THE UNIVERSITY OF SYDNEY

Designing Contractual Relationships for the Future

REPORT

Preparing for successful collaborative contracts

May 2020

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Foreword

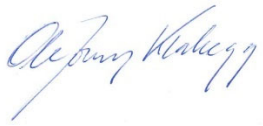
From the author

This research came to be during a short period in the beginning of 2020. I was visiting professor at the University of Sydney working with the School of Project Management and John Grill Institute of Projects as part of my sabbatical from November 2019 to April 2020.

Unfortunately, due to the COVID-19 virus outbreak which forced a world-wide lock down, I had to return to Norway at the end of March. The last interview and the report were done here, in my own home in Trondheim. The period and the research were cut short, and the associated lack of possibility to collaborate closely with colleagues in the finalising of this report means this version of the report is all my doing and my sole responsibility.

My heartfelt thanks to all interviewees that gave their time and shared their experiences so we can learn from them. It was exciting, pleasant and informative for me. Hopefully, I have not misinterpreted or misunderstood too much of what you told me. Lots of thanks also to the members of the Roundtable on 19 November 2019 that helped identify the potential directions for this research and gave me access to interviewees.

Thanks also to my colleagues at the University of Sydney. You made my stay in Sydney perfect.



Ole Jonny Klakegg
Professor of Project Management

From the School of Project Management

The School of Project Management was formed at the start of 2020, bringing together the former John Grill Centre for Project Leadership and the University's well established project management academic programs. Its aim is to provide global leadership in project based research and education through collaboration with industry and other academic institutions.

Professor Ole Jonny Klakegg's timely visit to Australia from his home institution, the Norwegian University of Science and Technology (NTNU), enabled us to begin as we intend to continue, in collaboration. We began by engaging project professionals through an Industry Roundtable, identifying critical issues and investigating them. It is through five months of research and collaboration that we present this report. This marks the first of many creative joint efforts that we will continue through the School of Project Management and John Grill Institute of Projects.

Professor Ole Jonny Klakegg was the perfect first Visiting Professor for our newly formed School. He worked harder than any of us while also making the most of a hot and dramatic Sydney summer. Though his visit was cut short by COVID-19 and the need for all of us to work from home, we have thankfully been able to continue working together, virtually.

Lynn Crawford
Professor of Project Management
Interim Head, School of Project Management

Executive summary

Successful complex projects depend on effective collaboration. This report presents research into how public clients should prepare to enter such collaboration and what needs to be done before entering a collaborative contract.

Australia's infrastructure construction sector is experiencing significant growth. Coupled with rapid digitisation there are significant opportunities and inherent risks for both contractors and governments in leading projects.

The research in this report views projects from a client perspective based on 11 interviews and six public construction projects. This report answers two questions.

Question one: What are the necessary preconditions for successful relationship-based contracting?
All interviewees seem to agree on fundamental issues independent of contract format. Ten learning points are extracted from the interviews (page 30). The essence is that to be successful in relationship-based contracting the organisation needs to develop a culture of openness and sharing whereby teams and individuals are predisposed to collaborate. Formally the organisation's governance needs to support using collaborative strategies, and collaborative contracts. On such basis the organisation may develop an execution strategy for the project based on collaborative practices. Independent of contract strategy, a tendering process should not be started unless necessary resources and other preconditions are in place. Independent of contract type, any initiation of a project needs to be based on a robust Business Case.

The report shows that there is a significant difference between being collaborative in a contract and being in a collaborative contract. If the step is taken to be collaborative in contracts, the next step – to start using real collaborative contracts is a smaller one.

Question two: How can we prepare for a successful collaborative contract?
The main analysis in this report looks at the process of tendering. The analysis extracts one learning point from each stage of tendering (pages 36-38).

From the start we expected that complexity is inherent in the preparations and practices for collaborative contracts. This was clearly confirmed in the findings. Influence of complexity is shown (pages 39-40). Less complex situations mean the preparations may focus on identifying issues, gathering relevant information and communication in tendering may be one to many. The process follows established best practice guidelines. In very complex situations the process is dynamic and emerging. This calls for an integrated process with open communication one-on-one during tendering. The process aims at setting up a framework for steering the process through unknown territory.

Several critical perspectives are illuminated
The differences in interpreting information from a client perspective and from a potential bidder's view is important. Openness is the best strategy. The input from interviewees is analysed considering different fundamental perspectives (owner, user, supplier and public perspective). The process should focus more on the user and public perspectives.

The report ends in a concluding part that includes suggestions for further research.

Introduction

The construction sector is in a position with great potential to create value for society, infrastructure owners, users of the infrastructure, businesses and the people working in the industry.

Construction is known to be one of the most important sectors from both social and economic perspectives. However, it faces a wide array of risks and opportunities. Several megatrends influence development, of which digitisation, urbanisation, globalisation and the increasing focus on sustainability and value may be among the most important for construction (WEF 2016, Blanco et al. 2018).

One key to handling the future challenges is collaboration. Therefore, collaboration has emerged as a focus area for development in the industry and research. It is time to look at how we design processes and contracts for the future.

The research initiative reported here came out of a roundtable held 19 November 2019 in Sydney. The report from this roundtable (Crawford, 2019) sums up the essence of discussions in eight focus areas.

1. Behaviours, leadership and culture.
2. Collaboration.
3. Value.
4. Risk.
5. Early warning signs.
6. Time, transition and capability.
7. Decision making.
8. Technology.

Figure 1: Three steps on the way to a value maximising project

Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

The discussions were aimed at identifying research initiatives that could be performed over a 6 – 9 month period in which Ole Jonny Klakegg, professor from Norwegian University of Science and Technology, was visiting the University of Sydney. From the results of the Roundtable, the selected topic for the research is **Pre-contract conditions for successful relationship-based contracting**. This report sums up the findings of that research.

The research raises and aims at answering two questions:

1. What are the necessary preconditions for successful relationship-based contracting?
2. How can we prepare for a successful collaborative contract?

In doing so, the research touches on many of the areas identified at the Roundtable. The essence is collaboration, but with the necessary support from leadership, behaviours, culture, understanding of value and risk, identifying early warning signs and making timely decisions. Hopefully, some of the insights presented by the interviewees may help organisations transform to embrace a future of successful relationships and collaboration. Those looking for the technology theme, however, must look elsewhere.

The report is structured as follows: The methodology is presented first and then followed up by a brief theory section that explains key concepts and some frameworks used in this research. Then the findings from interviews are presented along with a discussion of each contribution and analysis across cases. This resulting part is divided into two chapters, one for each research question. Then finally the conclusion brings together answers to the research questions and suggests some directions for further research.

Methodology

This study is a qualitative, exploratory approach that aims at mapping practices and views held by senior individuals that represent a broad set of perspectives on construction projects.

The ambition is to go beneath the most obvious practical issues and try to understand what makes an infrastructure project and collaborative contract successful. From this understanding, further research directions may be deduced.

Two different types of interviews are performed, although they ask the same questions: One set of interviews are case based. That means the questions are answered from the perspective of one particular project – a given context. There are six single cases represented. Then there are interviews with key individuals with long experience and knowledge of the questions seen from several perspectives and positions. These interviews add nuances and depth to the analysis. There are five such interviews.

Selection of respondents was done based on two strategies: one followed directly from the initial roundtable where each participating organisation recruited 1-2 respondents within their own staff. The other was based on selecting individuals that have or have had key positions related to collaborative projects. Both strategies lead to experienced individuals expected to have relevant knowledge to offer. The results show this assumption to be true.

This research includes interviews with eleven individuals representing different organisations (except two individuals that represent the same public organisation). Six of these represent case-projects as shown above. The remaining five were selected to add perspectives to the input and supplement with their own general experience. All interviewees are senior practitioners with more than 20 years of experience. Seven interviewees operate actively in a role as sponsor or project manager. Three interviewees are experts in facilitating and coaching collaborative projects. One interviewee represents a private contractor.

The interviews had an average length of 70 minutes. Each respondent received several documents before the interview:

1. an introduction to the topic explaining the research question,
2. a brief information on their rights as contributors to research, and
3. a consent form to be completed, signed and returned
4. those that worked in a project also received an additional note on complexity.

All interviews are taped with consent from the interviewee, transcribed using the digital tool Otter.ai, analysed individually and sent back to the interviewee to give opportunity for comments and confirmation.

A cross-case analysis is performed to try to systemise the input from the interviews related to each research question. The analysis itself is done manually, with some deductive – but mainly inductive reasoning. A main task in this work was structuring and composing an essence of all the fragments offered by the interviewees. To help complete, and check the contents of the interviews, a set of theoretical frameworks were used as to support analysis. The framework models are described in the theory section. This proved useful in adding new perspectives and to highlight some important points.

The cross-case analysis results proved adequate to answer the research questions. The results confirm previous knowledge and offer additional observations that may be new to some. They provide a useful reminder and eye-opener for practitioners and potential basis for more research.

This research effort will form part of a longer endeavour to form a collaborative toolbox for unlocking value in future infrastructure projects.

A brief theoretical backdrop

Research uses theory as a tool to describe, interpret and explain what is observed in practice. This section presents some key concepts and framework models used in the analysis of the interviews.

This report and research do not include, and are not dependent on, a complete and systematic literature search. The necessary theoretical platform is made up of a carefully selected set of previous research results and published works.

There might be other published material out there with similar contents and learning points. Identifying such sources would certainly strengthen the basis for general conclusions, but the scope in this research was limited in available capacity and calendar time. Thus, it is based more on known sources than on an exhaustive search from scratch.

This research focuses on infrastructure projects and the construction industry. The construction industry faces some challenges – each one of them is not unique to construction, but the combination of challenges makes this industry different. Koskela (2000, page 152) did a thorough analysis in his doctoral thesis to identify root causes of construction challenges. He traces back from value loss for users and clients via lack of functionality in the solution and wasteful process, to sub-optimal conditions from the outset, to execution of construction projects.
Infrastructure is a term that in this report will be synonymous with built environment. This includes buildings and any form of physical structures for transport, energy, health, culture, education and other categories of use. Infrastructure is equally important in both private and public sectors, but due to the selection of respondents, the focus will be on the public sector.

Fundamental concepts

Any discussion of whether a project is good or bad, or if the process is a success or a failure will need to include discussions on success and value. Thus, we include definitions of these:

Success is a multifaceted and complex concept that means different things in different perspectives and for different stakeholders. The prevailing understanding is that success can be condensed into the concept of creating value. Value relates to reaching strategic goals and achieving advantages for key stakeholders (Turner and Zolin 2012, Eskerod and Ang 2017).

The most common definition of **value** in the construction project literature is the value of the relationship between what you *give* and what you *get* (Kelly, Male and Graham, 2004). A formal and comprehensive definition is given by Drevland and associates:

> **Value** is the result of an evaluative judgment. This judgment is guided by values and based on the evaluator's knowledge at hand. It is always based on comparing two or more alternatives in a given context. This context envelops all get and give consequences for a particular party from a decision made on the basis of the value judgment. The get and give consequences are always in the form of gained or lost experiences, or expressed in monetary terms as a placeholder for experiences. The consequences are not summative; the value judgment is done by considering them all at once (Drevland, Lohne and Klakegg, 2017).

Values are individual beliefs that motivate people to act one way or another. They serve as a guide for human behaviour. Ethical decision-making often involves weighing values against each other and choosing which values to elevate. Conflicts can result when people have different values, leading to a clash of preferences and priorities (Utexas, 2020).

Contracting concepts

Contract is also a fundamental concept in this report and needs a definition. We also include some additional concepts relating to contracts.

A ***contract*** is a legally binding agreement that recognises and governs the rights and duties of the parties to the agreement (Ryan, 2006). A contract is legally enforceable because it meets the requirements and approval of the law. An agreement typically involves the exchange of goods, services, money, or promises of any of those. In the event of breach of contract, the law awards the injured party access to legal remedies such as damages and cancellation (AMCI 2018).

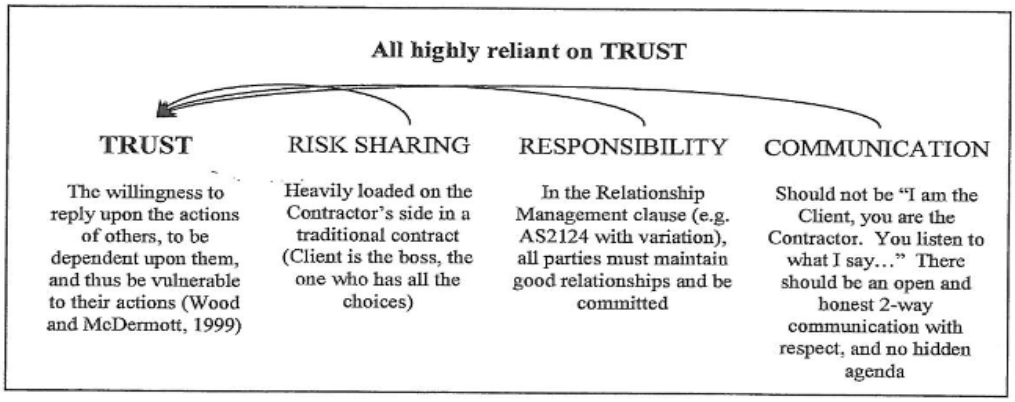
A ***relational contract*** is a contract whose effect is based upon a relationship of trust between the parties to which it pertains. The explicit terms of the contract are just an outline as there are implicit terms and understandings which determine the behaviour of the parties. Relational contract theory is characterised by a view of contracts as relations rather than as discrete transactions (which, Macneil (1974) argued, traditional "classical" or "neo-classical contract" theory treats contracts as being). Thus, even a simple transaction can properly be understood as involving a wider social and economic context.

Transactional contracts, by contrast, centre on short-term monetary agreements with little close involvement of the parties (Grimmer and Oddy 2007). Koskela, Howell and Lichtig (2006) also refer to Macneil (1974) and observe: Based on his critical examination of transactional contracting, Macneil (1974) defines and expands the concept of relational contracting. The dividing line between these two forms of contracting is whether the contract is viewed referring to an independent event or to an ongoing relation. It is easy to note that transactional contracting, as defined by Macneil, is based on thing metaphysics, whereas relational contracting is based on process metaphysics.

Transactional contracting is thus metaphysically coherent with conventional production theory, and of course has been part and parcel of conventional production practice (Koskela, Howell and Lichtig 2006).

Relationship contracting is based on recognition of and striving for mutual benefit and win-win scenarios through more cooperative relationships between the parties (partnering, alliancing, joint venture etc.). Relationship contracting is designed to break down the contractual and commercial walls between owners, contractors, designers and suppliers so that a trusting team is formed which shares the risk when something goes wrong and shares the savings when the team performs exceptionally well. Cost are expected to be reduced and outstanding results in key areas can be achieved (Cheung, Rowlinson, Jeffries and Lau 2005).

Figure 2: Critical elements in Relationship Contracting



Source: Cheung et al 2005 figure 1.

Psychological contract is a concept developed in contemporary research by organisational scholar Denise Rousseau (1989). It represents the mutual beliefs, perceptions and informal obligations between an employer and an employee. It sets the dynamics for the relationship and defines the detailed practicality of the work to be done. It is distinguishable from the formal written contract of employment which, for the most part, only identifies mutual duties and responsibilities in a generalised form. Psychological contracts are thus defined by the relationship between an employer and an employee where there are unwritten mutual expectations for each side. A psychological contract is rather defined as a philosophy, not a formula or devised plan. A psychological contract can be characterised through qualities such as respect, compassion, objectivity, and trust (Chapman 2016).

Social contract is in moral and political philosophy, the theory or model that originated during the Age of Enlightenment and usually concerns the legitimacy of the authority of the state over the individual. Social contract arguments typically posit that individuals have consented, either explicitly or tacitly, to surrender some of their freedoms and submit to the authority (of the ruler, or to the decision of a majority) in exchange for protection of their remaining rights or maintenance of the social order (Friend, 2020). The relation between natural and legal rights is often a topic of social contract theory. The concept social contract is included here because it was mentioned in the roundtable on 19 November 2019.

