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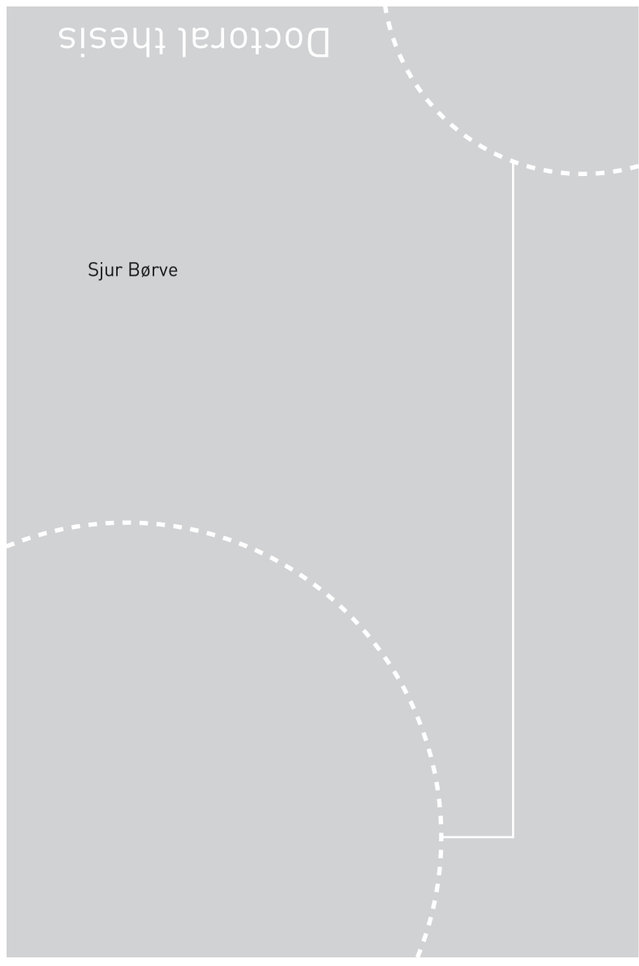
Sjur Børve

Project Partnering defined and implications thereof



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Trondheim, November 2019

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I Preface and acknowledgements

I am proud, thankful and humble to present this thesis.

I hope the work will be of importance to both the research community and practitioners. I have pursued to crack the for decades uncracked nut of how to define Project Partnering (PP) by the most essential dimensions and variables. By achieving a definition of PP, implications thereof appear and open doors for further research.

This thesis interconnects three scientific publications accepted by and published in the International Journal of Managing Projects in Business. The candidate is the main author of two publications and the second author of one publication. Hence, the number of articles should be more than sufficient for evaluation according to recommendations and guidelines issued by the Faculty of Engineering Science and Technology.

The motivation for publication 1 (Børve et al., 2016) was to get the PhD project kick-started. Colleagues advised me to get started by writing a journal article and thus learn the methodology and how to compose a scientific article. Additionally, my ambition was to write a story that is 100 per cent correct, which I realised was a good challenge.

Publication 2: (Børve et al., 2017): As a result of publication 1, I realised that the major problem pertaining to project partnering is to clear up ambiguities and confusion on what Project Partnering and a partnering project are. Unless there is a clear understanding of what partnering is, there is no sense in discussing its advantages and disadvantages. The achievement lies in the importance of the basic and simple framework for defining collaborative project forms, not necessarily in the new definition being formulated.

In Publication 3 (Nevstad et al., 2018), my purpose was to prove the usefulness of the framework used to define partnering success elements.

The three publications are hereafter referred to as Publication 1, 2 and 3.

These three publications form the foundation for a definition of PP and the implications thereof. It would be an achievement if this work can inspire further work aimed at defining PP and other collaborative project forms, including further implications thereof.

I am very thankful to everyone who has helped me complete ths work. This thankfulness is unlimited to supervisors, faculty and department, The International Journal of Managing Projects in Business, co-authors, reviewers, administration staff, family and friends. There would not be a completion without their kind support. An extra thank you to the administration at the Department of Mechanical and Industrial Engineering for flexibility and the possibility to complete my PhD work while on a 80 per cent leave from April 2017 to October 2018 in combination with on-and-off work.

The PhD programme is financed by the Programme for Continuing Education and Professional Development in Project Management (in Norwegian: Etter- og videreutdanningsprogrammet i prosjektledelse).

I hope the dissertation defense has a common objective for all participants: to expand the body of knowledge of collaborative project forms.

II Summary

Defining Project Partnering and partnering projects

Project Partnering (PP) and partnering projects are to be defined by a framework of 1) the participants, and; 2) the participants' joint objectives, and; 3) the knowledge, skills, tools and techniques (measures) applied to pursuing the objectives by each of the participants (Figure 5-1: 3D model for defining PP and partnering projects at page 114) . Additionally, a definition should be made by negation in the same dimensions: who are excluded, what objectives are not pursued, and what measures are not jointly implemented.

The new and modified definition of Project Partnering:

> *Project Partnering is a collaborative project form whereby a project owner integrates contractor and other selected stakeholders into complex projects. Through commitment to mutual project objectives including improved performance, collaborative problem solving and a joint governance structure, partners pursue collaborative relationships, trust and maximizing the effect of each participant's resources.*
>
> *Project partnering can be applied in any industry and in any complex project. PP does neither include collaborative value creation by joint opportunities handling nor stringent governance structures.*

Whereas traditional project management has been accused of facilitating a maximization of project outcome by exploiting adversarial relationships (Chan et al., 2004, Black et al., 2000, Addison, 2013), PP is best practice project management due to the collaborative nature, namely mutual project objectives and collaborative problem solving and joint governance structures. Collaboration is not a tool in project management as defined by the Project Management Institute (Project Management Institute, 2017) although PP is best practice project management including tools and knowledge on collaboration (Institute for Collaborative Working, 2018). The new

constructive definition of PP can serve as a required fundament in the Project Management Institute tradition of normative ontology for developing knowledge, skills, tools and techniques specific for PP.

PP and partnering projects have both been insufficiently defined in at least one of three dimensions. The new PP definition is a starting point and a basic and important contribution providing more improved research, understanding and hence implementation of PP. By defining specific partnering elements, partnering projects are expected to be easier to communicate, implement and benchmark.

Implications of the new definition of PP

The new definition has further implications, whereof a few are highlighted in this thesis. Firstly, the extent of collaboration shows that PP intensity varies with the joint objectives and measures in addition to the number and kind of participants as shown in Figure 5-9Figure 5-9: Extent of collaboration at page 127. Hence, PP intensity does not vary with early involvement nor with increasing gain/pain share. The three-dimensional framework allows collaboration to grow with an extension of joint objectives, the corresponding measures pursuing the objectives and the number and kind of participants.

Secondly, a PP maturity model has been developed, as visualised in Figure 5-10: Partnering maturity model: The Partnering 3D stairs at page 128. In the *who* dimension, the partnering stairs may evolve from owner-contractor partnering via owner-contractor-designer partnering to multi-stakeholder partnering. The objectives may evolve from the clear and single *avoid conflict* joint objective to full project value potential. Measures may evolve from start-up workshop and charter to joint risk (opportunities and threats) mitigation and less stringent joint governance structures.

Thirdly, it is demonstrated how the framework can be used to distinguish between PP and project alliancing and possibly other collaborative project forms.

Fourthly, the framework for defining a partnering project and PP, including negation and delineation, will be helpful for world-wide project management institutions in developing constructive definitions for all other collaborative project forms and hence producing authorial knowledge for practitioners and researchers. It should be obtainable to define all collaborative project forms, based on the framework presented, defined by negation and delineation between the different forms.

Partnering in offshore drilling projects

The Relationship-based Project Procurement (RBP) taxonomy is applicable to a description of partnering practices in an incentive-based drilling project in Norway. Most elements of PP observed earlier in construction projects were found to characterise offshore development drilling projects. However, as assessed using the RBP framework, the research found that partnering elements in observed context rated consistently lower than elements previously reported in the construction industry, indicating a lower maturity of partnering practices in the studied context.

How to succeed with partnering

In Publication 3, three main dimensions on how to succeed with PP were identified: 1. *who* related to participant selection; 2. *what* pertaining to task clarification; and 3. *way* related to partnering measures. These dimensions give rise to what has been termed a 3W (Who, What, Way) model on how to succeed with PP in practice. The third dimension, way related to partnering measures, was found to consist of the following four sub-dimensions: 3a. partnering attitude; 3b. a collaborative culture; 3c. a holistic perspective; and 3d. an accurate handover.

Practical implications

Practitioners should benefit from this research when planning, communicating, implementing and evaluating partnering projects. PP participants should be confident

on commitments, joint objectives and how to pursue the objectives. The 3D maturity model should be helpful in acknowledging organisations' maturity in PP and in understanding in what dimension to mature further and adapt to projects.

Future research should look into if nourishment of commitments, dependencies and expectations between stakeholders is the real basic objective for a collaborative approach. It should be evaluated if project outcomes derive out of a partner's improved awareness of commitments, dependencies and expectations. Also causality studies of partnering measures and objectives deserve further research.

III Sammendrag (Summary in Norwegian)

Denne ph.d.-avhandlingens hovedresultat er at et samspillprosjekt og samspillprosjekter generelt defineres av et rammeverk i tre dimensjoner: 1) deltakere, 2) felles prosjektmål og 3) verktøy, teknikker og kunnskap benyttet for å nå de felles målene (Figur III-1). I tillegg avgrenses samspillprosjekter ved negasjon med de samme dimensjoner; hvem deltar ikke, hvilke mål samarbeider deltakerne ikke om. og hvilke tiltak brukes ikke i samarbeidet om felles mål.

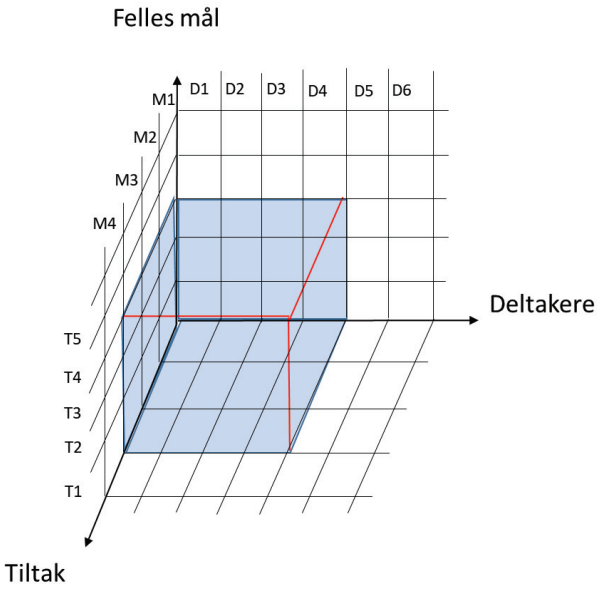

Figure III-1: 3D-kube for definisjon av samspillprosjekter

Samspillprosjekter defineres slik:

> *Samspillprosjekter er en samarbeidsbasert prosjektform hvor prosjekteier integrerer kontraktør og andre viktige bidragsytere i komplekse prosjekter.*
>
> *Gjennom forpliktelse til felles prosjektmål, risikohåndtering og beslutninger, utvikles samarbeidsrelasjoner, tillit og forbedret bruk av deltakernes ressurser.*

Samspillprosjekter kan implementeres i alle bransjer. Samspillprosjekter omfatter hverken verdiskapning med felles håndtering av muligheter eller stringente styringssystemer.

Mens tradisjonell prosjektledelse kan beskyldes for å legge til rette for å maksimere prosjektresultatet ved å utnytte motstandsforhold, er samspillprosjekter beste praksis prosjektledelse med samarbeid om felles prosjektmål og problemløsning og styringsstrukturer. Samarbeid er ikke i kunnskapsområdet eller et verktøy i prosjektledelse som definert av Project Management Institute, dette på tross av at samspillprosjekter er beste praksis innen prosjektledelse med verktøy og kunnskap om samarbeid i prosjekter. Den nye konstruktive definisjonen av PP kan fungere som et nødvendig fundament i Project Management Institute sin tradisjon av normativ ontologi for å utvikle kunnskap, ferdigheter, verktøy og teknikker som er spesifikke for PP.

Kjernen i definisjonen er de felles målene og felles beslutninger for å nå målene. Den nye definisjonen av samspillprosjekter vil bli testet og videreutviklet i kommende år. Rammeverket for å definere samspillprosjekter kan vise seg å være mer robust.

Dette arbeidet er viktig fordi tidligere definisjoner av samspillprosjekter er mangelfulle på minst en dimensjon. Tidligere definisjoner har også ignorert sammenhenger mellom felles mål og også mellom spesifikke tiltak for å nå målene. Manglende definisjon har medført at prosjektdeltakere sliter med å implementere samspillprosjekter. Ved å spesifisere tiltak for å nå målene, kan deltakerne måle og evaluere tiltakene bedre.

Videre er metoden anvendt for å utvikle en ny modningsmodell for samspillprosjekter samt styrkegraden i samarbeidsprosjekter, som vist i de to følgende figurene. Modenhetsmodellen går fra pseudo-samspill uten felles mål og tiltak, via samspillprosjekt og integrert prosjektleveranse til samspill over flere prosjekter. Modenheten øker også med antall deltakere.

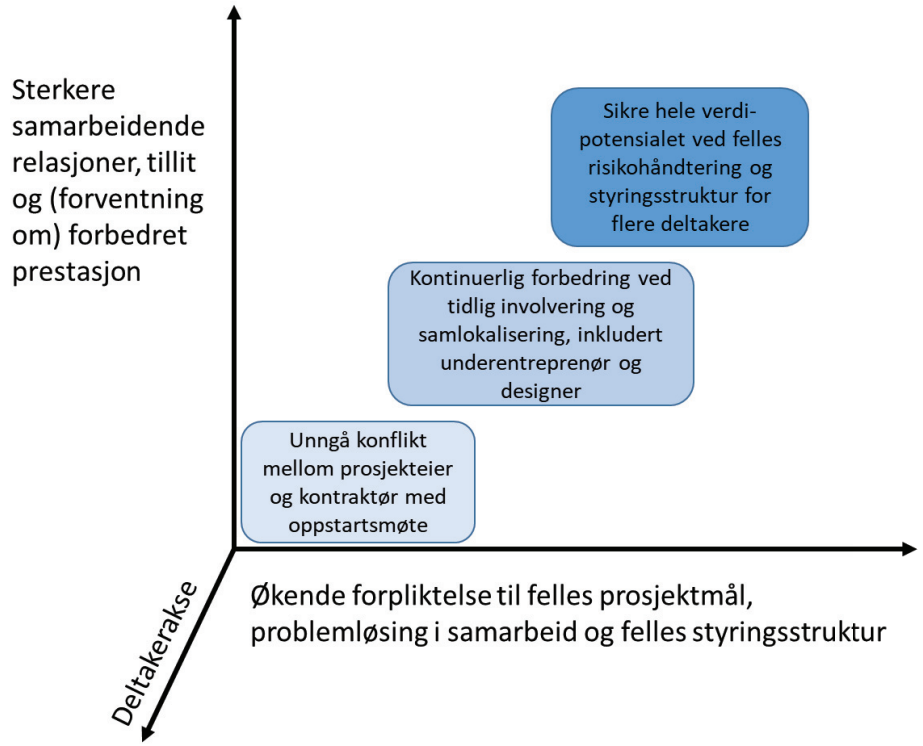

Figure III-2: Modenhetsmodell for samspillprosjekter

Styrken i samspillprosjekter øker fra det grunnleggende felles mål om å unngå konflikt, via kontinuerlig forbedring med tidlig involvering og samlokalisering til å sikre hele verdipotensialet med felles håndtering av både trusler og muligheter samt felles styringsstruktur med flere interessenter.

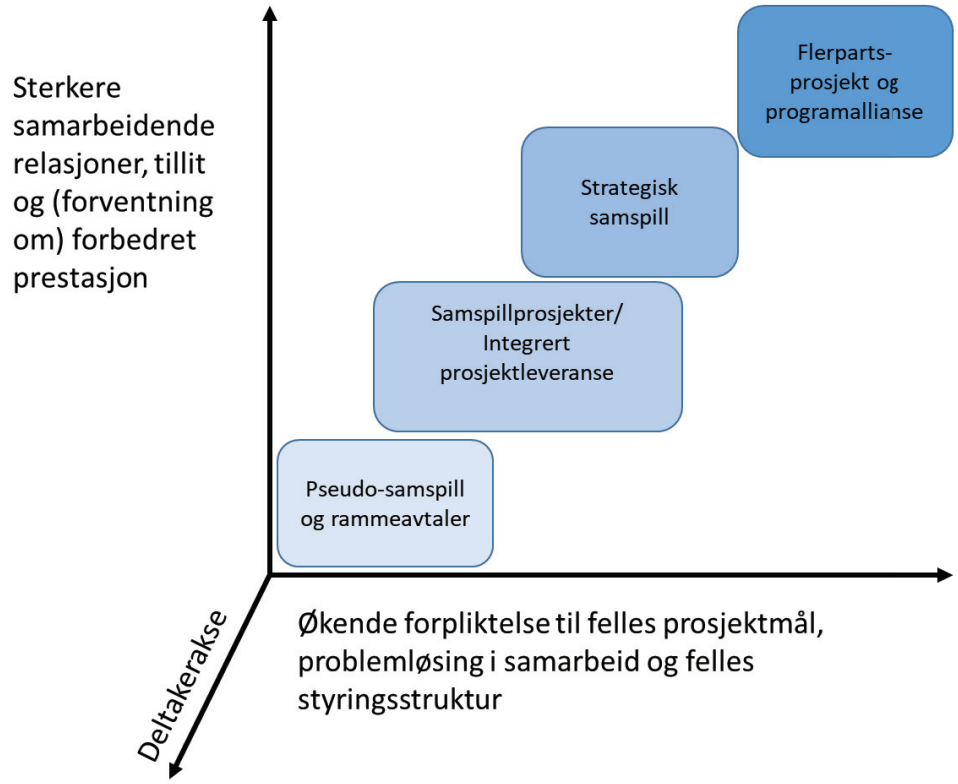

Figure III-3: Grader av samspillprosjekter

Metoden for å definere samspillprosjekter er i avhandlingen også benyttet for sammenligning med en prosjektallianse. Prosjektallianser kan ha en sterkere forpliktelse mellom deltakerne, verdiskapning med felles risikohåndtering og forvaltning av muligheter sammenlignet med samspillprosjekter. Metoden kan være egnet til å definere andre samarbeidsbaserte prosjektinnkjøpsformer og vise forskjellene mellom dem.

Det er et stort antall variasjoner i samspillprosjekter hvor kombinasjoner av antall deltakere, antall felles mål og antall tiltak for å nå målene, med avgrensninger i alle

dimensjoner, er stort når de multipliseres sammen. Samspillprosjekter vil derfor i stor grad være unike.

Samspill i offshore boreprosjekter

Taksonomi for samspillprosjekter kan beskrive samarbeidspraksis i et insentivbasert boreprosjekt i Norge. De fleste samspillselementene som er observert i byggeprosjekter karakteriserer også offshore boreprosjekter. Forskningen fant imidlertid at samspillselementer i offshore boreprosjekter vurderes konsekvent lavere enn tidligere rapportert i byggebransjen, noe som indikerer en lavere modenhet av samspillspraksis i boreprosjekter.

Hvordan lykkes med og videreutvikle samspill

I publikasjon 3 ble det identifisert tre dimensjoner av hvordan man lykkes med og videreutvikle samspillprosjekter: 1. valg av deltakere; 2. avklaring av målene og 3. samspillstiltak for å nå målene. Disse dimensjonene sammenfattes i en 3H-modell (*hvem*, *hva*, *hvordan*) for hvordan man lykkes med og videreutvikle samspill i praksis. Den tredje dimensjonen, som var relatert til partneringtiltak, ble funnet å bestå av de fire følgende underelementene: 3a. samspillsholdning; 3b. samarbeidskultur; 3c. helhetlig perspektiv; og 3d. en presis overlevering.

Praktiske implikasjoner

Prosjektutøvere bør ha nytte av denne forskningen når de planlegger, kommuniserer, gjennomfører og evaluerer samspillprosjekter. Deltakere bør bli mer trygg på forpliktelser, felles mål og hvordan man skal forfølge målene. 3D-modenheten kan være nyttig for å anerkjenne organisasjonens og prosjektets modenhet for samspill og for å forstå i hvilken dimensjon organisasjonen skal utvikles videre.

Framtidig forsking bør i tillegg til elementer knyttet til gjensidig forpliktelse også fokusere på elementer som fremmer gjensidig avhengighet og forventninger. Også kausalitet mellom tiltak og mål i samspillprosjekter trenger ytterligere forskning.

IV Table of contents

V List of figures

VI List of tables

VII List of publications

Publcation 1: BØRVE, S., AHOLA, T., ANDERSEN, B. & AARSETH, W. 2016. Partnering in offshore drilling projects. *International Journal of Managing Projects in Business,* 10**,** 84-108.

Publication 2: BØRVE, S., ROLSTADÅS, A., ANDERSEN, B. & AARSETH, W. 2017. Defining project partnering. *International Journal of Managing Projects in Business,* 10**,** 666-699.

Publication 3: NEVSTAD, K., BØRVE, S., KARLSEN, A. T. & AARSETH, W. 2018. Understanding how to succeed with project partnering. *International Journal of Managing Projects in Business,* 11**,** 1044-1065.

For improved visibility of their integrated nature, the publications are referred to as Publication 1, 2 and 3 throughout the thesis.

VIII Presentations given at conferences

"Partnering in offshore drilling projects", at the Norwegian Petroleum Society's (NPF) 29th conference in drilling and wells technology, Kristiansand, September 2016

"Partnering", Partnerforum, ProsjektNorge, Oslo, March 2017

IX List of a few acronyms and abbreviations

IJMPB: International Journal of Managing Projects in Business

IJPM: International Journal of Project Management

PMJ: Project Management Journal

PMBOK: Project Management Book of Knowledge

PP: Project Partnering

Part I – Theoretical background and key findings

1 Introduction

1.1 Why is this work of importance?

Research has yet to provide a definitive universally accepted definition of partnering (Packham et al., 2003, Beach et al., 2005, Sedita and Apa, 2015, Venselaar and Wamelink, 2017). For decades, the confusion pertaining to partnering was "the lack of an adequate and precise definition of partnering; what precisely does partnering entail in practice? Is it possible to define partnering as a coherent strategy, which involves the deployment of a more or less universal set of systems, practices and procedures? Alternatively, is the term partnering so diffuse and malleable that it can be ascribed to any form of non-adversarial relationship?" (Bresnen and Marshall, 2000). This summarises the motivation behind this thesis. The perception that partnering is not easy to define is supported by Cheung et al. (2003). However, there are several common characteristics among the definitions given (Jacobsson, 2011).

Sparkling et al. (2017) has provided a summary attempting to define PP:

> "Defined as "a long-term commitment between two or more organizations for the purpose of achieving specific business objectives by maximizing the effectiveness of each participant's resources," (Construction Industry Institute (CII), 1991) construction project partnering, is generally discussed under two separate concepts in the literature: project partnering and strategic partnering. Project partnering is a voluntary protocol aimed to enhance team integration

and performance outcomes on a single project, while strategic partnering establishes contractual obligations between organizations across multiple projects (Bennett and Peace, 2006). Strategic partnering research primarily focuses on alliance building and the extent to which partners follow the partnering philosophy contractually, while including defined risk allocation and incentives (Tang et al., 2006). On the other hand, project partnering is a format that can be followed either formally or informally and can be carried under any project delivery method including design-bid-build (Lahdenperä, 2012, Loraine, 1994). Both types of partnering practices help organizations achieve their separate but complimentary business objectives while managing the risks and uncertainties of external environments (Construction Industry Institute (CII), 1991, Doloi, 2009). As such, the authors conceptualize partnering as an organizational practice aimed at resolving inter-organizational conflict in the delivery of architecture, engineering, and construction projects (Crowley and Karim, 1995)."

When limited to PP, the summary definition by Sparkling et al. (2017) can be organised as shown in the table below.

General description	an organizational practice
Who	two or more organizations
What	for the purpose of achieving specific business objectives … to enhance team integration and performance outcomes … achieve (the organizations' (inserted by author)) separate but complimentary business objectives … resolving inter-organizational conflict
How	Commitment … maximizing the effectiveness of each participant's resources … voluntary protocol … either formally or informally, … managing the risks and uncertainties of external environments …

When	long-term … on a single project
Where	In any project delivery method including design-bid-build … in architecture, engineering, and construction projects

Table 1-1: Summary definition of PP by Sparkling et al. (2017)

There are several weaknesses in the definition by Sparkling et al., (2017). The general description of PP as 'an organizational practice' is vague and not providing key information on PP. The participants are limited to 'two or more organizations', leaving the roles of the participants undefined. Sparkling et al., (2017) provide four overlapping purposes of PP. The objectives are joint; described as separate but complimentary, specific business objectives including team integration and performance in addition to resolving inter-organizational conflict. The measures are a confusing formal or informal commitment by voluntary protocol to maximise the effectiveness of each participant's resources. Further, with regard to the measures, we may assume management of risks and uncertainties of external environments to be joint. Joint risk mitigation is based on balanced level of governance structure. The time frame is contradictive, with 'long-term' and 'one single project'. Sparkling et al., (2017) further state that PP is unlimited as it pertains to project delivery method but at the same time limit PP to architecture, engineering, and construction, thus leaving information technology projects and non-construction projects outside. Sparkling et al., (2017) provide a delineation to alliance-building strategic partnering which includes risk allocation and incentives regulated by contract, but do not define further by means of negation.

Actually, researchers have given up on defining what partnering is and are now focusing on the *how* dimension only by studying partnering routines, institutionalisation and embedding of partnering in project practice (Bygballe and Swärd, 2019). With no universally accepted definition and lacking shared understanding of the partnering concept, this is causing confusion and ambiguity about what partnering really is (Eriksson, 2010), and understanding on how to implement it (Aarseth et al., 2012, Chan et al., 2006). Publications on partnering

research are furthermore too abstract for practitioners (Venselaar and Wamelink, 2017), practitioners possibly with a positivist ontology. Providing a method for defining partnering projects and PP will have implications for planning, implementation and evaluation of partnering projects. As to implications, the method for defining PP can be applied to defining other collaborative project forms consistently and to developing maturity models important to organisations in understanding their position and path in developing a collaborative strategy.

