

Long term strategic collaboration in the construction industry

– Case studies from Denmark and Sweden

A pre-study



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INDHOLDSFORTEGNELSE

DANSK RESUMÉ	5
DEL 1: TVÆRGÅENDE SAMMENFATNING	7
DEL 2: EMPIRICAL CASES AND ANALYSIS	
INTRODUCTION.....	19
METHOD.....	21
CASES.....	21
ANALYSIS.....	45
CONCLUSIONS AND FUTURE DIRECTIONS.....	53
REFERENCES.....	54
APPENDIX A: FRAMEWORK FOR UNDERSTANDING LONG TERM STRATEGIC COLLABORATION	55
APPENDIX B: OPSAMLING FRA WORKSHOPFORLØB	77

RESUMÉ

Strategisk længerevarende samarbejde har været en central dagsorden inden for byggeriet i de seneste årtier, hvor nye samarbejdsformer har været set som en kilde til udvikling i og af byggesektoren. Med udgangspunkt i konkrete cases og erfaringer fra Sverige og Danmark, viser denne undersøgelse, at strategisk længerevarende samarbejde har en lang række positive effekter og herved har en berettigelse i byggeriet.

Undersøgelsen viser samtidig, at der er et stort uudnyttet potentiale for i stadig højere grad at formalisere og gentage samarbejdskonstellationer i branchen. Skal potentiaerne realiseres skal der fokuseres på følgende:

#1 Fra omkostninger til bløde effekter

Effekterne af samarbejde overskrider et snævert omkostningsfokus. Der skal i højere grad fokuseres på øvrige effekter, så som viden, netværk og innovation, og hvordan dette i sig selv kan være en primær motivation for at indgå et samarbejde.

#2 Fra bygherrer til leverandører

Samarbejdsrelationer er i dag hovedsageligt initieret af bygherrer, hvorfor opbygning af bygherrer kompetencer er centralt. Men der skal også fokuseres på, hvordan leverandørerne kan blive en større drivkraft for nye samarbejdsformer i byggeriet.

#3 Fra det enkeltstående til volumen og kontinuitet

Et strategisk længerevarende samarbejde stiller krav til volumen og kontinuitet. Opgaver skal bundes, og der skal arbejdes med udvikling af større rammeaftaler, der kan bruges af flere bygherrer og gøre det lettere, billigere og mere attraktivt at indlede et tættere formaliseret samarbejde.

#4 Fra eksterne til interne forudsætninger

Undersøgelsen viser, at det ikke blot er de eksterne forudsætninger, som fx jura, der giver mulighedsrummet for et samarbejde, men at det i ligeså høj grad handler om at

skabe de nødvendige interne forudsætninger. Et samarbejde kræver nye kompetencer, lederskab og organisationsudvikling.

#5 Fra person til virksomhed

Samarbejde er i dag ofte drevet af enkeltpersoner, og den organisatoriske vidensdeling på tværs af samarbejdsforløb er begrænset. Behovet for organisatorisk forankring er derfor markant. Viden skal indlejres og engagement række længere end enkeltpersoner.

6 Fra vidensmangel til vidensdeling

Der er stadig behov for mere viden og flere erfaringer om samarbejde på et overordnet plan. Der skal ikke blot skabes ny viden, men også sørges for at dele denne på tværs af organisationer og landegrænser og herved lære af hinandens erfaringer.

DEL 1: TVÆRGÅENDE SAMMENFATNING

Af Mikkel A. Thomassen og Minna N. Jørgensen, Smith Innovation

Ændrede samarbejdsformer, herunder længerevarende strategiske samarbejdsrelationer, har udgjort et hovedemne i diskussionen af mulighederne for at forbedre byggeriets processer og dermed resultater i de seneste 20 år. Spørgsmålet aktualiseres af den fornyede interesse for at fremme effektivitet, kvalitet og udvikling i byggeriet og dermed i sidste ende fremme produktivitet direkte i branchen og indirekte i de mange erhverv, der er afhængig af en velfungerende byggesektor.

Denne forundersøgelse har haft til formål at belyse de hovedmotiver, der er for at etablere et længerevarende samarbejde og hvilke forudsætninger, der skal gøre sig gældende for, at et samarbejde er succesfuldt. Målet er at muliggøre en kvalificeret stillingtagen i hele byggeriets værdikæde i forhold til spørgsmålet om, hvornår og under hvilke forhold gentagne samarbejdsformer er at foretrække frem for ad-hoc samarbejde.

