summarised in Figure 22), in the context of this research it is the Engineering Construction Contract (ECC, 2006) which was found to better promote and influence successful cooperation between the contractual parties. It is however important to note that this does not mean that no value can be extracted from the FIDIC Yellow Book (1999). These were simply found to be less effective or appropriate to the Dutch construction industry.

In light of this approach, the following recommendations are presented to the Dutch construction industry:

- **Explicit, clausal definition of cooperation** – While the clausal definition of cooperation in the ECC (Clause 10 – Spirit of Mutual Trust) was found to be less legally effective in the Netherlands than under case law, the explicit statement of what level cooperation is- and can be expected was supported by practitioners. It is proposed that standard form contracts would benefit from emulating this. By including such a clause, the parties can better align their expectations, interests and strategies before stepping into the project. The additional transparency this facilitates can greatly benefit cooperation on the project.

- **Exemplar and Causal guidance** – As the difference between the guidance offered with the Yellow Book and ECC highlighted, guidance should not only be provided on the preparation of the contract document. Instead it should also elaborate on the potential consequences of the clauses and the process that the contract prescribes. Exemplar of this is the guidance offered in the ECC's 'Guidance Notes' and 'Flowcharts' documents. These provide guidance not only in the preparation of the contract but also the management processes associated with the contract. This level of preparation better prepares the contractual parties, allowing them to enter the contract and face one another with more confidence. The guidance on process also means that less focus is wasted on struggling with different proposed processes, allowing the parties to focus on actual cooperation rather than process.

- **Modularity as stimulus for strategy** – Incited by the ECC by its modularity, strategic planning on behalf of the Client as well as the other contractual parties was found to be constructive for cooperation. The ECC's modularity grants the standard contract a great deal of flexibility with Options. This encourages the Client to more aptly consider their desired strategy and desired goals. This confidence and potential added transparency encourages less conflict to arise later on in the project, should this strategy change or only just start forming. It is therefore recommended that standard form contracts provide a comparable incentive for the Client and other contractual parties to clearly consider their strategies from the outset of the contract.

7.2 Relevance

The following section is a critical review of the research, evaluating how the goal of the research aligns with scientific relevance, societal relevance and utilization potential.

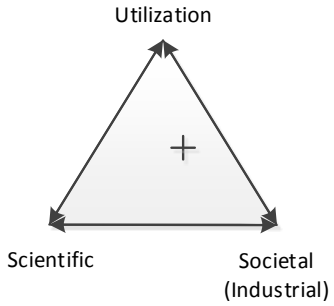


Figure 23 - Distribution of Research Relevance & Potential

7.2.1 Scientific Relevance

Catering to the scientific relevance of this report was the biggest challenge. Most critical to the qualitative relevance is the limited experience pool which currently exists within the Netherlands on these two international standard forms of contract. This limited source of information has an impact on the validity of the qualitative results of this research. It is recognised that more such practical experience exists outside of the Netherlands. The reason this experience pool wasn't considered for this research is due to two factors: Firstly because of the practical limitations within which this research had to be completed; secondly, the goal of the research was not to (purely theoretically) identify the influence on cooperation of the two contracts. Instead there was a particular interest in such influence and lessons learnt from this within the Netherlands in particular.

While experience was brought into the research from outside of the Netherlands, this experience needed to be filtered to properly apply to the specifics and priorities of the Dutch construction industry. The research allows for this by ensuring that the number of interviewees is as large a percentage of the total available experience pool as possible (see Section 3.3 - Establishing the current Dutch Experience-Pool, pg.31).

The research attempted to make up for its lack of statistical significance by being structured around the research framework. With this, the research allows for reproducibility. This means that at a later date, when the international contracts have seen more use and there is more substantial local experience the same research framework can be executed again leading to more statistical validity.

7.2.2 Societal (Industrial) Relevance

The initial goal of this research was to generate insight into potential added value from the two, internationally recognised, standard forms of contract within the Netherlands. A selection of parties involved with large Dutch construction and engineering projects (see 9.7 - [Apdx] Interviewee Roster, pg.105) has dared to predict that with the difficult economic climate in Western Europe there will be increasing pressure on large construction projects to seek international funding. The increased involvement of international stakeholders, in turn, will show resistance to sticking to the national standard forms of contract.

While there is as of yet no statistical evidence that this trend will be realised, the industry does well to explore this pre-emptively. The research therefore fulfils its industrial relevance in that it provides an

understanding of two international forms of contracts which are new to the Dutch construction Industry. It does so focusing on the aspect of cooperation which has been established as paramount to the construction industry world-wide and local (see Section 2.2 - Cooperation's Role in the Construction Industry, pg.10). Should this predicted trend realise itself then this research would be of great value to companies (Dutch and international) looking to operate in the Netherlands.

7.2.3 Utilization Potential

The utilization potential of the research strongly relates to the industrial relevance. Unrelated to the successful realization of the trend described above, the research provides insight into the philosophies of both the FIDIC and NEC3 suite of contracts. In particular the research dissects particular features from the *Conditions of Contract for Plant and Design-Build* (1999) (FIDIC Yellow Book) and NEC3's *Engineering and Construction Contract* (2006) (ECC). Independent of whether the trend grows industry-wide in the Dutch construction industry, the interest in aspects of these contracts which may have added value is there and this research caters to that. Through this research a series of decisions can be made by construction related companies which have international ambitions, or simply an interest in facilitating cooperation with tools beyond the local standard form of contract.