However, Larson, (1997) and Mollaoglu et al. (2015) documented great outcomes from partnering, with great achievements related to time and cost savings (Barlow, 2000). Partnering "increase productivity and quality, reduce transaction costs and project times, improve customer satisfaction and stability (Bresnen and Marshall, 2000), facilitate joint risk management and allocation, reduce disputes (Rahman and Kumaraswamy, 2004) and enhance learning (Love et al., 2002)" (Crespin-Mazet et al., 2015). On the other side, however, Nyström (2007) could not find partnering projects performing better than traditional projects. "As such, the industry still has room to improve quantitative benchmarks to understand the benefits of partnering including soft metrics (e.g., how team cohesion, trust, and commitment are established and/or developed over time) to monitor project team performance" (Jacobsson and Wilson, 2014). Partnering, with its depency on more encompassing changes, is not an easy and soft option and can be more demanding than conventional tendering (Construction Industry Review Committee (CIRC), 2001, Cheung et al., 2003, Eriksson, 2010, Green, 2011, Jacobsson and Wilson, 2014). And, "project research on empirical evidence concerning collaboration in projects is limited" (Greiman, 2013).

This thesis aims to identify the most basic dimensions of partnering elements and thereby provide a method of defining what partnering is and implications thereof.

1.2 Objectives

Project Partnering is inadequately defined although widely implemented. The purpose of this thesis is to demonstrate a framework for defining Project Partnering (PP) and thus a way of defining partnering projects. The PP definition from Publication 2 needs constant fine-tuning, and implications of the definition should be presented and discussed.

By defining specific partnering elements, partnering projects are expected to be easier to plan, communicate, implement and benchmark.

Part of the motivation for initiating this research project was based on the belief that a partnering project definition as a starting point is a basic and important contribution providing better research, understanding and hence implementation of PP. The framework for defining a partnering project and PP, including negation and delineation, should be evaluated for the purpose of defining other collaborative project forms.

1.3 Scope

As a starting point in this thesis, Project Partnering is defined as in Publication 2:

> *Project Partnering is a relationship strategy whereby a project owner integrates contractors and other major contributors into the project. Through commitment to mutual project objectives, collaborative problem solving and a joint governance structure, partners pursue collaborative relationships, trust and improved performance.*

The definition includes a general description in addition to defining the participants, the objectives and the measures for how to pursue the objectives. The definition does

not define by negation (what is *not* PP), nor does it define boundaries to other collaborative project forms.

To demonstrate the importance of the work undertaken in this thesis, implications of the framework for defining partnering projects and the new definition are provided in a model on how to show extent of collaboration, in a PP maturity model and in a model outlining how to distinguish collaborative project forms from each other.

Because collaboration is mentioned twice in the definition of Publication 2 and because procurement is not a featured theme, this thesis consequently employs the term *collaborative project forms* instead of *relationship-based project procurement forms* as defined by for example Suprapto et al., (2016).

1.3.1 Limitations and exclusions

To limit the research, we only investigate the management and collaboration aspects of PP. Contractual matters are just briefly mentioned as a form of formal commitment. Research distinguishes between PP and strategic partnering. PP refers to partnering for the purposes of a specific project and focuses on short-term benefits, while strategic partnering represents a more long-term commitment spanning several projects (Beach et al., 2005, Cheng and Li, 2001).

PP has a parallel concept in Relationship Marketing, where contractors focus on the project owner as a customer for long-term business relations (Evans and Laskin, 1994). Furthermore, Relationship Marketing has no commonly accepted definition (Evans and Laskin, 1994). Neither Strategic Partnering nor Relationship Marketing is thoroughly researched in this thesis.

1.4 How the publications are interrelated

Publication 1 demonstrates how a PP taxonomy developed in and for the construction industry can be applied with limitations in the offshore drilling industry. Publication 1 revealed overlapping measurements of the partnering elements and provided the rationale for defining PP and partnering projects in Publication 2. The definition of PP further provided a framework for how to define PP success elements in the infrastructure construction industry in Publication 3.

All papers address defining a partnering project, although Publication 1 applies the Relationship-based Project Procurement Taxonomy developed by Walker and Lloyd-Walker (2015). Publication 2, 3 and this thesis apply a framework encompassing participants, objectives and measures. Publication 1 is a case study from the oil and gas industry and Publication 3 a case study from the infrastructure construction industry, whereas Publication 2 and this thesis aim to be generic in terms of industry. See also the methodology section for further comparison between the research questions and conclusions of the publications. The three publications are referred to more than 100 times in this thesis. All publications have 'partnering' in the title and PP listed in the keywords.

1.5 Structure of the thesis

This thesis consists of two parts: theoretical background and key findings (Part I), and individual publications and attachments (Part II). Part I comprises six sections which present the theoretical background and summarise the key findings and contributions of the thesis. Section 1 is an introduction to the study, presenting the background of the thesis, objectives and scope and the structure of the thesis. Section 2 provides a narrative literature review on the key theoretical perspectives which are relevant to this study. Section 3 presents a methodological review and discussion. Section 4 provides a summary of the publications. Section 5 comprises a summary of the main

results of the individual publications in addition to discussions on the key theoretical and practical contributions of the research. The first part is closed with Section 6, which includes the main concluding remarks and suggestions for future research. Part II includes a collection of the individual publications; three journal articles that represent the main work and contributions of the PhD research.

Figure 1-1 provides an overview of the thesis.

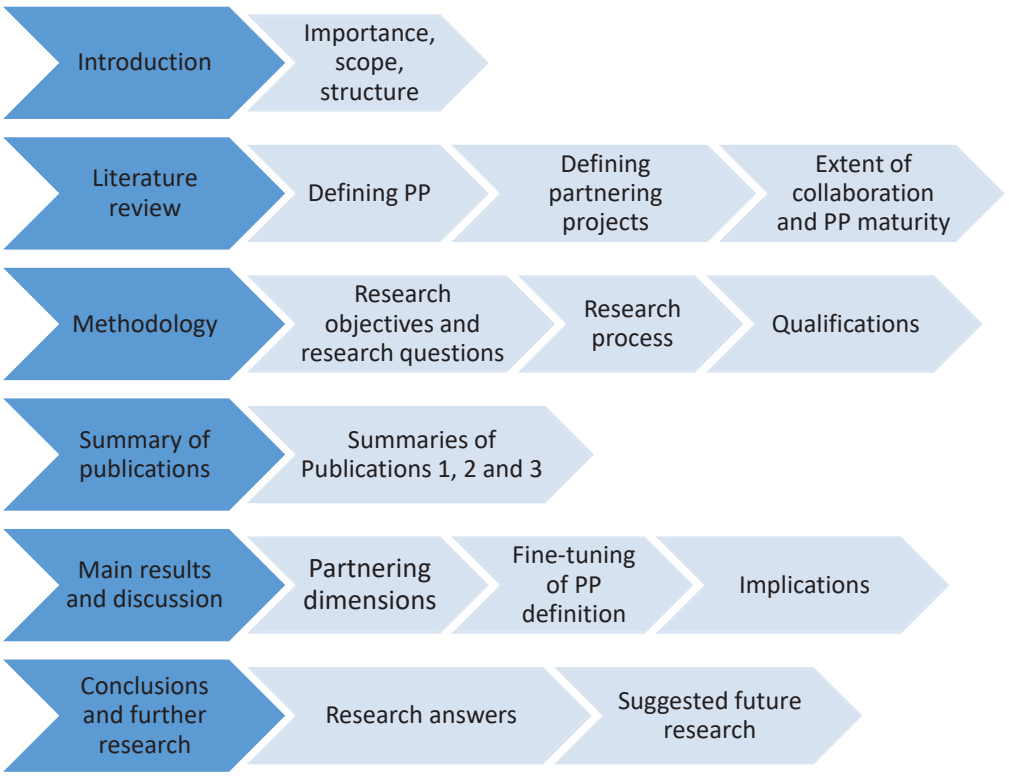

Figure 1-1: Structure of the thesis

2 Literature review / State of knowledge of concepts and gaps

This literature review aims to present the practice of defining PP and partnering projects. The review of defining PP is split into sections for (1) maturation over time, (2) partnering definition models, (3) categorisation of PP definitions, (4) comments to elements in PP definition, (5) Project Management Institute's approach to PP, (6) PP defined as a process, (7) PP maturity models and (8) a comparison of PP and Project Alliances. This is followed by a review of how a partnering project and partnering success factors are defined in academic literature. The section ends with a conclusion.

2.1 Defining project partnering

2.1.1 Maturation over time

Definitions of PP in literature have evolved over time through the contribution of various experts (Publication 2). According to Lahdenperä (2012), PP is an emerging method from North America that originated in Japan, labelled as "gentlemanly principles" and developed further into Integrated Project Delivery (IPD) in North America.

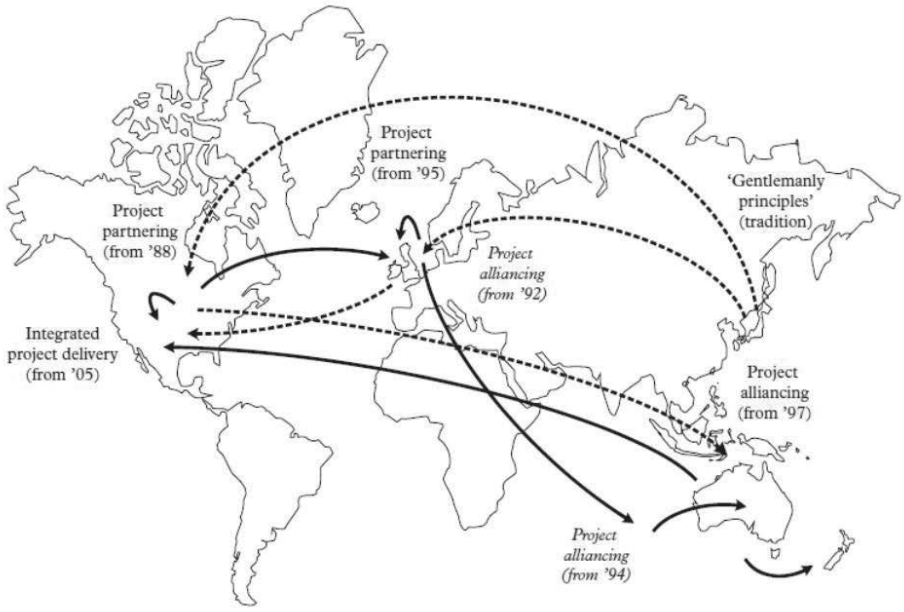

Figure 2-1: Maturation of PP over time (Lahdenperä, 2012)

From Figure 2-1, we see that PP is closely related to Project Alliancing and Integrated Project Delivery. This thesis focuses on PP. How PP is defined is also relevant for definition of alliances, integrated projects and other collaborative project forms.

2.1.2 Partnering definition models

Partnering has by and large been defined in literature in two specific ways: (1) through its planned characteristics, like for example mutual targets and objectives, trust and long-term assurance and (2) through the process, wherein partnership is perceived as a verb, like in the development of a mission statement or the achievement of agreements on goals and objectives (Cowan et al., 1992). Such definition of partnering essentially demonstrates the proposed or planned consequences for partners. Such definitional prejudice essentially adds to the limitations and restrictions in the

accomplishment of partnering, e.g. the lack of predictability of success vs failure in diverse partnering environments and situations.

Partnering was initially defined by success factors and essentially describes the ways and measures adopted for implementation by project partners (Abudayyeh, 1994, Beach et al., 2005, Cheng and Li, 2001, Crane et al., 1997, Crowley and Karim, 1995, Nyström, 2007, Ross, 2009, Wong et al., 2008). The prescriptions for success were to reduce organisational challenges and improve the organisational cooperation between organisations in projects (Cowan et al., 1992, Crowley and Karim, 1995, Larson, 1997, Halman and Braks, 1999, Naoum, 2003, Ross, 2003, Bayliss et al., 2004, Chan et al., 2004, Alderman and Ivory, 2007).

Cowan et al. (1992) developed an initial PP model which comprises two important stages, namely (1) pre-project and (2) implementation. The pre-project stage consisted of selection of partners, bonding in project management and the building of stakeholder teams. Implementation, on the other hand, consists of joint evaluation, escalation, continuous improvement and persistent leadership. The two main stages of this model are expected to lead to satisfactory completion. Cowan et al. (1992) do describe PP in three dimensions of the framework. A mix of objectives and measures are also defined by negation.

As examples, the following have presented partnering success factors as if the factors define partnering. Abudayyeh (1994) and Crowley and Karim (1995) started partnering with clarifying the interests of participating actors in the partnering effort. Thereafter a partnering workshop should be arranged (Abudayyeh, 1994; , Ross, 2009) with the assistance of a facilitator. The selection of a competent facilitator for the workshop (Abudayyeh, 1994, Ross, 2009) stimulates the exchange of ideas between stakeholders in the partnering project, but does not get involved in the content of the exchange. The facilitator should be experienced, because many old conflicts can reappear (Ross, 2009). The partnering session should consist of welcome activities, informational

activities, innovative activities and commitment activities (Ross, 2009). The partnering activities should foster the development of inter-organisational relationships between these actors (Crowley and Karim, 1995). Use of a facilitator may hence help parties advance from distrust to more balanced expectations.

Bayliss et al. (2004) measured causality between a set of partnering tools and objectives. It is the participant's perception that is measured. The objectives were cooperative working relationships, timely completion, quality service, waste reduction, and effective dispute resolution. Bayliss et al. (2004)'s main finding was that introduction of incentive agreements had good effect on trust, communication, teamwork, honesty and financial objectives. It is noteworthy to observe that also instilling, fostering and maintaining of partnering constituted an objective and a success factor of the partnering efforts.

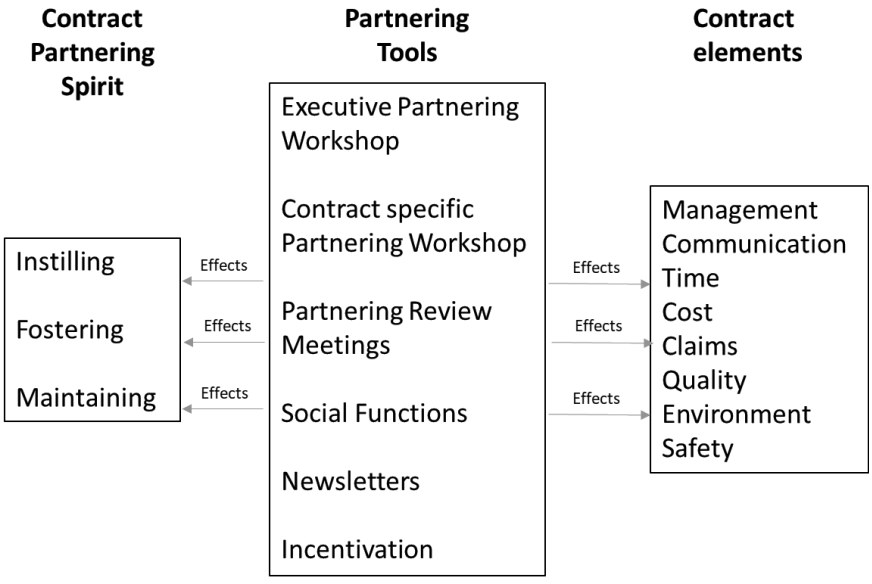

Figure 2-2: An evaluation framework for partnering efforts (Bayliss et al., 2004)

Wong et al. (2008) proposed a one-dimensional model for building trust in Partnering Projects containing seven main areas, all on the *how* dimension:

- Communication system – channels for interaction
- Organisational policy - reflects the expected behaviour of the staff
- Knowledge - on trust
- Communication/interaction – make sure information/communication about the partnering participants is comprehended
- Being thoughtful
- Emotional investments - enthusiasm on spending time, energy and effort on a person and an organisation – necessary in partnering projects
- How to implement this in contracts/agreements – define the relationships and the expectations

PP definitions focusing on success factors also define the universe of participants as internal and external stakeholders. Internal stakeholders include managers and employees, who are situated within an organisation and affect the daily project routine, whereas external stakeholders comprise individuals and entities who were not related directly to the projects but could shape and influence project outcomes and activities of the project in various ways (Chan et al., 2003, Nyström, 2005a).

As long as PP was defined by its success factors, unsuccessful partnering projects simply ended up in the category of non-partnering projects (Nyström, 2008). Nyström (2005a) defined partnering by its prerequisites, components and goals, as showed in Figure 2-3.

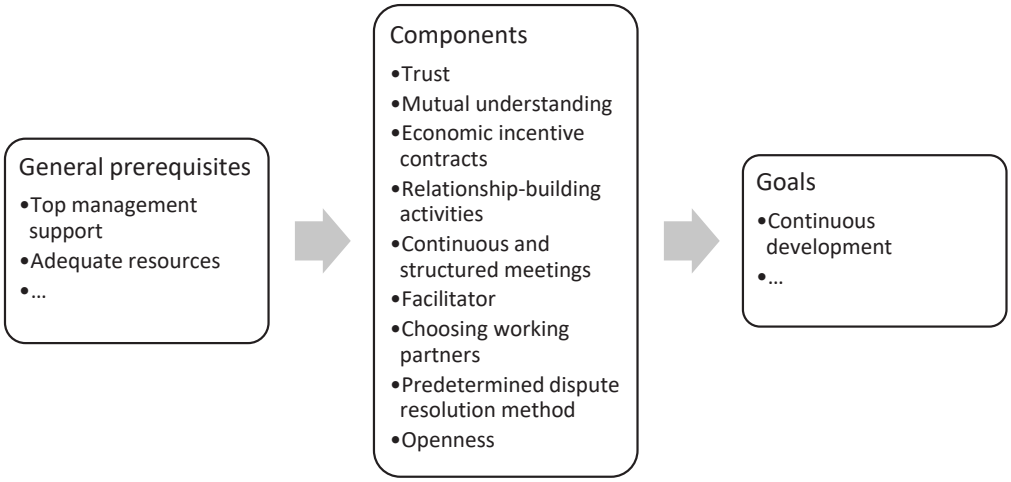

Figure 2-3: Partnering prerequisites, components and goals (Nyström, 2005)

Any general prerequisites (Nyström, 2005a) were not found when defining PP (Publication 2). Nyström defined top management support and adequate resources as general prerequisites for partnering. Additionally, top management support is required for establishing project governance discipline and frameworks (Müller et al., 2014, Crawford et al., 2008). There are only minor differences between a success element for projects in general (Pinto and Slevin, 1987) and for partnering projects. And, none of the prerequisites got sufficient scores in the surveys of Publication 2 to be included in a new definition.

The components are predominantly limited to selections of measures for pursuing a goal of continuous development and possibly other goals. A partnering "flower" is suggested for defining partnering projects by the overlapping components listed as a Wittgenstein resemblance. However, the approach fails to define the participants, the specific objectives and the adequate measures for pursuing the objectives. It is also unclear if trust and mutual understanding are actually measures or objectives.

Furthermore, the word 'goals' may be incorrect for an unspecified and unquantified mission like 'continuous development'. Additionally, *"If partnering and alliances are to be adopted as a repeatable business model, they cannot be solely dependent on so-called soft issues like behavioural training, teambuilding or individual skills. The concept must be embedded in the governance and processes of the organization and reinforced in every aspect of the business through policy, process and systems"* (Hawkins and Little, 2011).

The Construction Industry Institute (CII) (1991) states, in their widely used, four-dimensional definition, that PP should be defined as a long-term commitment between two or more organisations for the specific purpose of accomplishing particular business objectives through the maximisation of the utility and effectiveness of the resources of individual participants.
The CII definition is sorted into the framework in Table 2-1 below:

Dimension	Phrase
Who	… two or more organisations…
What	… for the purposes of achieving specific business objectives. … Expected benefits include improved efficiency and cost effectiveness, increased opportunity for innovation, and the continuous improvement of quality products and services.
How	a … commitment … by maximizing the effectiveness of each participant's resources. This requires changing traditional relationships to a shared culture without regard to organizational boundaries. The relationship is based on trust, dedication to common goals and an understanding of each other's individual expectation and values.
When	… long term …
Where	Construction projects (implicit)

Table 2-1: CII definition of PP sorted into the framework

This definition called for the alteration of long-held relationships supporting a culture that was shared without specific regard to organisational borders and boundaries (CII, 1991). Such a relationship is essentially based upon high levels of trust, respect for shared goals, targets and objectives and the comprehension of and respect for the expectations and values of individual partners (CII, 1991). The CII definition is limited to two or more firms; other stakeholders are not included. The CII further stated that PP is for one project only and at the same time long-term. CII based the collaboration on trust as a prerequisite, not an objective. These measures are commitment, respect, and a shared culture for achieving particular business objectives, maximisation of objectives and effectiveness of individual participants.

Bygballe et al. (2010) found that "the prevailing views and practices actually contradict the original intention of the CII definition (Construction Industry Review Committee (CIRC), 2001) of partnering."

Bresnen (2007) provided the seven pillars, paradoxical effects and seven deadly sins of partnering. All pillars are measures for pursuing 'illusions of goals and objectives' and without reference to participants or maturity. The limitations, shown as paradoxical effects, form a definition of PP by negation as presented in the table below.

Pillar	**Paradoxical effect**	**Deadly sin**
Strategy	Wishful thinking about strategy and behaviour	Sloth
Membership	Fostering of relationships built on exclusivity	Lust
Equity	Encouraging exploitation and opportunism	Avarice
Integration	Reinforcing a desire for control	Gluttony
Benchmarks	Setting of inappropriate targets	Envy
Processes	Over-engineering of processes	Wrath
Feedback	Failing to capture knowledge and learning	Pride

Table 2-2: Seven pillars, seven paradoxes and seven deadly sins of partnering (Bresnen, 2007)

Recent research on PP includes Tang et al. (2018)'s research on contractor – sub-contractor networks in construction projects in China, Zeng et al. (2018) on incentives in mega projects, and Sundquist et al. (2018) on how to develop PP into strategic supplier partnering. Key here is the complexity. It makes no sense to share risks in low-risk or non-complex projects (Zuo et al., 2013, Eriksson, 2010, Crespin-Mazet and Portier, 2010).

2.1.3 Categorisation of PP definitions

Eriksson (2010) categorised partnering definitions into four types: generic and simple, measures-focused, component-focused including outcomes, and component-focused excluding outcomes.

Categorisation	Definitions
Simple and generic	Definitions based on UK National Economic Development Office (NEDO) (1991),Bennett and Jayes (1995), Barlow et al. (1997), Bresnen and Marshall (2000), Construction Excellence (2004), Chan et al. (2003), Green (1999), (Cheng and Li, 2004)
Measures-focused	(Cheung et al., 2003, Naoum, 2003, Cheng and Li, 2004, Chen and Chen, 2007)
Component-focused	(Nyström, 2005a, Yeung et al., 2007a)
Component-focused type without any outcomes	(Eriksson, 2010, Lu and Yan, 2007)

Table 2-3: Categorisation of PP Definitions (Eriksson, 2010)

The simple and generic definitions are non-specific objective headlines only, not providing insight into measures or participants (Eriksson, 2010). The measures-focused

categorisation defines PP as an attempt to establish non-adversarial working relationships among project participants through mutual commitment and open communication. These are mixing procedures and tools (e.g. joint objectives and conflict resolution techniques) and their outcomes (trust, commitment, openness, etc.) (Eriksson, 2010). The component-focused categorisation attempts to develop universal definitions considering the content of many definitions (Eriksson, 2010), missing the framework of a definition.

2.1.4 Comments to elements of the PP definition from Publication 2

PP definitions generally include a general description and varieties of descriptions of participants, objectives, measures, timeframes, type of industries and projects where PP is applied (Publication 2). Essential negations observed are added under each subject. Please see Publication 2 for a full overview of ten variations of the description of participants, 37 varieties of goals and objectives, 89 varieties of measures and variations in descriptions of timeframes and types of projects where PP is applied.

General descriptions of PP were shown in Table IV of Publication 2. The most frequently used phrase for defining PP was the phrase "a structured management approach", used in four of 30 definitions. The phrases "a relationship" (Walker and Hampson, 2003, Cowan, 1991, Gareis and Cleland, 2006, Scott, 2001, Haque, 2004, Humphreys et al., 2003), "a philosophy " (Construction Industry Board (CIB), 1997, Latham, 1994, Rowlinson et al., 2002) and "team-working across contractual boundaries" (Construction Industry Board (CIB), 1997, Latham, 1994, Rowlinson et al., 2002) are used in three of 30 definitions used to describe PP.

As a single occurrence, PP is described as an ambiguity strategy for project organising (Sahlin-Andersson, 1992) where the complexity, ambiguity and the changing conditions are acknowledged by the participants by partnering elements like early involvement, joint problem-solving and joint decision-making.

Participants: The participants have generally matured from specific descriptions like 'owner and contractor' (Abudayyeh, 1994) and 'designer' (Crowley and Karim, 1995). Descriptions of participants have matured into more general and non-exclusive explanations, as in from 'two or more' to 'multiple firms and individuals' in Aarseth et al. (2012). In past research, the participants were inadequately defined (Bayliss et al., 2004, Bresnen, 2007, Lau and Rowlinson, 2010, Lu and Yan, 2007, Müller et al., 2013b). Descriptions like 'project participants' (Bayliss et al., 2004), 'organisations' (Bresnen, 2007), 'all stakeholders involved' (Lu and Yan, 2007), 'clients, consultants, sub-contractors and suppliers' (Lau and Rowlinson, 2010) and 'equal level stakeholders' (Müller et al., 2013b) are all inadequate for understanding who are involved.

The universe of participants may be defined as 'all stakeholders'. THE PMBOK Guide (Project Management Institute, 2017) defined a stakeholder to a project as "An individual, group or organisation who may affect, be affected by, or perceive itself to be affected by a decision, activity or outcome of the project." Internal stakeholders include those within the project, i.e., the project team, the sponsor, functional managers, and internal organisational groups. External stakeholders include business partners, sellers or suppliers, customers or users, government regulators and possibly other entities. None of the literature reviewed has specified participants to be excluded from PP. It is, however, understated that non-contributing stakeholders are excluded from partnering projects.

Commitment: Partnering is not a procurement method by contract (Pinto and Milagros, 2017, Walker and Lloyd-Walker, 2015, Manley et al., 2007, Ite, 2007, Cheung et al., 2003). Nyström (2005b) stated that partnering not necessarily entails incomplete contracts, however "seeing partnering as a willingness to renegotiate complete contracts can reduce the risk for the contractor and lead to lower prices for a given service" (Nyström, 2005b). On the other hand, commitment in PP is regulated more than a voluntary protocol, as summed up by Sparkling et al. (2017).

Koskela and Horwell (2008) commented that projects are realised even without agreements or a clear definition of what to create and only due to commitments, dependencies and positive expectations**.** Commitments are regularly seen in partnering definitions, although adaptions between participants in high-involvement relationships lead to interdependence and improved performance (Gadde and Dubois, 2010). 'Understanding of each other's individual expectations' is included in the PP definition by the Construction Industry Institute (CII) (1991) and legitimising of expectations is found to be vital in supply chains (Yan Ki Fiona and Rowlinson, 2011). PP is also a knowledge area and a tool for reducing the gap of stakeholders' expectations (Liu and Yuliani, 2016). Hence, there is reasoning for digging further into commitments, dependencies and positive expectations as fundaments for PP.