Governance concepts

Governance is a disputed, ambiguous, unclear and sometimes "messy" concept (Pierre 2000 page 3, Christensen 2007 page 7). It includes aspects like politics, power and authority (Klakegg 2010 page 191). The word Governance is associated with words such as 'government', 'governing' and 'control'. A government is a governing body. The word itself comes from the Greek word ***κυβερνάω*** (*kybernao*), meaning 'to steer, to drive, to guide, to act as a pilot'. Plato used it with regards to how to design a system of rule. Governing means using one's position or ability to influence or direct development. For example, the governing party is the political party in power in a country. Control is a matter of being able to decide over, define limitations for, delegate authority to, or withdraw from someone. For the purpose of this report we have chosen the following simple definition '*Governance is rules, processes and behaviour that effect the way in which powers are exercised.*' (Commission of the European Communities 2001).

Corporate governance is defined by the Organisation for Economic Co-operation and Development (OECD) (2004) as follows: '*Corporate governance involves a set of relationships between a company's management, its board, its shareholders and other stakeholders. Corporate governance also provides the structure through which the objectives of the company are set, and the means of attaining those objectives and monitoring performance are determined.*'

Governance of project management (GoPM) *concerns those areas of corporate governance that are specifically related to project activities. Effective governance of project management ensures that an organisation's project portfolio is aligned to the organisation's objectives, is delivered efficiently and is sustainable*." (APM, 2002, page 4).

Interpreted for our purpose, the three main goals may be derived from the Association for Project Management (APM) definition:

1. choosing the right projects,
2. delivering the chosen projects efficiently, and
3. making sure the projects (their effect) are sustainable.

Derivatives of governance also include **Project governance** and **Governance of projects**. In line with Klakegg, Williams and Magnussen (2009 page 51) project governance is restricted to describing governance within a project organisation, and governance of projects describes governance on the owner side – to govern project portfolios, project programs and single projects.

Ownership is naturally one of the important links between governance and projects. Governance is in the perspective of this report naturally that of the owner. Foss and Foss (1999) stated that the owner is the party that has residual control rights and residual profit responsibility over the output of the project. Control rights give the owner right to use, possess, and dispose of a resource. Profit responsibility means the owner is responsible for both the cost and the income/benefit related to the resource. Residual means the owner can delegate the authority to others (Grünfeldt & Jacobsen, 2006). Samset (2003) noted that the owner (he uses the term financing party) is first and foremost interested in the long-term effects of the project. The responsibility to finance the investment is also a natural part of ownership. One governance task that is the project owner's responsibility is to establish a project delivery method that may help the project succeed.

Project delivery method (PDM) was defined by Miller, Garvin, Ibbs and Mahoney (2000) as "*a system for organising and financing design, construction, operations and maintenance activities that facilitates the delivery of a good or service*". Some refer to them as project delivery models. Engebø, Lædre, Young, Larssen, Lohne and Klakegg (2020) observes that new delivery methods typically emerge as a response to increasingly complex construction projects. These methods are often labelled "collaborative" due to the focus on aligning the interests of the client with the rest of the project supply chain (Oakland & Marosszeky, 2017, page 15). Walker and Lloyd-Walker (2015) looked into collaborative PDMs and noted that this development moved from a focus on efficiency (first order), via focus on fair process and common purpose (second order), and added focus on common platforms (third order) to end up at fully collaborative models, Project alliances and Programme alliances (fourth order), by adding focus on committed relationships. The movement includes increasing degrees of early contractor involvement and painshare/gainshare incentives. Walker and Lloyd-Walker (2015, page 95) further state that trust, commitment, and the nature of co-learning through collaboration are all linked elements at the core of collaborative PDMs.

Engebø et al. (2020) claims the most common collaborative PDMs are Partnering, Integrated Project Delivery (IPD), Alliancing, Relational Contracting (RC) and Relationship-Based Procurement (RBP). Klakegg (2017) discussed whether PDMs should be standardised or fitted to each situation. He found more arguments for standardisation but strong arguments for fitted methods - "one size does not fit all". Klakegg (2010, page 155) further concluded in his PhD-dissertation that defining a clear decision-making process and controlling the quality of the documents used as the basis for decisions are the two most important governance functions seen from an owner perspective. Thus, we should have a closer look at these two aspects. Quality control of decision-making basis is performed as a part of the gateway process as project assessments.

Accountability is frequently seen as an important means of achieving governance. Being accountable means being responsible for their actions and open for scrutiny (Klakegg, Williams and Magnussen 2009, page 50). Klakegg, Williams and Magnussen compared governance frameworks in UK and Norway to gain insight into how governance and accountability can be effectively installed through a formal regime, framework or system. They concluded it can be done effectively in many different ways, and that development history, culture and wider societal context is relevant in understanding what works and what does not work.

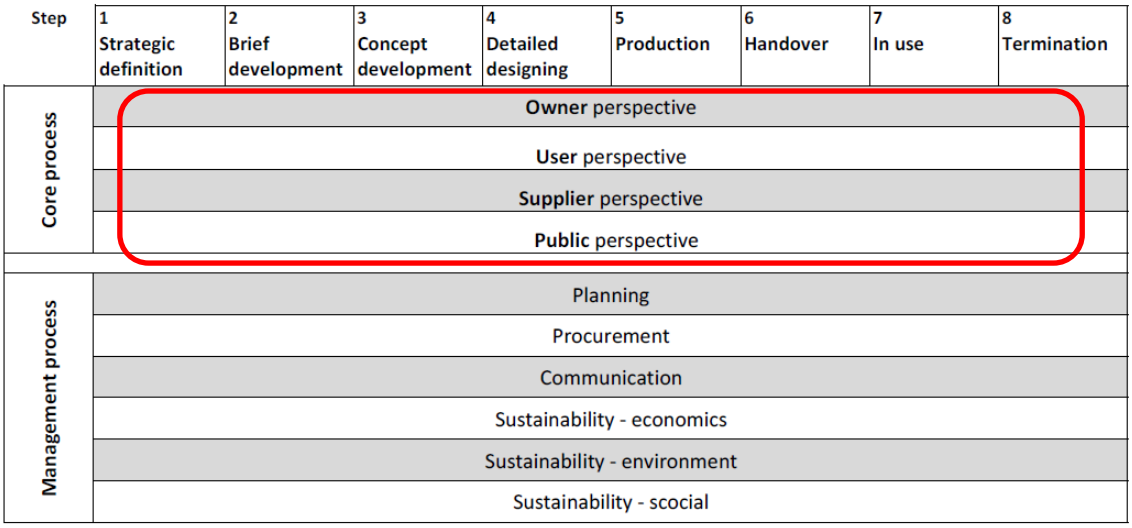
The perspective was later expanded to include Australia when the team was expanded and looked more closely at **Early Warning Signs** (EWS) (Klakegg, Williams, Walker, Andersen and Magnussen 2010). The authors concluded that the problem in picking up early warning signs is related to three areas in particular: (1) we have only limited ability to understand the risks and uncertainty connected to projects; (2) we have only limited ability to comprehend and see through the complexity; and (3) we have limited ability to detect what tacit knowledge is in people's minds and understand how people respond and interact.

Project assessment may be a legislated planning and evaluation process intended to ensure the environmental, social, cultural and economic well-being of residents and communities is protected from any significant adverse effects that may be caused by a development project. A Project Assessment may also be an evaluation work process to make a decision of bid or no-bid, and to evaluate whether or not the business is profitable or beneficial for the company. It may follow a fully formalised and standardised procedure or an informal non documented process.

Klakegg et al. (2010) observed there are many different methodologies for assessments, depending on the nature of the problem and what the results are meant to be used for. Reviews, audits, health checks, benchmarking, and post-project evaluations all have different ways of analysing and extracting indications of past, present, and future performance. Choosing the right method and focusing on a relevant indicator will certainly help, but these formal approaches to projects assessments are still limited in that they are good at finding what they are looking for, but not for finding anything else. Thus, using 'gut feel' approaches is more effective than formal assessments when the degree of complexity is high.

Project timeline is another concept associated with governance of projects. The importance of the project lifecycle perspective was introduced by Morris (1994) and has had wide influence later. Cooper, Edgett and Kleinscmidt (1997) introduced the stage gate approach that formed the basis for the gateway process. These concepts are highly relevant in public projects in general and in construction management. In UK these concepts are developed into a de facto standard by the Royal Institute of Architects - RIBA Plan of Work (RIBA 2020). In Norway Bygg21, an initiative by the Government to strengthen the construction industry (building sector of construction) developed a Norwegian version inspired from RIBA plan of Work called Neste steg (Next step). This framework is described by Hosseini, Knotten and Klakegg (2016) and shown in Figure 3.

Figure 3: Next step with timeline, core processes and perspectives



Source: Hosseini et al. 2016

The framework introduces four fundamental perspectives that are represented in every project, and which every stakeholder needs to understand to have a good basis for decision making.

- The owner perspective – thinking as an investor, focusing the purpose of the project.
- The user perspective – thinking as a user, focusing on needs, functionalities and effects.
- The supplier perspective – thinking about the production process and organising it.
- The public perspective – thinking as an external stakeholder focusing on society.

These perspectives have also been introduced in the international standard EN ISO 19650 (ISO 2018) as information management perspectives (Table 1 in ISO 19650-1) and Neste steg is currently transformed into a Norwegian standard. The perspectives are used in the analysis.

Complexity

Complexity was first defined by Baccarini (1996) as "consisting of many varied interrelated parts," operationalised in terms of differentiation (the number of varied elements) and interdependency (the degree of interrelatedness between these elements). Baccarini dealt with two types of project complexity: organisational complexity and technological complexity. Williams (1999) developed the complexity concept further to include structure complexity and uncertainty—uncertainty in interactions, goals and methods. Complexity itself has later been a focus area for project management researchers and professionals. Australia has been in the front line of this development.

Complexity inherently entails the threat of project failure, i.e. not succeed in reaching strategic goals. Loosemore (2000) explored crises in a construction project management context. He discusses three types of crisis in construction projects: creeping crises, where the perception of a crisis occurring at some time is understood but unaddressed until the crisis occurs; sudden crises, which occur seemingly without warning; and periodic crises, which occur in cycles that may or may not be understood. Each of these forms of crisis generally displays early warning signs, yet these signs are either misunderstood or ignored. Obviously, crisis is a state that project managers seek to avoid, but it is not an easy task in complexity.

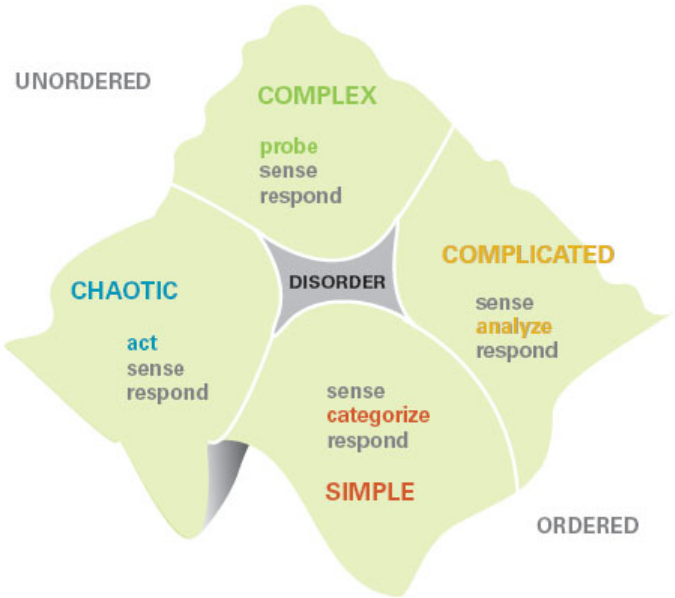
Identifying factors that tend to lead to problems are one key issue. Remington and Pollack (2007) divided influencing factors into four dimensions: experience and ability of organisation members, project organisational structure and its exchange and coordination with other key

participants, project culture, and project business process. As pointed out by Luo et al (2018) similar approaches are followed by other researchers internationally and lead to classification of causes but also to our understanding of types of complexity and their consequences.
As indicated above, success of a project is associated with reaching strategic goals for the owner and other stakeholders. In a simple situation this is a rather straight forward concept of defining goals and executing tasks that brings us towards those goals. One might say that this was the starting point of project management. This notion needs to be challenged, and it has been challenged by many researchers. The speed with which society, technology and economy develops and changes, increases uncertainty and complexity grows. This requires more nuanced perceptions.

Artto, Kujala, Dietrich and Martinsuo (2008) concluded that the project, as a response to its complex environment, should be allowed to develop its own strategies, providing direction as a continuous process throughout the project life cycle as a dynamic scheme. The project's strategy may be different from that of the parent organisation. This challenges not only the linear and rationalistic notion of project management but also governance and what it means to be an owner. The consequence is that the owner needs to be actively involved in the project process to ensure their role and interest is taken care of. Surely a strong argument for the close integration that was indicated in the development of project delivery models.
We will look specifically into complexity in this report and will refer in particular to two frameworks: The Cynefyn framework and the CIFTER framework.

Snowden and Boone (2007) suggest that decision makers should consider using the *Cynefyn Framework,* see Figure 4. Situations are categorised under this framework as being simple, complicated, complex, or chaotic. Each has different characteristics. The leader's job is different for each of these forms of uncertainty and a different response to danger signals is required.

Figure 4: The Cynefyn Framework



Source: Snowden and Boone 2007, page 72

The Cynefyn framework shows the characteristics of the way to respond in different situations (ie according to degree of complexity in the given context), and can be simplified as follows:

Simple	→ sense, categorise, respond
Complicated	→ sense, analyse, respond
Complex	→ probe, sense, respond
Chaotic	→ act, sense, respond

A simplified version of this pattern could be described thus: If the situation is simple, you can follow the cookbook, go by the recipe, and follow the textbook. Do what the guidelines say based on a simple categorisation. When things become complicated, we need to analyse more carefully before deciding what to do. A complex situation requires of us an ability to sense and understand beyond what we can analyse and act accordingly. As shown by Klakegg et al. (2010) this means use your 'gut feel' based on competence, experience and intuition. The way to go about doing this is collecting relevant information through dialogue. The chaotic situation requires of leaders that they act first, see what happens and then decide how to respond to the effect. We will later analyse the results in this report against this framework.

The important point made in the Cynefyn framework is that one's response must fit the situation. Thus, we need a tool to help us understand the complexity of that situation.
To characterise the complexity for project management we choose to use the CIFTER framework (GAPPS, 2007). The CIFTER factors identify the causes of project management complexity. The CIFTER identifies seven factors that affect the management complexity of a project. Each factor is rated from 1 to 4 using a qualitative point scale, and the factors are totalled to produce a management complexity rating for the project.

Users may indicate in the framework shown in Table 1 their assessment of all seven complexity factors for the project in question. The total CIFTER score indicates the level of complexity in the current situation for the project manager. The Global Alliance for the Project Professions (GAPPS) standard acknowledges the difference between acting as a project manager on the owner side and the contractor side of a contract. These may perceive the complexity differently. In this research we let the project managers use this framework for self-assessment. It may in other contexts be used by a trained, external assessor.

Table 1: Crawford-Ischikura Factor Table for Evaluating Roles (CIFTER)

Project Management complexity factor	Descriptor and point			
1 Stability of the overall project context	Very high (1)	High (2)	Moderate (3)	Low or very low (4)
2 Number of distinct disciplines, methods, or approaches involved in performing the project	Low or very low (1)	Moderate (2)	High (3)	Very high (4)
3 Magnitude of legal, social, or environmental implications from performing the project	Low or very low (1)	Moderate (2)	High (3)	Very high (4)
4 Overall expected financial impact (positive or negative) on the project's stakeholders	Low or very low (1)	Moderate (2)	High (3)	Very high (4)
5 Strategic importance of the project to the organisation or organisations involved	Very low (1)	Low (2)	Moderate (3)	High or very high (4)
6 Stakeholder cohesion regarding the characteristics of the product of the project	High or very high (1)	Moderate (2)	Low (3)	Very low (4)
7 Number and variety of interfaces between the project and other organisational entities	Very low (1)	Low (2)	Moderate (3)	High or very high (4)

Source: GAPPS 2007, page 7

The GAPPS standard (GAPPS 2007, page 7) sets following ranges:

- "11 points or less: this project cannot be used to provide evidence for a GAPPS compliant performance assessment.
- 12 points or more: this project can be used to provide evidence for a GAPPS compliant performance assessment at Global Level 1.
- 19 points or more: this project can be used to provide evidence for a GAPPS compliant performance assessment at Global Level 2."