7.3 Further Research

Contrary to initial intentions, the scope of this research has focused solely on the Dutch construction industry. It has done so by centring all evaluation to the specific 'identified' needs and priorities of the Dutch construction industry. Despite this however, following the completion of this research, the author is confident that the research framework established with this report serves as a successful tool for evaluation in other western European countries. In reapplying the research framework to other construction industries, the comparison of FIDIC and NEC3 contracts can lead to a new set of beneficial lessons learnt' to be applied. This tool would follow the same structure as this report and therefore outlines the methodology with specific steps that should be taken.

Throughout this research a series of opportunities for further research had to be discarded. This was largely due to the subject of further research being too extensive or the details of the subject strictly falling outside the framework of this research. As research, based on a continuously-evolving industry suggests, there will always be opportunities to update this research or room to expand on specific areas, depending on developing interests.

In collecting these opportunities, further research which bolsters and further supports this core research was identified:

Subject	Description	Keywords
Establishing Weighting of Aspects for NL	In the process of this research an implied weighting on the 5 selected aspects was assumed, based on the opinions expressed in the 1st round interviews and 2nd round questionnaires. The assumed weighting was never verified nor was it of statistical significance. It would therefore be interesting for further research to more accurately establish this weighting. It would be based on preferences and focus on the 5 aspects in the Dutch construction industry. Refer to 3.1 Selection of Aspects (pg.28)	Weighting, Aspects of Cooperation, Validation
Organizational Working Culture in NL	The organizational working culture established in 2.3.2 - Organizational Culture pg.17, was established by the author based on limited literature and interviews with available Dutch working professionals. Though the findings were reviewed and validated, the number of participants for this evaluation could never have been statistically significant within the constraints of this research. It would therefore be interesting for additional research to further establish the Hofstede Organizational Culture Dimensions for the Netherlands. This would most likely take the form of a national-level survey. Refer to Figure 10 - NL Organizational Culture (pg.19)	Organizational Working Culture, Netherlands, Validation

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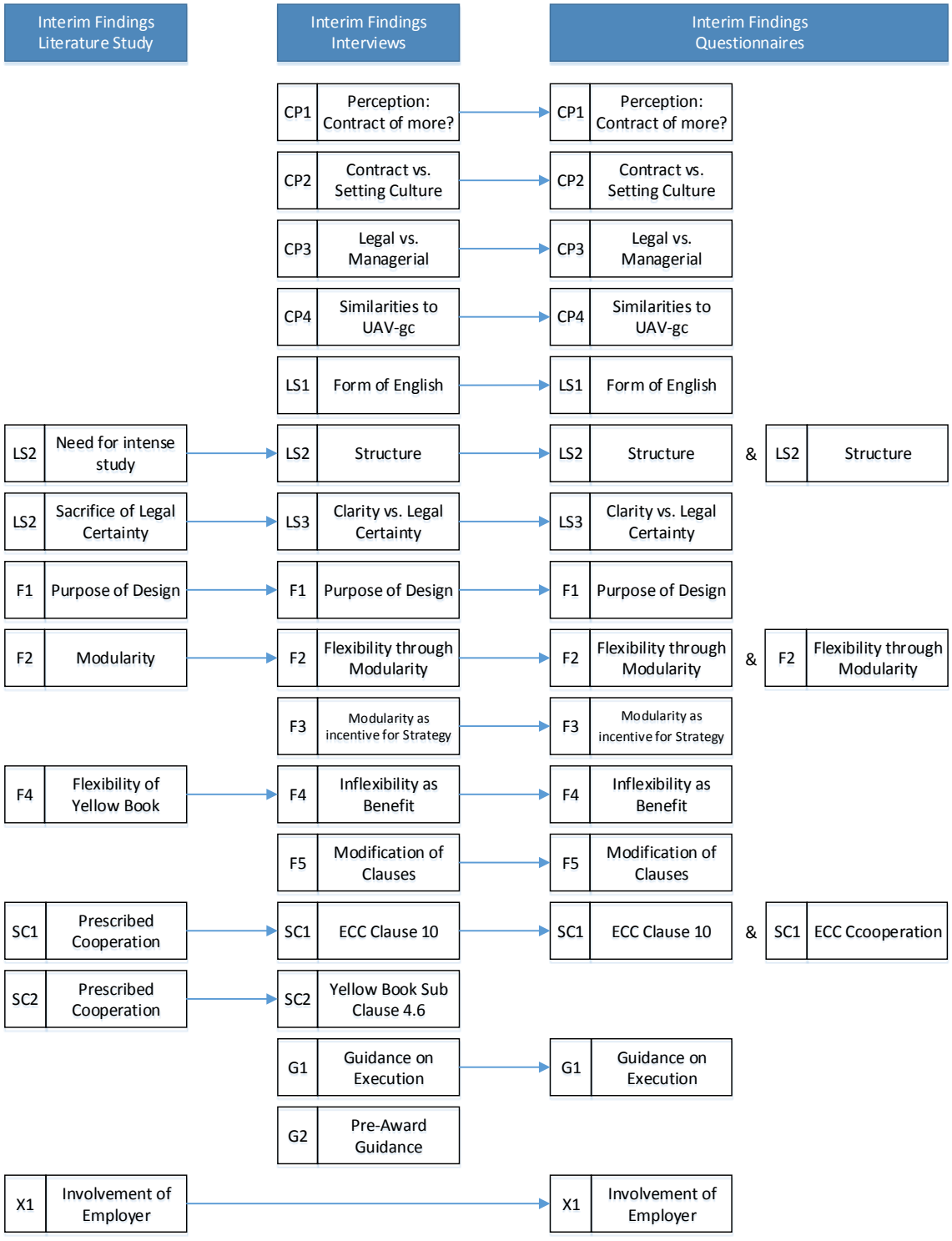
9 Appendix

9.1 [Apdx] Traceability

The following figure illustrates graphically how topics in the research were discovered and pursued throughout the 3 phases of data collection: Literature Study; Interviews; Questionnaires.