I forundersøgelsen indgår tre delelementer: En kortlægning af de motiver, der kan være for at indgå et samarbejde set ud fra et teoretisk perspektiv (se Appendix A), en empirisk kortlægning af cases fra Sverige og Danmark, med udsyn til erfaringer fra Storbritannien (Del 2 i rapporten) og et workshopforløb, hvor eksperter på området har været med til at kvalificere indsigterne (se Appendix B).

I den empiriske undersøgelse er der udvalgt fem mindre casestudier, tre svenske og to danske, hvor der er set på drivkræfterne for et samarbejde, og de kompetencer det kræver. Fra Sverige indgår SABO Kombohus, Telge Fastigheter og ”Globechem” (anonymiseret virksomhed) som cases i undersøgelsen, og fra Danmark analyseres KAB AlmenBolig+ og Enemærke og Petersens servicepartnerskaber. Perspektiverende inddrages erfaringer fra det engelske initiativ Procure21.

I det følgende sammenfattes indsigterne fra det teoretiske studie, fra workshopforløbet og fra det empiriske casestudie. Til sidst sammenfattes indsigter på tværs af de tre dele, og der gives anbefalinger til, hvad der skal til for en succesfuld udbredelse af strategiske længerevarende samarbejder i byggeriet.

Seks teoretiske positioner

Med udgangspunkt i teorien defineres et strategisk længerevarende samarbejde, som et horisontalt eller vertikal bindende samarbejdsaftale mellem to eller flere uafhængige organisationer, der indgår for at realisere et højt prioriteret formål.

Undersøgelsen læner sig op af eksisterende litteratur, og bruger eksisterende teoretiske positioner inden for den økonomiske teori til at skabe en forståelse af byggeriets praksis. Konkret er udvalgt seks teorier, der giver forskellige forklaringsmodeller for, hvorfor et strategisk samarbejde etableres:

Transaktionsomkostningsteorien viser, at motivationen for at samarbejde findes i ønsket om at minimere omkostningerne ved markedets transaktioner.

Ressourceafhængighedsteorien indkredser, at motivet for at samarbejde er at sikre adgang til ellers knappe ressourcer.

Organisatorisk læring viser, at adgangen til viden, der ikke ellers let lader sig overføre mellem organisationer, udgør et hovedmotiv for at samarbejde.

Afhængighedsteorien viser, hvordan et tæt samarbejde kan være en måde at udføre aktiviteter, der ikke let lader sig adskille.

Netværksteorien fremhæver, hvordan tillid og omdømme muliggør tæt et samarbejde, og at et tæt formaliseret samarbejde kan være motiveret af ønsket om at fremme tillid og omdømme yderligere og herigennem få adgang til information og skabe fremtidige muligheder.

Klyngeteorien viser, hvordan virksomheder ikke er selvstændige og spredte enheder, men at de samler sig i klynger, der giver dem adgang til fælles ressourcer.

Disse seks teorier påpeger, at motiver til at samarbejde kan rækker ud over et spørgsmål om omkostninger, og at effekterne således også kan forstås som mere og andet end omkostningsreduktion eller adgang til bestemte ressourcer, men også omfatter fx læring og netværk.

Et oprids af workshoperfaringerne

I løbet af projektet blev der afholdt to workshops, der adresserede motiver og betingelser for at skabe et længerevarende strategisk samarbejde. Overordnet blev det slået fast, at strategisk længerevarende samarbejde stadig har sin aktualitet, om end det ikke giver anledning til samme overskrifter som for 10-15 år siden. Meget samarbejde er stadig uformelt, men branchens aktører bliver i højere grad udfordret på at formalisere samarbejdet.

Motivationen for at indgå et samarbejde spænder vidt. Tydeligt er, at den omkostnings-effektivitet, der kan opnås gennem samarbejde er en væsentlig drivkraft, ligesom det at undgå en u hensigtsmæssig brug af ressourcer, skabe forudsigelighed i forhold til at tid og budget er særlig centrale punkter for et samarbejdsgrundlag.

Ser man på de forhold, der skaber betingelserne for et offentligt samarbejde er udbudspraksis fremhævet som det, der i helt afgørende grad determinerer længde og graden af samarbejde. Der er i flere (men langt fra alle) sammenhænge et ønske om tættere samarbejde, men udbudsreglerne og den måde udbudsreglerne tolkes på bliver strukturerende, og begrænser i nogle tilfælde udbredelsen af længerevarende samarbejde. Entydigt er, at der efterspørges større og mere standardiserede udbud af en vis volumen, fx ved at opgaver i højere grad samles. Herigennem vil længerevarende samarbejder have bedre eksistensbetingelser, og blive mere attraktive for leverandørerne.