These ranges were used in the analysis in this research, but in light of the actual data collected in this research, we chose to divide the highest class of complexity (19 or more) in a lower part (19 - 23) and a higher part (24 - 28). See analysis part for further details.

Positioning this research

Luo et al. (2018) investigated the status and trends of research on construction project management and concluded that based on the existing research and implications, future research should examine the following areas:

- "influencing factors of project complexity from the perspective of different stakeholders and different phases of a project's lifecycle;
- the relationship between project complexity and project success;
- project complexity measurement that takes into account structural, dynamic, and interactive elements; and
- management of project complexity for different project types and increased project complexity during a project's lifecycle."

This report contributes to follow up on the last of these points – illustrating different strategies to manage at different levels of complexity, as seen from the owner perspective and in the process of preparing to enter a collaborative contract.

Pollack (2007) summarised project management knowledge as divided in two fundamentally different paradigms: The “hard” paradigm and the “soft” paradigm. The hard paradigm is commonly associated with a positivist epistemology, deductive reasoning and quantitative or reductionist techniques, attributes which are often associated with rigor and objectivity. Practice based on the hard paradigm tends to emphasise efficient, expert-led delivery, control against predetermined goals and an interest in underlying structure. The soft paradigm is commonly associated with an interpretive epistemology, inductive reasoning, and exploratory, qualitative techniques, which emphasise contextual relevance rather than objectivity. Practice based on the soft paradigm emphasises learning, participation, the facilitated exploration of projects, and typically demonstrates an interest in underlying social process.

In this research we will approach projects with a holistic perspective of project management that includes both the hard and soft paradigm. The hard paradigm will be associated with structure and the soft paradigm will be associated with culture. These two perspectives influence each other, they coexist and coevolve in a project. Notably; none of them will work alone. Structure and culture must support each other. An underlying ambition in this research is to add more understanding to how this is established in a practical situation.

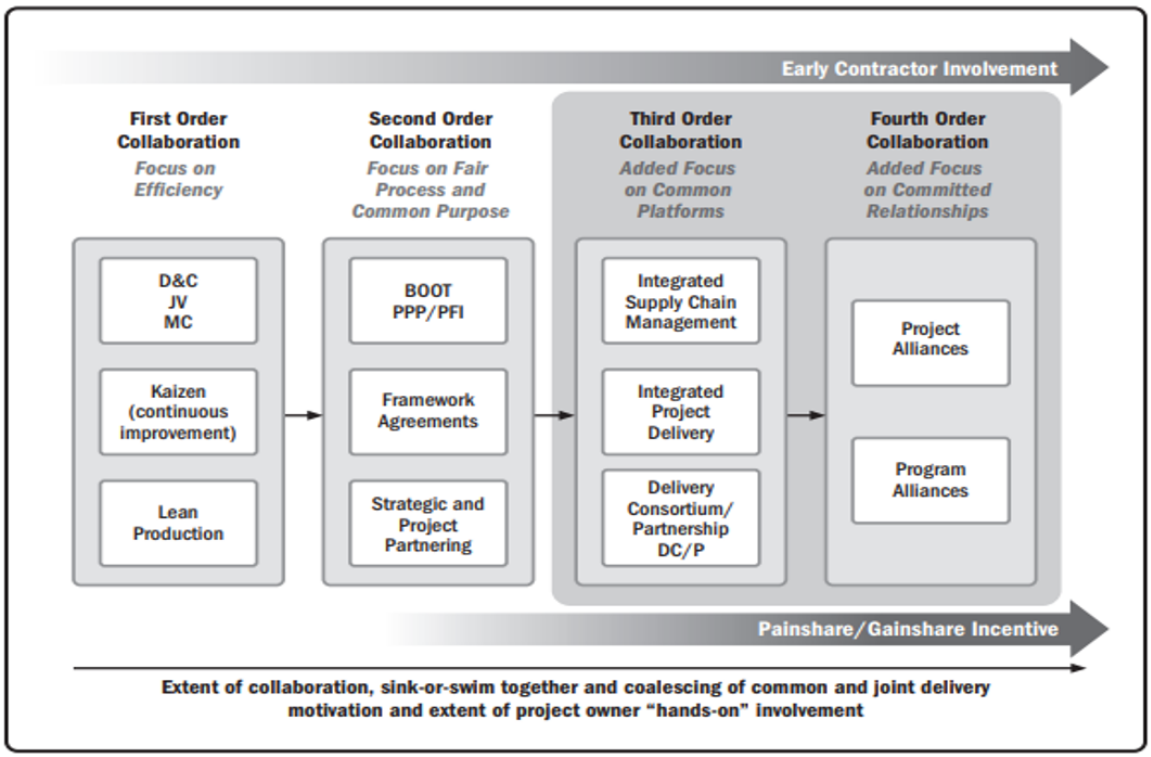
Chapter 1
Preparing for collaborative projects

Effective collaboration is expected to be a key factor in developing successful projects. As this chapter will show, this collaboration depends on the organisation preparing well before entering such projects.

Collaboration in a contract vs a collaborative contract

The research started with the acknowledgement that collaboration is wanted, and necessary to deliver successful projects. The literature referred to in the theory section confirmed this. The interviews pointed to the same, but nuanced the premise on one particular point:
There is a distinction between **being collaborative in a contract** and **using a collaborative contract**. This may be illustrated by referring again to Walker and Lloyd-Walker (2015). See Figure 5.

Figure 5: Development of collaboration in project delivery models



Source: Walker and Lloyd-Walker 2015, Figure 25 page 108.

First- and second order collaboration in Figure 5 represents traditional and transaction-based models. These build on contracts that are not classified as collaborative. Third- and fourth order collaboration represents models that are more relation-based and classified as

collaborative. This does not imply that there is no room for or will to be collaborative in a traditional contract.

On the contrary, all the case-based interviews made in New South Wales represents use of traditional contract forms with an explicit ambition and wish to be collaborative. These indications are also evident in the NSW Government initiative (2018) where collaboration seems to be a promise to the industry: "A ten point commitment to the construction sector". Interviews conducted in this research also include cases and general experience from explicitly collaborative models including a program alliance (Western Australia and Victoria). In other words – both interpretations, collaborative in a contract and in a collaborative contract is included in this research.

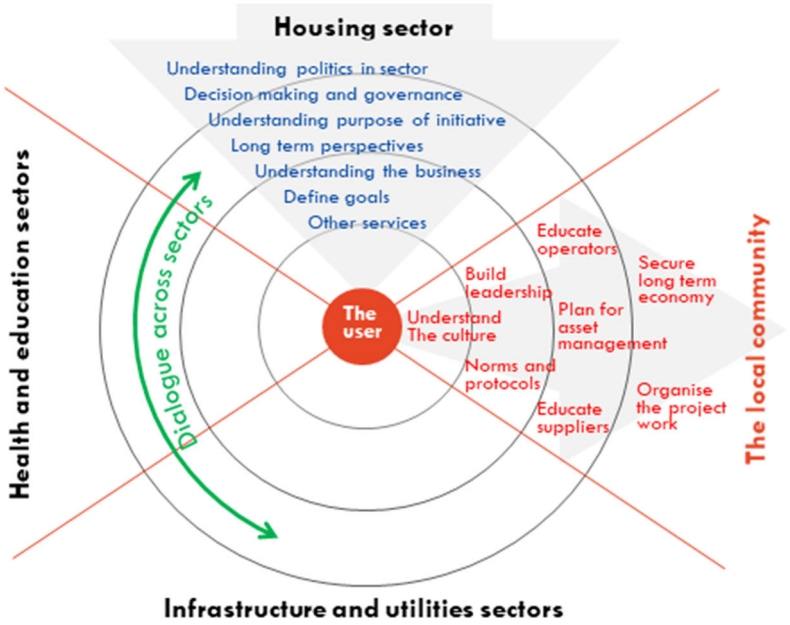
How to make successful collaborative projects possible

The interviews illustrate that there is a wide array of premises and preconditions that need to be in place for a collaborative ambition to be fulfilled. This goes for both collaboration in a traditional contract and in a collaborative contract. All interviews contributed to highlight one or more aspects that need to be in place or need attention in the client organisation before a successful collaborative project is even possible.

In this section each contribution will be described, both in the form of a visual illustration and text that explains why this is important, including illustrative citations from the interviews. All contributions are held as free from contextual information and identifiers as possible in order to focus on the message rather than the messenger.

To give ample space to each message, they are each presented in one page.

Figure 6: Visual summary of interview 1



Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

This contribution is from a highly complex case involving a geographically distributed program of smaller projects.

The visual summary is multidimensional. Circles may indicate levels of government (or not).

The primary message is: **Put the user at the centre of attention.** This is supported in theory by the acknowledgement that success depends on the ability to create value for stakeholders. Here the user is the key stakeholder, the one the initiative exists for.

Three secondary messages are also indicated in the visual summary.

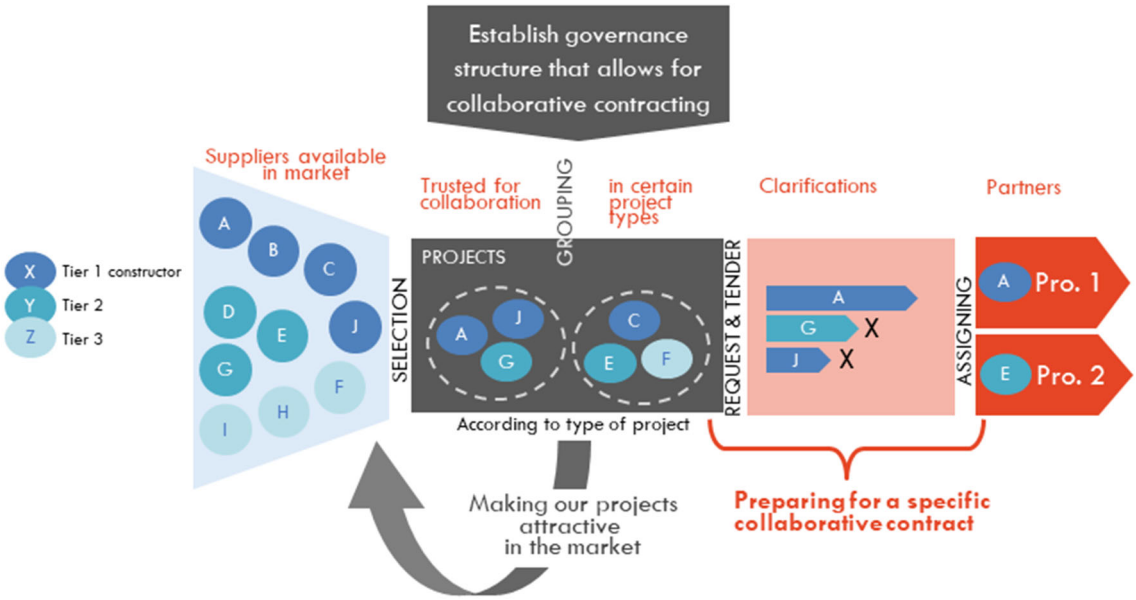
1. Blue message: You need to understand the politics of your own sector and the corresponding governance and decision making. It also implies there is a need to understand business in the host sector and think long term. This points to:

2. Red message: You need to work with the users and local community in order to secure long term value. Sustainability is measured in environmental, social and economic terms and the project will not be a success unless all three aspects of sustainability are taken care of. This includes building competences and developing long term asset management, which points to:

3. Green message: The solution depends on what happens in other sectors too. Thus, it is necessary to keep open dialogue across all relevant sectors to make sure experience is exchanged, assumptions are consistent and resources are well utilised across sectors. This tells us:

Collaborative practice depends on breaking with the silo-thinking tradition.

Figure 7: Visual summary of interview 2 and 3



Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

This contribution is from a case of medium complexity in an organisation with a project portfolio that includes small, medium sized and moderately large projects, mainly purpose-built building projects.

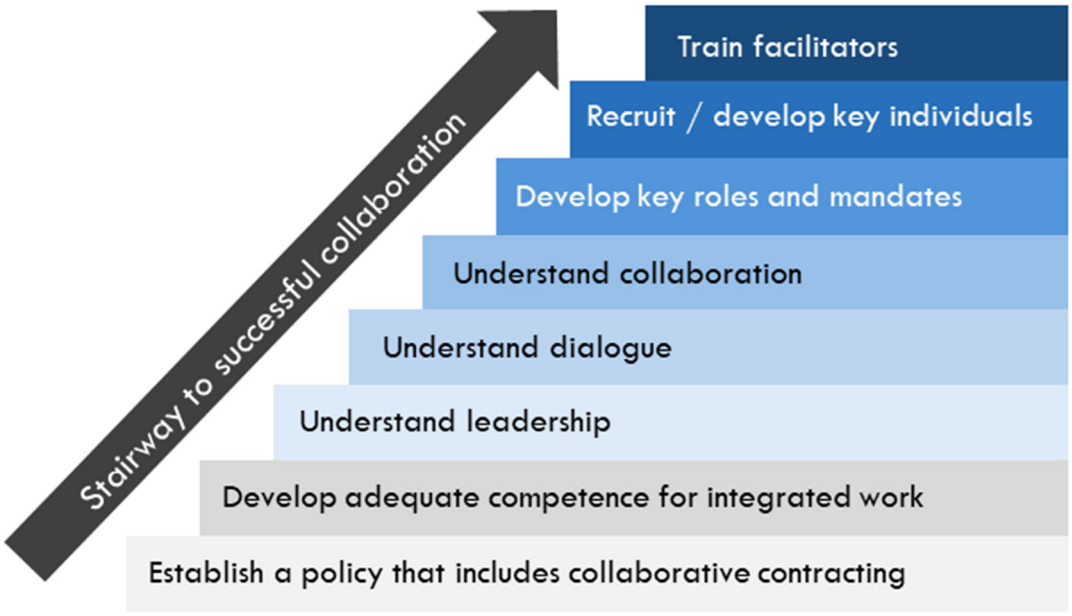
The visual summary should be read top-down (grey logic), then left to right (blue to orange logic).

As a client with a recurring need to enter the construction market with new contracts, there is a need to meet the market systematically and efficiently. One main message is: **Get your ducks' in a row.** This will help build and maintain a position which enables development of collaborative relationships with market actors. The starting point for such a collaborative ambition needs to be an internal fundament anchored in the organisation's governance. The organisation must invest in becoming a collaborative partner.

From this contribution a list of key activities across a program of work/projects is generated:

- Establish a governance structure that allows for collaborative contracting (incl. procurement strategy, approved by the proper authorities)
- Establish a program of work with relevant projects, structured in groups
- Establish standing as an attractive customer (attractive projects, robust client)
- Market the projects (what is in the pipeline), and what will be required
- Get to know those potential contractors you want to assess, document capabilities
- Establish an arena for communication with potential contractors
- Hold ad hoc and/or periodic meetings with potential contractors
- Maintain this "panel" of potential contractors (consider new members).

Figure 8: Visual summary of interview 4



Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

This contribution is from an interview that represents a highly complex case with very high ambitions for collaboration.

The visual summary should be read bottom-up. Developing successful collaboration depends on building up step by step understanding and competence to achieve from the start what you set out to do.

The message is very clear: **The stairway has to be built, not chosen!** The client organisation needs to develop its own understanding and capacity to be a partner before entering a collaborative contract. It is also explicitly pointed out in this interview that leadership in a traditional contract is a different thing from leadership in a collaborative contract. Likewise, the understanding of concepts like dialogue and collaboration are distinctly different and must be understood and used correctly according to the context.

It is all about the people, so make sure you recruit the right ones. And working integrated in teams means making teamwork work. It does not work by itself, so make sure you have people available that know how to facilitate teamwork well. Educate them if they cannot be recruited.