Codes for each of the topics have been kept consistent to allow for this traceability. These codes were added retrospectively though and for the purposes of this report only.



9.2 [Apdx] CIDB Document Extract – Table 4

Table 4: Provisions relating to particular pricing and contracting strategies

Consideration	NEC3 Engineering and Construction Contract (ECC2)	NEC 3Engineering and Construction Short Contract. (ECSC)	FIDIC Conditions of Contract for Construction and Building and Engineering Works Designed by the Employer (Red Book)	FIDIC Conditions of Contract for Plant and Design (Yellow Book)	FIDIC Conditions of contract for EPC Turnkey Projects (Silver Book)	FIDIC Short Form of Contract General Conditions (Short Form)	JBCC Principal Building Agreement	JBCC Minor Works Agreement	GCC 2004
Contract strategy									
Construction Management	√	x	x	x	x	x	x	x	x
Design by Employer	√	√	√	x	x	√	√	√	√
Management Contract	√	x	x	x	√	x	x	x	x
Design and Build	√	√	x	√	√	√	x	x	x
Develop and Construct	√	√	x	√	√	√	x	x	x
Pricing strategy									
Activity schedule*	√	√	x	√	√	No standard provisions	√	√	√
Bill of quantities	√	√	√	Not fully developed	x		√	√	√
Cost reimbursable	√	x	x	x	x		x	x	x
Target cost	√	x	x	x	x		x	x	x
Back-to-back subcontracts	Two standard subcontracts available (Engineering and Construction Subcontract (ECS) and the Engineering and Construction Short Subcontract ECSS)). ECC2 and ECSC can also be used as subcontract documents.		None available				Nominated / selected subcontract agreement available.		None available

* An activity schedule with a single activity is in effect a lump sum contract.

Best Practice Guideline C2: Choosing an appropriate form of contract for engineering and construction works, 2005, Edition 2 of CIDB document 1010 (pg.14)

9.3 [Apdx] NEC3 Case Study – International Criminal Court Permanent Premises

Figure 24 - ICC Permanent Premises (© schmidt hammer lassen architects)

The ICC Permanent Premises Project consists of the construction of permanent premises for the ICC. To date, the ICC is housed in temporary premises in The Hague, Netherlands. However as a permanent judicial institution it has come to the belief that it requires functional permanent premises to "enable the Court to discharge its duties effectively…" (ICC, 2014). The Project is funded by 122 States Parties through one time payments and a host state loan from the state of the Netherlands. This results in 122+ Nation States which have a direct stake in the project. As a consequence of the many

stakeholders, the high demands on the end-product and the unique nature of the project the organization chose for an Engineer, Build and Maintain contracting option.

The decision to do so resulted from a weighting of aspects which the ICC valued. These values included: Desired influence on Design, Design Responsibility, Scale of Manageable Organization, etc. Several contractual options were considered, such as Build, Build & Maintain, Engineer Build & Maintain, Design Build & Maintain, etc. On selecting the option which scored best against the ICC's values the organization went on to publish two project statements from which they went on to design their tender procedure. It is the second statement that is of particular interest:

"Working together in an Open and Transparent manner, seeking mutual benefits and engaging in joint problem solving, we seek to work together with a Contractor in an environment of trust, mutual respect and collaboration."

(N. Bradley, ICC PPP – Presentation to NEC User's Group, April 2013)

From the outset the ICC's project statement highlights the importance of trust and cooperation (change from 'collaboration' clarified in interview with N. Bradley). The ICC further set out a set of objective which it expected the chosen contract to fulfil. Among those were:

- Stimulates good management from client and contractor
- Encourages a creative and transparent environment with pro-active and collaborative relationships

Once again these objectives reflect the subject of this research. It also indicates that the ICC, in its selection of a contract, believes that elements such as trust and cooperation can be influenced and stimulated through the appropriate choice of contract. That this is the assumption for a €215m project is a strong statement in support of the assumption made in this research that the contract can influence interaction between contractual parties.

Three types of contracts were considered and are presented below including the original text with which the ICC introduced them (N. Bradley, ICC PPP – Presentation to NEC User's Group, April 2013):

- **UAV-GC (2005)**
  "Together with the 'Model Basisovereenkomst' (Contract Model), this is known as the standard for this type [Design & Build] of construction works in the Netherlands."
- **FIDIC: Design & Build (Yellow Book) (1999)**
  "The recently revised FIDIC forms are adopted around the world including the Middle East, South East Asia, Eastern Europe, and widely used in Africa. The usage is more limited in countries that have their own domestic highly-developed standard contracts, such as the UK and Netherlands."
- **NEC3: Engineering and Construction Contract (ECC) (2005)**
  "Is the contract of choice of many organizations in the United Kingdom. Today they are broadly used in the UK, and are increasingly used worldwide in places such as the Middle East, Africa and Asia-Pacific."