Erfaringerne viser, at et længerevarende samarbejde stiller krav til en række interne kompetencer. Følgende faktorer ses som vigtige:

Lederskab: Det er vigtigt, at der er et dedikeret og synligt lederskab tilknyttet samarbejdet. Et lederskab, der sikrer legitimitet, prioritering og begejstring for samarbejdet i organisationerne.

Forandringsvillighed og kultur: Det er en ny måde at arbejde på, der kræver en forandringsvillig organisation. Byggeriets parter skal dermed tilegne sig en ny praksis, hvilket stiller krav til ændringen i organisationskulturen gennem nye værdier, nye kompetencer og en fælles forståelse for processen blandt de involverede.

Selektion: Erfaringerne viser, at det kan være en udfordring at vælge samarbejdspartner. Det kræver særligt fokus på selektionsprocessen og at der defineres klare kriterier for et succesfuldt samarbejde.

Tid: Der skal være en accept af, at et længerevarende samarbejde tager tid, og at der skal investeres i at få samarbejdet til at fungere.

Casestudier: Erfaringer fra Danmark og Sverige

Et strategisk længerevarende samarbejde i byggeriet kan foregå på mange måder, og der er en lang række faktorer, der påvirker karakteren og udbyttet af samarbejdet. De fem cases, der er udvalgt i dette studium repræsenterer en forskellighed, dels i forhold til længden og karakteren af samarbejdet, motivationen bag samt i forhold til det, der samarbejdes om. Ved at inkludere erfaringer fra både Sverige og Danmark har det været muligt at undersøge de fælles karaktertræk, der gør sig gældende på tværs af Øresund.

I det følgende sammenfattes erfaringerne fra samarbejdet i disse fem cases, hvor motiverne bag, kompetencekravene og udfordringerne forbundet til samarbejdet er afdækket i en række kvalitative interviews. Til trods for forskellighederne i casene er der overordnet to hovedkategorier set i forhold til det, der samarbejdes om:

1. Længerevarende rammeaftaler omkring industrialiseret byggeri, som fokuserer på reduktion af omkostninger.
2. Rammeaftaler for strategiske serviceorienterede partnerskaber mellem en kunde og en leverandør (eller leverandørkæde), hvor samarbejdet bliver en vej til at skabe øget kvalitet og værdi for kunden.

Det industrialiserede byggeri

Med det industrialiserede byggeri er samarbejdet tilrettelagt med henblik på, at den samme designplatform kan genbruges i tilstrækkelig stort antal for herigennem at opnå en gentagelseeffekt, der øger effektiviteten og nedbringer omkostningerne. To cases fungerer i analysen som illustration af dette, danske KAB AlmenBolig+ og svenske SABO Kombohus. Begge med non-profit organisationer bag, der gennem det industrialiserede byggeri adresserer sociale udfordringer.

KAB AlmenBolig+ og konsortiesamarbejde

KAB ønskede med AlmenBolig+ at skabe billige boliger for middelindkomst familier i Københavnsområdet. For at kunne nå ambitionen om en 30% lavere husleje, skulle omkostninger til byggeri og drift reduceres, hvilket dannede rammerne for de fire rammeaftaler, der blev indgået. Boligerne skulle baseres på industrialiserede byggemetoder og opføres med kun det nødvendige inventar og på en måde, så lejer selv vil kunne forestå vedligehold. Et vigtigt prækvalificeringskriterium var derfor, at leverandørerne har erfaringer med industrialiseret byggeri.

Den første af de fire aftaler blev vundet af Scandi-byg i samarbejde med ONV arkitekter, den anden af Phil&Søn i samarbejde med Vandkunsten. Det tredje af GVL i samarbejde med Vandkunsten, hvor det fjerde inkluderede alle tidligere vindere. Det er estimeret, at der vil blive bygget 2000 lejligheder under denne rammeaftale.

Designplatformen for AlmenBolig+ tilpasses de lokale forhold. KAB agerer som en form for mellemmand og holder en ”arms længde afstand” til leverandørteamet.

SABO Kombohus og JSB

SABO, Sveriges almennyttige boligforening, ville med Kombohus konceptet imødekomme den boligmangel, der er i Sverige gennem en reduktion i byggeomkostningerne, og gennem industrialisering skabe lav-omkostnings huse. I første omgang i form af lave bygninger, men i foråret 2013 blev det suppleret af et udbud for højere bygninger. Den første rammeaftale for Kombohusene blev vundet af den mindre svenske entreprenør virksomhed, JSB, som i dag estimerer, at der vil blive bygget 3000 lejligheder inden kontraktens udløb i 2015.