Illustrative citing's from the interview:

"the culture makes a huge difference"

"the crux … is about the culture of the organisation, or the people you're working with"

Figure 9: Visual summary of interview 5

Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

This contribution represents an organisation with broad experience from a wide array of contexts and project types. The typical setting is large projects in building or transport infrastructure but also other industries and both public and private sector. The interviewee helps the client and/or supplier side in reaching collaboration success in a role as facilitator.

The visual summary is a symbolic illustration of the main message: As a client, you cannot just choose to use a collaborative contract. The organisation needs to be ready for it. **The mindset and competence must be established.** This requires a bit of work.

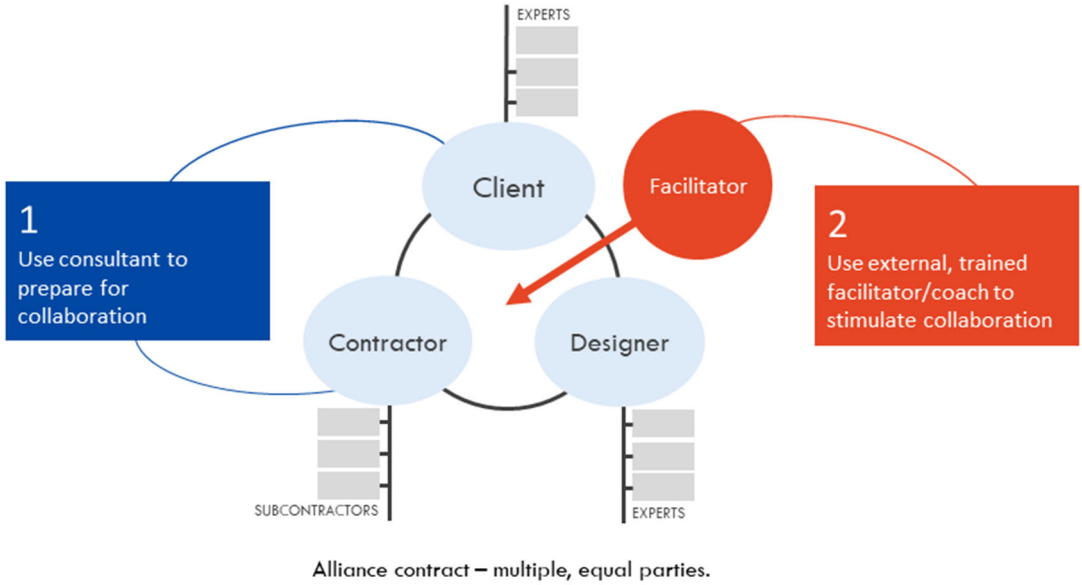
Most organisations do not have the competence and skills internally to do the facilitation. The neutrality that comes with an external position is an argument to consider this. Facilitation requires a special skillset that is very demanding. Much training and practice is needed.

Facilitation skillset

- A very confident leader.
- A very confident public speaker.
- Very good understanding of Management Science.
- Good overall organisational psychology approach, motivation, theory, people.
- Higher level quality skills, a six sigma or equal.
- Lean construction, also called quality improvement.
- Running workshops: Value Engineering, Risk Management, Design workshops.
- Facilitate teamwork.

"*But the absolute key thing is leadership wrapped around culture. And you've got to constantly be working in that goodwill leadership and creating that culture.*"

Figure 10: Visual summary of interview 6



Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

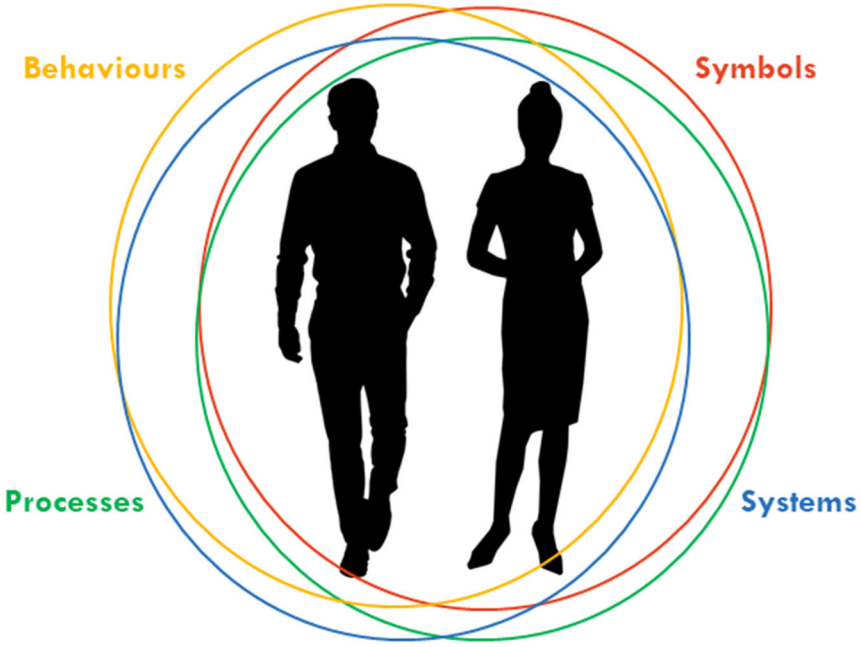
This contribution represents an individual with broad experience from a wide array of contexts and project types. The typical setting is large projects in building or transport infrastructure but also other industries and both public and private sector.

The visual summary represents a multi-party contract situation and is a symbolic illustration of the main messages.

- In a collaborative contract one key point is **balancing out the power** between the main parties in the collaboration – symbolised by the inner circle.
- To help each party to prepare for the collaboration they should individually use an external consultant that can help them establish the necessary mindset and understanding.
- When in a contract the parties should have a trained facilitator/coach to stimulate collaboration through facilitation of teamwork and giving strategic advice.
- **Choose the right facilitator!** The facilitator may have a stronger position to stimulate collaboration if external to the parties.

Beware of the difference between being collaborative IN a traditional contract and work within a collaborative contract.

Figure 11: Visual summary of interview 7



Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

This contribution represents an organisation with broad experience from a wide array of contexts and project types. The typical setting is large projects in building or transport infrastructure but also other industries and both public and private sector. The interviewee helps the client and/or supplier side in reaching collaboration success in a role as facilitator.

The visual summary is one symbolic illustration of the main message in this key citation:

> *"The classifications, taxonomies and dichotomies we create are useful for communication, clarity, dividing responsibility, systemising information etc. Culture is really made up of (a product of) everything we do."*

Think about it:
"Culture is everything!" "Everything is culture!" Which version is the more correct?

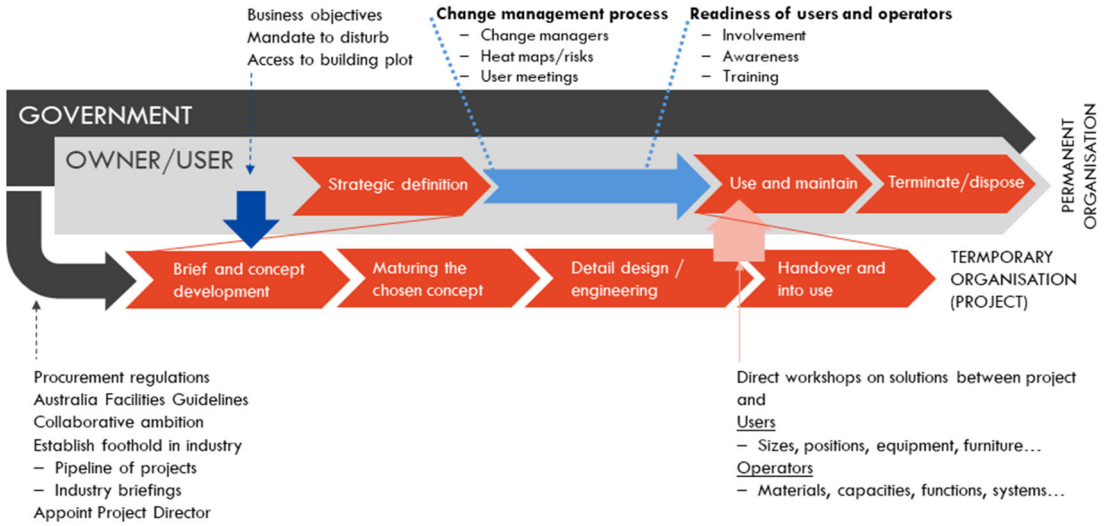
This interview focused on people, not structures. Leadership is a central issue. Building culture by use of systems, processes, behaviours and language that comes together as a whole. Examples: "*It's all 'we' type language, 'our' type language. So even the tender documents are written in the first person rather than the third person.*"

Going for collaboration means going for change. First you must make sure the organisation is ready for it. Understand where you come from and where you are going, what it takes to get there. Interaction dynamics between people shapes the individual every day, every moment of the day, by the context in which they live and work. "*We are feedback animals, you respond to whatever I'm giving you verbally, emotionally, physically, mentally, spiritually. You're kind of engineered.*"

Sector differences

Public and private sectors are slightly different. Intentions and principles are the same. Private sector large organisations will often require use of their own systems. We use the same forms of workshops and activities for preparation in both sectors.

Figure 12: Visual summary of interview 8



Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

This contribution is from a case of medium complexity in an organisation with a project portfolio that includes small, medium sized and large projects, mainly purpose-built building projects.

The visual summary should be read following the wide arrows. Wide arrows show inputs to transformation processes. The callouts explain what the wide arrows represent in practical terms.

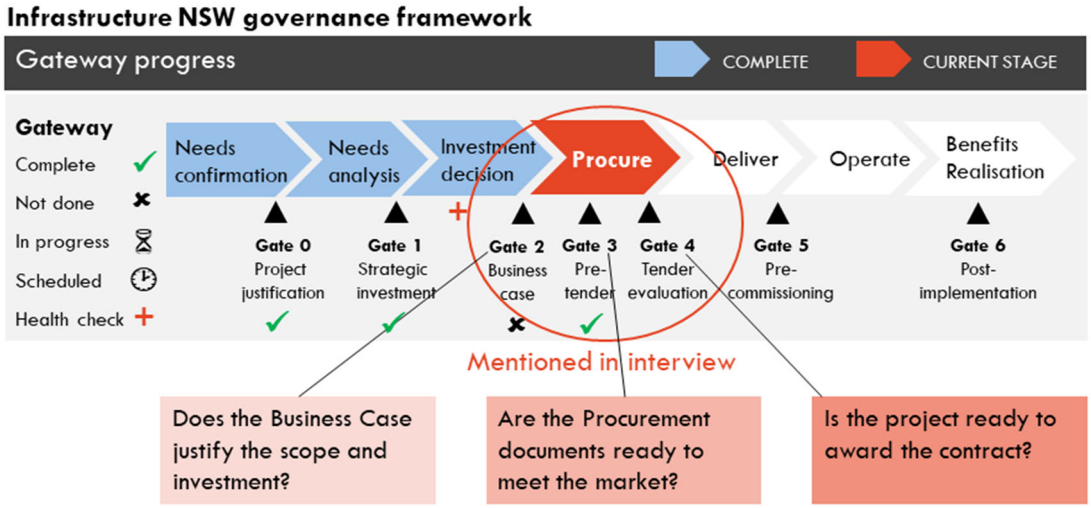
You cannot set the preconditions alone! As a public project owner, this organisation needs to accept and utilise that it is not alone in setting up the premises for collaboration in projects and contracts. This contribution highlights the fact that many preconditions are set already long before a specific project is defined. Regulations from Government is an example.
The most distinct new contribution here is the focus on necessary change processes that needs to take place in the owner/user organisation before, during and after the project to secure intended effects from the new solution. It shows examples of issues where dialogue with the permanent organisation is key to a successful project – extremely important in collaborative projects.

Particular learnings and improvement points for the owner side (client) from this interview:

- clarify the role as project director
- set up the organisation for continuous learning
- re-use experiences (lessons learned) in new projects
- consider policies for risk and reward allocation
- consider policies for contract types and incentive use
- consider policies for external vs internal engagement of staff
- consider the use of detailed standard requirements.

Communicate the wanted policies through practical guidelines to implement industry best practices and a homogenous level across the projects performed by the organisation.

Figure 13: Visual summary from interview 9



Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

This contribution is from a case of medium complexity in an organisation with a project portfolio that includes small, medium sized and large projects, mainly transport infrastructure projects.

The visual summary should be read as setting focus on checks and balances installed across projects in the portfolio. The processes shown above define mandatory activities for projects that are required to undergo these gateways. (Each state has its own version of such governance framework and gateway processes.)

Acknowledge your job is expectation management!

The first focus in this interview was to clarify the outcomes of the project. Having this clarity is essential. It is the initial focus as an investment decision and thus focused through gateways 0, 1 and 2. Developing the Business Case with strategic goals, assumptions, deliverables and outcomes is a major task before the project begins and further into the project. In real life the outcomes are also found to be what people can commit to.

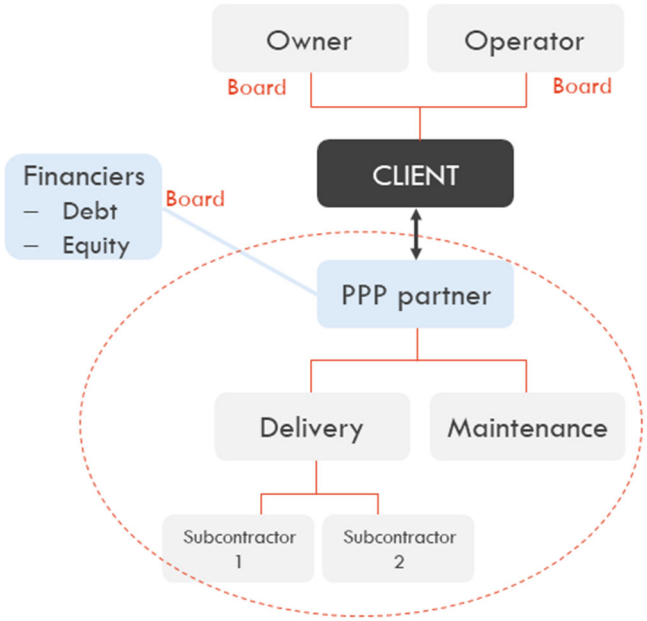
The second focus was on dialogue with the market – what are they able to deliver now, and what will come as future solutions. The market knows more about what comes next than most governance agencies. However, there is also a great potential in dialogue across states and agencies. The same problem might be solved over there already! Dialogue with other stakeholders may be similarly important. Check out that ambitions are realistic.

The third focus was on politics as a challenge for major public investment projects.

"*This project came out of a 2015 pre-election promise. The election was in March and then the Government came back in. Our election cycles are four years, so you have four years as horizon to deliver…. I picked up the responsibility in December 2016 – a Strategic Business Case had just gone to Cabinet, but they did not agree…. We had to do options analysis and get back with a better idea. The clock was ticking, and we needed to produce a miracle*".

The examples show challenges associated with defining and delivering major public projects. Working within the structures established across projects helps keep focus on important things.

Figure 14: Visual summary from interview 9



Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

This contribution is from a case with medium complexity in an organisation with a project portfolio that includes small, medium sized and large projects, mainly transport infrastructure projects.