Once again the three contracts were weighed against a selection of values and criteria chosen by the ICC. The resulting weighting is outlined below and gives insight into the perception held by the ICC on the various contracts:

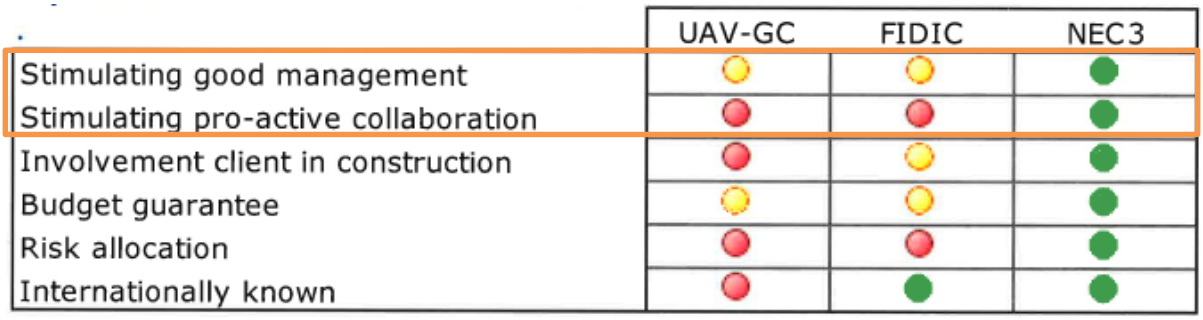


Figure 25 - ICCPP Contract Evaluation

From discussion with N. Bradley it became evident that both 'stimulating good management' and 'stimulating pro-active collaboration' may be taken as indicative of the 'positive interaction between contractual parties in the form of cooperation' which was identified in and forms the basis of this research. As the simplified results of their weighted evaluation show, the ICC perceived the Yellow Book as only partially stimulating good management and unsuccessful in stimulating pro-active collaboration.

It should be noted that N. Bradley, Project Director of the ICC PPP, has previously worked with NEC3 and is a strong supporter thereof. This has as a consequence that the evaluation is not without influence. As stated in the interview with N. Bradley though, after presenting the selection of the three contracts options the Project Manager and Contractor teams were left to explore the contract options. This was done without direct influence or guidance from the Client. The only potential influence remaining from the client was the project statement and objectives stated by the client.

The benefits of implementing the NEC3 contract were identified as:

- Implementation of sound Project Management principles
- Cooperation of all parties involved to optimize optimal outcomes (collaborative working across the entire supply chain)
- Risk sharing mechanism reduces financial risk to ICC
- Pricing Mechanism stimulates the contractor to reduce costs and improve quality (sharing risks and benefits)
- High level of involvement of ICC during engineering and construction works (monitoring ICC's objectives)
- International reputation of NEC3 is recognized with large international construction companies.

A perception of NEC3 that was repeatedly voiced by the three contractual parties participating on the ICC PPP project was that NEC3 was very much received as more of a 'management tool' than a cold contract. Though this was a new experience to 2/3 of the participating contractual parties, response to it and its execution were positive. Both Project Manager and Contractor parties brought

in trainers and experts on the execution of NEC3 contracts from the UK. This is why their experience can be considered as a solid and exclusive base experience pool within the Netherlands.

9.4 [Apdx] Core Clause comparison of Yellow Book and ECC

FIDIC – Yellow Book	**NEC – ECC**
General Conditions	General
The Employer	The Contractor's Main Responsibilities
The Engineer	Time
The Contractor	Testing and Defects
Design	Payment
Staff and Labour	Compensation Events
Plant, Materials and Workmanship	Title
Commencement, Delays and Suspension	Risks and Insurance
Test on Completion	Termination
Employer's Taking Over	Dispute Resolution (W1/W2)
Defects Liability	Secondary Option Clauses X – Option Clauses (for any country) Y – Option clauses (country specific) Z - Additional conditions of contract
Tests After Completion	
Variations and Adjustments	
Contract Price and Payment	
Termination by Employer	
Suspension and Termination by Contractor	
Risk and Responsibility	
Insurance	
Force Majeure	
Claims, Disputes and Arbitration	
Appendix – General Conditions of Dispute and Adjudication Agreement	
	The NEC3 contracts also include procurement and contract strategies documents.

9.5 [Apdx] Availability of Options in NEC3 contracts

Option Title	ECC	ECS	PSC	TSC
A. Priced contract with activity schedule	Y	Y	Y	Y (with Price List)
B. Priced contract with bill of quantities	Y	Y	N	N
C. Target contract with activity schedule	Y	Y	Y	Y (with Price List)
D. Target contract with bill of quantities	Y	Y	N	N
E. Cost reimbursable contract	Y	Y	Y (time based)	Y
F. Management contract	Y	N	N	N
G. Term contract	N	N	Y	N

Table 4 - Availability of main Options in NEC3 contracts (NEC3 - Procurement and Contract Strategies, 2009, pg.4)

9.6 [Apdx] Guidance Notes – Type of Changes Exercise

		Amend	Specify	Other
1	General Provisions	III	I	IIII
2	The Client		I	I
3	The Engineer	I		
4	The Contractor	III	IIIIIII	
5	Design		II	
6	Staff & Labour	II	II	I
7	Plant Materials & Workmanship	I		
8	Commencement, Delays & Suspension	I	II	
9	Tests on Completion		II	
10	Employer's Taking Over		I	
11	Defects Liability	I		
12	Tests after Completion		II	
13	Variations and Adjustments		II	
14	Contract Price & Payment	I	IIIIII	IIII
15	Termination by Employer	I		I
16	Suspension and Termination by Contractor	I		
17	Risk & Responsibility			I
18	Insurance	I	I	I
19	Force Majerue	I		
20	Claims, Disputes and Arbitration	III	I	II