JSB har etableret partnerskaber med omkring 20 strategiske leverandører, og processen er struktureret således, at producenterne er med i hele forløbet, ligesom det er det samme team, der arbejder sammen om samme opgaver på tværs af de individuelle projekter.

Erfaringer fra de to cases viser, at rammeaftalerne i både det danske og svenske tilfælde har haft en størrelse, der skabte grundlag for stordriftsfordele, ligesom der gennem gentagelsen opnås en læring, der giver omkostnings- og tidsbesparelser. Med hensigten om billigere og attraktive boliger, har omkostninger været den primære drivkraft for samarbejdet, der finder sted i leverandørkæden.

Casene viser vigtigheden af, at designe en holistisk forretningsmodel, der sammentænker hele værdikæden fra slutbrugeren til producenten. For at nå de ønskede stordriftsfordele var det centralt at KAB og SABO, som det afgørende mellemlid, designede et koncept, der præcist, møder brugernes behov og samtidig tilrettelægges så det møder leverandørernes kompetencer på det givne tidspunkt, og at det gøres forretningsmæssigt attraktivt.

At imødekomme brugernes behov, stiller krav til leverandørteamet, som skal arbejde med nye produkter og nye processer. Samarbejdet ændrer den eksisterende praksis og fordrer, at leverandørerne i højere grad arbejder med procesledelse, supply chain management mv.

Rammeaftaler som kræver, at der lægges en ekstra indsats i at udvikle nye koncepter, er mest attraktive for leverandørerne i perioder med lav efterspørgsel, og derfor bliver spørgsmålet om timing aktuelt. Det vurderes i casene, at fire år måske er en god længde

for et samarbejde af den karakter, hvor omkostninger er i fokus, fordi stordriftsfordelene herefter er aftagende.

Strategisk service-orienterede partnerskab

Gentagelseeffekten i det strategiske service-orienterede partnerskab handler mindre om standardisering og mere om, hvordan der gennem et tættere samarbejde kan skabes en bedre viden om kundens organisation, der gør det lettere at imødekomme kundens behov. Kendetegnende er et tæt samarbejde mellem entreprenør og bygherrer, samt en tidlig involvering i forhold til design af løsninger.

Telge Fastigheter og NCC

I Södertälje kommune finder vi Telge Fastigheter, som ejer og driver kommunale ejendomme. Telge Fastigheter har haft to strategiske partnerskabsaftaler omhandlende kommunale byggerier, med NCC som leverandør. Den første aftale løb i perioden 2008-2011 og den anden i perioden 2010-2014. Samarbejdet med NCC har omhandlet opførelse og renovering af skoler, børnehaver og sportsfaciliteter. Ambitionen med rammeaftalerne har været at reducere omkostninger, nedbringe leveringstid og øge kvaliteten projekt for projekt.

I alle projekter er entreprenøren involveret fra en meget tidlig fase, og design og projektplan udvikles gennem en tæt dialog mellem bygherrer og entreprenør. Idealer for en samarbejdsproces fremgår direkte af kontrakten, og kræver kompetencer på begge sider i forhold til at arbejde sammen i et team. At opfylde dette har krævet trænings- og udviklingsforløb. Der er tydelige effekter i forhold til økonomi, effektivitet, kvalitet og tid. Erfaring fra de involverede parter er dog at det fulde potentiale først realiseres efter 3-4 projekter.

Enemærke og Petersen og ATP

Enemærke og Petersen (E&P) har etableret en servicedivision, og har udviklet en model for servicepartnerskaber for vedligehold af bygninger, hvor E&P indgår strategiske samarbejdsaftaler med leverandører for vedligeholdelsesarbejdet for deres kunder, som oftest har en varighed på 2-3+1 år. E&P har blandt andet serviceaftaler med Rudersdal kommune, Hørsholm kommune, Næstved kommune samt med ATP Ejendomme.

Tankegangen er, at E&P som serviceudbyder i højere grad indgår som integreret del af kundens organisation, og deltager i planlægningen af det samlede vedligeholdelsesarbejde i stedet for passivt at agere på ad hoc opgaver. Effekten af servicepartnerskaberne har for kunden været et bedre overblik over vedligeholdelsesarbejdet, og mindre administration, ligesom det giver E&P mulighed for at levere en bedre service og mere kvalitet for pengene.