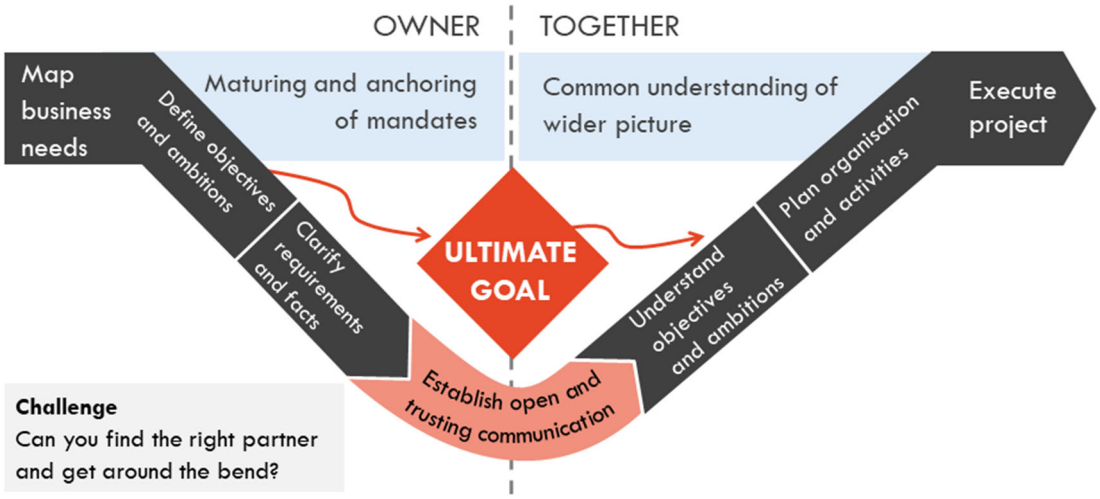
The visual summary should be read top down if the purpose is reading it as a traditional hierarchical structure. As a symbolic representation of the environment for collaboration, it may be read from the core – out, starting with the contract between the client and the PPP-partner. (Public Private Partnership).

Effective governance is a key element in successful delivery. Figure 14 shows contracts and internal governance structures related to the project. The symbols have specific meanings in this project as a result of being a PPP project. It illustrates that both parties have multiple "clients" or "owners". The infrastructure itself is delivered from the client to an operator – thus the responsible party on the client side reports to two boards – one owner and one user (operator). The PPP partner on its side does not only answer to the client but also to a board representing the financiers. In addition, there are the shareholders in the private company as another layer of ownership (not shown in Figure 14).

The governance structure shown here is primarily about decision making. The structure and the associated roles and responsibilities must be clear, unambiguous and accepted. For the responsible individuals, anchoring upwards and downwards in this structure is a key to efficient execution of the project.

An interesting observation is that there seem to be similar discussions about collaboration between the client and the partner on one side (covered in this interview), and within the PPP organisation (in the red dotted circle) without clear connections between these discussions.

Figure 15: Visual summary from interview 10



Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

This contribution represents a private sector organisation with broad experience from a wide array of contexts and project types. The typical setting is large projects in building or transport infrastructure but also other industries and both public and private sector. The interviewee has experience as project manager and sponsor of major projects on the contractor side.

The visual summary is one symbolic illustration of the main message: As a potential client, your job is to develop the ultimate project goal and get the right contractor on board. **Can you get hold of the right partner and steer the process around the bend?**

Illustrative statement: "*The key from my point of view, the key thing for a successful relationship contract is it's probably broken into two parts, making sure you can align commercially in such a way that you are responsible and accountable for things that you can control. I think the second key part is tying the ongoing goals of both organisations, back to the contractor's organisation, not necessarily the project and the project team.*"

A few words of warning can be extracted from this interview:

- Beware of risk allocation: "*If you start off in a way that's not reasonable and expecting the other party to take conditions or responsibility or you know, specifically risk on things that they cannot control, you're not setting yourself up for that type of relationship.*"
- Beware of KPI's: "*They (clients) are very focused on preserving the project's success and some key decisions and some key drivers towards the goal both parties are trying to achieve, or multiple parties can be pushed to the side for the sake of the project surviving and delivering on what the project team may be judged by.*"

Develop clear documentation, well defined, and open about challenges. **Do not withhold information – it increases risk (and prize):** "*Provide for us to assess and price, and to base our proposal around, the drivers that you're facing and if the challenges and hurdles you're facing aren't clearly identified and truthful, then it is very hard to progress with a good relationship and feel like you're part of a team.*"

Figure 16: Visual summary from interview 11

Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

This contribution represents an organisation with broad experience from a wide array of contexts and project types. The typical setting is large projects in building or transport infrastructure but also other industries and both public and private sector. The interviewee helps the client and/or supplier side in reaching collaborations success in a role as facilitator.

The visual summary should be read from the outside – in, or metaphorically like peeling an onion. Beginning from the outer layer – the fundamental consciousness must first be in place, the layer by layer towards the core where you should find clear operating guidelines.

The symbolic illustration may not clearly convey the main message: **This must be developed together.** The purpose is to build a bridge across organisations, an "integrated success plan", a shared vision.

It consists of:

- common behaviour
- common strategy
- common objectives

without breaching the legal secrecy and confidentiality requirements. A key point is developing more committed leaders. But also - respect the "wicked's" – the difficult issues and problems that there are no quick-fixes for.

Differences between delivery models:

- alliance (collaborative contracts) includes explicit integration of the organisation
- expectation of collaboration is fundamental
- in PPP (and traditional contracts) this not the case. It is not explicit in contract or budget.

How clients should prepare for successful projects

The interviews collected input from individuals in different positions and from both client side and contractor side, as well as independent experts on collaborative projects. All contributions are presented from the client perspective in this analysis.

All interviews gave a unique perspective on how to make successful collaborative projects possible. As expected, they also confirmed each other to a large degree. In fact, all interviewees seem to agree on fundamental issues independent of contract format. These common learning points may be summarised as follows:

1. The client organisation must be ready for filling its own role in a collaborative project. Not only must the collaborative ambitions be clarified and mandated, but the organisation needs to be ready to let go of some of its normal positions and controls to achieve new results.

2. The business context needs to be thoroughly analysed and considered suitable for a collaborative delivery model. The external preconditions need to be thoroughly considered.

3. Success is dependent on delivering value to key stakeholders. Users are in a key position. Key stakeholders need to be adequately involved in delivering information important for defining the business case, identifying risks and establishing project plans.

4. The project must be attractive in the market. It needs to be adequately defined to give potential partners a basis for understanding what they are invited to be part of, and what the outcome needs to be. Clients need to be open about requirements and performance measurement. But – the basis for collaboration is that there still needs to be room for innovation and development. Too detailed specifications reduce the room for collaboration. If clients are able to define and specify the solution up front it also reduces the need for collaboration.

5. Effective governance must be in place to secure decision making and checks and balances. Roles and responsibilities must be clear, unambiguous and accepted.

6. The right people need to be involved from the start, and continuously throughout the project stages. A client organisation that is serious about collaboration needs to educate their key people and stimulate them to find and keep a collaborative mindset.

7. Collaboration does not come by itself. A significant amount of investment needs to go into preparations, education and skills.

8. The client needs to identify the potential partner that is best positioned to align with the client's ambitions, goals and strategies. This partner should be invited into the collaboration with clear communication and openness about challenges.

9. A primary task in preparing for a collaborative project is understanding what culture is needed to accomplish the task and to start developing this culture from the start.

10. When teamwork is considered decisive for reaching the necessary performance level, using a trained facilitator is necessary. In a collaborative contract, consider using an external facilitator.

Chapter 2
Preparing for successful collaborative contracts

Collaborative contracts are designed to help developing a successful project process.

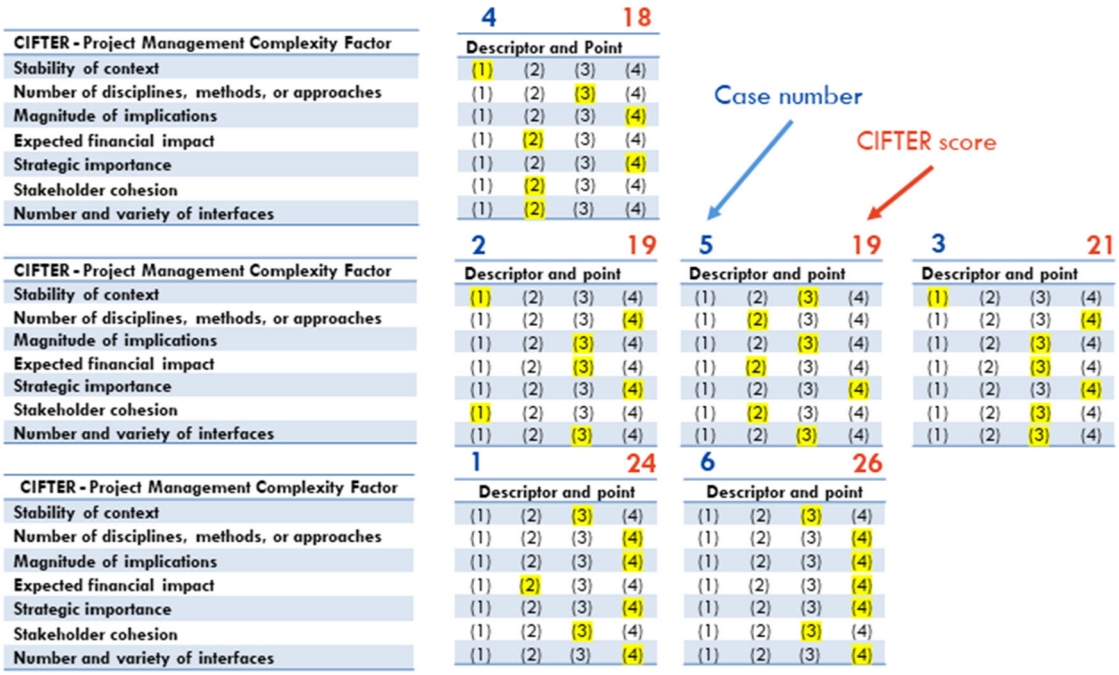
To be well prepared for entering such contract both the project and the people need to be ready for it. In this chapter contributions from 11 experts are analysed to extract knowledge about how to prepare.

Case projects and complexity

The initial idea for this research was based on a discussion that identified preparations for collaborative projects as a potential area for improvement. The discussions at the roundtable in November 2019 focused on identifying issues and did not explicitly discuss how this issue might be influenced by the context and aspects of the project itself. The researcher however, had the idea that these things would matter and therefore should be a part of the investigation.

This second part of the research thus includes a case-based section where the context is identified by a few initial facts and a self-assessment using the CIFTER framework. Figure 17 illustrates the result of using CIFTER to "measure" complexity. The cases are categorised into three different groups according to level of complexity. As shown in the theory section, CIFTER operates with a limit value: a score of 19 and over is a highly complex situation. 18 and below is a moderate complexity. I chose to divide the most complex group in two in light of the actual results shown here.

Figure 17: CIFTER score for 6 cases grouped by level of complexity



Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

Table 2 shows a few facts as indicators of other relevant aspects of the situation. The purpose is simply to give the reader enough facts to make their own judgment. The cases are still kept anonymous. All projects are public infrastructure projects. One individual is interviewed for each case-project and the same individual has made the CIFTER assessment.

Table 2: Case project facts

ID	**1**	**2**	**3**	**4**	**5**	**6**
CIFTER	24	19	21	18	19	26
Type	Building	Building	Building	Building	Building	Building
Size	AUD 4 million	AUD 70 million	AUD 140 million	AUD 340 million	AUD 2.8 billion	AUD 18 billion
Contract	Traditional	Traditional	Traditional	Traditional	PPP	Alliance

Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

As is clear from Figure 17 and table 2, there are several differences between the first four cases and the last two. The most important difference in this context is that the first four are collaborative IN contract and the two last are actual collaborative contracts. The further differences that stand out is that the two last are transport infrastructure and of a completely different financial magnitude.

However, type and size in itself does not explain the differences in complexity (CIFTER score). As figure 17 indicates – all these projects are strategically important in their own right. There are however differences in the stability in context, number of disciplines, magnitude of implications and expected financial impacts. The dimensions that add to complexity in many of the cases are stakeholder cohesion, or rather the lack of, and the high number of interfaces. Interestingly, the smallest and the biggest case-projects are the two most complex. And they are the most complex for the same reasons. The only significant difference in the CIFTER score is the financial impact (obviously).

It is fair to say these case-projects are not representative of all public sector projects or all infrastructure projects. All case-projects are relatively complex, independent of type and size. All projects are expected to be successful in completing as planned. All projects, except one, report that the process has been successful. One of the building projects has had recurring problems in the process. The contractor behaviour in this case has not met expectations and is not collaborative or consistent.

Framework model development for preparing to enter a collaborative contract

The basis for doing interviews was developed up front by the author based on the stages illustrated in Figure 18. This was the original analytical framework set up based on the author's ideological ambition to identify how to find the perfect match in partner for a collaborative
contract.

Figure 18: Three stages in preparing for a collaborative contract (original analytical framework)

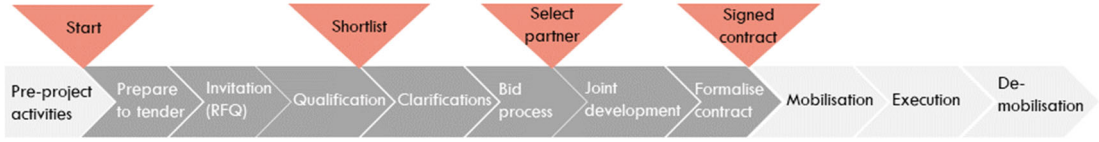
Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

The three stages in Figure 18 were identified by the author as part of the preparations for interviews. It is based on previous knowledge and a logical assessment of the pure ambitions to find and enter a collaborative contract with the best possible partner that is expected to lead to maximum value delivered (see Figure 1).

Each interview produced a checklist based on the model in Figure 18. In the following analytical sections, there will be several examples of these checklists. Some examples will be shown as is from the individual interviews without additional editing (directly from the analysis of the individual interview). However, also more generic checklists are generated. Some of these for special purposes (for example in Figures 29 and 30). Then there is the summarised generic checklist generated from the summary of all interviews as shown in Figure 21 and Appendix A.

Interviews, especially those related to ongoing case-projects, focused on the tendering process. When working through the interview results, the initial analytical framework proved helpful in analysing some aspects of the preparation for collaborative contracts, but not all. Thus, a new version was detailed out and put into a wider setting. The resulting detailed framework is shown in Figure 19.

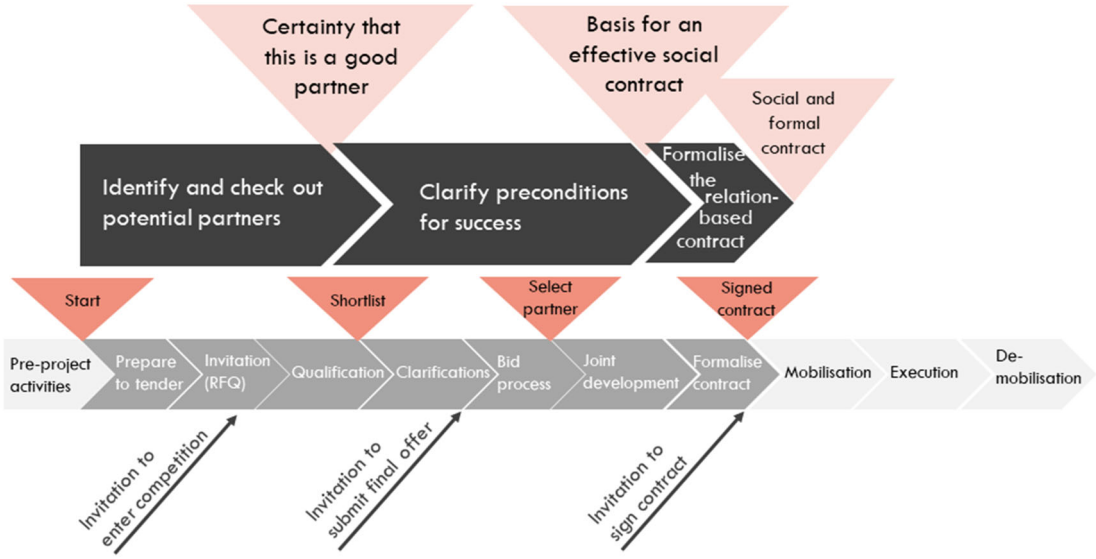
Figure 19: Expanded analytical framework (project lifecycle). Only the dark processes are focused on in this chapter.



Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

The focus in this expanded analytical framework is the formal tendering process. This is relevant, given that the focus of the whole study is on the process of preparing to enter a contract – exactly the process regulated by the formal tendering process in public sector. The process of detailing the lifecycle for an analytical purpose is interesting in itself and lead to the following awareness: There is a distinct mismatch between the frameworks in Figure 18 and 19. This point is highlighted in Figure 20 where the two are put on top of each other.