Mutual project objectives and collaborative relationships: Reduction in number of legal disputes is historically a key element of the objectives. Crowley and Karim (1995) provided definitions on the resolution of inter-organisational conflict, whereas Barlow et al., (1997) included more collaborative relationships in their definition. The National Audit Office (2001) provided information on the minimisation of risk of costly disputes, whereas Construction Excellence (2009) included collaborative team, improved shareholder involvement (Wondimu et al., 2018) and trust (Zuppa et al., 2016, Pinto et al., 2009, Wong et al., 2008, Kadefors, 2004) as forming a whole in their definition. Eriksson (2010) elaborated on 'cooperation based competition', whereas Aarseth et al., (2012) included the avoidance of conflict in their definitions of project partners. The objectives of PP have matured in parallel with the measures. As the objectives have moved from avoiding conflict via continuous improvement to capturing of the full project potential, the measures have followed in parallel.

Trust is a broad term (Zuppa et al., 2016, Pinto et al., 2009, Wong et al., 2008, Kadefors, 2004) and is in literature referred to as both an objective and as a measure of PP (Publication 2). In this thesis, trust is in accord with "Rousseau et al. (1998)'s

definition: “a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behaviours of another”. The key conceptual and measurable elements of this definition are accepted vulnerability by one party of a relationship “and positive expectations about the other party under conditions of interdependence and risk” (Lewicki et al., 2006). Again, expectations appear.

Trust is considered to be a ‘bonding agent’ between collaborating partners and an ‘essential foundation for creating relational exchange’ (Silva et al., 2012). In traditional contract research projects, trust and openness promote shared understanding and encourage commitment (Ghazinejad et al., 2018). “Trust has been found to be a predictor of project performance (Maurer, 2010) and project effectiveness (Diallo and Thuillier, 2005, Kadefors, 2004, Lee-Kelley and Sankey, 2008, Park and Lee, 2014, Webber and Klimoski, 2004), stakeholder satisfaction (Bresnen and Marshall, 2000), creativity and problem-solving (Smyth, 2005), knowledge and information disclosure, and project success (Diallo and Thuillier, 2005, Jung and Avolio, 2000, Smyth et al., 2010, Wiewiora et al., 2014)” (Rezvani et al., 2016). With a contradictory conclusion, Lau and Rowlinson (2010) found that “although trust was emphasised in partnering projects, there was no evidence that trust at either the inter-personal or inter-firm level was higher in partnering projects”. Still, based on the majority of references and results in Publication 2, trust is a measure worthy to pursue as an objective in PP.

Face-to-face communication, electronic documents, and timely and adequate responses to requests for information are elements perceived to strengthen trust (Zuppa et al., 2016). However, trust is also a measure perceived to assist leadership, team building, communication and information sharing (Zuppa et al., 2016), and it is interrelated with project governance and ethics (Müller et al., 2013a). Team members share knowledge with trusted partners on whom they feel dependent (Park and Lee, 2014). Trust and dependency are influenced by the communication frequency, perceived similarity of the project's values, and the perceived expertise (Park and Lee,

2014). In an early phase, formation of integrative work practices, development of a common philosophy, open communication, and early and clear role expectations are all contributing to development of trust (Buvik and Rolfsen, 2015). Hence, also Buvik and Rolfsen (2015) perceive trust to be an objective, although they do not define trust in their publication.

The elements on communication, governance and the findings of Buvik and Rolfsen (2015) are reinforced by Unterhitzenberger and Bryde (2018). They found that procedural justice, one of three elements of organisational justice, through tangible and explicit project management procedures put in place in the early phase of the project, functions as a proxy measure for trust.

There are components of trust. Kaplan (1973) concluded that researchers' "purposes are better served if they focus on specific components of trust rather than the generalized case". As a red thread through Lewicki et al. (2006), Ghazinejad et al. (2018), Park and Lee (2014) and Buvik and Rolfsen (2015) the commitments, dependencies and expectations of Koskela and Howell (2008) stand out.

Collaborative problem-solving

The literature on collaborative problem-solving as a core characteristic of PP is supported by a number of authors (Cowan et al., 1992, Swierczek, 1994, Larson, 1997, McKenna, 2006, Anderson Jr and Polkinghorn, 2010, International Institute for Conflict Prevention, 2010) and by Publications 2 and 3. Collaborative problem-solving is initiated by a problem recognition and solved in search of mutually beneficial outcomes (Anderson Jr and Polkinghorn, 2008). Acknowledgement of the participant's agendas, alignment of common goals, clarification of expectations and persistent leadership is required for collaborative problem-solving (Cowan et al., 1992, Larson, 1997, McKenna, 2006).

Joint governance structure

Project governance structures include systems, procedures, guidelines and norms in relationships (Müller et al., 2013a, Müller and Martinsuo, 2015, Liu et al., 2016, Müller, 2017b) for one single project (Müller, 2017b). It is of importance to distinguish between management and governance. "Management is a goal-oriented activity, whereas governance defines the framework (including the limitations) within which management is executed. For example, achieving a project's objective through the partnership of several organizations is a management activity, but the definition of the types of contracts that are acceptable for any of the organizations is a governance task"(Müller, 2017a) . Partnering is to be implemented by embedding the joint governance and processes, reinforced in every aspect through policy, process and systems (Hawkins and Little, 2011). Management then operate within the governance to reach participants' specific joint objectives. A joint governance structure distinguishes PP from best practice project management (Publication 2) . The four four principles of good governance are transparency, accountability, responsibility, and fairness.

Governance structures and styles have an effect on trust and motivation to collaborate (Müller and Martinsuo, 2015). Stringent governance of projects has a negative impact on trust (Turner and Müller, 2004). Best project performance is achieved by a governance structure allowing flexibility in roles and methodology to manage unforeseen risks or opportinities(Müller and Martinsuo, 2015). Figure 2-4, The Structure – Collaboration Model (Turner and Müller, 2004) shows the relationship between stringent and soft (high – low) governance structures, high and low collaboration, and project success.

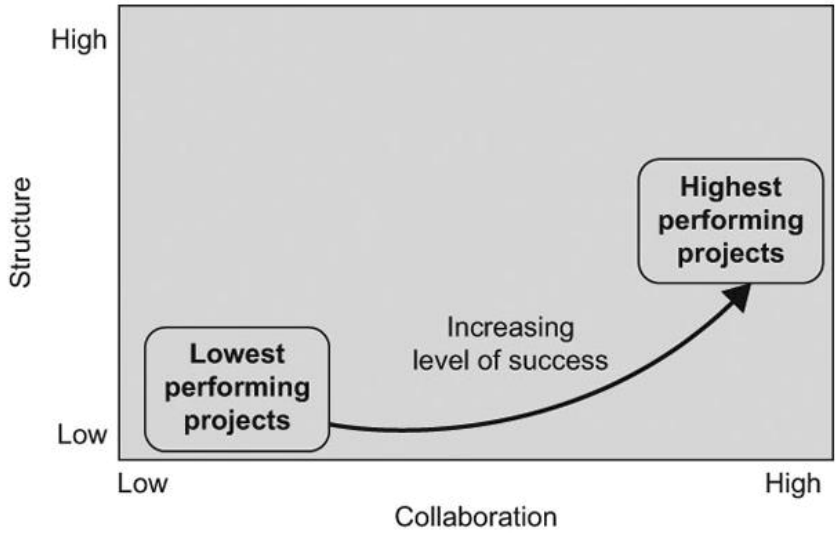

Figure 2-4: The Structure–Collaboration Model, after Turner & Müller (2004) (Müller, 2017b)

From the figure it may be interpreted that collaboration has more impact on project success with more stakeholder-oriented governance paradigms (Müller, 2017b) than structure.

Timeframe: The timeframe of PP has been confusing. When managing expectations to the process of building trust, the timeframe was set to long-term and at the same time for one project only. PP is still considered for one project only, and references to long-term or other specified times have diminished. Even Strategic Alliances are a 50/50 split between open-ended and time-specified (Bakker, 2012).

Type of industry: Decades ago, PP definitions directly or implicitly referred to high-risk construction projects (Construction Industry Institute (CII), 1991, Cowan et al., 1992, Abudayyeh, 1994, Latham, 1994, European Construction Institute (ECI), 1997, Bennett

and Jayes, 1998, Barlow, 2000, Bennett and Baird, 2001, Nyström, 2005b, National Agency for Enterprise and Construction (NAEC), 2006, UK National Economic Development Office (NEDO), 1991, Scott, 2001) and Publication 2). More recent publications specify projects to be complex for a partnering approach without limitations relating to industry (Eriksson, 2010, Chakkol et al., 2018). Li et al. (2019) have recently proposed a conceptual framework to illustrate partnering in an entrepreneurial ecosystem; this is also independent of industry.

Challender et al. (2016) stated that partnering is not compatible when short-term capital spending restrictions obstruct long-term best-value measures. Challender et al. (2016) described such situations as a recession, but it is likely project-specific rather than a generalisable truth.

2.1.5 Project Management Institute's approach to Project Partnering

The two dimensions of *what* and *how* are covered in the definition of a project as "a temporary endeavour undertaken to create a unique product or service" in alignment with PMI's definition of a project (Project Management Institute, 2017).

PMBOK® Guide presents ten knowledge areas, where numbers 1, 6, 7, 9 and 10 are relevant for PP.

Knowledge area	Description
1. Managing integration	Projects have all types of activities going on, and there is a need to keep the "whole" thing moving collectively – integrating all of the dynamics that take place. Managing integration is about developing the project charter, scope statement, and plan to direct, manage, monitor, and control project change.

6. Managing human resources	Projects consist of teams, and you need to manage project team(s) during the life cycle of the project. Finding the right people, managing their outputs, and keeping them on schedule is a big part of managing a project. Managing human resources is about human resources planning, hiring, and developing and managing a project team.
7. Managing communication	Projects invariably touch a large amount of people, not just the end users (customers) who benefit directly from the project outcomes. This can include project participants, managers who oversee the project, and external stakeholders who have an interest in the success of the project. Managing communication is about communications planning, information distribution, performance reporting, and stakeholder management.
9. Managing procurement	Projects procure the services of outside vendors and contractors, including the purchase of equipment. There is a need to manage how vendors are selected and managed within the project life cycle. Managing procurement is about acquisition and contracting plans, sellers' responses and selections, contract administration, and contract closure.
10. Managing stakeholders	Every project impacts people and organisations and is impacted by people and organizations. Identifying these stakeholders early, and as they arise and change throughout the project, is a key success factor. Managing stakeholders is about identifying stakeholders, their interest level, and their potential to influence the project; it is furthermore about managing and controlling the relationships and communications between stakeholders and the project.

Table 2-4: Knowledge areas relevant for PP in PMBOK (Project Management Institute, 2017)

Although the PMBOK® Guide groups tools and techniques by their purpose, none of the tools and techniques are specific for collaborative project forms. Managing communication is about one-way information distribution and performance reporting to stakeholders. Stakeholder management is by PMI defined as managing and controlling the relationships and communications between stakeholders and the project. The Project Management Institute's approach to project management is far apart from PP, with its collaboration on any joint objectives.

The PMBOK® Guide Sixth Edition (Project Management Institute, 2017) does not mention 'partnering', 'alliancing' or collaboration, neither do the tools cover any collaboration elements. Hence, the PMBOK is not appropriate for PP. The PMBOK is backward-looking and based on a normative ontology entailing that the knowledge consists of facts of current practice unsuitable for development of novel future practices (Walker and Lloyd-Walker, 2015).

However, the Construction Extension to the PMBOK® Guide (Project Management Institute, 2016) has more focus on partnering, however still in the normative ontology preventing development in the field of knowledge.

Partnering is described as a collaboration technique where:

- the project team/stakeholders (participants)
- pursue(s) to create a project environment of trust, respect, accountability, and commitment to create a collaborative working environment including resolving perceptional responsibility issues and disputes, be less susceptible to claims (objectives)
- by regular partnering follow-up meetings, building team consensus, risk reviews in a non-confrontational environment, use of a partnering assessment tool (see Figure 2-5) and integration of the contractual relationships (measures)
- process and system improvements (measures) pursue timely turnaround of submittals or decisions on changes (objectives)

It can be interpreted as the Project Management Institute defining partnering by its probable outcomes, see Figure 2-6 Project Partnering Outcomes as defined by PMI (2017) and Greiman (2013) below.

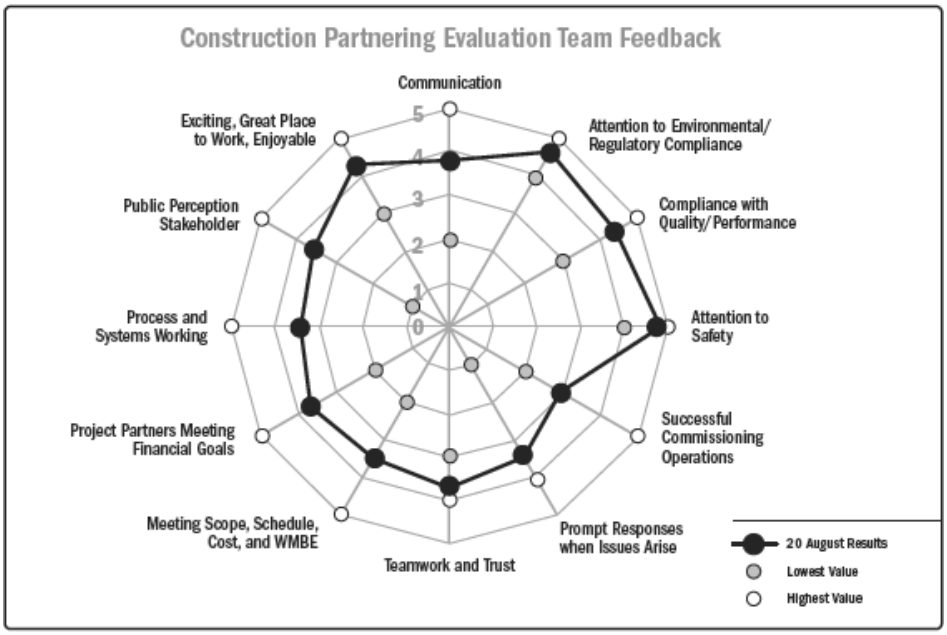

Figure 2-5: Partnering team evaluation (Project Management Institute, 2016)

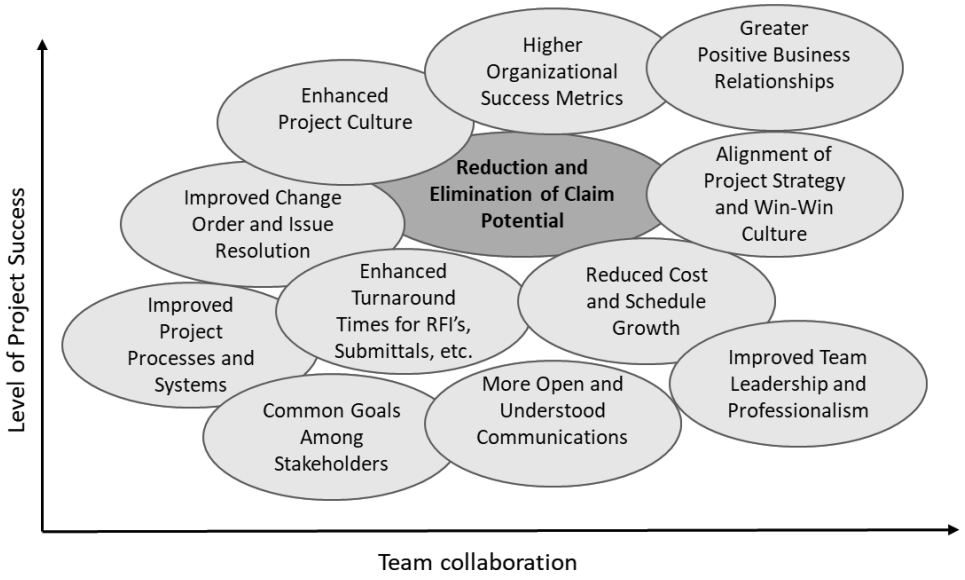

Figure 2-6 Project Partnering Outcomes as defined by PMI (2017) and Greiman (2013)

Greiman (2013), a publication approved by the Project Management Institute, provides the following definition of partnering:

> "Partnering: Establishing a long-term win-win relationship based on mutual trust and teamwork and sharing of both risks and rewards. Partnering arrangements can be between labour and management, government owners and management consultants, subordinates and executives, suppliers and customers, designers and contractors, and contractors and contractors. The objective is to focus on what each party does best, by sharing financial and other resources, and establishing specific roles for each participant." (Greiman, 2013).

This definition is not analysed in Publication 2. When coded and sorted into the framework, the definition appears as presented in Table 2-5:

Who	Can be between labour and management, government owners and management consultants, subordinates and executives, suppliers and customers, designers and contractors, and contractors and contractors
What	Win-win relationship
How	based on mutual trust and teamwork and sharing of both risks and rewards … focus on what each party does best, by sharing financial and other resources, and establishing specific roles for each participant
When	Long-term
Where	Not specified

Table 2-5: Definition of partnering by Greiman (2013) sorted into the framework

The execution-based model (Pinto and Winch, 2016) of the PMBOK is transferred to the presentation of partnering by Greiman (2013) on behalf of the Project Management Institute, showing the confusion on what partnering is and how it is defined. Greiman (2013) is unclear on PP participants, its objectives, measures and timeframe.

Constructive definitions of PP and other collaborative project forms can be a required fundament in the PMI tradition of normative ontology to develop knowledge, tools, and techniques specific for PP.

2.1.6 PP defined as a process

Aarseth et al. (2012) developed a partnering "flower" shown in the figure below. The partnering process described is a condensed version of the partnering process model presented by Chen and Chen (2007).

The first phase of establishing the partnering platform is to prepare contracts, appointments and documents for the partnering approach for competitive tendering and project working descriptions. Most attention is on ground rules, the project vision, and adapting the management system.

The second phase of starting up the partnering platform is seen only as a two-day meeting with mandatory participation by key partnering personnel from all participants. The meeting objectives are to agree on the ground rules, the project vision, establishing personal and organizational relationships, defining roles and responsibilities, and team building. As late as during execution of the partnering project, goals and objectives are established and revised based on the project vision. The execution phase entails further focus on maintaining good partnering with strong relationships, clarifying roles, health check competence and attitude to partnering and conflict resolution. The last phase consists of closedown of partnering with fair gain share and 'to improve the next project and to maintain a good impression of partnering as a concept among the participants' (Aarseth et al., 2012).

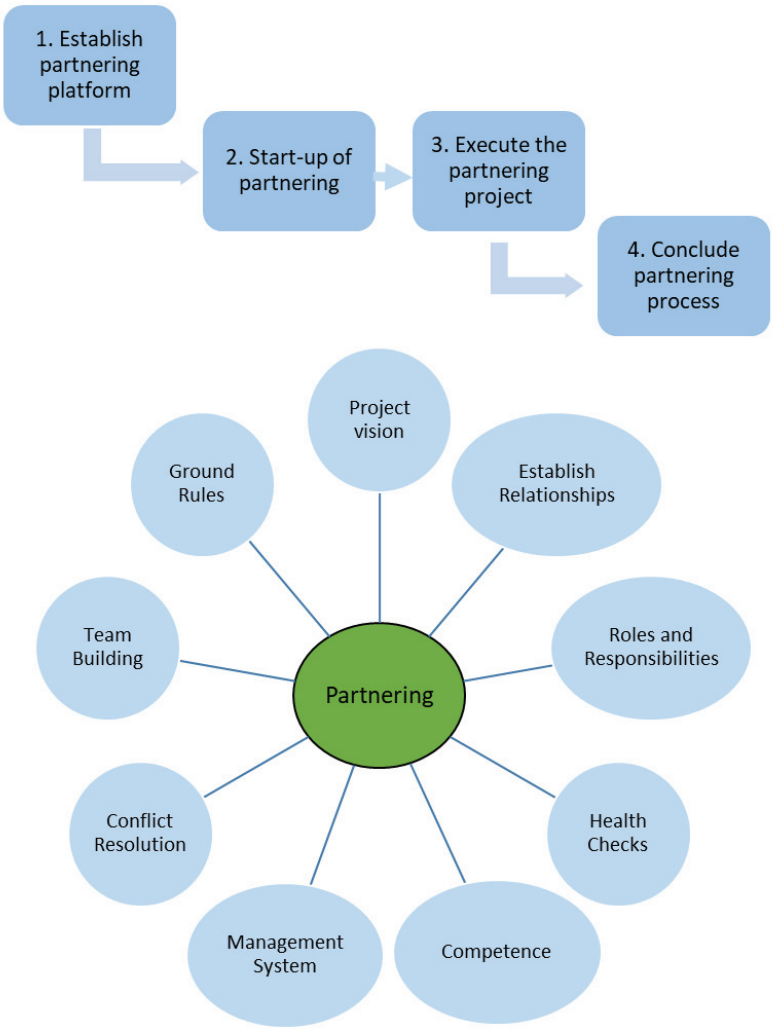

Figure 2-7: The partnering flower (Aarseth et al., 2015)

The partnering process and flower by Aarseth et al. (2012) was a practical advice adding to the body of literature on PP. It is still derived in a setting where PP continued to be defined by its success factors by authors selling the concept with academic papers and promoting the need for partnering facilitators.

Partnering is seen as an adaption of and add-on to traditional projects where partnering objectives, most likely on conflict prevention, are formulated as late as in the execution phase with conflict resolution as the key measure (Eriksson, 2010, Chan et al., 2004). As such, 'conflict resolution' could replace 'partnering' in the center of the flower. The partnering flower by Aarseth et al., (2015) has been developed in parallel with the ISO standard 44001 on collaborative business relationship management systems published in 2017. The standard is being developed from the British standard BS 11000 by the Institute for Collaborative Working since 2006. These standards are relevant as pertaining to the definition of PP and are thus taken up for detailed discussion below. Common project management models are also found beneficial for project outcome (Eskerod and Riis, 2009). The standards are in direct opposition to Matthews et al. (2000), who state that partnering is not a technique with rules, regulations, documentation and procedures.

The Institute for Collaborative Working (ICW) is now a global membership organisation with academic support by a dozen universities lead by the University of Warwick. The Institute for Collaborative Working defines 'collaboration' as 'the commitment to working together with two or more parties to create value by striving to achieve shared competitive goals and operational benefits through a spirit of mutual trust and openness' (Institute for Collaborative Working, 2018).

Who	two or more parties
What	create value … operational benefits
How	commitment to working together… shared competitive goals … through a spirit of mutual trust and openness
When	Not specified
Where	Not specified

Table 2-6: Definition of collaboration by the Institute for Collaborative Working sorted into the framework

The definition of collaboration in the table above deviates from the definition of PP from Publication 2. The objectives to create value and operational benefits are close to 'improved performance'. The measures of commitment, shared competitive goals and a spirit of mutual trust and openness do not, however, specify collaborative problem-solving and a joint governance structure. Trust is a measure and not an objective in ICW's definition. A joint governance structure is not specified in ICW's definition but is however included in the standard.

The standard formalises processes for collaboration and covers PP, but it does not distinguish between forms of collaboration. The standard focuses on formal relationships and process issues and acknowledges the informal relationships and people issues of collaboration. The standard provides specific elements for the strategy, engagement and management of various collaborative business relationships (International Organization for Standardization, 2017). The Institute for Collaborative Working (2018) stated that the development of collaboration between diverse organisations can take different forms, ranging from loosely connected practical approaches to diverse types of long-term joint ventures, agreements and alliances.

The standard can be applied to both public sector and private sector organisations of various sizes, ranging from government organisations and entities and multinational firms to small and micro establishments, as well as non-profit organisations (International Organization for Standardization, 2017) in single applications, multiple identified relationships and organisation-wide full application (Corral, 2018).

The development, creation and publication of ISO 44001 is thus considered to be a unique and distinctive development for collaboration integrated in management systems and procedures.

Figure 2-8: ISO 44001 Collaborative Relationships Management (International Organization for Standardization, 2017)

The strategic elements include development of commitment to collaborative working, based upon a thorough understanding of the opportunities, benefits, risks and constraints of a collaborative approach. Operational awareness initiates duties of responsible senior executives as identified by Turner and Müller (2003), identification and prioritising of relationships, and initial risk assessment. Knowledge is most important element is to integrate relationship management and risk management

processes. Internal assessment includes collaboration maturity self-assessment and partner selection criteria (Institute for Collaborative Working, 2018).

The engagement phase includes selection of partners to be committed to joint objectives, structures, processes and systems for creating new value. After selection of partner(s), partners start working together to establish governance, joint objectives, joint risk management and exit strategy, all regulated by contract and collaborative agreements. The engagement phase is also defined by its success factors (Institute for Collaborative Working, 2018).

The management phase includes management of the relationship and systematic disengagement. Staying together is about monitoring and measurement of the relationship, maintaining trust and behaviour. As late as in the exit strategy, boundaries for the relationship are defined (negation) (Institute for Collaborative Working, 2018).

The standard claims to describe a process for all collaborative project forms. It is a procedure describing a standardised process for collaborative projects. It does not put limitations on participants, and clearly puts the project owner in the lead of the process of selecting and integrating partners. The standard contains a procedure for how to make the commitments by contract or otherwise. Assessment of mutual project objectives, joint issue resolution processes and a joint governance structure are key elements. The standard regards all outcome as value creation and has a procedure for monitoring of behaviour and trust indicators. Hence, the definition of PP fits well into the standard. The standard additionally covers joint capture of upside risk and general process elements, including exit strategy. The strategy fails to define collaboration projects by negation, which would substantially clarify the extent of collaboration.

Because PP is now a widespread project form utilised by governments and corporations all over the world, there is a need for an organisation like the Institute for Collaborative Working to provide a two-dimensional matrix of partnering tools and joint objectives. Practitioners likely consider it useful to find tools linked with objectives. However, Project Management Institute's PMBOK is based on a clarity strategy according to Sahlin-Andersson (1992) and is hence not adaptable for a partnering approach. Thus, there is an opening for the Institute for Collaborative Working to claim leadership on project partnering and other collaborative project forms, leaving the Project Management Institute with traditional projects.

2.1.7 PP maturity models

Maturity models are tools used to measure an organisation's capacity, capability and competence in project management. Li et al. (2000) introduced the partnering ladder which is later discussed and compared with other collaboration step ladders by Meng (2010). Li et al. (2000) had only three levels, from pseudo-partnering via PP to Strategic Partnering, as presented in Figure 2-9. The Li et al. (2000) ladder is one-dimensional only on outcomes; performance and learning in one or several consecutive projects.