9.7 [Apdx] Interviewee Roster

#	Name	Company	Occupation	Culture	Contract	Date
1st Round Interviews						
1	J. Merema	Pro6managers	Project Manager	NL	FIDIC	18/07/14
2	T. Dierckx	Pro6managers	Contract Manager	NL	FIDIC	18/07/14
3	N. Bradley	ICC	Project Director	UK	FIDIC/NEC3	02/06/14
4	A. Weijers	Arup	Project Manager	NL	FIDIC	23/07/14
5	M. Stoelinga	Aratis Groep	Contract Manager	NL	FIDIC/NEC3	08/08/14
6	J. Verpoorte	Arup	Project Manager	NL	FIDIC	Repeated
7	K. Chhoker	Arup	Project Manager	UK	NEC3	20/05/14
8	P. Fondse	Brink Groep	Project Manager	NL	NEC3	02/06/14
9	B. van Eijk	Courtys	Project Manager	NL	NEC3	03/06/14
2nd Round Questionnaires						
14	F. Kouwe	Royal Haskoning DHV	Legal Consultant		FIDIC/NEC3	15/09/14
15	L. Buiter	Clifford Chance LLP	Lawyer		FIDIC/NEC3	17/09/14
16	P. de Bruijn	Ballast Nedam	Contract Manager		FIDIC/NEC3	29/08/14
17	R. van de Pol	Royal Haskoning DHV	Contract Manager		FIDIC/NEC3	16/09/14
18	T. van Dijk	Flees van Dijk De Jongh	Lawyer		FIDIC/NEC3	18/08/14
	~~A. van Wassenaer~~	~~Allen & Overy LLP~~	~~Lawyer~~			
19	T. Hovius	Stijl Advocaten	Lawyer		FIDIC/NEC3	29/09/14
Preliminary Research						
10	P. Coughlan	Arup	Project Director	UK		27/02/14
11	M. Verkroost	Arup	Project Manager	NL		Repeated
12	S. van Hauwaert	SVH	Contractor	BE		15/06/14
13	R. Kluwer	Arup	Project Manager	NL		Repeated

Table 5 - Interviewee Roster

9.8 [Apdx] 1st Round Interviews – Summaries

9.8.1 Culture & Philosophy

CP1	Is the perception of- and consequent attitude towards a contract of relevance in its success with influencing aspects of management and process? **Comments on Answers** The importance of the perception of the contract came up in the preliminary interviews with #10 and #6, both of whom have experience with the execution of international projects. Supported by literature (in an indirect manner) the concept was therefore picked up on in both the interviews and questionnaires. Amongst interviewees, all agreed that a certain level of alignment between cultures was necessary should the contract hope to influence a soft aspect of the project such as cooperation.
CP1	The NEC3 contracts are often hailed for their emphasis on project management, a feature which the Yellow Book does not have. In your experience with the ECC, does this emphasis on project management really shine through during the execution of the contract? **Comments on Answers**

	All 3 interviewees with experience on the ECC project in the Netherlands corroborated this statement, emphasising that the effect of the contract on project management and cooperation was noticeable. The contract was stated to influence the management with the framework and actions it brought about from the contractual parties.
CP3	While the ECC is often associated with this principle of facilitating good management through the contract, the Yellow Book has never really advertised itself as anything other than the well-established contract that it is. Do you think it should, or even could advertise itself as more process oriented? **Comments on Answers** It was the unspecified opinion of the relevant interviewees that the Yellow Book could not fairly promote itself in the same way the ECC did. However they also pointed out that the Yellow Book's firm, almost traditional reputation was not necessarily a negative aspect. It's rigidity could very well appeal to financing bodies and clients since this often manifests as security on their part.
CP4	The ECC is a new contract here in the Netherlands and the ICCPP project here is the first project executed under it. As the three first parties to be involved with this contract, what is your initial opinion to the contract? Has this opinion changed between its theoretical study and execution? **Comments on Answers** All three interviewees stated that so far there had been little difference between their study of the contract and the current execution of it. The generally shared opinion between the three was that the contract was 'different' and very process-oriented. This was something that needed to get used to but was received in a positive light with 2/3 interviewees agreeing that the defined process brought new tools and ideas into the interaction and workings between the three contractual parties.
CP2	"For the potential of an international standard form of contract within a local industry, in this case the Dutch construction industry, the perception of the contract's underlying culture is important to its successful acceptance and consequent application" **Comments on Answers** 9/11 interviewees agreed
CP2	In your opinion, what is the culture underpinning the FIDIC Yellow Book? The NEC3's ECC? While its background is francophone, its structure has been described as more closely resembling the hierarchy and rigidity expected from Anglo-Saxon styled working. **Comments on Answers** Interviewees unanimously pointed out that FIDIC's francophone cultural background did not show through. Instead FIDIC's structure and culture was better described as anglo-saxon. The NEC3's culture however was described as further removed from its anglo-saxon background. This rift between the culture of the contract and that of its origin country suggests that the two contracts have successfully embraced their international nature.

CP2	In your opinion do the goals and trends of FIDIC and NEC3 align with those held in the Dutch construction industry? **Comments on Answers** Interviewees generally agreed that FIDIC's Yellow Book very much aligned with the opinions and ideas currently held in the Dutch construction industry, very much so because it so closely resembles the UAV-gc. In terms of perfect alignment this works for the yellow book. On the other hand the fact that it replicates the UAV-gc works against it because it offers little new/interesting concepts and ideals.
CP4	An exercise on comparing the alignment between clauses from the Yellow Book (1999) and the UAV-gc (2000) indicated that up to 76% of the clauses matched or covered similar legal concepts. From a more practical side, with your experience, would you say that the resulting execution of a project is also that similar? **Comment on Answers** Interviewees agreed that there were noticeable similarities between the Yellow Book and UAV-gc. They could not however confirm that the execution of the project would be comparable too. The framework established by both would still be different. In relation to cooperation, which they considered a soft aspect of the project, the execution of the project seemed less important than the background parameters which the contract established. In that sense, since the legal backing established by the two is comparable, interviewees suggested that their effect on cooperation may also be comparable.