Figure 20: Combined analytical framework lifecycle - initial and expanded.



Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

Both models include the selection of the partner best for this project. What was originally thought of as identical decision-making points turned out not even to be similar. Confirmed basis for effective social contract in the original framework is not identical to the select partner decision point at all. This seems to be one potential learning point from this research; In a formal tendering process the client choose partner before the parties know each other and the project.

The two timelines are designed for different purposes, so there is no automatic assumption that one must be wrong. The original model in Figure 18 may also be a bit idealistic. However, an interesting discussion that requires attention and more work is to check out if the tendering process, the way it is performed today, actually is helpful in securing the right partner for maximising value in the project.

Figure 20 illustrates that the partner is chosen before the basis for collaboration is established. There are several practical reasons for this. The most obvious reason is resource use. We do not want to waste resources for all parties by keeping too many partners in the competition too long. Thus, the current tendering process may be a useful middle course. It may give the parties enough clarifications to make an adequate choice, if not the best (safest, most robust, value maximising). What would it take to reach such an optimised decision? We leave this to further research.

Checklists for preparing to enter a collaborative contract

Each interview resulted in a checklist for how to prepare for a collaborative contract. This was the individual contribution to answer the research question in this chapter. Each checklist was a result of the situation in which the interviewee found themselves at the moment, as identified in conversation with the interviewer. Each checklist follows the stages illustrated in Figure 18. The analysis followed the framework illustrated in Figure 19.

None of the individual checklists are expected to be complete with all activities or all aspects that needs clarifying before entering a collaborative contract. In sum, all interviews will probably to a large degree cover the important aspects and may be turned into a reasonably complete checklist at a low level of detail. A detailed checklist in real life will be dependent

on each organisation and situation. Thus, a generalised checklist may be useful, but not necessarily the answer for each client organisation or project.

The general checklist is shown as headlines in Figure 21. The complete checklist can be found in Appendix A. This is considered a preliminary checklist, requiring further review and investigation. Even the final version should not be implemented anywhere without considering carefully the preconditions to do so and necessary adaptation to the organisation in question.

Figure 26: Generic checklist based on 11 interviews.

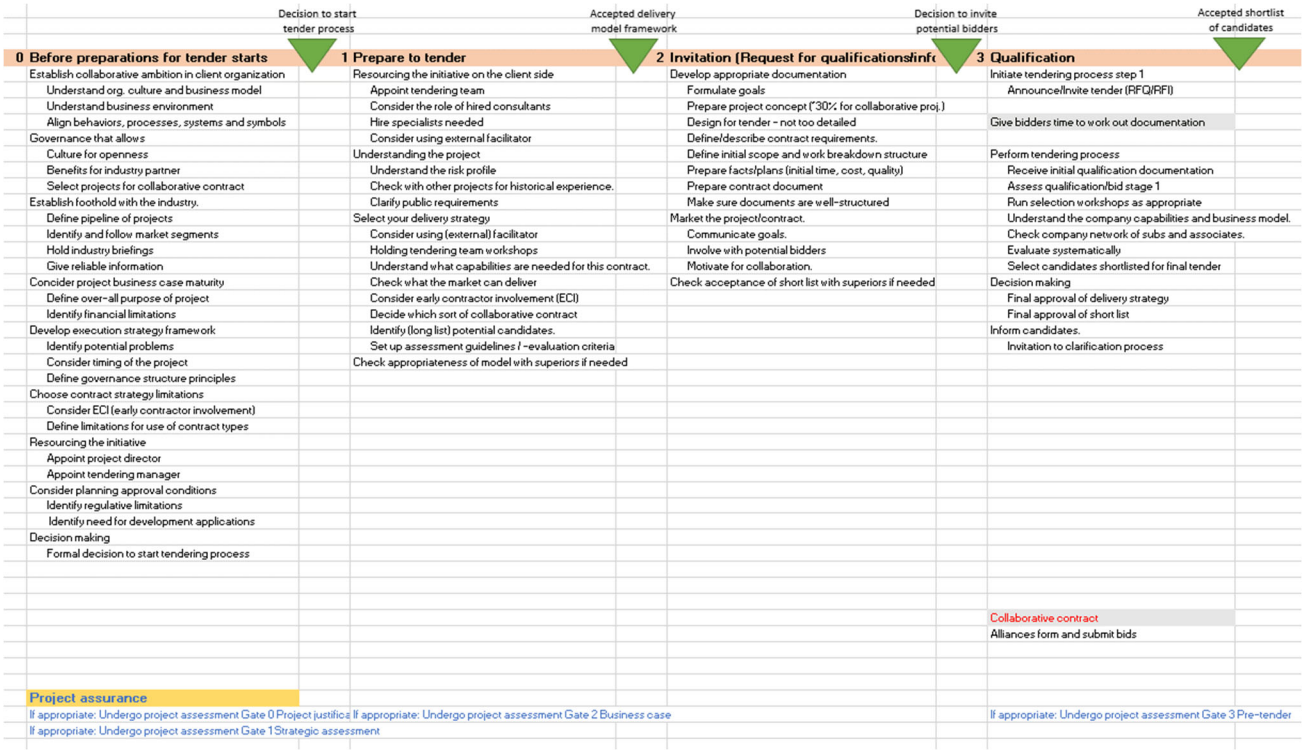
Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

The eight stages shown in Figure 21 are not independent despite the visual indication implicit in the way it is structured. This is one of the major differences between a traditional process and a collaborative process: Transactional logic leads to interpretation of the process as stepwise independent and that can unambiguously be performed one step at the time. In a complex, real life situation this is not the case. Steps are interconnected and dependent. Activities may need to be repeated, assumptions changed, and consequences established time and time again in an interactive and iterative process. This is mirrored in a detailed level of the checklist (see Appendix A) but is not clear on a headline level in Figure 21.

The tendering perspective on preparing for a collaborative contract

The accumulated results from all 11 interviews are structured according to the analytical framework in Figure 8 mirroring the tendering process. This may be expected given the purpose of this study and the strong influence of the tendering process on real life public projects. The result covering the starting conditions (results from internal preparations done before the process started (refer to previous chapter Preparing for collaborative projects) and up till a shortlist of candidates exist is shown in Figure 22. Figure 22 is hard to read but the details are found in Appendix A. This section takes **collaboration in a contract** as starting point.

Figure 22: Preparations before start and the three first stages in preparation for a collaborative contract.



Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

Figure 22 starts long before the project is in the market and ends with approving the shortlist of candidates invited to take part in the bidding process. Some observations are worth noticing:

The first column in Figure 22 includes activities to prepare the organisation for implementing the collaborative ambition, approval of using the collaborative approach, establishing the portfolio of projects as attractive in the market and not least checking out the premises that this project is worth pursuing – establishing and confirming the initial Business Case, checking out external requirements. **Tendering does not start with blank sheets.**

The second column includes activities that are necessary before starting tender on a particular project. These are mostly necessary planning activities to understand the goals, ambitions and risks, to be able to communicate well what this project is about, what it takes. It starts with internal resourcing and then implementing planning. The main question at this stage is actually forming the delivery strategy and how the tendering process is going to be executed, including evaluation criteria and guidelines for the tendering team. This needs to be anchored in the mother organisation. **Make sure you are well prepared before inviting.**

The third column includes the activities to properly document goals, requirements, initial scope, plans and necessary facts. It also includes initiation of market contact which may mean meetings and announcements, or other networking activities. It culminates with a formal invitation to qualify. **Be clear about what you need from contractors.**

The fourth column includes receiving and evaluating documentation from the potential partners. In a tendering process with high level of ambitions for collaboration, this may include one-on-one contact to make sure the supplier is adequately prepared for this collaboration. This goes deeper than just the formal documentation submitted. Interviewees emphasise checking previous experiences, not only with the potential suppliers but also other projects and agencies

concerning technical solutions, collaboration experience etc. This stage culminates with setting up and approving the shortlist of potential partners to be invited to bid. **Select those potential partners that aligns best to your strategy.**

At the bottom of Figure 22 two additional elements are shown.

1. The additional activity to have alliances form and prepare for bidding in case of a collaborative contract.
2. The additional activity to comply with Assurance Framework where appropriate.

The process continues along the timeline. The preparations from the shortlist of potential contractors is approved and until a formal contract is signed is shown in Figure 23. Figure 23 is hard to read but the details are found in Appendix A.

Figure 73: Preparations after shortlist is approved and till formal contract is signed.

Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

The first column in Figure 23 includes activities to involve with the chosen potential partners on the shortlist. The purpose is to clarify as much as possible before the potential partner gives a more binding bid for the job. This stage must include direct and one-on-one contact between the client and the suppliers. The purpose seen from the client is to become more certain that all candidates are good candidates for collaboration and for maximising value at the end of the day. The purpose seen from the supplier is to understand best possible what the job takes and what risks are involved as basis for making a binding bid.

The purpose of this stage with collaboration in mind is to start building the necessary trust and openness needed to succeed in a collaborative process. It is evident at this stage that there is a difference between being collaborative in a contract and entering a collaborative contract. The collaborative in contract strategy still must work within the traditional procurement regulations. Traditional strategies will normally suggest careful, if any one-on-one contact at

all. In a case with collaborative contract this one-on-one interaction is explicitly needed and catered for. An example is the interview process where potential partners must be represented by those individuals that shall actually do the job in order to be able to get to know the real capabilities of the supplier. Obligation goes both ways: **The dialogue needs to mirror your real collaborative ambitions.**

Based on initial clarifications in the previous stage the potential partners submit their binding final bids. The second column shows the formal activities needed to perform the second part of a formal tendering process. Final bids are received and systematically evaluated. The winner is chosen and approved, all participants are informed about the decision and, when appropriate, a losers' fee is granted. The evaluations of bids are far more advanced than just comparing the different bids and candidates. There is also evaluation that secure comparison to market prices/total cost level and whether the actual proposed solutions (where this is part of the competition) is fit to solve the problem, deliver the intended outcomes and maximise the value of the project. At the end of this stage the winner is selected. The main learning point though: **Be systematic and fair in evaluations.**

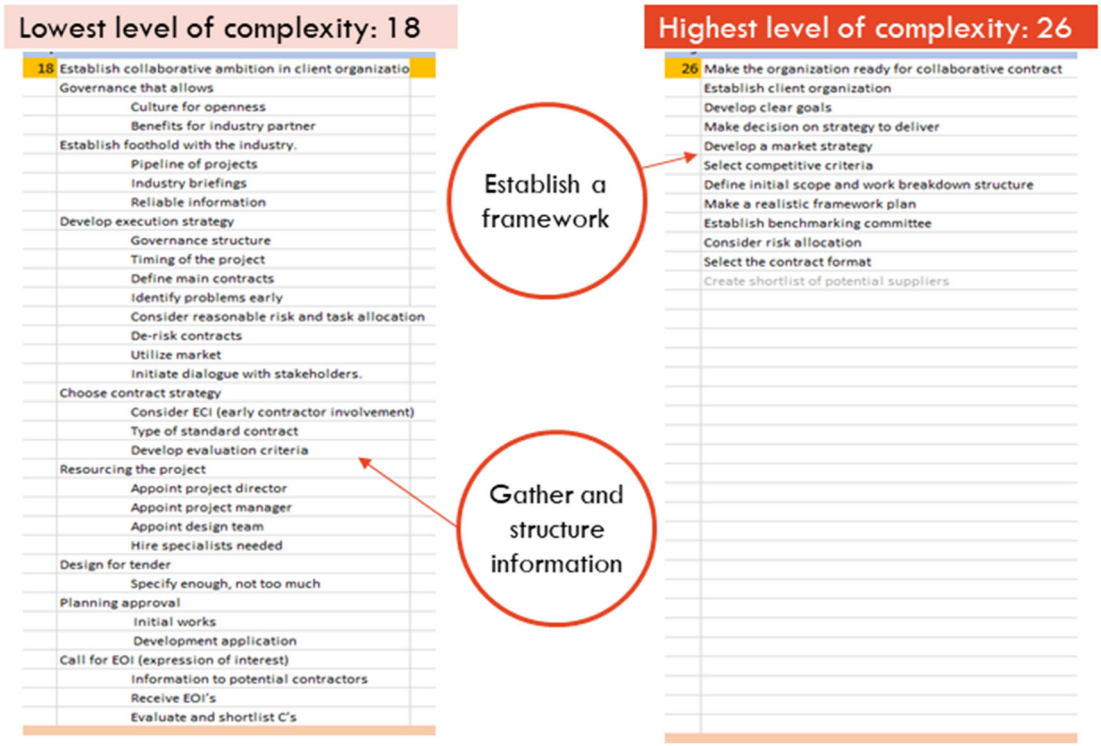
The third column in Figure 23 is crowded with activities and clarifications. Two over-all observations are: (1) this is mostly going over everything again and making sure there is adequate common understanding, precision and completion in the material that the project is based on. (2) This is where all consequences of previous and current choices and decisions come together. Because of the collaborative ambition the activities here are mostly done together, as a start on the process of integrating the client and contractor organisations involved in the project. If appropriate and purposeful, the active use of facilitator is recommended here to promote teamwork. Facilitated workshops help set the right focus and identify relevant issues. For many client organisations the necessary involvement in planning activities may prove challenging due to limitations in competence and capacity. The client on its side must continue evaluating the assumptions, goal achievement and cost level through this process. One particular reminder: **Develop together what you later need to live up to together**.

The fourth and final column is the necessary process to formalise the things that came out of the tendering process. The formalisation should make explicit those principles the parties have agreed to work by during the upcoming design and production stages of project execution. The main difference between the traditional contract process and the collaborative one is that traditionally the purpose is allocating the risks to the part best to manage it but in the collaborative contract the purpose is to come to an agreement on how to allocate those risks that might occur. This means setting up a framework to steer the upcoming process, not to finalise an allocation of the unknown. The process includes having contract experts draw up the formal document, negotiate the remaining details, secure the necessary resources are available, and finally get the necessary approvals and decisions before formally signing the agreement. In other words: **Formalise what you agreed – nothing else.**

Influence of complexity on preparations for collaborative project

As shown above, there are only moderate differences in the level of complexity within the selected case-projects. However, the results still show striking differences. Figure 24 illustrates the most important contrast in terms of complexity. The illustration covers only the first part of the checklist: Stage 1 Identify and check out potential partners. Both checklists conclude with a shortlist of possible contractors.

Figure 24: Comparison of check-list elements from lowest and highest level of complexity



Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

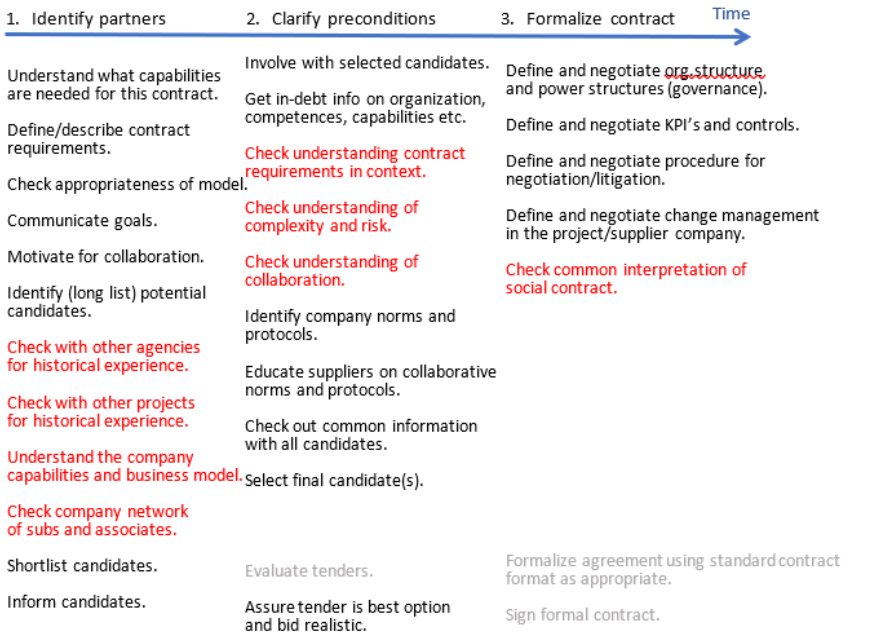
The striking difference between these two checklists tells quite a lot about the effect of complexity.