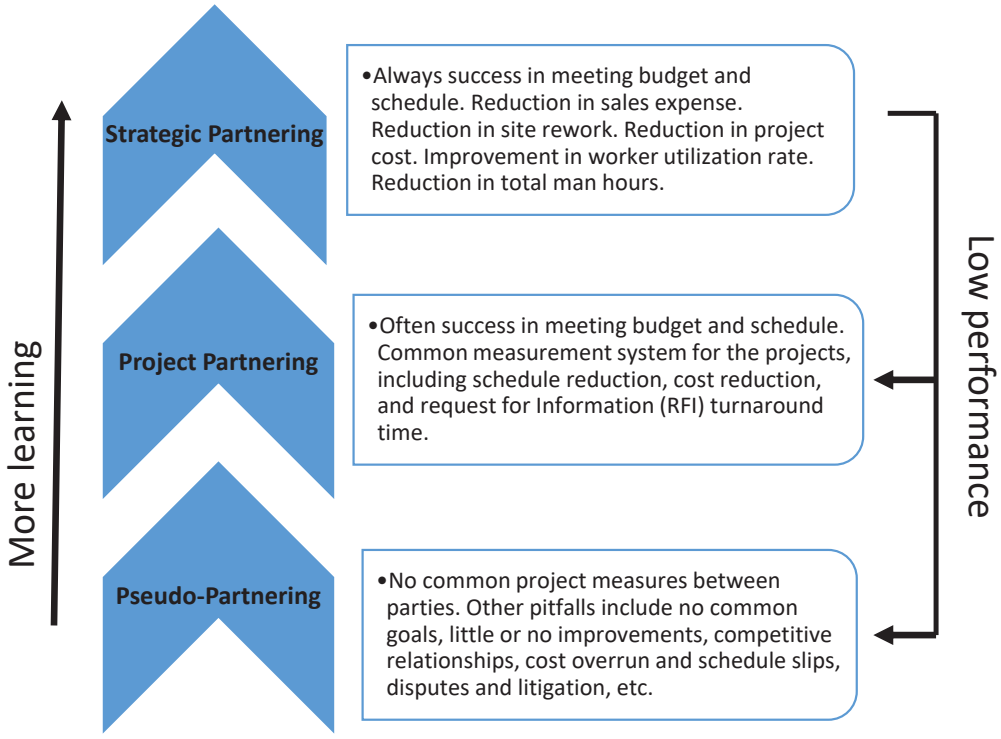

Figure 2-9: The Partnering Ladder (Li et al., 2000)

Li et al., (2000) defined PP by its success criteria, and the steps of partnering are defined by success, where learning enhances with more success.

Meng (2010) developed an assessment framework including assessment criteria, relationship levels, detailed descriptions, assessment classes and assessment procedures. The result was presented as a spider diagram in line with Figure 2-12 below. Meng's assessment fails to distinguish and link measures and objectives in addition to type and number of participants. Meng (2012) further supported Li et al., (2000) in finding PP immature, in the meaning of being successful, as compared to strategic partnering. However, the assessment procedure is noteworthy and will be

used when an updated partnering ladder is presented in section 5.5. The maturity models are also related to partnering success factors in 2.2.1.

The Partnering Performance Index developed by Yeung et al. (2007b) is related to maturity models. The index measures the top seven weighted KPIs for evaluating the success of partnering projects: (1) time performance; (2) cost performance; (3) top management commitment; (4) trust and respect; (5) quality performance; (6) effective communications; and (7) innovation and improvement (Yeung et al., 2007b). Of these seven, four are on improved performance (1, 2, 5 and 7). Only 'top management commitment' and 'effective communications' are measures. 'Trust and respect' is in this thesis primarily an objective and is the only element distinguishing the Partnering Performance Index from a performance index of traditional project.

Lu and Yan (2007) presented a model for systematic evaluation of the applicability of partnering use. The model pertains to goals for the involved organisations but disregards an assessment of maturity when evaluating the capabilities of the organisations.

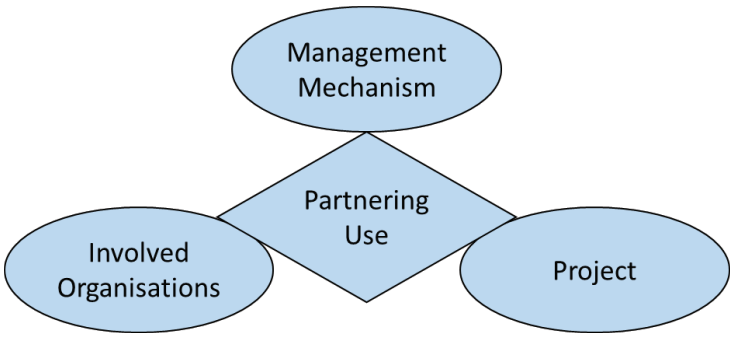

Figure 2-10: Framework for PP evaluation model (Lu and Yan, 2007)

On the top-three capabilities of the organisations, Lu and Yan (2007) found only company-specific motivations like getting access to resources they cannot otherwise access, work with high-reputation partners and organisations critical to their own

success. Also, the top-three elements of the project and management mechanisms are company-specific and not joint between parties.

Recent research by Bygballe and Swärd (2019) described how partnering is institutionalised by establishing partnering routines developed through a balance between top-down structural interventions and emergent social learning processes. Bygballe and Swärd (2019) are focusing on measures only to pursue general objectives, primarily in favour of project owner (see Table 2-8). Hence, Bygballe and Swärd see PP maturity only by institutionalising PP with measures solely and without reflecting on PP experience of the organisations. On the other hand, Sedita and Apa (2015) found it most important to advice managers to invest in nurturing their partnering abilities by networking many partners to be involved in future partnering projects.

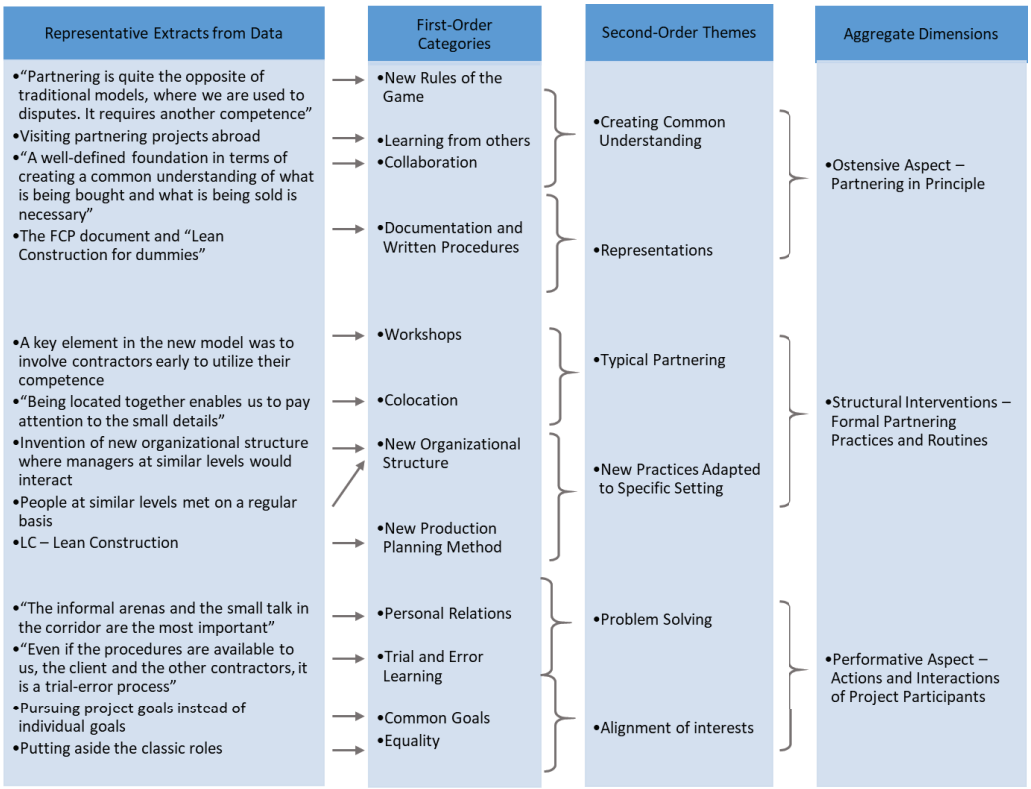

Table 2-7: Data set structure by Bygballe and Swärd (2019)

2.1.8 Comparison of Project Partnering vs Project Alliancing

Categories of collaborative forms of project management have been described by Walker and Lloyd-Walker (2015, p. 131). PP is here categorised as a second order of collaboration, and Project Alliances as fourth-order collaboration. Whereas PP is focused on fair process and common purpose, Project Alliances have added focus on committed relationships (Walker and Lloyd-Walker, 2015).

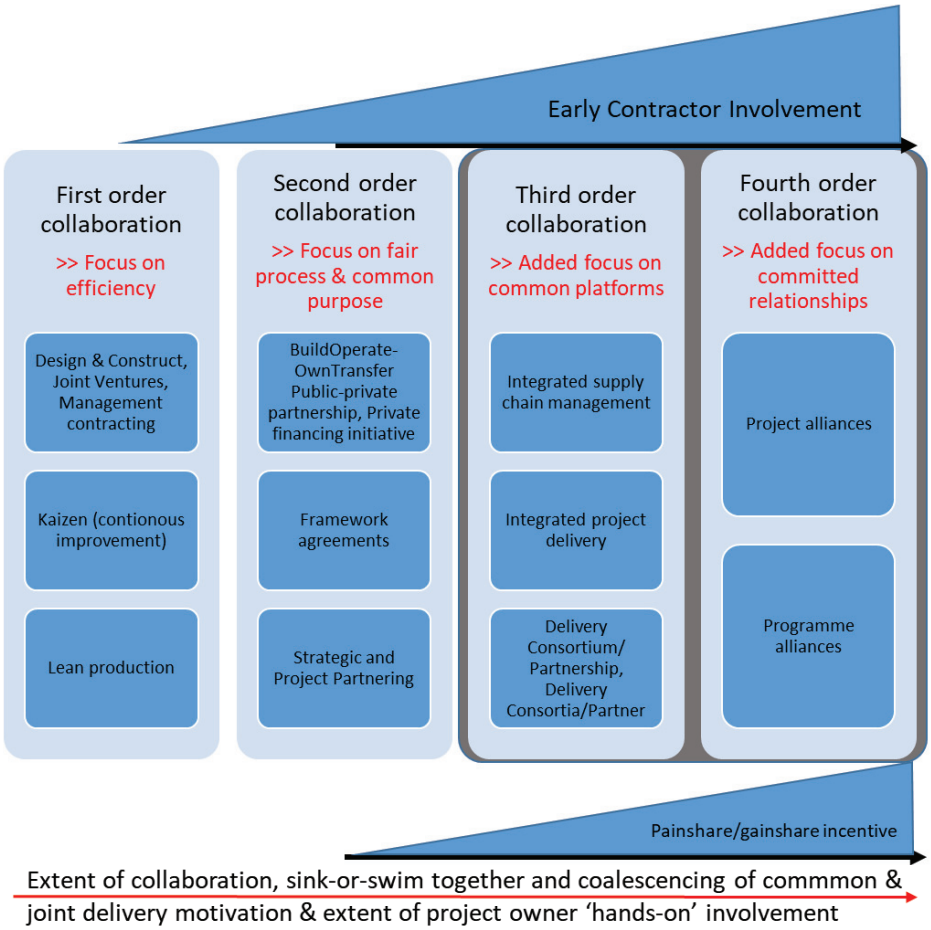

Figure 2-11: Categorizing Collaboration Forms of Project Management Delivery (Walker and Lloyd-Walker, 2015)

As is discussed in section 6, collaborative projects do not vary with early involvement nor with pain-/gainshare incentives, but vary with the participants involved, the extent of joint objectives and the extent of joint governance. Furthermore, it is discussed if Project Alliances are more focused on specific goals in addition to committed and contracted relationships.

Walker and Lloyd-Walker (2015) presented a benchmark of PP with ratings adding up to 60. In a presentation given at Chalmers and NTNU in March 2015, Walker also presented Project Alliancing in the Relationship-based Project Procurement (RBP) framework with ratings adding up to 70, an increase of 10. What distinguishes Partnering from Alliancing in the platform elements, are higher ratings on joint governance structure, integrated risk mitigation and insurance and co-location. It is unclear if a higher rating on joint governance structure is equal to more or less stringent governance structure (Müller and Martinsuo, 2015) with distributed decisions (Eweje et al., 2012) in search of effective decisions (Zidane et al., 2015). In the behaviour elements, trust-control balance, common best-for-project mindset and a no-blame culture are included. In the process elements, there are higher ratings on consensus decision-making, incentive arrangements, transparency and open-book, and mutual dependence and accountability. This fits well with the findings of McKenna (2006), and informal coordination of interdependencies enhances timesaving and facilitates better understandings (Aagaard et al., 2015). Walker et al. (2000) defined project alliancing as a cooperative arrangement and agreement between two or even more firms that constituted a portion of their complete overall strategy and contributed to the accomplishment of their important targets, goals and objectives for specific projects. The commitment in alliancing was essentially joint instead of being shared, and parties essentially achieved agreement on their levels of contribution and necessary profits prior to entering into the exercise and thereafter placed them at risk (Walker et al., 2000). The underperformance of one party in an alliance exposes other partners to the risk of losing their plans, benefits and rewards and could even result in sharing of losses on an agreed model for sharing of gains and losses (Walker et al., 2000).

The following Figure 2-12 provides further details about the partnering and alliance gap (Walker and Lloyd-Walker, 2015).

Figure 2-12: Details on the Partnering and Alliance Gap (Walker and Lloyd-Walker, 2015)

In Figure 2-12 above, the Project Alliancing footprint is bigger than or equal to PP with regard to all characteristics. All characteristics are measures, whereof the Joint governance structure, Integrated risk mitigation and insurance, in addition to Transparency and open book are specific for PP and PA as compared to traditional projects. The remaining characteristics are best practice for traditional project forms as well. This model has recently been expanded and modified to compare PP, Project Alliancing and Integrated Project Delivery (Gransberg and Jeong, 2019), still with weak links between objectives and means.

2.2 Defining a partnering project

So, to what extent are the dimensions used in combination for proper definition of the partnering projects? This section describes how partnering projects are defined in

literature. This section of the literature study is based on the EndNote library of more than 1,100 relevant references, where 38 papers were selected from Project Management Journal, International Journal of Project Management or International Journal of Managing Projects in Business. All papers have the word “partnering” either in the abstract or in the keywords.

Paper		**Who**	**What**	**How**	**Candidate’s comments**
(Black et al., 2000)	IJPM	two parties (e.g., client and contractor or contractor and sub-contractor) or all parties involved	fewer adversarial relationships, achieve a win/win outcome and increased end-customer satisfaction	‘shared objectives’ and other success factors	Unclear link between measures and objectives
(Li et al., 2001)	IJPM	group among construction partners	to resolve disruptive inter-organisational conflicts. Stimulate mutual trust, commitment, creativity and continuous improvement	co-operative benchmarking	Unclear link between measures and objectives

Paper		Who	What	How	Candidate's comments
(Ng et al., 2002)	IJPM	client - contractor … and inclusion of appropriate parties (as a measure)	potential benefits; improve the efficiency	co-operative and caring environments: 1) commitment, 2) trust, 3) preparation and training, 4) understanding, 5) equity, 6) development of mutual goals, 7) inclusion of appropriate parties, 8) continuous joint evaluation, 9) use of partnering tools and principles, 10) leadership, 11) improvement of communication, 12) empowerment of stakeholders, 13) evaluation methodology, 14) willingness to accept mistakes	Inadequate objectives
(Cheung et al., 2003)	IJPM	client - contractor	cost effectiveness, work efficiency, opportunities for innovation, equitable risk sharing, and less confrontation	suppressing the sources of identified mistrust	Inadequate measures

Paper		Who	What	How	Candidate's comments
(Packham et al., 2003)	IJPM	team of consultants, contractors and manufacturers	1) projects being delivered quickly, efficiently and cost effectively, 2) reduce the ex-post costs associated with conflicts and disputes	trust, dedication to common goals, and an understanding of each other's individual expectations and values	Measures adequate for objective 2, possibly not for objective 1
(Bayliss et al., 2004)	IJPM	owner and contractor	avoid the confrontational setting where energy is used in a non-productive manner. Cooperative working relationships, timely completion, quality service, waste reduction, and effective dispute resolution. Instilling, fostering and maintaining partnering spirit.	Executive Partnering Workshops, Contract-Specific Partnering Workshop, Partnering Review Meetings, Social Functions, Newsletters, Incentivisation	Diffuse causality between objectives and measures

Paper		Who	What	How	Candidate's comments
(Beach et al., 2005)	IJPM	Main Contractors with Main Subcontractors	achieve greater collaboration, an increased willingness to share risk, increased confidence of success, reduced exposure to project risk, enhanced transfer of practices and processes to other projects, improved co-operation, increased understanding of parties/less adversarial relationships, better team spirit, more effective communication, learning from partnering, improving overall company competitiveness, increased customer satisfaction, improved employee skills and improved motivation of employees.	1) management commitment, 2) equity, 3) mutual vision, goals and objectives, 4) trust	Inadequate measures for pursuing the objectives
(Alderman and Ivory, 2007)	IJPM	actors in projects (well defined in case study)	re-cast relations	promoting the use of collaborative, more open, less managerial and less hierarchical relationships	Is to re-cast relations a joint business objective?

Paper		Who	What	How	Candidate's comments
(Bresnen, 2007)	IJPM	organisations	illusions of goals and objectives	intangible and elusive cognitive and social aspects, such as attitudes, motivations, openness and trust	Inadequate in all three dimensions
(Chen and Chen, 2007)	IJPM	government employees, owners, designers, and contractors or all parties involved	minimising construction conflicts and enhancing project performance	collaborative team culture, a long-term quality focus, consistent objectives, and resource-sharing	Unclear link between measures and objectives
(Kadefors et al., 2007)	IJPM	client - contractor in close contact with customers, users and other specialists and trades	no particular objectives observed	early involvement	Missing objectives

Paper		Who	What	How	Candidate's comments
(Lu and Yan, 2007)	IJPM	all stakeholders involved	benefit ... a project mainly due to its ability on changing the adversarial attitude between parties	respect, trust, teamwork, commitment and shared goals. And mutually agreed goals, inter-organizational trust, a mechanism for problem resolution, and continuous improvement related to benchmarking process. And team building sessions, problem-solving process establishing and workshop, etc.	Adequate measures for pursuing objectives. Inadequate definition of participants; are really all stakeholders included?
(Lau and Rowlinson, 2010)	IJMPB	undefined between clients, consultants, sub-contractors and suppliers	to avoid adversarial relationships and achieve quality work	create a friendly, trustworthy and supportive working environment that promotes good working relationships	Unspecific on participants, objectives and measures

Paper		Who	What	How	Candidate's comments
(Jacobsson, 2011)	IJMPB	Skanska and a local corporate group of companies (Jämtkraft)	promote more openness, trust, and less hierarchical relationships	trust, mutual understanding, economic incentive contracts, relationship-building activities, continuous and structured meetings, facilitator, choosing working partners, preretirement dispute resolution method, and openness	Does economic incentive promote openness and trust and less hierarchical relationships?
(Aarseth et al., 2012)	IJMPB	owner, the contractor, the user, suppliers and sub-suppliers	to avoid the traditional costly conflicts	a stronger focus on both the early phases of the project life cycle and conceptual development	"it was unclear how, in practice, partnering was applied in the projects"
(Meng, 2012)	IJPM	project parties	Unclear; possibly poor performance in terms of time delays, cost overruns and quality defects	mutual objectives, gain and pain sharing, trust, no-blame culture, joint working, communication, problem-solving, risk allocation, performance measurement, and continuous improvement	Unspecific objectives

Paper		Who	What	How	Candidate's comments
(Müller et al., 2013b)	PMJ	equal level stakeholders	creates the slack necessary for potential exploration of new knowledge	reciprocity, mutuality, and equality. Lateral communication between a PMO and other — equally qualified or equally commissioned — PMOs, project managers, or project workers. Equal knowledge sharing, exchange of expertise, lateral advice giving, and joint learning.	Undefined participants, soft objective
(Sedita and Apa, 2015)	IJPM	two ore more organisations		ability: breadth, reach and brokerage	Missing objectives
(Suprato et al., 2015)	IJPM	project participants	a more cooperative and productive working atmosphere	align project objectives with common business goals	Softly defined objective and measures
(Mollaoglu et al., 2015)	PMJ	key project stakeholders (e.g., owner, designer, contractor)	improve project performance	improved collaboration	Softly defined objective and measures

Paper		Who	What	How	Candidate's comments
(Du et al., 2016)	IJPM	contractors' appropriate linking with involved stakeholders	to obtain necessary resources and effectively transfer them for successfully delivering international EPC projects	intra- and inter-organizational activities	Inadequate measures
(Liu and Yuliani, 2016)	PMJ	clients (i.e., principals) and IT vendors (agents)	reduce inconsistent risk perception mitigate critical user-related risks	enhance collaboration among stakeholders, identify potential risks, and to contribute optimal solutions and effective work	Specific in all three dimensions
Publication 1	IJMPB	owner, drilling contractor, drilling services provider	Two wells delivered on time and producing oil	Early involvement and incentive pay	Well defined, but not PP due to no joint decisions other than early involvement
Publication 3	IJMPB	CaseCo and subcontractors, excluding internal and external stakeholders from partnering activities	improving the basis for good relationships between client and contractor (the parties), to create trust between the parties, and to inspire the technical development of projects.	a start-up workshop	Inadequate measures

Paper		Who	What	How	Candidate's comments
(Bygballe and Swärd, 2019)	PMJ	client, contractor, subcontractor, consultant	cost and time reductions, better quality control, and a more affable working atmosphere	Create a common understanding of what partnering involved. Early involvement of contractors. Lateral design and build contracts. Open books, a target price, and shared incentives. Combine with lean construction Companionship, Competence, Communication, Coordination, and Creativity. A social trip and signing of formal code of conduct, stating a willingness to collaborate. Co-location of management. Co-location of site team.	All objectives are unspecific. Cost-time-quality objectives may be non-mutual. Well defined participants and measures.

Table 2-8: Examples of how to define a partnering project in literature

IJMPB: International Journal of Managing Projects in Business

PMJ: Project Management Journal

IJPM: International Journal of Project Management

From the examples in Table 2-8 above, we see variations in the definition of how to define a partnering project. The three dimensions on how to define a partnering project in this thesis are inspired by Abell (1980)'s three-dimensional model for

defining business and strategic business planning. Hence, this is an example of how theories from strategic management can be translated for the purpose of project management research and planning (Drouin and Jugdev, 2013). Abell (1980) defined a business by served customers (who), customer functions (what) and technologies applied (how), and the definition is essential as a fundament for strategic business planning.

The definition of the partnering projects are in 21 of 25 examples inadequate in one or more dimensions. 12 publications are weak on one dimension, six are weak in two dimensions, and three publications are weak in all three dimensions. Five of 25 are inadequate in their definition of the participants, 14 of 25 are inadequate in objectives or means , and 15 have inadequate measures. Participants are undefined (see for example Li et al., 2001, Bresnen, 2007, Lau and Rowlinson, 2010, Meng, 2010), limited to two parties (Black et al., 2000), defined as client – contractor (Cheung et al., 2003, Ng et al., 2002) or quite unlimited as 'all stakeholders' (Lu and Yan, 2007). Although traditional project management action is defined by the objectives and by providing the measures for achieving the objectives, PP has one more dimension in also defining the participants. Collaboration is between participants (Dietrich et al., 2010) and should hence be defined in partnering projects.

Objectives are not observed by Sedita and Apa (2015), loosely defined as 'potential benefits' (Ng et al., 2002) or 're-cast relations' (Alderman and Ivory, 2007), to specific objectives ready to be translated into goals like 'reduce the ex post costs associated with conflicts and disputes' (Packman et al., 2003). The measures are allocated the most descriptions. Measures vary from 'improved collaboration' as an objective (Mollaoglu et al., 2015) or 'co-operative benchmarking' (Li et al., 2001) to specific measures like 'a start-up workshop' (Publication 3). None of the publications define the partnering project by negation in all three dimensions; what participants are not included, what objectives do participants not collaborate on, what measures are excluded from partnering activities. All these variations are included in the PP concept.

The validity of the conclusions of these publications may hence be questioned in the same dimensions. For example, Bygballe and Swärd (2019) pointed out that the (in)ability to establish new routines may be one reason for the variance in partnering maturity and outcomes. This indicates a causality between the ability to establish any new routine and project outcome. If the framework was applied in the research, Bygballe and Swärd could possibly discuss each participant's ability to establish specific routines aimed at pursuing specific joint objectives.

Table 2-8 is in chronological order between the years 2000 and 2019 and reflects the timeline of fashion in PP moving from avoiding conflict (9 of 24), via continuous improvement to capturing project value potential. In the most recent publication, by Bygballe and Swärd (2019), the partnering project is well defined with regard to participants and measures. The objectives are quite general and not linked directly with the measures, but are still well defined. Consequently, it is surprising to see the authors claiming that they cannot define what partnering is.

2.2.1 Partnering success factors

In the literature review of Publication 3, the so-called success factors of PP in research literature were presented (please look up for reference). There is in principle little difference between a success element for projects in general (Pinto and Slevin, 1987) and partnering projects. Out of the five groups (marked 1 – 5 below) of success factors identified, all elements miss to define one of two other required dimensions. It is unclear if trust (1) is a pre-requisite, an objective or an outcome, although it can be all three. Stringent governance of projects has a negative impact on trust (Turner and Müller, 2004). It is unclear why communication (2) is vital for reaching what objective for which participants.

It is furthermore unclear how commitment (3) is established; by charter, contract, achieving objectives by collaboration, dependency or attitude. Nunez and Gransberg

(2019) recently looked into if partnering charters are binding. Their definition of partnering is narrow as a remedy for avoidance of disputes and claims between owner and contractor by a partnering charter, formal workshops, mutual trust and a spirit of partnering. Partnering contracts are observed in Australia (Hayford, 2018), Denmark and in the UK (Tvarnø, 2013). However, partnering contracts falls outside the scope of this thesis.

Collaborative problem-solving (4) is a huge and ambiguous task ranging from sorting out details to avoiding conflict and capturing opportunities. However, mutual project objectives (5) constitute a core element in the definition of PP. It is understandable that it is imperative to have a joint objective in order to make a partnering success.

Unterhitzenberger and Bryde (2018) suggested that procedural justice needs to be present in order to improve the performance of projects. Project management procedures for fair treatment of project team members, fair allocation of resources and individuals interacting by respect, propriety, and dignity enhance project success (Unterhitzenberger and Bryde, 2018). Recent research has also demonstrated examples of how to map complex causal chains between measures and success criteria (Williams, 2016).

2.2.2 Partnering projects defined by partnering elements

As an example of recent date, Wøien et al. (2016) showed how partnering projects are defined. They identified a set of partnering elements. In Table 1, the authors provide a summary of partnering elements, sorted by categories. We see that the elements are one-dimensional and unsorted with regard to participants, objectives and measures. By sorting the partnering elements identified by Wøien et al. (2016) referred to in the literature review, we get other categories and a clearer picture of the partnering projects described. In the discussions section, alternative categories are presented.