9.8.2 Language & Structure

LS2	I suggested that the form of English chosen by each of the contracts may be connected to the differing time-frames in which the Yellow Book and ECC developed: with the ECC being more recent and modern. In your opinion, what factors could play a role in the development of and chosen form of English for such contracts? **Comments on Answers** This question did not work as effectively as intended in the interviews. The concept that the timelines in which the two contracts were developed having an influence on the language used was not well understood. Therefore no results were drawn from this question.
LS1	FIDIC contracts make use of 'legal English'. Has this ever caused any complications on the execution of a project? How hindering was the study of and later use of such legal English on a project? **Comments on Answers** Interviewees #8 and #3 agreed, stating that the use of legal English had come across as a hindrance in the past. 3/5 interviewees expressed that they find legal English difficult to use. 4/6 interviewees credit the preciseness as being beneficial to the project.
LS2	The Yellow Books' Clause 1 is credited as being efficient in that it defines all the terms in the contract up front and in a precise manner. Has this been helpful in your experience with Yellow Book projects?

	Comments on Answers 4/6 interviewees agreed
LS2	In your opinion, does the Yellow Book make extensive use of cross-referencing? Does this have an effect on the execution of the project? **Comments on Answers** 5/6 interviewees expressed the opinion that while the Yellow Book did indeed make use of cross referencing across its documents, this was never perceived as excessive or detrimental to the effectiveness of the documents.
LS3 / F2	What is your opinion to the balance between clarity of content vs its legal certainty? **Comments on Answers** All interviewees agreed that the balance between clarity and legal certainty was important, but varied greatly on their evaluation thereof. The generally held opinion was that the sacrifice of legal certainty brought about by establishing more clarity is often over-exaggerated. As project managers, their opinion was that the level that would be considered 'weak legal certainty' for lawyers is often conforming enough for a project manager. To the process of the project a little more clarity in the contract was discussed as much more beneficial to the interaction and cooperation between the contractual parties than the legal certainty which comes at the cost of such clarity.

9.8.3 Flexibility

F2	In relation to the ECC, flexibility is pitched as one of its strongest points. This is sold in the context of its modularity. In your opinion does modularity successfully facilitate such flexibility? **Comments on Answers** 5/5 agreed that flexibility is one of the main selling aspect of the ECC and that this was indeed brought about by a high degree of modularity. In the case of the ECC this was through the use of options and the consequent changes and actions that ensue with each option.
F4	While a lot of the discussion on flexibility has thus far seen ample flexibility as a benefit, it could just as well be argued that inflexibility may also be seen as a benefit. Would you agree? Is this a view that can be shared by all contractual parties? **Comments on Answers** As pointed out in a previous question (CP4) it was suggested that while some aspects of the Yellow Book appear negative when compared to the ECC, these should not necessarily be seen as inferior. Interviewees explained that the success of such aspects is very much dependent on the point of view that is considered. Equally so, the inflexibility of the Yellow Book brings with it certainty and clear definition of how the standard contract will shape into the specific contract.
F5	The subject of modifying clauses keeps being brought up when discussing flexibility, are there any advantages/disadvantages to the modification of clauses? What consequence does this have on the interaction and cooperation between the contractual parties?

	Comments on Answers Interviewees unanimously agreed that the modification of clauses is not always healthy for the cooperation between contractual parties. Clauses are seen by most parties as balanced and calibrated pieces, so when a party suggests alterations to clauses, this is often received with reservation since it potentially represents a change in balance from the contract, and that will always benefit one party and take away from another.

9.8.4 Specified Cooperation

SC1	In your opinion, does the ECC contract manage to successfully "encourage collaborative working between parties" as it has set out to do in its underlying philosophy? **Comments on Answers** 4 of the interviewees stated that the ECC successfully does this through its use of clause 10. Reaction to the extent with which cooperation is encouraged however varied. It was argued by some that a clause cannot effectively incite cooperation. It was instead the shared opinion of interviewees that the clause serves as an encouraging factor, providing a basis on which every contractual party can rely that they will get that level of cooperation for sure.

9.8.5 Guidance

G1 / G2	In your opinion, can guidance on the execution of the contract facilitate better cooperation between the contractual parties? **Comment on Answers** 3 of the interviewees agreed strongly, making the case that guidance on the use of the contract helped the contractual teams approach the project with more confidence, ensuring a standard benchmark where all parties' competency is above this benchmark. It allows the parties to be more forthcoming and therefor open about issues and new ideas.
G2	**Comments on Topic** A topic which came up in discussion without a starting point question was the perception that the contracts offered too little guidance on preparation on either execution (FIDIC) or Preparation (NEC3) respectively. In a country where both these contracts .

9.9 [Apdx] 2nd Round Questionnaire - Summary

The participants were provided with the questions discussed below and were asked to react to these. While the primary response was based on yes/no answers, space was provided for participants to elaborate their answer.

	Do you agree with the above statement?
Yes	<*space to elaborate*>
No	<*space to elaborate*>

The statements were further labelled as **General**, **NEC3** or **FIDIC** related.

9.9.1 Culture & Philosophy

	General
CP1	"For the potential of an international standard form of contract within a local industry, in this case the Dutch construction industry, the perception of the contract's underlying culture is important to its successful acceptance and consequent application"
	Do you agree with the above statement?
	5/5 participants agreed that alignment needed to be reached between the working culture of the participants and that of the contract. More specifically, as expressed by participant #16: "especially if such reference includes the legal system and commonly used procedures". In addition to accepting the concept from which this question arose, indirect reference is made to the situation identified under SC1. Though in agreement, participant #14 expressed the necessity for alignment differently; expressing in their opinion that it is essential for the contractual parties to understand and agree on the principles of a contract.