When the level of complexity is moderate, it is relatively easy to identify discrete items to put on the list. Activities, clarifications, things that need to be discussed and dealt with. The process is not as simple as just following a template or pre-defined guideline (this research has no such cases – even CIFTER score of 18 is quite high). The example may be characterised as a process to gather and structure information relevant in this particular situation. It may have some resemblance to going "by the textbook".

When the level of complexity is very high, like the example at the right-hand side in Figure 24, the process is less structured, harder to overlook. On a detailed level, it is harder to put the finger on distinct items to put on the list – instead it ends up being headlines or themes. Every headline may cover a wide range of issues, interconnected and intertwined. What happens at this stage in a highly complex project may be characterised as developing a framework to steer within. It has some resemblance to preparing for an experiment.

Figures 25 to 27 illustrates shifting focus in preparations for different levels of complexity. For illustrative purposes all three steps are shown, and important focus points are high-lighted in red.

Figure 25: Example one - medium to high level of complexity



Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

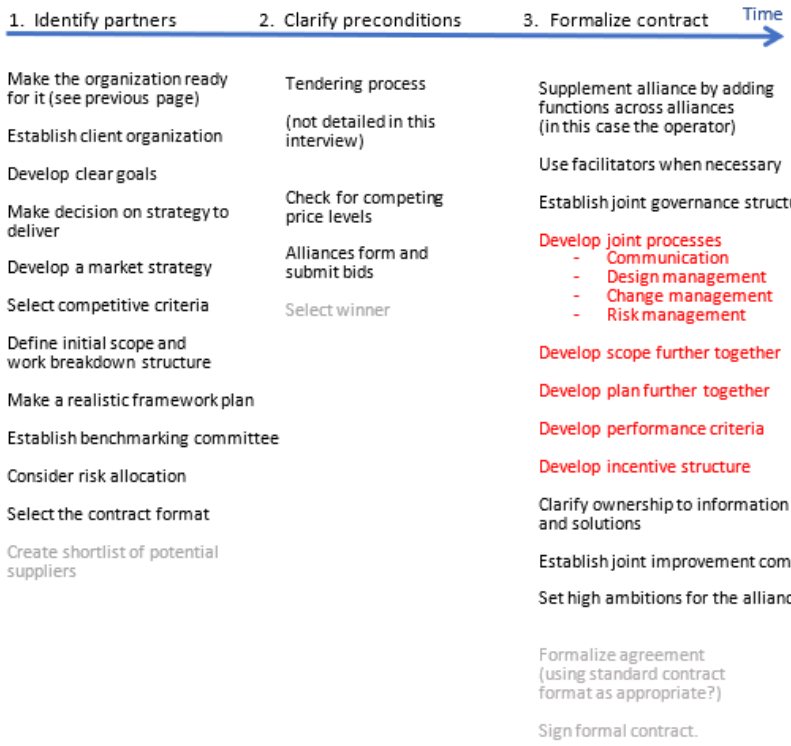
Figure 25 illustrates that in medium to high level of complexity focus is on checking the potential partner's experience and understanding. These are elements in selection of partners that can align with client's objectives, and then developing this further together until the parties reach a level of common understanding that is adequate for signing the formal agreement.

Figure 26: Example two - moderate to low level of complexity

Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

Figure 26 illustrates that in moderate to low level of complexity focus is on checks and balances, formal routines and gateways. The process has a strong focus on analytical tasks and structured planning activities.

Figure 27: Example 3 - very high level of complexity



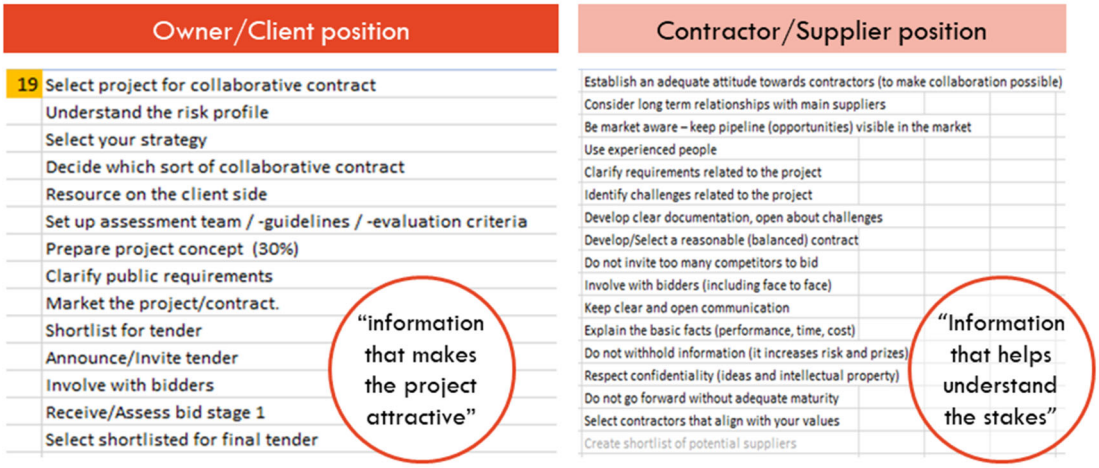
Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

Figure 27 illustrates that in a very high level of complexity the focus is on developing the project together. Obviously, some planning is necessary up front to make shortlisting of candidates possible, but the real development happens after the best partner has been identified and selected. (The tendering process was not detailed out in this interview).

Influence of position as client or contractor

Most of the interviewees represent the client side, and this analysis is also focused on the client perspective. However, one of the interviewees represents the contractor side, and another of the interviewees with experience from working with both sides pointed out differences between these two positions. Contrasting the two positions against each other reveals something about sharing information, and consequently about risk and cost associated. Figure 28 shows the two positions against each other. The comparison covers only the initial stage 1.

Figure 28: Differences dependent on position as client or contractor



Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

This is the stage of the project where the two parties still have no common interest established. The client needs to find a contractor willing to enter a contract and deliver the defined outcomes. The contractor is one among many that would like to be the chosen one, if it will reward them reasonably for doing so. (At least this was the market situation at the time of this study).

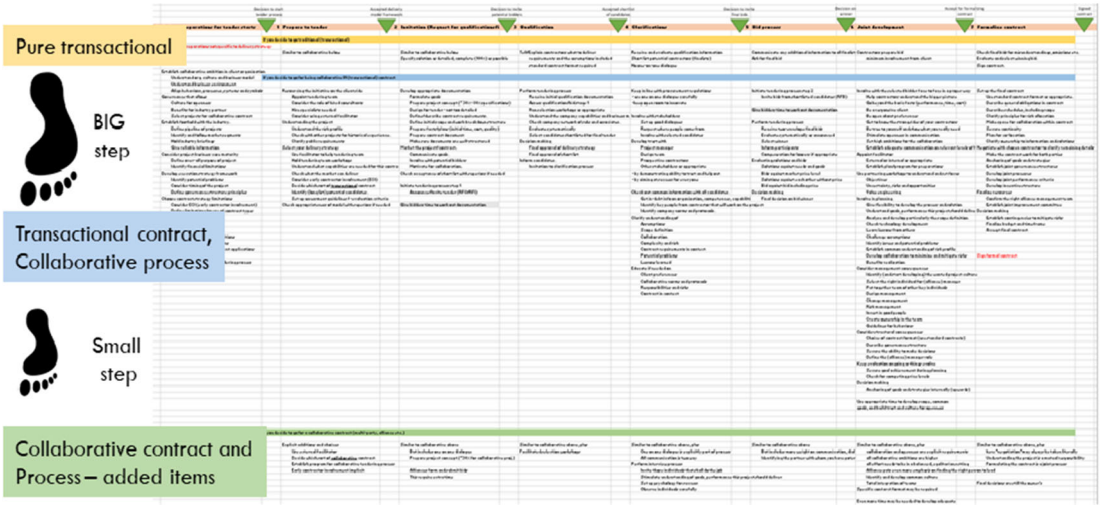
All client representatives highlighted their effort to position in the market as an attractive client and how important communication with market is to make the project attractive and make sure there are many potential partners willing to bid for the contract.

The contractor perspective on this is very clear: Open communication that explicitly shows not only the scope, plan, requirements and objectives but also what challenges and restrictions will apply is key for the contractor to consider realistically both the risk involved and therefor also the price. Holding back information increases risk and price offers. The issue is more problematic in private sector than in public sector according to the respondent.

Influence of contract type

There are three different contract types represented among the cases: a group of four traditional transaction-based contract, but in a collaborative process. All these are public building projects. Then there is a group of two public transport infrastructure initiatives with very different contents and format. Both are highly collaborative in process and format. One is a PPP-project (characterising a PPP as collaborative contract form is debatable, but we chose to do so here due to its collaborative practice) and the other a program alliance (undoubtedly collaborative format). In Figure 29 these groups of contracts are contrasted to see what comes out from such a comparison. In this figure all stages from the very beginning up till the formal contract is signed are shown for visual impression.

Figure 29: Compilation of checklist for different contract types



Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

The point here is not to read the activities and clarifications for each step of course, but to see the difference illustrated with the amount of activities and clarifications.

As a reference, or starting point, a pure transactional logic is presented (yellow part on top). This logic is simple: Tell the market what you want to buy, ask for a price, select supplier, sign a standard contract and follow up delivery. A purely transactional perspective will only ask the formalities and facts, not the social stuff. (We did not ask about the pure transactional logic in the interviews as we did not have any such cases. Thus, this is a construct made in hindsight).

The blue part of the checklist is a summary of all items identified that came from the group of collaborative processes with transactional contract. We have also included all items that are identical in the group of real collaborative contracts. The interviews focused a lot on the social contract and thus on people issues. Although there are many items on the list to clarify understanding of formalities and facts also in the blue part of the list, it is obviously a big step to pursue a collaborative ambition within a transactional contract.

The green part at the bottom comprise all the elements left over in the group of collaborative contracts after eliminating those already covered above. There are some additions on every stage, but they do not seem to represent a big step, given that the basis is already laid above. However, they do represent a higher level of maturity and understanding of collaboration, so although the step may look small – it is probably the more difficult to succeed with.

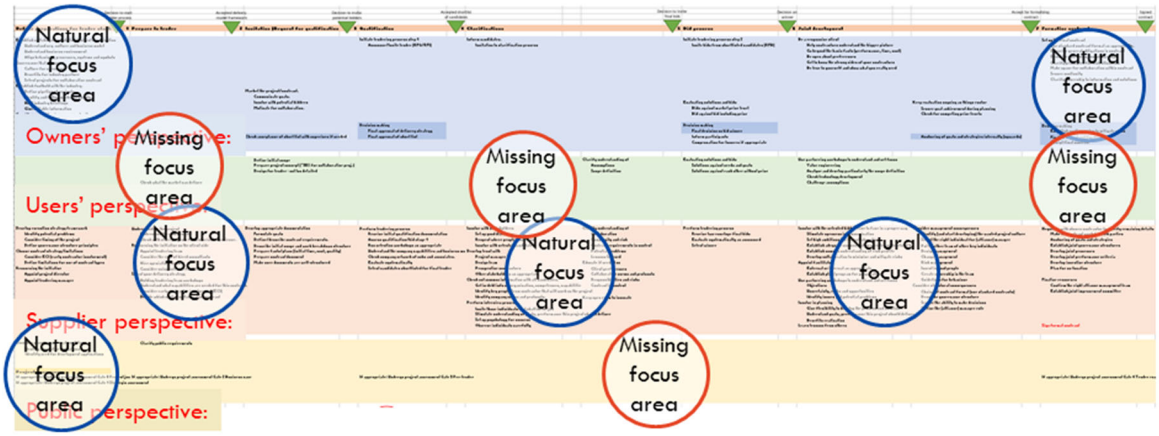
Influence of perspectives (different viewpoints)

In the theory section a reference model, Next step, was introduced (Hosseini, Knotten and Klakegg 2016). It defines four fundamental perspectives and adds it to the lifecycle logic represented in the stages or gateway logic. The basic perspectives represent ability to see the project from different angles or viewpoints. It may also be interpreted as a way of focusing what is important. Everyone positioned in key positions in a project should understand and use these perspectives to assure that they have thought of everything relevant for the totality of the project.

The author decided to let the result of the interviews undergo a test – assigning all identified items from interviews to this framework. Each perspective is assigned a colour and all items

from checklists are placed in the relevant boxes on the timeline. The result is shown in figure 30. (Observe that the Supplier perspective fills so much space that two stages needed double space in the table).

Figure 30: Checklist elements placed according to stage and perspective.



Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

The first observation concerns what is identified in the interviews: There is a naturally high level of focus on strategic perspectives and checkout of major decisions along the timeline from start to the formal agreement is signed. The owners' perspective is dominating in the start and in the end of this time sequence, and key decisions (darker blue) is present. The supplier perspective (also termed "executing party's perspective") is the main focus of all interviews (brown colour). This is no surprise given that the respondents are active sponsors or project managers. This represents key issues in their own responsibility and expertise. At the start, the public perspective (yellow) is also in focus. This is a natural check of external preconditions at the outset.

The second observation concerns what is not found in the interviews: The users' perspective is surprisingly empty all through the timeline. Just a few items are identified as representing the users' perspective. The use of the result developed and delivered by the project represents the purpose of the project. The benefits that represent potential for income, return on investment or simply solving the problem at hand lies in this perspective. Still there is not much talk of it. (Only two interviewees explicitly talked about users). Similarly, there is little focus on the public perspective once the project has started. This may be noted as a strong argument why it is well worth having a gateway process with checks and balances on behalf of society. (This was only mentioned by one interviewee).

This results in a rather critical analysis towards the end. On the surface of it, there seems to be significant weaknesses in the way the basic logic from identifying needs in the beginning, developing this into a solution, plan for benefits realisation and secure the intended effect from use of the result.

However, this is obviously not the whole truth. Many of the user focused issues are present in mentioning of objectives, requirements, specifications and scope. They are only implicitly present though in these interviews. Obviously, the interviewees would have talked more about these issues if asked directly about them. On the other hand, they were not asked to focus any of the other perspectives either. The result is probably very close to what the real focus is in these processes. There is a danger that the core logic – embedded in the users' perspective - is left to someone else (delegated to designers and consultants perhaps) or lost in the dominating focus on productivity (suppliers' perspective) and economic/financial focus of the owner/investor perspective.

Conclusion

This study investigates two wide topics – preparations for a successful project and preparing for a collaborative contract.

In this last chapter the answers are summarised together with some reflections on further work.

Answering the research questions

The research in this report raises and aims at answering two questions. This section will try to summarise and focus the answers:

1. What are the necessary preconditions for successful relationship-based contracting?
2. How can we prepare for a successful collaborative contract?

Question one answered

The fully detailed answer is found in **Chapter 1: Preparing for a collaborative project**. All 11 interviews in this study gave a unique perspective on how to make successful collaborative projects possible. As expected, they also confirmed each other to a large degree. In fact, all interviewees seem to agree on fundamental issues independent of contract format. The ten learning points found on page 30 sums up main findings.

The essence may be expressed as development an organisational maturity that makes a successful collaboration possible. Among the main points are establishing an ambition to collaborate and a culture for openness and sharing. The organisation must want it! Formally the organisation's governance needs to support using collaborative strategies, and collaborative contracts if that is the case. Any initiation of a project needs to be based on a robust Business Case. On such basis the organisation may develop an execution strategy for the project based on collaborative practices. Independent of contract strategy, do not start a tendering process unless necessary resources and other preconditions to start are in place.