Partnering element as classified by Wøien et al., (2016)	**Comment**
Procurement	
Pre-qualification	Partnering preparations. Procedure for selecting participants based on joint objectives and measures to pursue the objectives
Value-based procurement	Could be element of any project procurement procedure
Functional description	Could be element of any project procurement procedure. It leaves detail decisions to the contractor, but does not necessarily include joint decisions.
Client possibility to terminate agreement	Could be element of any project procurement procedure. Not a partnering element unless it is a joint decision with other partnering project participants.
Distribution of responsibility	Partnering element if there are distribution responsibilities between partnering participants
Partnering charter	A soft contract; a communication tool facilitates common understanding of objectives and measures between participants
Client administrated design	Understood as client had subcontracted design, but maintains control via administration of the design
Design and build contract	Could be element of any project procurement procedure unless there are joint objectives and governance elements
Transferred operational responsibility to contractor	Partnering element only if joint objectives and procedure of joint decisions ladder are defined
Work based on cost-plus	Could be element of any project procurement procedure although based on trust
Process	
Intention agreement before establishing target cost	Regulation of early involvement
Target cost with bonus/malus	A measure for reaching a joint objective to reach target cost
Allocation in target cost due to unfortunate design	A measure for reaching a joint objective of design without unforeseen cost effect
Open book	A measure for facilitating confidence of no extraordinary earnings

Early involvement of contractor	Actually a measure for making joint decisions at an early stage
Incentive agreement	A measure for reaching a joint objective to reach a target (milestone on time or other non-cost joint objective)
Mutual objectives	Partnering core element
Conflict resolution	
Predetermined strategy for disputes	Partnering core element if avoidance of legal conflict is a joint objective
Contractual right to replace people	Possibly a measure if collaboration fails
Contractual right to replace firms	Possibly a measure if collaboration fails
Workshops	Measures for communication and joint decisions
Facilitator start-up workshop	Measure for communication and joint decisions
Workshops during project	Measures for communication and joint decisions
Sum-up workshops	Measures for communication and joint decisions
Co-localisation of partnering group	Measure for communication and joint decisions
Involvement in partnering group and target cost	
Including architect in partnering group	Selection of participants
Including architect in target cost and bonus/malus	Differentiating measures between participants
Including consultants in partnering group	Selection of participants
Including consultants in target cost and bonus/malus	Differentiating measures between participants
Including technical and/or sub-contractors in partnering group	Selection of participants
Including technical and/or sub-contractors in target cost and bonus/malus	Differentiating measures between participants

Table 2-9: Partnering Elements (Wøien et al., 2016) with comments

The *who*, *what* and *how* dimensions are unclear. Three of the partnering elements identified by Wøien et al. are the choices to include architect, consultants and technical and/or sub-contractors in a partnering group. These are choices on the *who* dimension. All other partnering elements are measures on the *how* dimension. Wøien et al. listed examples of the objectives of partnering thoroughly: “Partnering aims to

accomplish a positive environment in the project and achieving success for all participants … less conflict, increased productivity, shorter execution time, more innovation, better cost efficiency, increased flexibility, improved work environment and continuous improvement of quality in results and services". However, Wøien et al. missed the link from participants and objectives to the measures implemented. A practical example: If an owner and a contractor has a joint objective of reducing the amount of waste, they can select to involve a sub-contractor when implementing specific measures to estimate and order exact amounts of materials, have a back-up storage by the supplier, and other specific measures based on an analysis of why materials waste occurs. Use of the who-what-how framework would improve the research of Wøien et al.

2.3 Conclusions of the literature review

This literature review investigated elements of definitions of partnering projects in available literature from the maturation of definitions over time, partnering definition models, dimensions of PP definitions, categories of PP definitions, PMI's approach to partnering, ISO 44001: 2017 and a comparison of PP versus Project Alliances.

There is no universally accepted definition of PP. PP has been defined by its success factors, leading to all partnering projects being successful. Unsuccessful collaboration projects were simply non-partnering projects. PP has later been defined by its tools, techniques and knowledge applied, without linking means with objectives. The academic community has given up on defining PP and is instead analysing how partnering functions interact in projects (Gottlieb and Haugbølle, 2013). The vast number of who-what-how combinations hints that all partnering projects are unique. The ISO standard can help in the enhancement of collaborative business relationships between various organisations, although any particular form of collaborative project forms is not defined. There are so many combinations of participants, objectives and

how to pursue the objectives that it is difficult to find projects more similar than possibly comparable. This is one reason for the challenges involved in defining PP.

However, when defining partnering projects, researchers do define participants, objectives and measures, but do it inadequately in one or more dimensions; they furthermore fail to link the measures with the objectives. The literature does not provide sufficient research to make neither academia nor industry confident on the definition of partnering in projects. Partnering projects, and the preparations for them, where both client and contractor are working together in teams, seem to be incompletely researched due to definitions of partnering projects in literature being inadequate, weak or confusing.

The literature review has, by applying the framework for the definition of a partnering project, opened up possibilities for further research, as indicated in the discussions section.

Researchers and practitioners need a better framework for defining their projects, and that is the aim for the remainder of this thesis.

3 Research methodology

In this section, the research methodology and approach for the research performed is described. The section will not provide much general explanation of research methodology (Cassell and Symon, 2004, Eisenhardt, 1989, Hellevik, 2002, Langley, 1999, Saunders et al., 2009, Sevilla, 1992, Yin, 1984), and will predominantly state what has been applied in this research and why.

In general, this research looks for explanations, relationships, comparisons, predictions, generalisation and theories (Phillips and Pugh, 2010), as described in the next subsection.

3.1 Research objectives

Figure 3.1 below provides a summary of the research rationale, research questions (RQs), research approach and method of each publication.

Figure 3-1: Research rationale, research questions, individual publications and applied methods

RQ of Publication 1: What is the current state of partnering practices in offshore development drilling projects assessed using the RBP taxonomy framework?

The purpose of this research question was to find the true story of partnering practices through a case story. It was important to identify which partnering elements were applied and to what extent. Publication 1 examines the adaptability of a relationship-based project procurement taxonomy to offshore drilling as compared to land-based construction industry.

RQ of Publication 2: What are the specific and definite characteristics of Project Partnering?

The purpose of this research question was to find characteristics unique to PP. Unless there were PP-specific characteristics, PP could be just a best practice of traditional project management. With characteristics specific to PP, a definition could be formulated.

RQ of Publication 3: How to succeed with project partnering in a project-based organisation?

The purpose of this research question was to find dimensions, explanations, generalisations and theory on how to mature and succeed with PP.

The research questions in the Publications have a common core in defining the partnering project framework and its implications, as shown in Figure 3-2. Publication 2, 3 and this thesis moves a layer down as compared to Publication 1, basing analysis and discussion on the framework of participants, objectives and measures. The taxonomy presented in Publication 1 can also be split into elements of those three dimensions.

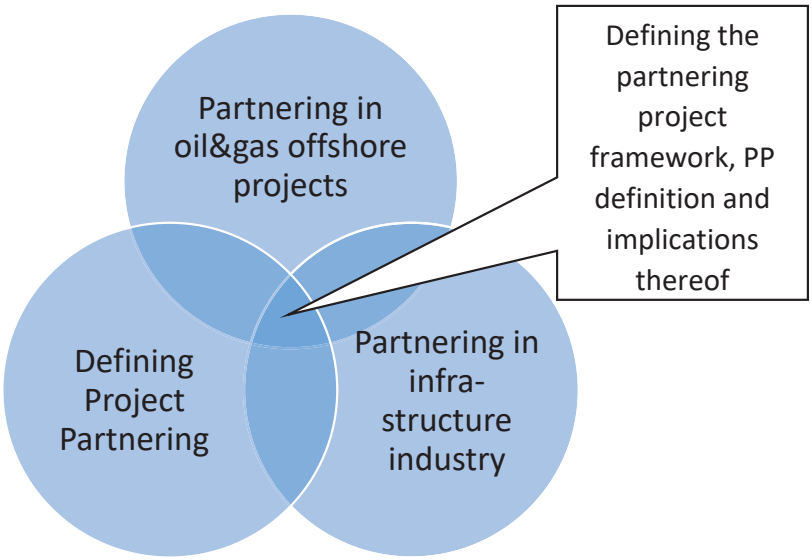

Figure 3-2: The integrated core of the Publications and objectives of this thesis

Whereas the RQs from the Publications are answered by means of case studies and surveys, this thesis ties loose ends together by firming up the PP definition. Additionally, as important consequences of the framework on how to define PP, implications of the new definition are demonstrated in (1) a model to define extent of PP, (2) a maturity model for PP and (3) how to compare PP and Project Alliancing. Publication 2, 3 and this thesis build strongly on the framework of participants, objectives and measures, as visualised in Figure 3-2.

The research questions of this thesis are listed below.

RQ1 How can the framework define project partnering and partnering projects?

The purpose of this research question is to find how the framework can define PP and partnering projects as a common core of and hence an integrated element of the Publications. Although Publications 2 and 3 are based on the framework, this thesis seeks to answer RQ1 with further documentation.

RQ2 How can the definition from Publication 2 be clarified?

The purpose of this research question is to mature the definition further, as any definition needs continuous testing, error correction and enhancement to become accepted. (Barnbrook, 2002).

RQ3 As an implication of a PP definition, how is a maturity model for PP structured?

The purpose of this research question is to demonstrate implications of the new definition because any definition, to become accepted, requires assessment of the implications of any changes (Barnbrook, 2002).

RQ4 As an implication of a PP definition, how can PP be distinguished from Project Alliancing and possibly other collaborative project forms?

The purpose of this research question is to find, based on the PP definition, how to delineate PP from other collaborative project forms; this is also due to the fact that any definition, to become accepted, needs assessment of the implications of any changes (Barnbrook, 2002).

Hence, RQ2 seeks to explore and further mature clarifications of the definition, whereas RQ3 and RQ4 are assessments of implications of the PP definition.

3.2 Research process

This PhD project comprises the development of a project plan, three individual publications and this thesis. The project plan was initiated by suggestions for future research in literature followed by identification and formulation of research gaps, objectives and questions. The research plan provided an explanation for why partnering in offshore drilling projects should be studied and why this is important. The research objectives and questions were modified after findings as the research proceeded. The objectives of Publication 1 were chosen based on the identified research gaps and the author's personal interest and access to case project

information. The objectives of Publication 2 derived out of experience from the literature review in Publication 1 and the authors' vision of contributing to how to define PP generically. Thus, there was a shift from industry-specific to generic research objectives without limitation to industry. The objectives of Publication 3 derived from the identified research gaps in Publication 2 and access to case project information. Each publication and this thesis provided an explanation of underlying assumptions and structure of the research in addition to explanations of methods, data collection and analysis. This thesis integrates the Publications with a broader perspective when reconsidering the PhD project context, the formulation of research questions, the methodology applied and how the Publications have succeeded in answering the research questions. All three Publications are published after extensive peer review and revisions based on the reviewers' comments. This thesis also discusses main findings of the Publications and is hence an extension of the Publications. Section 4 provides a summary of the Publications followed by a discussion on how this research as a whole contributes to both theory and practice. Figure 3-3 presents the overall procedure of the PhD project and the stages of the research process.

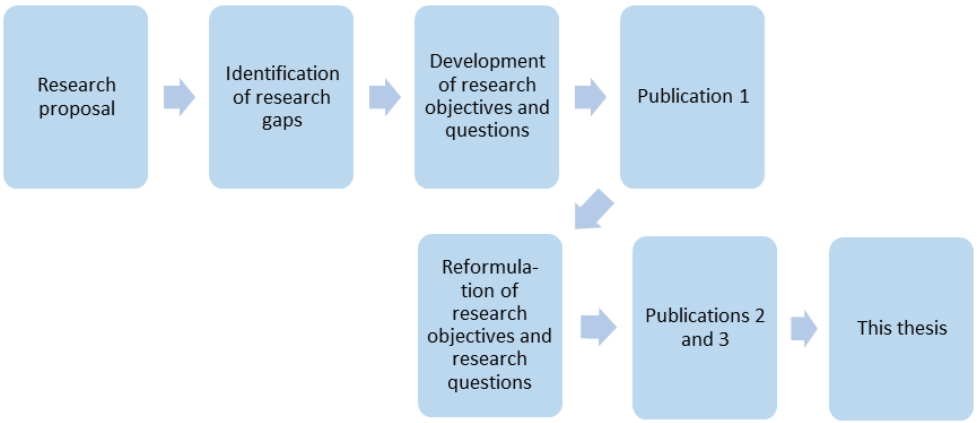

Figure 3-3: Overall procedure of the PhD project

Methodology for the publications is summarised in Table 3-1 below.

	Publication 1: Partnering in offshore drilling projects	**Publication 2: Defining Project Partnering**	**Publication 3: How to succeed with project partnering**
Study type	Descriptive	Descriptive	Descriptive
Research philosophy: Epistemology	Pragmatism	Post-positivism because we believe what we observe and then we interpret it	Not specified
Research philosophy: Ontology	Pragmatism	Pragmatism	Not specified
Axiology	n/a because there is no judgement about values in this research		
Research approach	Commenced deductive until case study with inductive approach	Commenced deductive until surveys with inductive approach	Commenced deductive until case study with inductive approach
Strategy	Case study	Survey	Case study
Choices	Mono-method		
Time horizons	Not specified	Cross-sectional (snapshot)	Not specified
Methodological approach	Qualitative, descriptive and intrinsic	Quantitative with open questions for any qualitative comment	Qualitative, descriptive and intrinsic
Data collection	Qualitative data were retrieved from plans, reports and interviews, including reports and verifications by independent regulatory authorities.	Web-based questionnaire with literature references	Semi-structured interviews Testing of findings
Measure instruments	n/a	Counting number of respondents who have marked: 1) each phrase specific and definite	

		for PP and 2) dimensions required in a definition of PP	
Sampling strategy	A representative for all institutional stakeholders involved	367 experts identified in literature search. 76 per cent of the respondents were authors of papers on PP and institutions providing a definition of PP. 24 per cent were authors of papers close to PP. 338 e-mail addresses	Experienced persons representing the entire company value chain identified. Two of five regions.
Sample size	1 case	58	54
Analysis technique	n/a	Frequency count	

Table 3-1: Summary of methodology in publications

The methodology applied in each Publication is discussed further in the following sections.

3.2.1 Descriptive - neither conclusive nor causal research

The research in all three publications and in this thesis is descriptive and normative.

The research is descriptive as an attempt to determine, describe and identify functions and characteristics of PP. By analysing literature using the framework, this enables a description of PP more completely than in earlier research. In the research, PP is described, explained and validated through case studies; Publications 1 and 3 and surveys in Publication 2.

Publications 1 and 3 have defined a descriptive methodological approach. The approach of Publication 2 is also descriptive, although not specifically defined. The main purposes of the Publications are to describe, explain and validate the RBP

taxonomy, the framework and the PP definition. All three publications thus aim to determine, describe or identify various aspects and characteristics of PP.

Case studies and surveys, as applied in the research, are suitable data collection methods used with descriptive studies (Ethridge, 2004). The descriptive research was suitable for analysing the non-quantified topics and issues pertaining to PP by integrating qualitative and quantitative methods of data collection. The research is normative as it provides a recommendation on how to define a partnering project and PP.

This research does not aim to provide final and conclusive answers to the research questions. Despite there there being earlier comprehensive descriptive research on the subject, PP is still not properly defined, which justifies further exploratory research on PP.

This research does not aim to explore any causality between a cause and effect. Publication 3 does explore how to succeed with project partnering. Publication 3 does not, however, claim specific effects from the elements encountered.

Coincidently, the publications do apply analytical research in attempting to reason why it is that way or how it came to be, and any such finding should be of reduced validity and reliability. As advised by Biedenbach and Müller (2011), and in order to avoid misunderstandings, an attempt to link ontology and epistemology with methodology follows in the next three subsections.

3.2.2 Research philosophy: Ontology

Ontology describes the researcher's view of the nature of reality or 'what is real' for short.

In ontology, the nature is objective or perceived as subjective. Objectivism, also named positivism, "portrays the position that social entities exist in reality external to social actors concerned with their existence" (Saunders et al., 2009). By objectivism, nature is not filtered by the researcher's perception. Subjectivism, also known as

constructionism or interpretivism, is the reality as perceived by the researcher. In pragmatism, the most important determinant of the epistemology and ontology is the research question (Saunders et al., 2009). The research questions of this thesis confirm the pragmatism of working with variations in epistemology and ontology (Saunders et al., 2009).

The table below illustrates the ontology of four major research philosophies:

Research philosophy	
Pragmatism	External, multiple, view chosen to best enable answering of research question
Positivism	External, objective and independent of social actors
Realism	Is objective. Exists independently of human thoughts and beliefs or knowledge of their existence (realist), but is interpreted through social conditioning (critical realist)
Interpretivism	Socially constructed, subjective, may change, multiple

Table 3-2: Ontology of research philosophies

Ontologically, this research basically assumes that perceptions of reality are socially constructed and not facts. Hence, perception of reality is both temporary and context dependent. Reality is constructed by individuals and therefore multiple correct constructions of reality can exist. Beliefs and assumptions on ontology affects the epistemological belief.

The ontology of the research philosophy applied in this research is described as pragmatism for Publication 1, and is not specified in Publications 2 and 3. In Publication 1, the philosophical approach was pragmatism, because multiple sources were utilised to find answers to the research question. In Publication 2, pragmatism because a survey was found to be the best approach to finding answers to the research question.

3.2.3 Research philosophy; Epistemology

Epistemology pertains to the relationship between the inquirer and the knowledge. Four categories of knowledge were sought during the research. (1) Intuitive knowledge was used to select the definition problem to be explored. (2) Authoritative knowledge was gained during the process of reviewing the literature. (3) Logical knowledge was generated when analysing interviews and survey data. However, as discussed in the reliability and validity sections, the conclusions of the research can only possibly be perceived as (4) empirical knowledge. The nature of sources and limitations of knowledge are discussed in the validity and reliability sections of this thesis.

As a branch of epistemology, this research accepts empiricism with personal experiences, feelings and senses as a valid source of knowledge for the research questions. This research is not dependent on rationalism with for eternity valid and reliable empirical findings as a source of knowledge.

Both observable phenomena based on data and facts as knowledge and subjective meanings and non-quantifiable data constitute knowledge. Consequently, both post-positivism and interpretivism research philosophy are followed. In other words, when observable phenomena based on data and facts are accepted as knowledge, the research philosophy is post-positivism. When subjective meanings and non-quantifiable data are accepted as knowledge, this is interpretivism research philosophy.

Epistemologically, this research basically acknowledges the impossibility of presenting the socially constructed reality in a neutral and objective manner. Also as researcher, socially constructed reality is known from a non-neutral frame of reference. Hence, this research does not aim to present facts, but instead presents the researcher's interpretation of a social construct.

The research philosophy was described as epistemology pragmatism and post-positivism and is not specified in Publications 1, 2 and 3, respectively. Publication 1 aimed to find truth by integrating different perspectives in the case study. Publication 2 aimed to reduce PP into its simplest dimensions and elements. Thus, Publication 2,

possibly unclearly, referred to post-positivism and classic positivism, also because the candidate believes that which is observed and endeavours to interpret it. The constructive research approach of Publication 2 and this thesis is an attempt to solve the problem by defining PP and partnering projects. The research applies a variety of research tools and is also associated with positivist epistemology. The constructive research is aimed at producing a PP definition for both practical and theoretical use in line with Oyegoke (2011).

The epistemology of Publication 3 was not specified in the paper, although accepted for publication by IJMPB. Publication 3 focuses on pragmatism by integrating perspectives identified from 58 interviews and post-positivism to propose the 3W model for understanding how to succeed in partnering.

Beliefs and assumptions on epistemology affect the choice of methodology. Hence, literature reviews, semi-structured interviews and surveys are applied in the Publications and in the thesis.

3.2.4 Research approach and methods

The research approach commenced deductively in all publications with a literature review, as it may do in practical research (Saunders et al., 2009). Research questions were based on conclusions from the literature review. Thereafter, an inductive approach was adopted in all three publications, basing conclusions on observations. Together with the descriptive nature of the research, the candidate was free to alter direction for the study during the research, primarily after the literature review using existing theory to formulate research questions to be described. The research questions matured in parallel with the research to become more explicit, in accordance with Eisenhardt (1989). The patterns of defining PP and partnering projects are observed in order to reach an evaluation of the framework on how to define PP and a partnering project.

This research is qualitative research, where data is gathered as speech. Findings are presented as citations or descriptions of the researcher's perception of the respondents' perception of reality and motivation (Hellevik, 2002). Development of problem statement, data gathering, and analysis are partly parallel, partly in repeated sequences (Hellevik, 2002). Testing out if and how knowledge within one industry can be transferred to another industry is, in accordance with Phillips and Pugh (2010), inductive qualitative.

Specific practical-instrumental methods like case study, relevant for this study, define the terms of the practical behaviour of the researcher. The method ensures that the collection of data is reliable, valid and representative (Woodside and Wilson, 2003).

Case studies are considered the preferred strategy when 'how' or 'why' questions are being posed, when the investigator has little control over events, and when focus is on a contemporary phenomenon within real-life context (Woodside and Baxter, 2012, Yin, 1994). Eisenhart (1989) described a procedure on how to conduct a case study. After selecting the cases, the procedure includes 1) Crafting Instruments and Protocols, 2) Entering the Field, 3) Analysing Data, 4) Shaping Hypotheses, 5) Enfolding Literature, and 6) Teaching Closure.

This study employs an emergent strategy in the literature review and a deliberate strategy in the discussions section. The emergent strategy in the literature review looks back and describes how PP and partnering projects have previously been defined. The deliberate strategy in the discussions section looks forward and prescribes how PP and partnering projects should be defined in the future.

Publications 1 and 3 are case studies, whereas publication 2 applied web-based surveys. Only publication 2 specified the time horizon to be a snapshot, although all three publications have a very limited time scope.

Case study research strategy was selected in Publication 1 to provide an analysis of the processes of partnering in an offshore drilling project and thus contribute to building

the RBP taxonomy theory in line with Cassell and Symon (2004). The case was selected as an outstanding NCS drilling project with good access to information suitable for demonstrating theory and for answering RQ1.

Data were collected by means of interviews or focus group discussions and consequently analysed. The choice of methodology for each paper is indicated in Table 3-1 and was subject to change after literature studies. In section 5 of this thesis, data are analysed in step models. In those step models, one step up and one step down is shown to illustrate levels on collaboration elements within one dimension. See section 5 for examples and explanations on how the step models are applied.

3.2.5 On defining

The methodology of *defining* is well formulated in Publication 2, hence only an extract is provided here: "Barnbrook (2002) stated that a definition is used to help people grasp meanings by providing a series of hints and associations that will relate the unknown to something known. 'Definitions are set out to explain the meanings of certain words in terms of certain other words, preferably in useful natural language.' (Barnbrook, 2002).

Van de Ven (2007) defined the meanings of terms by using two levels of abstraction: constitutive and semantic definitions. A constitutive definition describes a term by referring to its component parts and therefore defines at a low level of abstraction. A semantic definition describes the meaning of a term through its similarities (positive) and dissimilarities (negative) with other terms, and thus defines at a higher level of abstraction. Van de Ven (2007) concluded that both positive and negative semantic phrases are required to clarify the meaning of a concept in a semantic definition. Osigweh (1989) clarified this by stating that 'Terms that are defined by negation are determinate; those defined without negation are indeterminate.' …

In accordance with Barnbrook (2002), definition evaluation naturally falls into three stages:

a) continuous testing, error correction and enhancement during the development of the language description model and its associated software
b) formal testing to demonstrate the adequate operation of the final version of the software
c) assessment of the implications of the results of stages a) and b) (Barnbrook, 2002). Publication 2

In this thesis, the constructive definition developed in Publication 2 defining the specific and definite characteristics of PP at a low level of abstraction is fine-tuned. A negative semantic suffix added to the definition to delineate PP from collaborative project forms close to PP has been utilised to communicate any boundaries of PP.

3.2.6 Literature search strategy

This section describes the literature review process of this thesis and comments on the literature reviews in Publications 1-3; see also the applicable sections in the publications.

The search strategy for the literature has been described in detail in the Publications and was initiated by identification of search terms, including synonyms. A vast pool of relevant literature was generated through exploring Scopus, Google Scholar and Emerald databases amongst others. The local library is a magnificent service provider. Collected literature was filtered according to credentials of sources and authors.

The remaining literature was filtered and sorted by phrases and sources in Excel sheets. The systematic approach to filtering and sorting literature contributed significantly to realising current state-of-the-art in accordance with the chosen epistemology and ontology.

The narrative literature review on PP definitions in section 2.1 summarises the body of a literature without critique. The purpose of the review was to draw conclusions and

identify inconsistencies relating to how to define, and identify specific characteristics of, PP.

The integrative literature review of how partnering projects are described in literature (section 2.2) was more rigorous and is described below. Table 2-8 synthesized and presented literature on how partnering projects were defined. The table provided a fundament for critique of definition practices of partnering projects in literature and simultaneously used the frameworks proposed to define PP.

In this thesis, literature search strategy was limited to the EndNote library of more than 1,000 papers and books on partnering compiled during the research in Publications 1, 2 and 3 in addition to continuous search engines on Scopus and Google Scholar. The search was limited to the three journals IJMPB: International Journal of Managing Projects in Business, PMJ: Project Management Journal and IJPM: International Journal of Project Management. Publications with 'partnering' in either title, abstract or keywords were selected.

3.2.7 Techniques, sampling strategies and gap analysis

Unstructured interviews are appropriate data collection methods for exploratory studies, hence they have also been utilised in Publications 1 and 3. Publication 2, however, primarily applied web-based surveys for data collection. In the early design phase it was considered whether to call the respondents by phone, but this approach was deemed too resource-demanding for the purpose of this PhD project. It was thought to be likely that those with knowledge and interest in the field would reply to the survey.

The sampling strategy of Publication1 was simply to find a representative for all institutional stakeholders involved in the project.

In Publication 2, a total of 367 experts were identified by the literature search. In all, 76 per cent of the respondents were authors of a paper on PP and institutions providing a definition of PP. The remaining 24 per cent were authors of papers on subjects close to PP. We located 338 e-mail addresses for the experts in our search for their contact information (see Table II in Publication 2).

In Publication 3, the interviewees represented the entire value chain of the company. All 58 interviewees were persons with project experience in two of the five CaseCo regions. 35 per cent of interviewees were women, in line with the gender structure of CaseCo.

In the discussions section of this thesis, a gap analysis is applied to compare PP and Project Alliancing. Gap analysis identifies gaps between levels of measures and objectives with the purpose of revealing areas of difference between collaborative project forms.

All publications referred to in the discussions section of this thesis are referred to in the literature review or in the Publications.