	NEC3
CP3	Interviews suggested that the overall perception of, and therefore approach towards, the NEC3 contracts more closely resembles a methodology of project management rather than a typical contract.
	Does the ECC's contract structure and designed application reflect this or is this purely in the opinions of the few users in the Netherlands who have tried the NEC3 contract?
	4/5 participants agreed that the ECC's structure was innovative in its strong focus on promoting a good management methodology. As participant #16 elaborates, the ECC does so with still enough terms and conditions to qualify it as a contract. Participant #15 warns that while the theory (or experience outside the NL) indicates it does indeed provide a good methodology for management, its limited application in the Netherlands has still to prove that this also works effectively amongst the Dutch working culture.

	NEC3	**FIDIC**
CP4	In coming across as more of a methodology of project management than a contract, interviews suggested that the NEC3 would appear as more interesting for the Dutch construction industry to look at than FIDIC. This idea was based on the concept that FIDIC	

	added little extra over the already existing UAV-gc (2005), while the NEC3 used concepts that were wholly new and interesting to consider.
	Do you agree?
	2/5 participants agreed and 3/5 disagreed with this statement. Amongst the participants who disagreed, the general consensus was agreement that features of the ECC such as the obligation to Early Warning and the Risk Register had added value, but warned that these needed to be evaluated in a practical context as opposed to simply for their theoretical merit as processes. As stated by participant #16, the ECC "requires extensive administration and communication". Its success is therefore relatively dependent on the environment in which the contract is to be used. While this argument holds value, the as of yet limited use of the ECC contract means that it can only be evaluated for its theoretical merit. This should most certainly be revised on the Dutch construction industry has more experience and case studies on its execution. Participant #14 also expressed concern that while the Yellow Book contract closely resembled the UAV-gc, its application on international projects had been tested and proven, The ECC however still very much catered to the UK legal system. In essence they warned that while the features of the NEC3 provided added value, their underlying system of law should not be disregarded as having considerable influence too. Supporters of the suggestion that ECC was more interesting for the Dutch construction industry than the Yellow Book did so with care, stating only that the Yellow Book had little added value next to the UAV-gc.

	General
CP3	Validation of literature (legal) through interviews (managerial) suggested a rift between the perception of a construction standard contract of lawyers who established the contract and that of the project managers executing the project under the contract.
	In your opinion, does such a rift exist or could the research have twisted this out of proportion?
	4/5 participants disagreed with this proposition. While they acknowledged that a potential rift exists between the two approaches, they explained that this misalignment is not at sever as may have been proposed. They acknowledged that the different perspectives come from the different focuses each 'profession' holds. As participant #14 explains, the focus of a contract for project management is to allocate tasks, plan and control execution of these tasks within a timeframe. The legal profession however is more interested in risk allocation. While these arguments may be valid, and the misalignment may not be too negative between the two professional perspectives, it still highlights the point that was made through the literature and interviews: that the focus of the drafter of the contract and those who execute the contract do not align completely, and that this does pose a misalignment. Only 1 participant fully agreed with the statement.

9.9.2 Language & Structure

	General
LS1	Research (Chong & Zin, 2009) suggests that one of the main causes of disputes is misinterpretation of contract clauses. From the research one can argue that this can partially be prevented with the use of plain English.
	Do you agree?
	1/5 participant agreed, 4/5 disagreed. Amongst the disagreeing participants the opinion was held that the use of 'plain English' would not successfully avoid misinterpretation. As expressed by participants #14 and #16, the use of plain English without understanding the issues and interests of the other contractual parties would just as well cause misunderstanding and consequent disputes.

	NEC3
LS3	Other research (Eggelstone, 2006; Boulding, 2006) argues that the use of plain English comes at the cost of legal certainty, and expresses apprehension regarding legal interpretation of the ECC.
	Do you agree? If yes, does this sacrifice hinder the successful application of NEC3 contracts?
	5/5 participants disagreed with the statement, accepting that some of the legal certainty may be sacrificed, but stating that this would not be to the extent where it hinders the successful application of the ECC contract. As expressed by participant #15, this sacrifice of legal certainty is of particular importance when considered from the perspective of the employer or lender. This is because the lack of legal clarity presents the most direct risk to their investment/control of the project.

	FIDIC
LS1&2	Some interviews suggested that the use of legal English and a firm structure greatly benefits the FIDIC contracts, stating that the rigidity of structure put the financiers and client at greater ease.
	Do you agree? If yes, does this sacrifice hinder the successful application of NEC3 contracts?
	4/5 participants agreed with this statement, explaining that the Yellow Book's focus on risk allocation and risk control (focus leant to it through legal English and structure) provides a better basis for risk assessment. To the Client and financiers this is one of the major points of focus and carries the most weighting in their evaluation.

	FIDIC
LS2	The Yellow Book has sometimes been accused of making extensive use of cross-referencing, and because of this linking sections to obtain a process has been called "extensive path-work" (Heaphy, 2012)
	Do you agree?
	2/5 participants agreed and 2/5 disagreed.

	While two participants agreed that the Yellow Book makes extensive use of cross-referencing, they did not agree completely. They stated that once familiar with the contract, the cross-referencing once again poses little impediment to the contractual parties. Similarly, the two participants disagreeing with the statement also argued that "with a bit of understanding it can be followed" (#16). It is their opinion however that the cross-referencing required to navigate and complete the Yellow Book is not substantial. A distinction is made between explicit cross-referencing, which is good, and implicit cross-referencing; The latter potentially presenting more problems.

	FIDIC
LS1	The Yellow Book's use of legal English was sometimes seen as a factor of excluding certain parties (local) and greatly benefitting other (international) resulting in an imbalance between the contractual parties.
	Do you agree?
	2/5 participants agree, 3/5 disagree. Amongst the arguments brought up by the disagreeing participants was that local parties too are in a position to get themselves up to speed on the use of FIDIC based contracts. Another argued that the learning curve for the Yellow Book's use of legal English is not that different to the jargon used by the ECC, and that in a comparison the two therefore require equal amounts of study to come up to speed.