Question two answered

The fully detailed answer is found in **Chapter 2: Preparing for successful collaborative contracts**. The results across all case-projects and interviews are gathered and analysed as a whole. The main analysis looks at the process as tendering. This gave basis to extract one learning point from each stage (pages 35-38) worth repeating here:

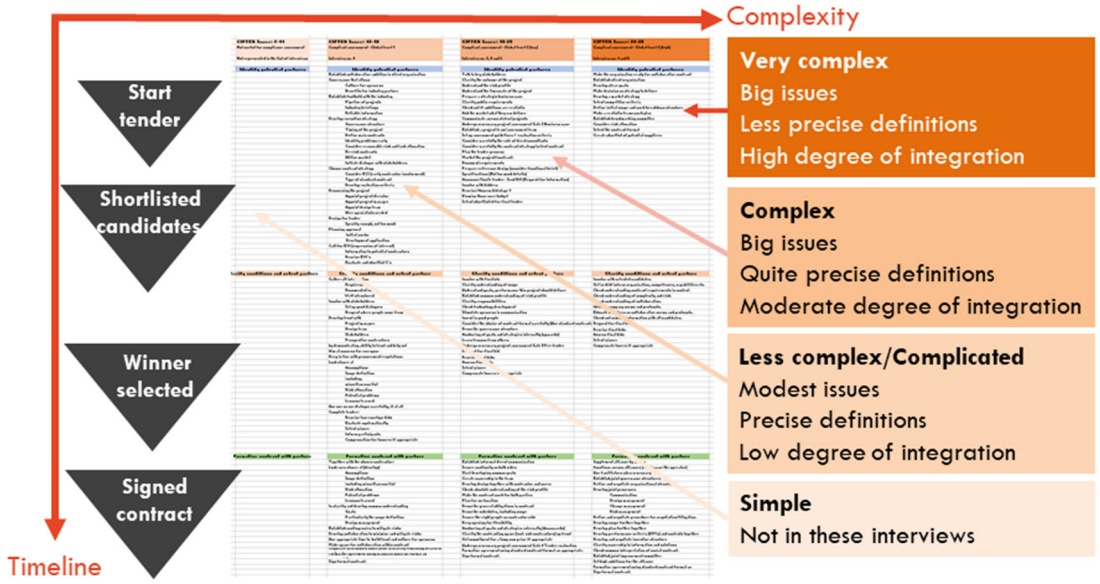
- Tendering does not start with blank sheets.
- Make sure you are well prepared before inviting.
- Be clear about what you need from contractors.
- Select those potential partners that aligns best to your strategy.
- The dialogue needs to mirror your real collaborative ambitions.
- Be systematic and fair in evaluations.
- Develop together what you later need to live up to together.
- Formalise what you agreed – nothing else.

The effect of complexity

From the start one expectation to the result was that complexity needs to be relevant to the preparations and practices for collaborative contracts. This was clearly confirmed in the findings. The details of the complexity analysis are found around Figures 21 and 25 to 27.

An additional meta-analysis of the resulting checklists from different projects with different levels of complexity is shown in Figure 31. Here the checklists for three steps towards signing a collaborative contract is compared.

Figure 31: The accumulated effect of complexity on the process from start to formalising contract.



Source: O.J. Klakegg, April 2020 Roundtable: Designing Contractual Relationships for the Future

The visual inspection of Figure 31 gives indications, and a look into the detailed checklists confirm the impression:

In context of a very complex project the collaboration must be very open and dynamic. The basis consists of major issues described by less precise definitions and specifications. This keeps open a wide room for improvement and innovation, but also require high degree of integration to succeed. These are to a large degree experiments where practice must emerge as development unfolds.

A complex situation is generally similar, but it is possible to achieve more precision up front in definitions and specifications. If that possibility is used, then the room for innovation is reduced and the need for integration too. However, there is no doubt left among the interviewees in this study that openness and close collaboration through all steps are necessary regardless. These complex projects develop their own frameworks and practice guidelines.

In a less complex situation the big issues are already clarified up front and those moderate issues that remain are well understood. This makes it possible to define the scope and requirements clearly. Such clarity opens for delivery strategies that include allocating risk and payment in some detail up front. This makes traditional contracts and delivery models more appropriate and the level of integration may be kept low. Execution may follow best practice guidelines.

There were no simple projects represented among the interviews in this study. This is a situation where all challenges are well-known, and roles and responsibilities clear from the outset. Transactional contracts were made for such conditions and is thus obviously appropriate.

Other aspects of complexity present in this material is analysed in the report and the following observations may be noted:

In the tendering process the different positions of clients and contractors must be understood and respected. They come from different places and have different stakes in the process. One example is shown in Figure 28: Information does not mean the same thing seen from the two positions. What the client needs to communicate is that this is an attractive project and an opportunity the contractors should go for. Clients want competition to secure lower prices in the bidding process.

What the contractor needs to hear is what shall be delivered and where the challenges and obstacles are hidden. They need this understanding to give the right price offer in the bidding. At the face of it, this may be read as a conflict of interest. The interviewees that mentioned this issue highlighted that reality is there is a common interest in the exposure of risks and challenges so that the right assumptions are made about the future project. All other alternatives will cost more during the process if not identified up front.

The cross-case analysis shows in Figure 29 that clients, when initiating development towards a more collaborative practice in their projects and specifically in contracts, the big step is taken when they start implementing collaborative practices. Independent of contract format, the biggest investment is in developing a culture of openness, sharing and collaborative behaviour, and to implement these in the tendering process. If these are already in place, then the step to enter actual relationship-based contracts is a smaller one.

A word of warning follows – obviously there is a need to further develop these cultures and practices in line with what the current situation demands at any given time. This is not a one-off investment. It is a long-term commitment.

Further research

A general assessment would probably suggest that a sample of 11 interviews is a limited basis for these conclusions. That is true, but the accumulated experience that these 11 experts have gathered through their carriers represent much more knowledge than this single exchange explicitly addresses. Many of the views expressed in the interviews have the nature of sharing broad experiences. The weak point is really the basis for cross case analysis when looking at the sample of only six projects. This author would like to see more of the case-based interviews. Collecting more experiences from specific projects with different levels of complexity and different types of contracts will strengthen the basis for conclusions. This is even easy to do.

Another easy point to strengthen is the theory part. The literature study is limited, and it has the nature of eclectic selection of known sources that the author is familiar with. A more systematic approach to the literature study would possibly give basis for stronger conclusions or may give answer to some of the questions not answered here. New literature may also give basis for alternative perspectives and identifying new and interesting issues hidden in this material. This is also easy to do.

The critical analysis of how well different viewpoints (perspectives) are covered in the material is shown in Figure 30. It indicates that there may be a weak focus on the user perspective in these processes. This needs to be investigated further. If it is true that the user perspective is weak, then value creation is threatened. Without a strong and consistent focus on what the real needs are, what solutions have the right qualities and functions for users, and what the end effect for users need to be, then there is a significant chance that the development and

delivery processes may astray form what would represent the most valuable solution. The material in this investigation is not strong enough to prove this is the situation. It was not an explicit question in the interviews, it is deduced in hindsight from the descriptions gathered.

Similarly, the public perspective should be investigated. How well does collaborative projects take into consideration the wider society: Societal-, environmental and economic effects beyond the obvious directly involved stakeholders. What about the long-term issues that we need to consider for the purpose of keeping the intended effect from public investments over time.

Critical view on the tendering process would be useful. Figure 20 gave indications that the current process might not really secure the value maximising partner is chosen. We select the partner before the basis for collaboration is well developed. This begs for new questions to be asked. How, and on what premises might a tendering process secure value maximising outcome? This question deserves attention, knowing that the focus on value creation from projects are increasing in both research and professional environments.

Similarly, if increased value is associated with benefits – which it is by definition – how then can we use collaborative delivery models and associated contracts to increase the focus on creating and harvesting benefits? What should be done to secure benefits realisation already before contract is signed?

Collaborative culture is one of the key issues in this report. What is it, and how can it be used to secure value maximising projects and collaborative contracts? We know a lot has been done on this subject, not least in Australia. It was implicit in the questions asked in this study, but it is not discussed in debt here and it was not part of the literature study. Interviewees pointed out several sources that might shed light on important aspects of collaborative culture. There is reason to believe that developing this culture starts already before the contract is signed. How can we develop a purposeful culture? This should be followed up in new studies.

The integrated organisation is another issue mentioned throughout the interviews. Integrated organisations are covered to some degree in existing literature. However, the importance in this particular setting of preparing for collaborative contract may not be well covered.

The use of facilitators in preparing for collaborative contracts came out very strongly in several interviews. Obviously, this was coloured by the individual interviewee's interest and background, but it is not a theme that is well covered as far as the author knows. Knowledge about facilitating teamwork, workshops for a wide range of purposes and in problem solving, integrated concurrent engineering etc. should be given more attention. What is the role of facilitation in preparing for collaborative contracts?

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Appendix A

Detailed checklist preparing for collaboration in contract

The following is a detailed version of the final checklist deduced from 11 interviews with experienced project professionals in Australia in the beginning of 2020. This preliminary version has not yet been reviewed and tested.

	Clarifications and activities at each stage
Stage 0	**Before preparations for tender starts**
	Establish collaborative ambition in client organisation
	– Understand organisational culture and business model
	– Understand business environment
	– Align behaviours, processes, systems and symbols
	Governance that allows:
	– culture for openness
	– benefits for industry partner
	– select projects for collaborative contract
	Establish foothold with the industry
	– Define pipeline of projects
	– Identify and follow market segments
	– Hold industry briefings
	– Give reliable information
	Consider project business case maturity
	– Define overall purpose of project
	– Identify financial limitations
	Develop execution strategy framework
	– Identify potential problems
	– Consider timing of the project
	– Define governance structure principles
	Choose contract strategy limitations
	– Consider Early Contract Investment (ECI)
	– Define limitations for use of contract types
	Resourcing the initiative
	– Appoint project director
	– Appoint tendering manager
	Consider planning approval conditions
	– Identify regulative limitations
	– Identify need for development applications
	Decision making
	– Formal decision to start tendering process
	Project assurance where appropriate
	– If appropriate: Undergo project assessment Gate 0 Project justification
	– If appropriate: Undergo project assessment Gate 1 Strategic assessment

Stage 1 Prepare to tender

Resourcing the initiative on the client side

- Appoint tendering team
- Consider the role of hired consultants
- Hire specialists needed
- Consider using external facilitator

Understanding the project

- Understand the risk profile
- Check with other projects for historical experience
- Clarify public requirements

Select your delivery strategy

- Consider using (external) facilitator
- Holding tendering team workshops
- Understand what capabilities are needed for this contract
- Check what the market can deliver
- Consider Early Contractor Involvement (ECI)
- Decide which sort of collaborative contract
- Identify (long list) potential candidates
- Set up assessment guidelines / evaluation criteria

Check appropriateness of model with superiors if needed

Project assurance where appropriate

- If appropriate: Undergo project assessment Gate 2 Business case

Stage 2 Invitation (Request for qualifications/information)

Develop appropriate documentation

- Formulate goals
- Prepare project concept (`30% for collaborative project)
- Design for tender – not too detailed
- Define/describe contract requirements
- Define initial scope and work breakdown structure
- Prepare facts/plans (initial time, cost, quality)
- Prepare contract document
- Make sure documents are well-structured

Understanding the project

- Communicate goals
- Involve with potential bidders
- Motivate for collaboration

Decision making

- Acceptance of ready to go to market

In case of collaborative contract

Alliances form and submit bids

Stage 3 Qualification

Initiate tendering process step 1

- Announce/Invite tender (RFQ/RFI)

Give bidders time to work out documentation

Perform tendering process

- Receive initial qualification documentation
- Assess qualification/bid stage 1
- Run selection workshops as appropriate
- Understand the company capabilities and business model
- Check company network of subs and associates
- Evaluate systematically
- Select candidates shortlisted for final tender

Check acceptance of short list for final tender

Decision making

- Final approval of delivery strategy
- Final approval of short list
- Ready to go to market

Inform candidates to clarification process

- Invitation to clarification process

Stage 4 Clarifications

Involve with stakeholders

- Set up good dialogues
- Respect where people come from
- Involve with selected candidates

Develop trust with:

- Project manager
- Design team
- Prospective contractors
- Other stakeholders as appropriate
- By demonstrating ability to trust and help out
- By aiming at success for everyone

Collaborative in contract

- Keep in line with procurement regulations
- Use one –on-one dialogue carefully, if at all

Check out common information with all candidates

- Get in-debt info on organisation, competences, capabilities etc.
- Identify key people from contractor that will work on the project
- Identify company norms and protocols

Clarify understanding of:

- Assumptions
- Scope definition
- Collaboration
- Complexity and risk
- Contract requirements in context
- Potential problems
- Lessons learned

Stage 4 Clarifications continued

Educate (if needed) on:

- Client preferences
- Collaborative norms and protocols
- Responsibilities and risks
- Contract in context

Decision making

- Acceptance to initiate tender step 2

Keep open room to innovate

In case of collaborative contract

One-on-one dialogue is explicitly part of process

Perform interview process

- Invite those individuals that shall do the job
- Stimulate understanding of goals, performance this project should deliver
- Set up psychology for success
- Observe individuals carefully

Stage 5 Bid process

Initiate tendering process step 2

- Invite bids from shortlisted candidates (RFB)

Give bidders time to work out documentation

Perform tendering process step 2

- Receive two-envelope final bids
- Evaluate systematically as announced
- Select winner
- Inform participants
- Compensation for losers if appropriate

Evaluating solutions and bids

- Solutions against needs and goals
- Bids against market price level
- Solutions against each other without price
- Bid against bid including price

Decision making

- Final decision on bid winner

Stage 6 Joint development

Involve with the selected bidder face-to-face in a proper way
- Help contractors understand the bigger picture
- Go beyond the basic facts (performance, time, cost)
- Be a responsive client
- Be open about preferences
- Get to know the strong sides of your contractors
- Be true to yourself and show what you really need
- Stimulate openness in communication
- Set high ambitions for the collaboration
- Establish adequate communication on relevant levels of hierarchy

Appoint facilitator
- External or internal, as appropriate
- Establish plan/program for preparations

Use partnering workshops to understand and set focus
- Objectives
- Uncertainty, risks and opportunities
- Value engineering

Involve in planning
- Give flexibility to develop the process and solution
- Understand goals, performance this project should deliver
- Analyse and develop particularly the scope definition
- Check technology development
- Learn lessons from others
- Challenge assumptions
- Identify issues and potential problems
- Establish common understanding of risk profile
- Develop collaboration to minimise and mitigate risks
- Benefits realisation

Consider management consequences
- Identify (and start developing) the wanted project culture
- Select the right individual for (alliance-) manager
- Put together team of other key individuals
- Design management
- Change management
- Risk management
- Invest in good people
- Create ownership in the team
- Guidelines for behaviour

Consider structural consequences
- Choice of contract format (use standard contracts)
- Describe governance structure
- Secure the ability to make decisions
- Define the (alliance) manager role

Keep evaluation ongoing as things evolve
- Secure goal achievement during planning
- Check for competing price levels

Decision making
- Anchoring of goals and strategies internally (upwards)

Use appropriate time to develop scope, common goals, and build trust and culture for openness

Stage 7 Formalise contract

Set up final contract

- Use standard contract format, as appropriate
- Describe general obligations in contract
- Describe schedules, including scope
- Clarify principles for risk allocation
- Make space for collaboration within contract
- Secure continuity
- Plan for co-location
- Clarify ownership to information and solutions

Negotiate with chosen contractor to clarify remaining detail

- Make the contract work for both parties
- Anchoring of goals and strategies
- Establish joint governance structures
- Develop joint processes
- Develop joint performance criteria
- Develop incentive structure

Finalise resources

- Confirm the right alliance management team
- Establish joint improvement committee

Plan for mobilisation

- Both client and contractor side

Check acceptance of tender evaluation before final decision

Decision making

- Establish contingencies to mitigate risks
- Finalise budget and timeframe
- Accept final contract

Project assurance where appropriate

- If appropriate: undergo project assessment Gate 4 tender evaluation

Sign formal contract

Roundtable attendees

The **Designing Contractual Relationships for the Future Roundtable 2020** was hosted *online* via Zoom by the University of Sydney 3pm to 4.30pm, Wednesday 29 April 2020. This virtual gathering presented findings to participants following on from the 19 November 2019 roundtable, and this report is the culmination of five months research and work.

The Zoom roundtable attracted a diverse range of participants from industry and government including construction, transport, health, infrastructure and education.

Facilitators:

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