3.2.8 Publication timeline

Publication	Received by journal	1st review	2nd review	Accepted
Publication 1: Partnering in offshore drilling projects	15 Dec. 2015	11 March 2016	6 June 2016	7 July 2016
Publication 2: Defining Project Partnering	7 Oct. 2016	16 March 2017	26 June 2017	26 June 2017
Publication 3: Understanding how to succeed with project partnering	27 July 2017	27 April 2018		29 May 2018

Table 3-3: Research timeline

3.3 Qualifications

Please see Publications 1, 2 and 3 for specific validity and reliability issues. In case of discrepancies, this thesis shall prevail.

3.3.1 Reliability issues

This subsection will scrutinise the replicability of the research and the accuracy of the research techniques. If the research is repeated, will the same conclusions be reached? As the research is predominantly descriptive, it is a weakness that the research questions cannot be tested statistically. Hence, the results may reflect bias due to the absence of statistical tests.

<table>
<tr><th></th><th>Publication 1</th><th>Publication 2</th><th>Publication 3</th></tr>
<tr><td>Are the measurements of the research methods accurate and consistent?</td><td>All stakeholders' RBP ratings verified by key informants</td><td></td><td></td></tr>
<tr><td rowspan="2">Could research methods be used in other similar contexts with equivalent results?</td><td colspan="3">Due to the descriptive nature of the research, the studies are not directly repeatable</td></tr>
<tr><td>Research method can be applied in other case studies and show a RBP profile</td><td></td><td>The observational nature of the research may limit repeatability</td></tr>
<tr><td>Would the same results be achieved by another researcher using the same instruments?</td><td colspan="3">From a post-positivist perspective, the researcher may influence informants and respondents</td></tr>
</table>

Is the research free from error or bias on the part of the researcher or the participants?	Probability of bias acknowledged, however offset by rich insights	The surveys limited researchers' contact with respondents	Probability of bias acknowledged, however offset by relatively high number of informants

Table 3-4: Summary of reliability issues

Methodological challenges have been observed. First, the initial research question may be modified after literature review. Second, choice of method for data collection, appropriate to the methodology and relevant to the research question, the participants and the research setting, may be a loop process influencing the research question. Third, analysis of the interviews will most likely be challenging due to interpretation of language, setting, context and actual understanding of the respondents. It may be challenging to draw conclusions even for a well-balanced mix of research question, literature study, methodology, practical data collection and data analysis. Direct competitors for partnering projects may be reluctant to share experiences on core collaborating competence topics.

3.3.2 Validity issues

	Publication 1	Publication 2	Publication 3
How successfully has the research actually achieved what it set out to achieve?	The research questions were answered		

Can the results of the study be transferred to other situations?	As case studies, the transferability is limited due to context and other variables	It is an aim to find global specific characteristics of PP	As case studies, the transferability is limited due to context and other variables
Is the research design sufficiently rigorous, have alternative explanations been considered?	Yes, see discussions section	Future research is required	Yes, see discussions section
Have the findings really been accurately interpreted?	To the candidate's best knowledge		
Have other events intervened which might impact on the study?	A long duration from project to study may have both positive and negative impact	PP is a bit out of fashion as compared to alliances. This may have had a negative influence on survey replies.	Not observed

Table 3-5: Summary of validity issues

General for all Publications and this section is that PP is seen to be somewhat outdated. Project Alliancing is more in fashion and hence attracts more attention. As an example, one potential respondent to Publication 2 surveys demanded to be deleted from e-mail submissions; the survey invitation was possibly regarded as "incompetent noise" in the inbox. Other respondents and informants provided information and assessments just to be helpful without receiving any compensation, possibly without similar motivation and objectives as the research or the researcher. Nevertheless, the research answered the research questions successfully, supported by a sufficiently rigorous research design where alternative explanations were considered. There were no particular events occurring during the research with potential to affect the results. Co-authors, reviewers and journals' acceptance criteria

have all contributed to accurate interpretations of findings. Case studies are, however, context specific, and this may limit the transferability of findings to other situations.

3.3.3 Generalisability

One of the aims of this research is that the findings of Publication 2 and this thesis may be possible to apply in other research settings. The survey of Publication 2 tried to reach all researchers active within the field of PP. In its simplicity, one ambition of the research exploring the theory of the framework for defining PP and partnering projects is that it might apply to practitioners even if they are not asked to be respondents in the surveys.

3.3.4 Transferability

The case study approach in Publications 1 and 3 builds strongly on the Norwegian context and organisational structure; thus the findings have limited wider significance (Cassell and Symon, 2004). Both case studies are specific to their context of national and industry cultures in addition to the personality of involved individuals. However, in global industries the cases are influenced across borders and continents. The research can cautiously be applied to other contexts.

3.4 Deviations from the original PhD plan

The original PhD plan was more specifically aimed towards partnering in offshore drilling projects and its implications for contract management. Due to the need to define partnering generally, the scope was altered from the industry-specific view to a more general industry view and reduced focus on contract management.

The programme has been postponed, however only due to relevant professional work.

This PhD programme is primarily an exciting research training exercise (Phillips and Pugh, 2010).

3.5 Ethical issues

This research has been conducted in accordance with the NTNU standard code of research ethics (NTNU, 2015) and specific ethical guidelines for science and technology (The National Committee for Research Ethics in Science and Technology, 2008) .

The discussion on ethical issues on oil and gas research is observed (The Norwegian National Committees for Research Ethics, 2014). The position as a PhD candidate is sponsored by Centre for Continuing Education and Professional Development in project management at NTNU. Any unmanageable conflicts of interest between the role as a researcher, a producer of knowledge and sponsor interests have not been encountered.

Publication 1 aims to improve the efficiency of the oil and gas industry by improving drilling project success by measures including reduced drilling time and cost, improved well quality and client satisfaction. Reduced drilling time may possibly reduce emissions during the drilling project. Improved well quality may improve reservoir recovery and hence reduce project carbon footprint and reduce emissions per unit produced. As limited harm to the environment is a target of oil companies, improved drilling efficiency and well quality may improve client satisfaction.

3.6 Conflict of interest

The author has no affiliations with or involvement in any organisation or entity with a financial or non-financial interest in the subject matter or materials discussed in this thesis.

3.7 Formalities

The Norwegian Centre for Research Data has, after application, granted formal consent to data collection and storing. The specific ethical guidelines for science and technology were followed (The National Committee for Research Ethics in Science and Technology, 2008). A status report was filed in January 2019.

4 Summary of publications

This section provides a short fact-based summary of the Publications. It is, however, recommended to see the full publications for more colourful depth and detail if so required.

4.1 Comparison of research questions and conclusions in Publications 1-3

Research rationale	Research questions	Conclusions and findings
Provide case of project partnering in offshore drilling projects	What is the current state of partnering practices in offshore development drilling projects assessed using the RBP taxonomy framework?	'Many elements of project partnering observed earlier in construction projects were found to characterize offshore development drilling projects. However, as assessed using the RBP framework, the authors found that partnering elements in observed context rated consistently lower than elements previously reported in the construction industry, indicating a lower maturity of partnering practices in the studied context.'

Define project partnering	What are the specific and definite characteristics of Project Partnering?	'PP and a partnering project are defined by a framework encompassing three basic dimensions: participants, objectives, knowledge, skills, tools and techniques applied to pursue the objectives. The new definition is: "project partnering is a relationship strategy whereby a project owner integrates contractors and other major contributors into the project". Through commitment to mutual project objectives, collaborative problem solving and a joint governance structure, partners pursue collaborative relationships, trust and improved performance. The new definition indicates that PP neither varies with early contractor involvement nor gain and pain share, but varies with the degree of mutual project objectives, collaborative problem solving and joint governance structure.'
Understand how to succeed with project partnering	How to succeed with project partnering in a project-based organization?	'Based on the research the authors were able to identify three main dimensions vital for project partnering success: 1. who related to participant selection; 2. what related to task clarification; and 3. way related to partnering measures. These dimensions give rise to what the authors have termed a 3W (Who, What, Way) model on how to succeed with project partnering in practice. The third dimension, way related to partnering measures, was found to consist of the four sub-dimensions: 3a. partnering attitude; 3b. a collaborative culture; 3c. a holistic perspective; and 3d. an accurate handover.

Table 4-1: Research rationale, research questions and conclusions in Publications 1-3

The table above will be commented on in the following sub-sections.

4.2 Publication 1: Partnering in offshore drilling projects

The purpose of this paper was to evaluate to which extent partnering practices observed in earlier research focussing on the construction industry are applied in offshore development drilling projects.

The paper reviews earlier research on PP and the relationship-based procurement (RBP) taxonomy developed by Walker and Lloyd-Walker (2015). In a case study, the RBP taxonomy is then applied to describe partnering practices in an incentive-based drilling project in Norway.

As such, the findings of this study provide a holistic overview of the maturity of partnering practices in the observed context. In addition to elements where partnering practices were quite developed, such as the use of incentive arrangements and a high commitment to innovate (Reiley, 1994, Garcia et al., 2014), the present study also revealed elements where approaches were perceived as being less partnering-oriented. Examples of such elements include lack of transparency and open-book auditing, lack of integrated risk mitigation and risk insurance practices, and lack of authentic leadership. Identification of the elements may be particularly valuable for further development of partnering practices in the industry studied.

This study provides a multi-dimensional and systematic description of partnering practices in offshore drilling projects. Project owners can utilize this information to identify partnering elements requiring emphasis when initiating and managing drilling projects. Based on the findings, such elements include transparency and open-book auditing, integrated risk mitigation and insurance practices and establishment of authentic leadership. The findings further imply that partnering models cannot be directly applied across industry boundaries but must be tailored to fit the salient characteristics of each context.

Many elements of PP observed earlier in construction projects were found to characterize offshore development drilling projects. However, as assessed using the

RBP framework, the authors found that partnering elements in observed context rated consistently lower than elements previously reported in the construction industry, indicating a lower maturity of partnering practices in the studied context.

The possibilities for partnering were found to be partially context-dependent as well, since the Norwegian Continenatal Shelf regulations (Petroleum Safety Authority Norway, 2015) influence how and to which extent risks may be shared and who is the responsible party obliged to ensure compliance with regulations. All action should be thoroughly planned and evaluated, and any pragmatic change of plans due to learning in action is not an option with regard to regulations. The regulations also demand focus on learning and continuous improvement. However, joint governance structure or consensus decision-making leading to any doubt of ultimate responsibility is not in accordance with regulations. Finally, the structure between concessionaires within the production licence (Ministry of Petroleum and Energy, 1974) and service companies limits the possibility for a project-wide insurance and the accompanying high ambition for integrated risk mitigation. A systematic study and understanding of these kinds of contextual factors could help academics and practitioners understand to which extent partnering practices that are applicable in a specific legislation and industry context are transferable to another context.

Partnering is an active search for continuous measurable improvements (Yeung et al., 2012), and measures for developing integrative dynamic capabilities to sustain competitive advantage (Garcia et al., 2014). RBP taxonomy operationalizes the qualitative description of partnering and makes it more tangible. Consequently, the RBP taxonomy is an important contribution to evaluating prerequisites, components and goals of partnering in accordance with Nyström (2005b). While the development of the RBP framework is predominantly based on research carried out in the construction industry (Walker and Lloyd-Walker, 2015), we observed that the taxonomy can also be applied to improve understanding, implementation and measurement of partnering in the oil and gas industry. Through rating of the

partnering elements, a more meaningful measurement of the outcome of each level of partnering evolves. This may in turn be conducive to opening the door for implementation of RBP taxonomy in other industries to reveal industry-specific characteristics in PP. Understanding these characteristics would contribute towards an increased understanding of how partnering approaches should be tailored to meet the specific features of each industry.

4.3 Publication 2: Defining Project Partnering

This paper describes the research we carried out to arrive at a new definition of Project Partnering (PP).

Due to observed problems in real-life projects stemming from the lack of a unified definition, the purpose of this paper was to formulate a new definition of PP through documenting the specific characteristics researchers attribute to this approach. 130 PP definition phrases extracted from a literature review were sorted into a framework of who, what, how, when and where. In a web-based survey, 58 of 338 invited experts marked the phrases from the literature review as being specific, generic, or irrelevant to PP. The expert group comprised highly ranked and experienced PP researchers. Based on the survey results, a new definition was formulated. The new definition specifies the participants, the objectives and the knowledge, skills, tools and techniques applied to pursue the objectives in PP. A verification survey gave a 78-96 per cent combined approve and support score from 41 experts for each element of the new definition.

The main finding was that PP and a partnering project are defined by a framework encompassing three basic dimensions: participants, objectives, and the knowledge, skills, tools and techniques applied to pursue the objectives. The framework applied to the formulation of the definition in this project can also be applied to define and implement a partnering project and to define and distinguish between other

collaborative project forms. The research furthermore encountered widespread confusion on the relationship-based procurement forms. Hence, there is a need for further research on this and closely related subjects. A delineation between PP and other closely related concepts may therefore lead to the modification of PP basic description, participants, objectives, measures, timeframe or a type of project. The new definition indicates that PP neither varies with early contractor involvement nor gain and pain share, but varies with the degree of mutual project objectives, collaborative problem solving and joint governance structure. New research can clarify any required level of mutual project objectives and how problems and opportunities are handled collaboratively. There are furthermore many varieties of joint governance structures (Klakegg et al., 2000), and how collaborative relationships, trust and improved performance are defined in a PP context.

Any definition, to become accepted, needs continuous testing, error correction and enhancement and the assessment of the implications of any changes (Barnbrook, 2002).

4.4 Publication 3: Understanding how to succeed with project partnering

The paper presents findings from a case study investigating factors on how to succeed with PP in an infrastructure construction company. The purpose of this paper was to present new findings to organizations that acknowledge difficulties in implementing and succeeding with PP. The investigation is based on a case study where empirical evidence has been collected via semi-structured interviews of 54 professionals within one company in the construction industry. The authors found 318 papers focusing on partnering, in these only 19 focused on how to succeed with PP. Most of the existing research has focused on challenges. This paper contributes to the research gap by presenting a 3W model on how to succeed with PP.

Based on the research, the authors were able to identify three main dimensions vital for succeeding with PP: 1. *who* related to participant selection; 2. *what* related to task

clarification; and 3. *way* related to partnering measures. These dimensions give rise to what the authors have termed a 3W (Who, What, Way) model on how to succeed with PP in practice. The third dimension, *way* related to partnering measures, was found to consist of the four subdimensions: 3a. partnering attitude; 3b. a collaborative culture; 3c. a holistic perspective; and 3d. an accurate handover.

The results focus on the management and collaboration aspects of partnering, and these three main dimensions and four sub-dimensions were found to be essential to successful PP and were reviewed in detail in the findings from the interviews chapter. The main dimension Who related to participant selection, which included wide involvement of the appropriate internal participants and external stakeholders in the project. The main dimension What related to task clarification, which included achieving common understanding of the task each party has and establishing a good basis for collaboration. The third main dimension Way related to partnering measures and included four sub-dimensions, which are: 3a. partnering attitude, which measures mutual desire to collaborate, communicate and build good relationships. Further, 3b. a collaborative culture denotes early involvement and acquiring partnering competence – why and how, and 3c. a holistic perspective entails understanding the totality. Finally, 3d. an accurate handover; that the history in the project is important in the planning period, during implementation and afterwards.

Inadequate training of staff can be a major cause of breakdown of partnering. If employees or affiliates do not fully understand what the term partnering signifies, the organization will not be able to conduct a successful partnering. On a maturity scale, where the scale goes from being inadequately prepared for practicing partnering to being very mature and practicing partnering fully, it is conceivable that CaseCo is located at the start of the scale and is very immature, even after six years of partnering experience. A project-based organization such as CaseCo must focus and work in all the three main dimensions to mature and achieve successful PP.

We especially focused on how to succeed with PP. Our research aimed at clarifying the holistic view (in CaseCo) of succeeding with partnering in the complete organization and value chain, not merely in a single project.

We have not analysed any path patterns, in which factors have causal effects on other partnering factors or affect ultimate project success. Furthermore, any factors putting limitations on partnering, such as barriers or failure factors, are disregarded. These aspects could be considered as weaknesses (or limitations), but can also be easily optimized in further research.

5 Main results and discussion

5.1 Dimensions in a definition of Project Partnering and partnering projects

As compared to traditional projects where project management action is defined by the objectives, providing the measures for achieving the objectives, PP has one more dimension in also defining the participants.

With reference to the literature review, neither researchers nor practitioners have defined their partnering projects well. It is loose with regard to either the participants, the objectives or the measures on how to pursue the objectives. Hence, it is concluded that definitions of partnering projects have previously been either one-dimensional with joint objectives only or two-dimensional with an unclear mix of objectives and measures. Objectives without measures are unrealistic and unlikely to be understood or implemented. Research on partnering projects has suffered from a tradition of defining PP by its success factors.

With reference to Abell (1980), a business is defined by three dimensions. When defining a partnering project and PP, we can be confident that the participants need to be defined. A collaboration needs to be between someone. A partnering project needs to know who is in and who is out of the collaboration. A clear definition of participants is obvious when defining a partnering project and PP. Participants is a required dimension when defining PP and a partnering project.

In PP it is the participants' joint objectives that distinguish partnering projects from traditional projects, where the client's objectives are pursued.

Technologies, or measures for short, are in the project management field the knowledge, skills, tools and techniques applied to achieve the joint objectives. The measures are not limited to commitment to mutual project objectives, collaborative problem-solving and a joint governance structure.

Neither timeframe nor a specific industry was found to be required when defining a partnering project (Publications 1 and 3) nor PP (Publication 2 and ISO 44001). Consequently, PP should not be limited to construction industries.

Straightforward projects do not, however, require a partnering approach. There should be risks to mitigate and improved performance potential to share. There should also be capacity for a joint governance structure. Hence, PP is suitable for projects with a level of complexity (Zeng et al., 2018, Sundquist et al., 2018, Tang et al., 2018). Key here is the complexity. It makes no sense to share risks in straightforward projects with little uncertainty. At what level of complexity PP is appropriate, can be an area of future research.

The timeframe of the project is not specific for PP (Publication 2).

A 3D model for defining PP and partnering projects is presented in Figure 5-1 below.

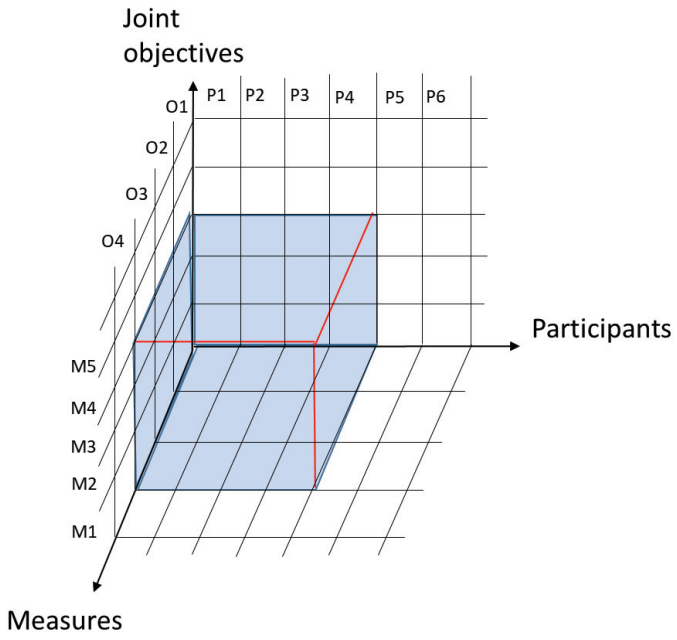

Figure 5-1: 3D model for defining PP and partnering projects

Figure 5-1 above can be useful for partnering project participants when defining their partnering project. As an example only, participants P1 – P4 pursue the joint project objectives O1-O3 by implementing measures M1 – M4. The measures cover both commitments, processes and tools as described by Beach et al. (2005). In practice, one may assume the collaboration to take form as the participants have complementary resources and capabilities and considering that the measures vary between the participants.

The PP model as presented in Figure 5-1 should replace the partnering models where PP is defined by its success factors (Cowan et al., 1992, Abudayyeh, 1994, and Crowley and Karim, 1995) and by its planned characteristics (Beach et al., 2005, Ross, 2009), by its prerequisites, composites and goals (Nyström, 2005a), and process models (Aarseth

et al., 2012). This is simply due to the fact that neither success factors, planned characteristics, prerequisites nor the processes itself define PP.

The model can also be used to define types of PP along the axes. There may be particular forms of PP due to particular sets of participants, distinctive measures and/or objectives. With reference to participants, we have observed types ranging from two-party owner – contractor, three-party owner – contractor and designer. Industry organisations are multi-party partnering projects where day-to-day competitors collaborate on joint objectives like education and regulatory issues. Specific objectives may define a form of PP by typical avoidance of adversarial and opportunistic behaviour, via key performance objectives to new product development. Lastly, forms of PP may be defined by any typology of measures applied.

In strategic planning of partnering projects, it is clarifying to evaluate which participants, objectives and measures to include, and which to exclude. There should be a strong link between the measures and objectives in addition to the participants involved. The client or project owner can, by defining four partners, four alternative joint objectives, and 12 measures to pursue the objectives, actually systematically select between 192 (4 * 4 * 12 = 192) similar but yet different partnering projects.

Definitions are often formulated ontologically in the positivist tradition to create a universal fact-based understanding of the subject defined. In the model above, however, the participants, measures and objectives are unlimited. Definition of PP and partnering projects by the three open-ended dimensions allows multiple correct constructions to exist. The following section will look into specific characteristics for PP in order to improve the constructive definition.

5.2 Fine-tuning of the definition developed in Publication 2

The definition matured in Publication 2 is wide and can be valid for several collaborative project forms. In this section, the definition of PP in Publication 2 is

adjusted. The comments from the verification round of the survey will again be taken into account and discussed in view of relevant literature. In Publication 2, Table XI: *Summary of findings* indicates what elements of the definition have potential for improvement.

5.2.1 General description and participants of PP

Walker and Hampson (2003) grouped PP as a relationship-based project form. This is later followed up by the research community (Publications 1,2 and 3 and Suprapto et al. (2016). The reference to a relationship is due to the relations being nourished by a growing trust from dependence on project colleagues, personal integrity, and other (Humphreys et al., 2003, Haque, 2004, Bygballe et al., 2010, Crespin-Mazet et al., 2015).

Building relationships are, however, neither a prerequisite, core objective nor a measure in PP. In the definition of Publication 2, 'relationship strategy' was inserted also due to an unclear response from the respondents. Although 'collaboration' is already mentioned in the definition, this research proposes PP to be in the group of collaborative project forms and omits 'relationship'. 'Ambiguity' (Sahlin-Andersson, 1992), as an alternative, was neither proposed nor found in the surveys of Publication 2 and is covered within a 'complex project'. Until further, this research proposes to proceed with 'a collaborative project form' as a general description of what PP is.

The project owner or client has a lead role in PP and can invite other selected stakeholders. 'Contributors' was a new term introduced in Publication 2 to emphasise that the owner would select partners that contribute to, and possibly can align with, the owner's objectives. After publication of Publication 2, there were comments from colleagues that the word 'major' could be misinterpreted to 'big' or 'substantial'. Hence, it is suggested to replace 'major' with 'selected'.

5.2.2 Commitment and measures

The definition proposed in Publication 2 requires commitment to the joint objectives and the measures and leaves open the question of how the commitment is regulated.

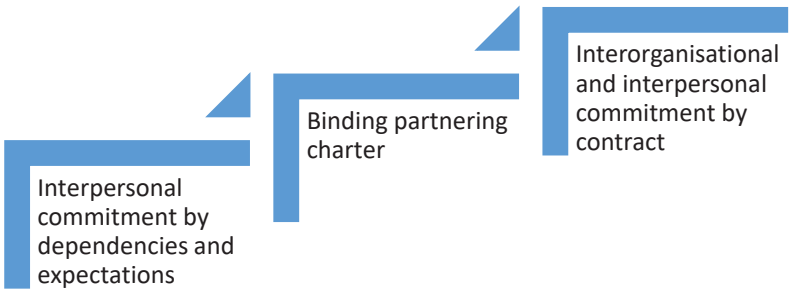

Figure 5-2: Partnering commitment steps

In the proposed commitment steps shown in the figure above, this thesis does not have any preferred regulation of the commitment and proposes to leave the definition unchanged on this element.

Commitments are crucial for PP, and as critics of the PMI PMBOK, Koskela and Howell (2008) concluded that commitments, in addition to dependencies and expectations developing in the process of interaction, drive projects to realisation. An element of collaborative projects could be to systematically nourish commitments, and also dependencies and expectations (Sahlin-Andersson, 1992, Koskela and Howell, 2008). To explore this, Table 5-1 below indicates a hypothesis on which PP measures can nourish either commitments, dependencies or positive expectations.

Measures (Walker and Lloyd-Walker, 2015)	Commitments	Dependencies	Expectations
Joint governance structure	✓	✓	✓
Integrated risk mitigation & insurance		✓	

Joint communication information modelling etc.		✓	
Substantial co-location		✓	
Authentic leadership			✓
Trust-control balance		✓	
Commitment to innovate	✓		
Common best-for-project mind-set/culture			✓
No blame culture		✓	
Consensus decision-making		✓	
Incentive arrangements	✓	✓	✓
Focus on learning & continuous improvement	✓		✓
Pragmatic learning-in-action			✓
Transparency and open-book	✓		✓
Mutual dependence and accountability		✓	

Table 5-1: PP measures/commitments-dependencies-expectations matrix

As an example only, all measures in the table above may be linked to either commitments, dependencies or expectations. Commitments are made in commitments to innovate, incentive arrangements and to open books for transparency. Nine of 15 elements of the RBP taxonomy may be nourishment of dependencies. Authentic leadership, best for project mind-set and pragmatic learning-in-action may actually be elements of managing expectations. It would be interesting to analyse how PP basically nourish commitments, dependencies and manage expectations among participants. An area for future research can be to look into the causalities of the hypothesis in Table 5-1 above.

In steps of missions, objectives and goals, objectives is the right level for PP as found in Publication 2. Hence, it is indicated that a collaboration with an airy joint mission and detailed joint goals both fall outside of PP.

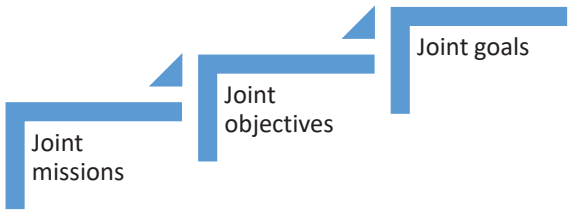

Figure 5-3: Missions, objectives and goals steps

There are also steps relating to joint objectives. Over time, the joint objectives have emerged from avoiding legal battle and adversarial atmosphere via continuous improvement and improved performance to creating value for all participants.