9.9.3 Flexibility

	NEC3	**FIDIC**
F1	Literature (Heaphy, 2012) and interviewees suggest that FIDIC and NEC3 vary greatly in their 'purpose of design'. The FIDIC contracts were revised to gradually better cater for the industry, while the NEC3 contract started from the go with intent to cater for all sorts of contracts. It is suggested that this difference in intended purpose of design benefits the NEC3 contracts in becoming international standards.	
	Do you agree?	
	This question was not appropriately understood by participants. The consequently varied answers meant that this question had to be discarded from the 2nd round questionnaire phase.	

	General
F2	Literature and interviewees suggest that the main factor in achieving flexibility in a standard form of contract is through modularity and choice offered in the contract.
	Do you agree?
	5/5 participants agreed with this statement. There was unanimous agreement that modularity greatly aids in providing flexibility. Furthermore, it is suggested by participant #14 that

	prescribed modularity is also an effective way prevent the contractual parties from dragging out negotiations on tailor-made clauses.

	NEC3
F2	Continuing on the idea of modularity providing flexibility, the NEC3 is hailed as providing the most choice and flexibility through its extensive use of modularity.
	Do you agree?
	2/5 participants agreed, 2/5 disagreed with this statement. In this division two main arguments were brought forward: Supporting the statement was justified on the basis that the ECC's "X Options, combined with the additional Z clauses provide more flexibility" (#16). On the other hand, it was argued that the same flexibility should be possible to achieve when deviating from the Yellow Book, which #15 remarks they have seen many times.

	NEC3
F3	Interviews suggested that the extensive modularity of the NEC3 contract better encourages the client to think on the options and through this better formulate their wishes and ultimately their strategy
	Do you agree with this? Do you think the modularity of the NEC3 can contribute to such behaviour in the client?
	4/5 participants agreed, 1/5 disagreed. The one participant who disagreed with this statement argued that the Client should set out their strategies and goals regardless of whether the ECC's modularity encourages this or not. While this is a valid point, the research adopts the same stance as with the definition of cooperation: While such a provision may not have any legal bearing, the fact that it incites the Client to do so can be seen as positive. This is the stance taken by the 4/5 participants who supported this statement. They agreed that the modularity could certainly encourage this strategic planning in the Client, but were sure to note that as a device it carried no legal weighting to it and still required human intellect on the Client's part.

	General
F5	Interviews suggested that no beneficial flexibility is provided by the option to modify clauses, since the event of changing a clause all parties involved will see this with aversion, in many cases perceiving this to be breaking the previously (standard) established balance in the contract.
	In your experience is this the case?
	4/5 participants agreed with this statement. It was stated that in most cases the modification of clauses in unavoidable. This is necessary to adapt the contract to the specific project (#14, #17). Participant #16 presented that the problem was "modifying one clause may have unexpected effects on other clauses and it causes uncertainty". They did however also present that the best way to go about making these modifications was to go about discussing the background of the modifications and trying to resolve them jointly between the contractual parties. In essence this highlights once more the importance of good cooperation.

9.9.4 Specified Cooperation

	General
	"The current construction culture is perceived by some as suffering from enhanced attitudes, lack of trust and generally adversial relationships at all levels" (McInnis, 2001)
	Do you agree that this is the case still?
	3/5 participants agreed, 2/5 disagreed with this statement. It is noteworthy that the 3 participants who agreed specified that this was only partially. All three stated that an increasing awareness of this having been the situation in the industry for a while now has initiated some changing attitudes. Which leads into the opinion of the two participants who disagreed, which was that this is no longer so strongly the case.

	NEC3
SC1	A viewpoint which is widely supported is that the ECC is a contract that "encourages collaborative working between parties". It successfully achieves this through various contract processes.
	Do you agree with the statement?
	4/5 participants agreed with this statement. It was agreed and stated by all participants (who answered) that the ECC's use of obligatory early warning- and risk reduction meetings greatly contribute to the cooperation between contractual parties (#16). As Participant #14 explains, the contract is very much focused on open communication, following the idea of "putting your cards on the table".

	NEC3
SC1	The NEC3's new philosophies are often pinned by its Clause §10 (1) Spirit of Mutual Trust. ECC Clause §10 (1): *The Employer, the Contractors, the Project Manager and the Supervisor shall act as stated in this contract and in a spirit of mutual trust and co-operation.* Some argue that this call to 'act nice to one another' lacks in authority and application.
	Do you agree in finding that simply defining mutual trust and cooperation is not enough to incite such positive interaction between contractual parties?
	4/5 participants agreed with this statement. 1/5 participants disagreed. The disagreeing participant argued that only just defining mutual trust and cooperation is not enough to incite positive interaction between the contractual parties. The remaining 4 participants agreed, specifying that in the Dutch context such a clause would indeed only serve as an incentive, and that these were rather designed for the sake of Anglo Saxon (Common) law countries.

9.9.5 Guidance

	NEC3	FIDIC

G1	Literature suggests that the guidance offered in FIDIC's Yellow Book is limited in that it only covers the preparation of particular conditions as supposed to the practical execution of the contract, which the NEC3's ECC does.
	Would you say that such additional guidance would be beneficial to the FIDIC contracts?
	3/5 participants agreed, 2/5 disagreed with this suggestion for additional guidance on the Yellow Book. Those participants who supported the argument stated that the guidance offered under the Yellow Book was indeed somewhat limited, and could benefit from expansion. It was however pointed out by several participants (#16. #17) that a substantial amount of guidance books and booklets are available on the preparation and execution of the Yellow Book. They agreed however that these were indeed not standard part of the contract form.