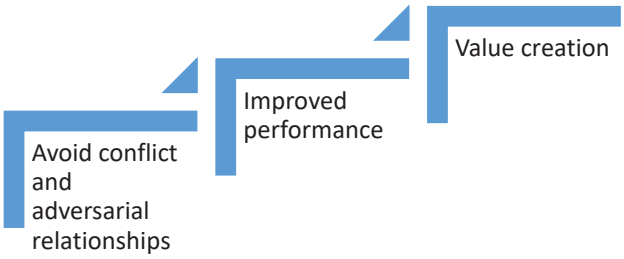

Figure 5-4: Joint objectives steps

This is a root cause of confusion pertaining to PP. Nowadays, however, PP is about more than avoiding conflict and adversarial relationships and at a higher maturity level PP concerns creation of value by aligning interests and resources.

Collaborative problem-solving has been a core element of PP and is included in the definition from Publication 2. 'Problem solving' is also covered in 'risk mitigation', which comprises both threats and opportunities. A modification of the PP definition by replacing 'problem solving' by 'risk mitigation' opens for participants to capture unforeseen opportunities in addition to sorting out problems. A systematic approach

to opportunities enables partners to pursue the ultimate project value and represents a step up as compared to PP.

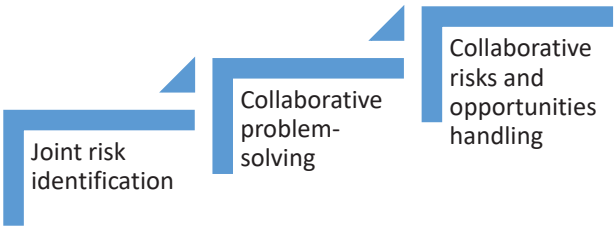

Figure 5-5 Collaborative risk mitigation and opportunities handling steps

It is an unnatural constraint to limit PP to problems and risks. With a joint governance structure, partners should also be capable of capturing opportunities for the benefit of stakeholders and participants. However, in line with the findings of Publication 2, PP is limited to problem-solving.

Governance structures organise and delineate management roles and decision-making procedures in a project organisation.

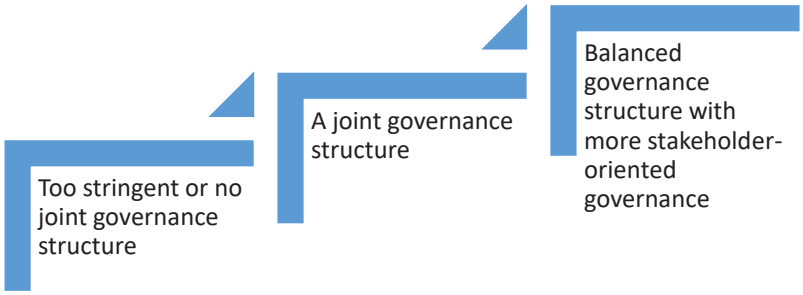

Figure 5-6: Joint governance structure steps

A main purpose of governance structures in partnering project is to make frameworks for decisions, as late decisions postpone projects (Zidane et al., 2015). Hence, the steps in Figure 5-6 assume efficient decision-making with balanced governance structures with flexibility in roles and methodology to manage unforeseen risks or opportunities (Müller, 2017b) and also in line with distributed decisions described by Eweje et al. (2012). Fair governance structures in the form of procedures, guidelines and norms formed at an early stage enhances project success and is a proxy measure for trust (Unterhitzenberger and Bryde, 2018). Thus, the corporate governance steps in PP move upwards from more stringent control-oriented, or little, joint governance to balanced more stakeholder-oriented governance. The definition is left unchanged, 'a joint governance structure'.

5.2.3 Objectives

Collaborative relationships is a soft intangible objective. It is a derivative of trust and should preferably be replaced by a more specific phrase in a positivist tradition. This is due to a collaborative relationship being an unlikely objective or goal for the project itself, as it is not an element of the golden triangle of cost, time and quality. Collaborative relationships constitute an objective of the partnering activities only. From the literature review we may extract a step up and down from collaborative relationships: 'collaborative value creation' on the upside and simply working together on the downside, as visualised in the figure below. In the ontology of this thesis, 'collaborative relationships' is sufficiently open for interpretation to be kept in the definition.

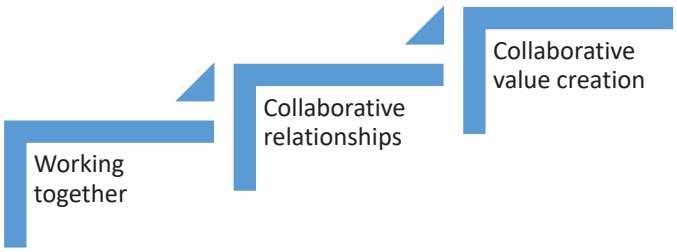

Figure 5-7: Collaborative relationships steps

In PP, trust is observed both as an objective and as a measure. In Publication 2, the survey found that development of trust primarily is an objective of PP.

In the literature review, it was recommended that trust is to be defined by its components. The commitments, dependencies and expectations of trust (Koskela and Howell, 2008) can be combined with partnering measures. Trust may be split into trust based on commitments, trust based on dependencies and trust based on positive expectations or combinations thereof. A trust stair, as visualised in Figure 5-8, moves upwards from distrust via trust based on commitments to interpersonal and inter-organisational trust based on commitments, dependencies and expectations. There is, however, insufficient rationale for modifying the open-ended 'trust' in the PP definition. As a wide term, 'trust' in PP may be modified in future research and then also be incorporated as an element in PP maturity models.

Figure 5-8: Trust steps

Improved performance is also included in the joint objectives – hence it is a double dip in the definition of Publication 2. 'Improved performance' could alternatively be replaced by 'maximizing the effectiveness of each participant's resources', which achieved fourth place among the PP-specific objectives in Publication 2. 'Maximizing the effectiveness of each participant's resources' may also be included in the joint objectives, but is more specific for PP than 'improved performance'. Consequently, 'maximizing the effectiveness of each participant's resources' is proposed replaced by 'improved performance'.

5.2.4 Definition by negation

With reference to Publication 2, section 3.3 on defining, a partnering project should also be defined by negation; who are not participating, what objectives do participants still pursue in a traditional manner, and what measures are not implemented to pursue common goals. Defining by negation provides clarity and improved understanding of PP. It is of imperative importance for the partners to understand what to collaborate on and and what elements, some of which might traditionally entail conflicts of interest, must be accepted. PP partners can collaborate to increase quality to the benefit of both and still have a conflict of interest pertaining to keeping costs low for

the benefit of the client and the disadvantage of the contractor. Healthy conflict of interest should not be expected to disappear with partnering.

Certainly, there are limits of partnering measures, as the seven pillars and paradoxes of partnering pointed out by Bresnen (2007). However, those limitations are balanced by the stronger emphasis on the objectives of PP in the definition. The seven paradoxes posited by Bresnen should be defined as objectives to be avoided subject to what partners actually pursue. For the PP definition it is proposed, with a glance at the stairs visualised above, to limit PP to 'a joint governance structure' and exclude 'stringent governance structures'. PP is further limited to joint problem-solving, excluding full value capture by joint opportunities handling. The deadly sins of Bresnen (2007) are unsuitable for defining PP by negation, as they are very generic in nature.

5.2.5 A modified definition:

Project Partnering is a collaborative project form whereby a project owner integrates contractor and other selected stakeholders into complex projects. Through commitment to mutual project objectives including improved performance, collaborative problem solving and a joint governance structure, partners pursue collaborative relationships, trust and maximising the effect of each participant's resources.

Project partnering can be applied in any industry and any complex project. Project Partnering does neither include collaborative value creation by joint opportunities handling nor stringent governance structures.

5.3 Project Management Institute vs Institute for Collaborative Working

This fine-tuned definition of PP fits within the scope and frame of ISO 44001. The dimensions in the definition can constitute a structure for how to develop the ISO

standard further. The standard should focus on causality between measures and partnering objectives.

Modifying the procedures described by the Project Management Institute to collaborative project forms probably requires a shift in ontology. PP is only described in special industry specific extensions to the PMBOK. Whereas traditional project management seeks to maximise project outcome by exploiting adversarial relationships, PP is best practice project management due to the collaborative nature; mutual project objectives and collaborative problem-solving, and joint governance structures. Collaboration is not a tool in project management as defined by the Project Management Institute, although PP is best practice project management including tools and knowledge on collaboration. The Project Management Institute should, as a start, include collaboration in all knowledge areas, not only as a forced integration of contractors in knowledge area 1: Managing integration. Hence, accepting and integrating mutual project objectives, collaborative problem-solving and joint governance structures into the PMBOK can be a ontology shift for Project Management Institute's applicability in all projects simply because the complex and dynamic aspects of collaboration (Bygballe and Swärd, 2019) are required in complex projects. There is much literature supporting integration of collaboration into techniques, tools and processes. It might be that collaborative project execution has not been accepted by the Project Management Institute due to an interpretivist tradition of defining partnering projects by the success factors, measures only or by the outcomes. With a constructive definition as developed in this thesis, the Project Management Institute may have the required fundament to start expanding elements of collaboration into its PMBOK procedures. The Collaborative Working Institute, with an open-ended standard procedure, is more advanced with regard to collaborative project forms as of today.

5.4 Extent of collaboration

In the brief introduction to relationship-based project procurement forms in Section 2, reference is made to Walker and Lloyd-Walker (2015, p. 131) describing the degree of collaboration varying with painshare/gainshare incentives and early contractor involvement. In Publication 2, neither painshare/gainshare incentives nor early contractor involvement is found to be specific to PP in this research. The definition developed in Publication 2 indicates that PP varies neither with early contractor involvement nor with gain and pain share, but varies with the degree of mutual project objectives, collaborative problem-solving and joint governance structure.

It is surprising that Walker and Lloyd-Walker found a Joint Venture (JV) to be a first order collaboration. When partners select to join forces, for specific objectives and with a stringent governance structure, they have exceeded the partnering ladder and formally entered into a new level of collaboration in a joint venture.

A simplified figure illustrating the extent of collaboration is shown in Figure 5-9. The three-dimensional framework allows collaboration to grow with extension of joint objectives, the corresponding measures for pursuing the objectives and number and kind of participants.

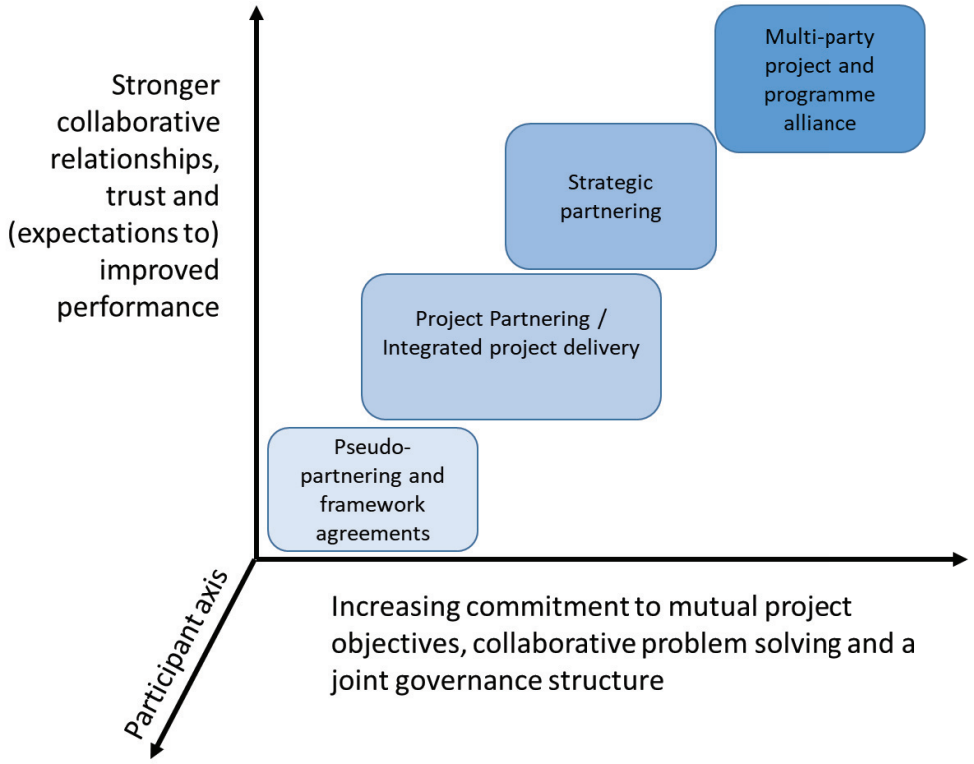

Figure 5-9: Extent of collaboration

5.5 Partnering maturity model: The Partnering 3D stairs

An extract of the model showing the extent of collaboration above forms the basis for a partnering maturity model. The partnering maturity model is also to be three-dimensional, as the PP model in Figure 5-1.

There are levels of maturity for PP. Pseudo-partnering, as defined by Li et al. (2000), is inter alia seen in the CaseCo example in Publication 3, where the project owner arranges teambuilding with the contractor to avoid legal conflict and opportunistic behaviour. In such pseudo-partnering, the objectives are dictated by the owner, no decisions are made in collaboration, and there is no joint governance structure.

As an example, an elevated level of partnering maturity is when sub-contractor and designer are integrated for the purpose of continuous improvement by early involvement and co-location. At this level there are more participants, an objective that it is possible to operationalise, and a few measures.

The highest maturity of PP is when full project value potential is captured by multi-party risk mitigation and joint project governance.

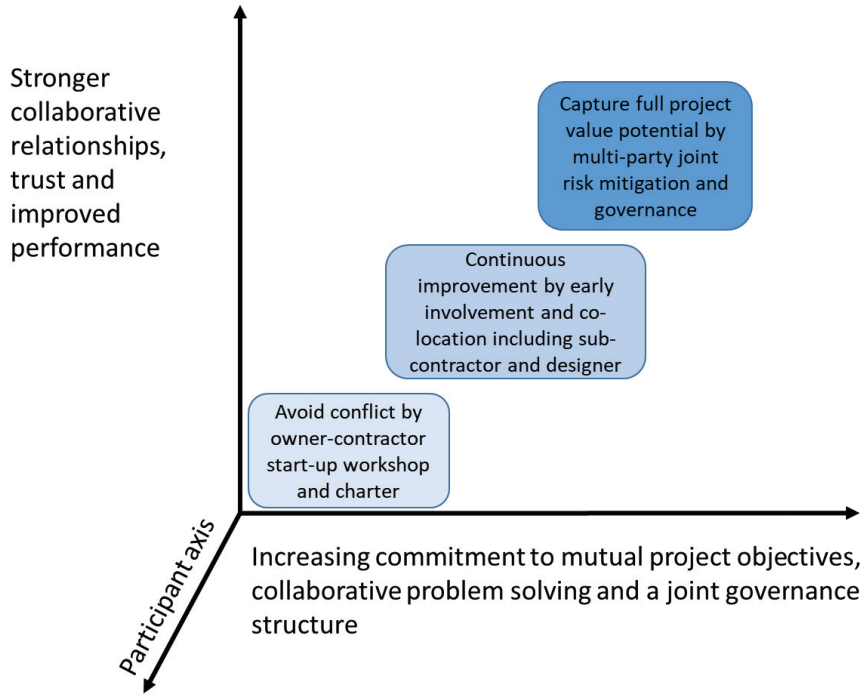

Figure 5-10: Partnering maturity model: The Partnering 3D stairs

On the *who* dimension, the partnering maturity model can evolve from owner-contractor partnering, via owner-contractor-designer partnering, to multi-stakeholder partnering.

The objectives may evolve from the clear and single *avoid conflict* joint objective, to full project value potential. Maturity of collaborative relationships may be varied, as depicted in Figure 5-7. As a small item on the objectives scale, we find the wide term 'trust'. An extract of a maturity scale for 'trust' alone is visualised in Figure 5-8.

Measures may evolve from start-up workshop and charter to joint risk (opportunities and threats) mitigation and levels of joint governance. The mutual and recurring learning process of partners' goals and intentions (Bygballe and Swärd, 2019) is an element of an PP maturity index within a project. The ability to establish new routines (Bygballe and Swärd, 2019) may be vital for any project, not only for partnering projects.

In practical use of the 3D partnering maturity model, the participants can identify the appropriate level of partnering in all three dimensions. The purpose is not to aim for the highest possible application of partnering, but to find the adequate level for participants' capabilities and competence. As such, the 3D partnering maturity model eliminates any general prerequisites (Nyström, 2005a) and allows partners to adapt their partnering project to the appropriate maturity level.

In Publication 1, the authors found that partnering elements in observed context rated consistently lower than elements previously reported in the construction industry, indicating a lower maturity of partnering practices in the offshore drilling industry. Hence, also the relationship-based project procurement taxonomy provided a maturity score. However, the taxonomy is unable to indicate maturity on measures for specific partnering objectives for each participant. In Publication 3, PP maturity was also discussed on a one-dimensional axis mixing measures and objectives into one quite useless scale as compared to the 3D model above.

As all partnering projects are unique, a Partnering Performance Index (Yeung et al., 2007b) should be adaptable to each project. Any partnering performance index should be about measurement of the achievement of the specific objectives in combination with the specific measures for each objective for each participant. One partnering

performance index cannot fit all partnering projects. If, for example, an owner and a contractor have a joint objective of reducing the amount and improving the quality of documentation, this implies multiple and different measures from owner and contractor. The measures of the contractor and owner should be measured separately and vary from case to case. An example is provided in the figure below.

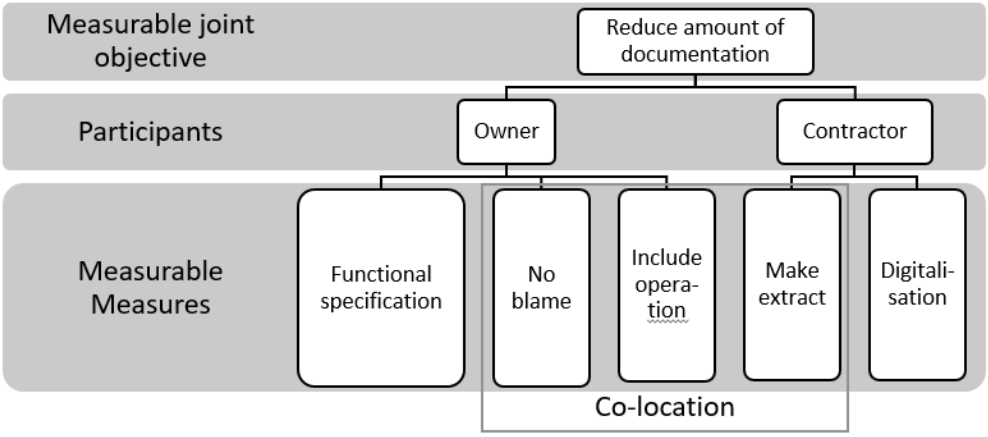

Figure 5-11: Example of measurable measures and objectives by participants

5.6 How to distinguish Project Partnering from Project Alliancing

Whereas PP may be a downside protection project form with avoidance of legal conflict by collaborative problem-solving, Project Alliancing may be in position to better capture more of the project value potential with joint risk and opportunities handling, as visualised in Figure 5-12.

A proposal on how to visualise differences between PP and Project Alliancing is shown in two steps.

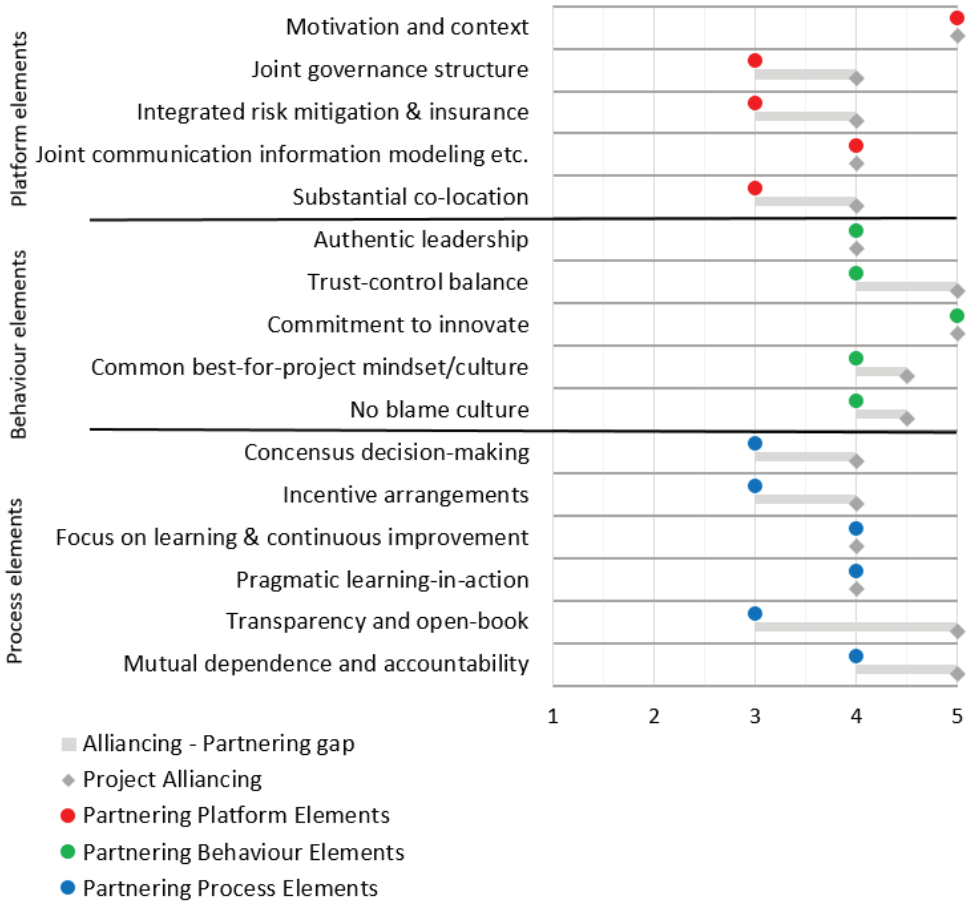

Figure 5-12: Improved visualisation of the PP-Project Alliance gap

The figure above is just an improved visualisation of the Walker and Lloyd-Walker (2015) taxonomy. It is a mix of indicators and measures with no added complexity with higher number of participants.

Based on the discussion in 5.2, a possible table for distinguishing between PP and Project Alliancing is shown below:

Project Partnering		**Project Alliancing**	
Interpersonal **commitment,** including dependencies and expectations	4	Inter-organisational and interpersonal **commitment** with dependencies and expectations regulated by contract	5
mutual project **objectives**	4	mutual project **goals**	5
joint problem-solving	3	joint risk and opportunities handling	4
joint governance structure	4	Less strickt joint governance structure	5
collaborative relationships	4	collaborative project execution	5
Trust based on either commitments, dependencies and/or expectations	4	Interpersonal and - organisational trust based on commitments, dependencies and expectations	5
improved performance	4	value creation	5

Table 5-2: New comparison PP vs Project Alliancing

The figure below visualises a possible Alliances and Partnering gap by using the format of the PP definition and the framework. Adding an additional dimension with participants would show the increased complexity.

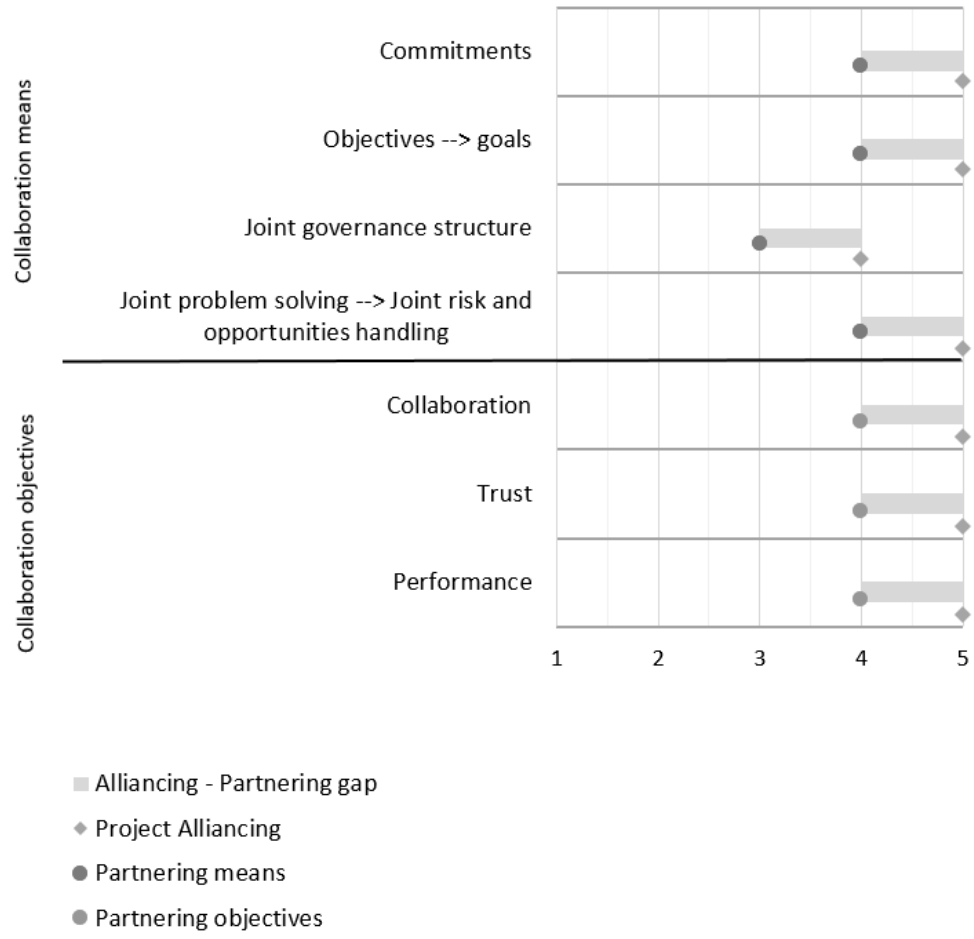

Figure 5-13: Visualisation of the Alliancing Partnering gap by definition measures and objectives

The above is merely an illustration of how to distinguish Partnering from Alliances. In a practical case, there ought to be more objectives and consequently also more measures.

5.7 How to define a partnering project

As seen in the literature review, researchers define partnering projects by participants, joint project, objectives and measures to a various degree. If researchers define partnering projects by the framework, it creates a link between *how* does *who what* measures to achieve what objective (Müller, 2017b). When one defines partnering projects by the three dimensions, it becomes clear why the partnering project succeeds, provided the participants understand the concept. A partnering project is defined by its participants, objectives and measures for pursuing the objectives.

Alternative measures – objectives matrix below: Measures are from Walker and Lloyd-Walker (2015) and the objectives are from Beach et al. (2005). The first platform element, Motivation and context, is considered an indicator, not a measure as all of the others are assumed to be.

Measures (Walker and Lloyd-Walker, 2015) Objectives (Beach et al., 2005)	Joint governance structure	Integrated risk mitigation & insurance	Joint communication information modelling etc.	Substantial co-location	Authentic leadership	Trust-control balance	Commitment to innovate	Common best-for-project mindset/culture	No blame culture	Consensus decision-making	Incentive arrangements	Focus on learning & continuous improvement	Pragmatic learning-in-action	Transparency and open-book	Mutual dependence and accountability
achieve greater collaboration, an increased willingness to share risk	✓	✓				✓				✓				✓	✓
increased confidence of success			✓					✓							
reduced exposure to project risk		✓							✓	✓					

enhanced transfer of practices and processes to other projects				✓			✓	✓		✓		✓	✓		✓
improved co-operation				✓	✓										
increased understanding of parties/less adversarial relationships	✓	✓	✓			✓			✓	✓					✓
better team spirit				✓	✓				✓		✓				
more effective communication		✓	✓	✓											
learning from partnering, improving overall company competitiveness	✓	✓	✓	✓	✓		✓								
increased customer satisfaction								✓					✓		
improved employee skills and				✓								✓			
improved motivation of employees.				✓							✓				

Table 5-3: Measures - objectives matrix

This research, however, is not on causality between measures and objectives. The tick marks in Table 5-3 above are unproven hypotheses. For further reading on causality chains, Williams (2016) enables distinguishing between measures and objectives.

In this thesis, a thorough literature review and the results of three publications are presented and discussed. PP definitions are examined over time, derived into its dimensions and sorted by category. The Project Management Institute's approach and contribution to PP is reviewed and commented. Furthermore, the ISO 44001 on collaborative business relations is presented as an alternative to the PMI approach. To demonstrate a few implications of the framework on how to define a partnering project, a few implications thereof are presented in the form of a maturity model and a way for comparing PP with project alliancing. Additionally, there is a comprehensive review of how partnering projects are defined in literature in three high-ranking project management journals.

Based on the literature review and the methodology, each element in the definition of PP in Publication 2 is evaluated. Each element is shown in steps with descriptions of more and less extensive variants. The definition is firmed up, and implications of the new way of defining partnering projects are visualised in an updated PP maturity

model and showing how to distinguish PP from project alliancing. This rounds off the main results and discussions section.

6 Conclusions

This section summarises the contributions of this PhD thesis and suggests areas for further research.

6.1 RQ1: How can the framework define project partnering and partnering projects?

Partnering projects and PP are both inadequately defined, at least in one of three dimensions. PP and partnering projects are to be defined by:

1) Who are the participants to be included, and;

2) What are the participants' joint objectives, and;

3) How: the knowledge, skills, tools and techniques applied to pursue the objectives by each of the participants.

Additionally, definition is made by negation on the same dimensions; what objectives and measures do the participants *not* pursue and implement.

Elements in all dimensions of the framework are in literature used to describe and define partnering projects. The elements are, however, not linked: There is a missing link from measures to who's objectives. By specifying measures linked to objectives, practitioners and researchers can evaluate efforts.

Due to inadequate definitions PP is problematic to implement, and the validity of the research performed may be examined further. Research has so far identified the commitment, but may in the future look into dependencies and expectations as well.

6.2 RQ2: How can the definition from Publication 2 be clarified?

Project Partnering is a collaborative project form whereby a project owner integrates contractor and other selected stakeholders into complex projects. Through commitment to mutual project objectives including improved performance, collaborative problem solving and a joint governance structure, partners pursue collaborative relationships, trust and maximising the effect of each participant's resources.

Project partnering can be applied in any industry and any complex project. PP does neither include collaborative value creation by joint opportunities handling nor stringent governance structures.

Going forward, the new definition of Project Partnering deserves to be challenged and tested. The three dimensions on how to define a collaborative project do, however, serve as a starting point and as a framework for defining a partnering project. The framework may prove to be more robust than the definition.

6.3 RQ3: As an implication of a PP definition, how is a maturity model for PP structured?

A proper Partnering Stair should be three-dimensional by (1) more participants, (2) increasing commitment to mutual project objectives, collaborative problem-solving and a joint governance structure, and (3) stronger collaborative relationships, trust and improved performance.

The three-dimensional framework allows collaboration to grow with number of participants, extension of joint objectives and the corresponding measures for pursuing the objectives. PP intensity varies with the joint objectives and joint governance structures. PP intensity does not vary with early involvement, nor with increasing gain/pain share. This thesis asserts that projects grow more collaborative in parallel with more joint governance structures and more joint project objectives.

Project Alliancing can be distinguished from PP on measures and objectives. A stronger inter-organisational commitment, value creation by joint risk mitigation and opportunities pursued can be elements distinguishing Project Alliancing from PP.

6.4 RQ4: As an implication of a PP definition, how can PP be distinguished from Project Alliancing and possibly other collaborative project forms?

PP should be distinguished from other collaborative project forms by either particular participants, objectives or measures. As there are steps of specific characteristics for PP, other collaborative project forms can be distinguished by stronger or weaker characteristics.

6.5 Further research

This thesis has initiated identification of the most basic dimensions of PP, formulated a definition and explored its implications. To explore further, an examination of the methodology used for this research opens new areas for research. The research should be repeated to resolve any reliability and validity issues. Research should also be repeated in other contexts in order to improve generalisability and transferability. Any definition, to become accepted, needs continuous testing, error correction and enhancement as well as the assessment of the implications of any changes (Barnbrook, 2002). Definition of other collaborative project forms including delineation between PP and other collaborative project forms will again lead to modification of the PP definition. There is an opening for future research on different types of PP, its failure factors and barriers to PP. Studies of failure factors may improve the definition by means of negation. Studies on barriers may improve the 3D maturity model for PP.

The framework on how to define PP is likely applicable for definition of other collaborative project forms, as indicated in the table below.

Dimension/ collaborative project form	Framework agreements	Project Partnering	Strategic Partnering	Integrated project delivery	Project Alliances	Program Alliances	Other collaborative project forms
Who	Variances in number and type of participants						
What	Variances or levels in joint project objectives						
How	Variances in measures: type of commitments, nourishment of dependencies and expectations, collaborative problems and opportunities handling, joint governance structures, and other.						
When	Variances in duration of collaboration: probably not of importance						
Where	Variances in type of industry and project complexity, with impact on *who*, *what* and *how* elements						

Table 6-1: Framework for defining other collaborative project forms

When defining other collaborative project forms, one might focus on the client perspective, leaving other perspectives to other fields of knowledge. The imperative variations are related to the joint objectives and measures on how to jointly pursue the objectives. All dimensions should also be defined by negation.

One exciting area for future research is the role of commitments, dependencies and expectations between participants in collaborative projects forms. In partnering projects, commitments are frequently referred to in research. Commitments are voluntary, by charter or agreement between organisations and by eye contact between individuals. Dependencies and expectations, however, are less frequently referred to. How are dependencies and expectations between individuals and organisations in partnering projects? Can a more systematic joint understanding of dependencies and expectations replace 'attitude' as concluded in Publication 3? As a key element in trust is 'positive expectations of the intentions or behaviours of another', how can management of expectations as a basis for individual and organisational integrity help building trust? Hence, researchers ought to examine if nourishment of commitments, dependencies and expectations between stakeholders is the basic objective of a partnering approach. It should furthermore be evaluated if

project outcomes derive out of a partner's improved awareness of commitments, dependencies and expectations.

There ought to be more studies of causalities between a set of measures and objectives. After further causality research, there is a demand for an organisation like the Project Management Institute to provide a two-dimensional matrix of partnering tools and joint project objectives. Objectives and tools should be adaptable to participants' maturity on PP. However, the Project Management Institute's PMBOK is based on a clarity strategy according to Sahlin-Andersson (1992) and can, after acceptance of constructive definitions of collaborative project forms, develop adequate tools, knowledge and techniques. Hence, there is an opening for the Project Management Institute to challenge the Institute for Collaborative Working leadership on tools for PP and other collaborative project forms.

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Part 2: Publications and attachments

PDF documents of:

- Partnering in offshore drilling projects. *International Journal of Managing Projects in Business,* 10**,** 84-108, 24 pages
- Defining project partnering. *International Journal of Managing Projects in Business,* 10**,** 666-699, 33 pages
- Understanding how to succeed with project partnering. *International Journal of Managing Projects in Business,* 11**,** 1044-1065, 21 pages
- Survey form, Defining Project Partnering, part 1, 13 pages
- Survey form, Defining Project Partnering, part 2, 4 pages

These papers are not included due to copyright

Paper 1: Børve, Sjur; Ahola, Tuomas; Andersen, Bjørn Sørskot; Aarseth, Wenche. Partnering in offshore drilling projects. International Journal of Managing Projects in Business 2017 ;Volum 10.(1) s. 84-108 https://doi.org/10.1108/IJMPB-12-2015-0117

Paper 2: Børve, Sjur; Rolstadås, Asbjørn; Andersen, Bjørn Sørskot; Aarseth, Wenche. Defining Project Partnering. International Journal of Managing Projects in Business 2017 ;Volum 10.(4) s. 666-699 https://doi.org/10.1108/IJMPB-10-2016-0076

Paper 3: Nevstad, Kristina; Børve, Sjur; Karlsen, Anniken Th; Aarseth, Wenche Kristin. Understanding how to succeed with project partnering. International Journal of Managing Projects in Business 2018 ;Volum 11.(4) s. 1044-1065 https://doi.org/10.1108/IJMPB-07-2017-0085

Defining Project Partnering

The main purpose of this survey is to document any specific and definite characteristics of Project Partnering as perceived by up to 230 professors and hi-rank academics active in the field of knowledge. Any specific and definite characteristics documented, may after further research, mature into headwords of a unified definition of Project Partnering. Secondary purpose of this survey is to get structured comments on the proposed methodology of defining a partnering project. If successful, this may eventually be a methodology to facilitate measurement of project partnering applied and measurement of a partnering project's outcomes.
Elements of the many definitions of Project Partnering was categorised into the five basic elements: who, what, how, when and where:
1) Who are the participants?
2) What goals do the participants pursue?
3) How are the goals pursued? What knowledge, skills, tools, and techniques (measures) are implemented by the participants to pursue the goals?
4) When: Time-frame of Project Partnering
5) Where: Type of project specific for Project Partnering.

For questions on the project partnering elements, tick one box per line. The alternatives are:
Specific and definite for project partnering: Tick box for elements you judge as in theory universal and invariable for Project Partnering. Where there is a choice between very similar citations, please, tick the most correct in your opinion.

Generic or inexact for project partnering: Tick these boxes for elements you judge as a characteristic of some, but not all, project partnering cases. Also tick for inaccurate or imprecise elements.

Irrelevant: Tick this box if you find the element irrelevant for any partnering project.

Uncertain: Tick this box if you are unsure on your opinion.

References are listed on the last page. Please navigate forward and backward as appropriate. Thank you!

The fundament

1. **What is Project Partnering essentially?**
Check all that apply.

- [ ] A relationship (1, 26, 31)
- [ ] A philosophy (6, 15, 36)
- [ ] A team-working across contractual boundaries (6, 15, 36)
- [ ] A cooperative strategy (8)
- [ ] A managerial approach (9)
- [ ] a management process (11)
- [ ] A process (10)
- [ ] A procurement route (36)
- [ ] a set of strategic actions (12)
- [ ] Propagation … and a crude exercise of buying power (13)
- [ ] A controlled system (14)
- [ ] A distinctive practice (32)
- [ ] A managerial rhetoric (32)
- [ ] A way of doing business (32)
- [ ] A structured management approach (6, 15, 19, 36)
- [ ] a sustainable relationship (34)
- [ ] A concept (16)
- [ ] A framework (16)
- [ ] A generic term (22)
- [ ] A type of collaboration (23)
- [ ] A working relationship (28)
- [ ] A type of contract (21)
- [ ] A cooperative governance form (29)
- [ ] Uncertain
- [ ] Other: _____

Who are the specific and definitive participants of Project Partnering?

What elements are generic or inexact for Project Partnering?

2. *Mark only one oval per row.*

	Specific and definite for Project Partnering	Generic or inexact for Project Partnering	Irrelevant	Uncertain
Owner or client and contractor (1, 27, 32)				
Two or more organisations (2, 4, 5, 9, 10, 31, 33, 34, 37)				
Stakeholders (7, 28)				
The owner, designer and contractor (8)				
A number of firms (12)				
Several firms that can make a significant contribution towards improving the performance (14)				
Representatives of neighbours and special interest groups affected by the proposed work (14)				
More than one client, contractor, consultant or supplier (18, 19)				
Multiple firms and individuals (30)				

What goals are specific and definite characteristics of Project Partnering?

What goals are generic or inexact for project partnering?

3. **On improvement**

Mark only one oval per row.

	Specific and definite	Generic or inexact	Irrelevant	Uncertain
Improved efficiency (2, 30)				
Improved cost effectiveness (2, 4, 5, 9, 31, 37)				
Improve performance (14, 31, 37)				
Maximizing the effectiveness of each participant's resources (2, 9)				
Vast improvements in construction performance (12)				
Real cost savings (32)				
Improve building design (32)				
Identify ways of driving out inefficiency (32)				
Continuous improvement (14, 16, 26, 32, 34, 37)				
Continuous improvement of quality products and services (2)				
Continuously improve joint performance (12)				
Maximising effectiveness (15, 19)				
Reducing duplication and waste of resources (21)				
Improved certainty of time and cost (19)				
Procure works, services, materials or goods, share expertise, promote efficiency and deliver value for money savings (18)				
To achieve something one cannot easily do or chooses not to do alone (25)				

4. **On conflict dispute and cooperation**

Mark only one oval per row.

	Specific and definite	Generic or inexact	Irrelevant	Uncertain
Resolving inter organizational conflict (8)				
More collaborative relationships (10)				
Minimise the risk of costly disputes (32)				
Collaborative team (19)				
Improved stakeholder involvement (19)				
Trust (as a goal) (19)				
Cooperation-based coopetition (29)				
Avoiding conflict (30)				

5. **On other goals**

Mark only one oval per row.

	Specific and definite	Generic or inexact	Irrelevant	Uncertain
Mutually beneficent goals (1)	◯	◯	◯	◯
Specific business objectives (2, 4, 5, 9)	◯	◯	◯	◯
Increased opportunity for innovation (2, 30)	◯	◯	◯	◯
Client satisfaction (32)	◯	◯	◯	◯
Success for everyone involved (14)	◯	◯	◯	◯
Minimise the need for costly design changes (32)	◯	◯	◯	◯
Focus upon project objectives (16)	◯	◯	◯	◯
Sustainable development (27)	◯	◯	◯	◯
Better allocation of risk (19)	◯	◯	◯	◯
Zero defects (19)	◯	◯	◯	◯

What measures* are specific and definite characteristics of Project Partnering?

What measures are generic or inexact for project partnering?

* Measures are knowledge, skills, tools, and techniques.

6. **Agreement or understanding**

Mark only one oval per row.

	Specific and definite	Generic or inexact	Irrelevant	Uncertain
An agreement / formal contract (1, 6, 23, 27, 37)	◯	◯	◯	◯
A commitment or dedication (2, 20, 28, 32, 37)	◯	◯	◯	◯
The relationship is based on trust (2, 30)	◯	◯	◯	◯
Clear understanding (12)	◯	◯	◯	◯
Signed up through a charter (32)	◯	◯	◯	◯
Establishment of agreed and understood (element) (15)	◯	◯	◯	◯
Defined by good faith rather than a formal contract (28)	◯	◯	◯	◯
Motivation ... to collaborate (35)	◯	◯	◯	◯
Context to collaborate (35)	◯	◯	◯	◯

7. **Decisions**

Mark only one oval per row.

	Specific and definite	Generic or inexact	Irrelevant	Uncertain
Co-operative decision-making (12)				
Effective decision making procedures (32)				
A joint governance structure (35)				
Consensus decision making between teams (35)				

8. **Disputes and problems**

Mark only one oval per row.

	Specific and definite	Generic or inexact	Irrelevant	Uncertain
Establish procedures for resolving disputes in a timely and effective manner (7, 37)				
Problem resolution methods (6, 9, 21, 19, 30)				
Problems are to be resolved collaboratively (32)				
A methodology for quick and cooperative problem resolution (15)				
Dispute resolution procedure (16)				
Conflict resolution techniques (29)				

9. **Improvements**

Mark only one oval per row.

	Specific and definite	Generic or inexact	Irrelevant	Uncertain
Active search for continuous improvement (6, 35)				
Active search for continuous measurable improvements (9, 21)				
A culture of continuous, measured improvement (15, 37)				
Innovation (31)				
Performance measurement (14)				
Benchmarking (14, 32)				
Replicate good practice learned on earlier projects (32)				
Pragmatic learning in action (35)				
Commitment to be innovative (35)				

10. **Sharing**

Mark only one oval per row.

	Specific and definite	Generic or inexact	Irrelevant	Uncertain
Sharing the gains (37)	◯	◯	◯	◯
Reasonable margins (32)	◯	◯	◯	◯
Open book accounting (32)	◯	◯	◯	◯
Win-win (32, 30)	◯	◯	◯	◯
Equitable, win-win relationship (31)	◯	◯	◯	◯
Mutual economic interests (23)	◯	◯	◯	◯
Pain/gain share scheme (27, 19)	◯	◯	◯	◯
Introduction of schemes of incentivisation (19, 35)	◯	◯	◯	◯
Adoption of open book approach to costs (19)	◯	◯	◯	◯
Transparency and open-book processes (35)	◯	◯	◯	◯
Compensation form based on open books (29)	◯	◯	◯	◯

11. **Objectives and goals**

Mark only one oval per row.

	Specific and definite	Generic or inexact	Irrelevant	Uncertain
Shared goals (1, 2, 7, 28, 30, 33)	◯	◯	◯	◯
Mutual objectives (6, 9, 12, 15, 16, 19, 21, 29, 32, 37)	◯	◯	◯	◯
A single set of goals (7)	◯	◯	◯	◯

12. **Risks**

Mark only one oval per row.

	Specific and definite	Generic or inexact	Irrelevant	Uncertain
Share risk involved (1)	◯	◯	◯	◯
Joint risk and value management (19)	◯	◯	◯	◯
Risk sharing on improvement (30)	◯	◯	◯	◯
Integrated risk mitigation strategy (35, 30)	◯	◯	◯	◯

13. **Other measures**

Mark only one oval per row.

	Specific and definite	Generic or inexact	Irrelevant	Uncertain
Establish and promote a nurturing partnership environment (1)				
Modifying and supplementing the traditional boundaries that separate companies in a competitive climate (8)				
Seductive rhetoric, ... control, surveillance and stress (13)				
commitment of senior management (31)				
creation of sustainable relationships (19)				
Change of culture (19)				
An authentic leadership style (35)				

14. **Trust and attitude**

Mark only one oval per row.

	Specific and definite	Generic or inexact	Irrelevant	Uncertain
Trust (as a measure) (2, 7, 16, 19, 20, 23, 24, 27, 28, 31)				
Understanding of each other's individual expectation and values / Mutual understanding (2, 24)				
Respect (7, 20, 28)				
Cooperation (as a measure) (7, 16, 27)				
Openness (23, 19)				
Honesty (19)				
No blame (35)				
No claims (30)				
Mutual dependence and accountability (35)				
Balance between trust and control (35)				
Common best for project mindset (35)				

15. **And the remaining measures**

Mark only one oval per row.

	Specific and definite	Generic or inexact	Irrelevant	Uncertain
Feedback to project team (12, 14)				
Dialogue (23)				
Open communication (27, 31)				
A joint communication strategy (35)				
Teamwork (16, 28)				
to work in cooperation for mutual benefit (26, 34)				
Integrated team-working approach (14, 31, 21)				
Mutual activities (23)				
Start-up (and) follow-up workshops (29)				
Teambuilding (29)				
Changing traditional relationships to a shared culture without regard to organizational boundaries (2)				
Commitment to excellence (7)				
Integrate partners' standards, procedures, methods and cultures (14)				
Training in co-operative behaviour (14)				
Training in quality, time and cost control procedures (14)				
Training in measuring and analysing processes (14)				
Training in creative techniques to help the search for better answers (14)				
Systematically develops the processes used by project teams (14)				
Strategic teams comprising senior managers from all the firms involved (14)				
Early participation from all actors (31, 23)				
Involvement of supply chain (19)				
Substantial co-location / joint project teams (19, 35, 30)				
Bid evaluation based on soft parameters (e.g. technical and managerial competence, collaborative ability, earlier experience of the supplier and shared values) (29)				

16. **What time frame universally and invariably characterise Project Partnering?**
Check all that apply.

- [ ] Long-term (2, 6)
- [ ] One single project (14, 30, 32)
- [ ] Multiple consecutive projects (14, 32)
- [ ] A specified period (26,34)
- [ ] A project, series of projects, or service objectives (18)
- [ ] Any time frame or irrelevant
- [ ] Other: _____

17. **In what type of project, universally and invariably, may Project Partnering be applied?**
Check all that apply.

- [ ] Construction projects (1, 2, 3, 6, 9, 10, 12, 14, 23, 24)
- [ ] High-risk contracts (2, 3, 4, 5, 9, 26, 31, 37)
- [ ] Large projects (6)
- [ ] In the requisition and delivery of works, goods and/or services (26, 34)
- [ ] Complex and customized projects with high uncertainty and long duration coupled with severe time pressure (29)
- [ ] Complex projects (35)
- [ ] Any business relationship in a joint project or program (33)
- [ ] Uncertain
- [ ] Other: _____

18. **After filling in the questions on the who, what, how, when and where cathegories, what do you now consider to be the required categories of characteristics of Project Partnering?**
Tick one or more boxes
Check all that apply.

- [ ] Who are the participating stakeholders
- [ ] What goals the participants pursue
- [ ] How the participants pursue the goals by using knowledge, skills, tools and techniqes (measurers)
- [ ] When: a specific time frame
- [ ] Where: a specific type of projects
- [ ] Other: _____

19. **What are the required cathegories of characteristics when defining, implementing, monitoring and evaluationg a partnering project?**

Tick one or more boxes
Check all that apply.

- [ ] Who are the participating stakeholders
- [ ] What goals the participants pursue
- [ ] How the participants pursue the goals by using knowledge, skills, tools and techniqes (measurers)
- [ ] When: a specific time frame
- [ ] Where: a specific type of projects
- [ ] Other: _____

20. **Is Project Partnering a category of Project Management? (35)**

Project Management as defined by PMI: ".. is the application of knowledge, skills, tools, and techniques to project* activities to meet the project requirements." Does the PMI definition of Project Management also cover the concept of Project Partnering?
Check all that apply.

- [ ] Yes
- [ ] No
- [ ] Uncertain

21. **Any further comment?**

Please, exclude any information that may identify you directly or indirectly.

_____

Background information

22. **For how many years have you gained practical and or academical experience on Project Partnering**

Academically or practically
Mark only one oval.

- ◯ This is first experience
- ◯ Less than one year
- ◯ 1-2 years
- ◯ 2-5 years
- ◯ 5-10 years
- ◯ 10-20 years
- ◯ More than 20 years

23. **Please state highest academic degree**

Mark only one oval.

- Bachelor
- Master
- PhD
- Post doc
- Assistant Professor
- Adjunct Professor
- Professor
- Other

24. **Continent or country of recidence**

Mark only one oval.

- USA
- Canada
- South America
- United Kingdom
- Continental Europe
- Scandinavia
- Australia and New Zealand
- Middle East
- China
- Asia including India and Japan
- Africa

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Defining Project Partnering - phase two

The purpose of this follow-up survey is to document acceptance level for a definition formulated based on findings from the first survey round. To what extent do you accept each element of the following definition of Project Partnering?

“Project Partnering is a relationship strategy where project owner integrates contractors and other major contributors into the project. By commitment to mutual project objectives, collaborative problem solving and a joint governance structure, partners pursue collaborative relationships, trust and improved performance."

* Required

Defining Project Partnering

1. **Were you a respondent in the first survey round on defining Project Partnering?** *
   Did you classify up to 130 phrases as either specific or generic for Project Partnering?
   Mark only one oval.

   - ◯ Yes
   - ◯ No
   - ◯ Uncertain

2. **To which degree does each element of the formulated definition match your understanding of Project Partnering?** *

Percent marked as specific and definitive in the first survey round, is shown in brackets. Project partnering is...

Mark only one oval per row.

	2 Approve	1 Support	0 Indifferent	-1 Suggest minor rewording	- 2 demand major rephrasing	Uncertain
a relationship strategy (65%)						
where						
project owner (69%)						
integrates						
contractors (69%)						
and other major contributors (47%)						
into the project.						
By commitment to (60%)						
mutual project objectives, (80%)						
collaborative problem solving (68%)						
and a joint governance structure, (63%)						
partners						
pursue						
collaborative relationships, (73%)						
trust (68%)						
and improved performance. (60%)						

3. **Please formulate improved wording where suggested or demanded.**

Defining Project Partnering

4. **What type of relation based procurement form is more extensive than Project Partnering?**
Mark only one oval.

- ◯ Joint Venture
- ◯ Framework agreement
- ◯ Strategic Partnering
- ◯ Build-own-operate-transfer
- ◯ Integrated supply chain management
- ◯ Integrated project delivery
- ◯ Delivery Consortium
- ◯ Project alliances
- ◯ Program alliances
- ◯ Other: _____

5. **What type of relation based procurement form is less extensive than Project Partnering?**
Mark only one oval.

- ◯ Joint Venture
- ◯ Framework agreement
- ◯ Strategic Partnering
- ◯ Build-own-operate-transfer
- ◯ Integrated supply chain management
- ◯ Integrated project delivery
- ◯ Delivery Consortium
- ◯ Project alliances
- ◯ Program alliances
- ◯ Other: _____

6. **For contrast and clarification, is a delimitation to close relation based project procurement forms required as an add-on to the definition?**
Check all that apply.

- ☐ No
- ☐ Yes
- ☐ Uncertain

7. **Any other comment?**

_____

_____

_____

_____

_____

Background information

8. **For how many years have you gained practical and or academical experience on Project Partnering**

Academically or practically
Mark only one oval.

- ◯ This is first experience
- ◯ Less than one year
- ◯ 1-2 years
- ◯ 2-5 years
- ◯ 5-10 years
- ◯ 10-20 years
- ◯ More than 20 years

9. **Please state highest academic degree or position**

Mark only one oval.

- ◯ Bachelor
- ◯ Master
- ◯ PhD
- ◯ Post doc
- ◯ Assistant Professor
- ◯ Adjunct Professor
- ◯ Professor
- ◯ Other

10. **Continent or country of recidence**

Mark only one oval.

- ◯ USA
- ◯ Canada
- ◯ South America
- ◯ United Kingdom
- ◯ Continental Europe
- ◯ Scandinavia
- ◯ Australia and New Zealand
- ◯ Middle East
- ◯ China
- ◯ Asia including India and Japan
- ◯ Africa