Globechem og leverandørsamarbejde

Globechem er en global producent af kemiske produkter, som i februar 2013 indgik et strategisk samarbejde med tre leverandører: En rådgiver for design, en entreprenør til byggeriet og en installationsentreprenør for M&E. I den kemiske industri arbejdes der for at reducere omkostninger, hvorfor økonomiske parametre var et motiv for at indgå samarbejde. Men væsentligst er, at branchen er underlagt hårde krav og regulering der betyder, at der er behov for en betydelig kontrol af leverandører, ligesom der er behov for en høj omstillingsparathed. Regulering og CSR spørgsmål har således været en væsentlig drivkraft for Globechem, fordi de gennem et tættere samarbejde kan reducere antallet af leverandører og sikre sig at disse lever op til etiske standarder.

Erfaringerne fra disse tre cases viser, at der kan være forskellige forhold, så som adgangen til ressourcer, kontrol og reduktion af omkostninger, der motiverer et mere formaliseret og tættere samarbejde, men at den primære fordel ved samarbejdet opstår ved den gensidige viden begge parter får om hinandens behov og processer.

For bygherren har det vist sig centralt at finde samarbejdsparter, der kan komplementere deres egen organisation, hvilket giver anledning til en højere grad af integration mellem bygherrer og leverandør. Det gør, at bygherren fokuserer mindre på kontrol af leverandøren, og mere på relationen til deres brugere. Et sådan samarbejde giver samtidig en større mulighed for at styre kompetencer, og de personer, der involveres i projektet. Dette har vist sig som en relevant drivkraft i forhold til CSR-spørgsmål, hvor det at have en kontrol og sikkerhed med leverandører er afgørende. Fra leverandørsiden giver den øgede integration i samarbejdet og tidligere involvering mulighed for lettere at kunne tilpasse sig kundens vilkår og krav og herigennem levere en bedre service.

I samarbejdet er omkostninger også et centralt tema. Dette i form af forudsigelighed omkring omkostninger. Samarbejdet giver mulighed for at skabe et bedre estimat af omkostninger på baggrund af større fælles viden, ligesom parterne arbejder sammen om ikke at overskride budgettet. Desuden ses, at der kommer højere kvalitet for de samme penge.

Undersøgelsen viser, at et længerevarende samarbejde er mere krævende end en normal kontrakt, særligt for leverandørerne. Men de lavere transaktionsomkostninger kan være en væsentlig motivation for at indgå samarbejdet sammen med den kompetenceopbygning og læring, der opstår. Casene viser, at alene det, at formalisere et samarbejde skaber langsigtede perspektiver, der gør det attraktivt at investere i samarbejdet, og at formaliseringen giver samarbejdet den legitimitet, der træder i stedet for priskonkurrencen, som typisk karakteriserer det mere uformelle og traditionelle samarbejde.

Succesen af denne type af samarbejde er i høj grad bundet op på individuel adfærd og virksomhedskultur. Det kræver nye måder at arbejde på, hvor leverandørerne skal være både aktiv og responderende på bygherrens behov og modsat at bygherren ikke blot skal give ordrer og kontrollere, men give mere slip og have tillid til leverandørerne. Casene viser, at det kræver en kulturændring i organisationen.

En væsentlig faktor for at det formaliserede samarbejde får succes, kan findes på et overordnet niveau blandt de involverede organisationer. For at samarbejdsformen kan vinde udbredelse kræver det en generel prioritering og ressourcetilføring på et plan, der rækker ud over det enkelte projekt, ligesom vidensdeling på tværs af projekterne ville kunne løfte niveauet.

Hvor det industrialiserede byggeri, primært stiller krav til leverandørernes investeringer i processer og produkter, så er de initiale investeringer i det serviceorienterede partnerskab gensidige, og disse har et omfang og karakter, der gør at længden af samarbejdet (særligt i de mere komplekse projekter) med fordel er længere end fire år.

De engelske erfaringer: ProCure 21

Perspektiverende er inddraget erfaringer fra det engelske initiativ ProCure 21. ProCure 21 og dets efterfølger ProCure 21+ er rammeaftaler for hospitals- og sundhedsbyggerier i England. Efter en minikonkurrence, etableres et samarbejde mellem bygherrer og en samlet værdikæde. Med frameworket for ProCure 21 har de lokale bygherrer også adgang til standardiserede proces- og træningsforløb, og der er informationsdeling på tværs af projekterne.

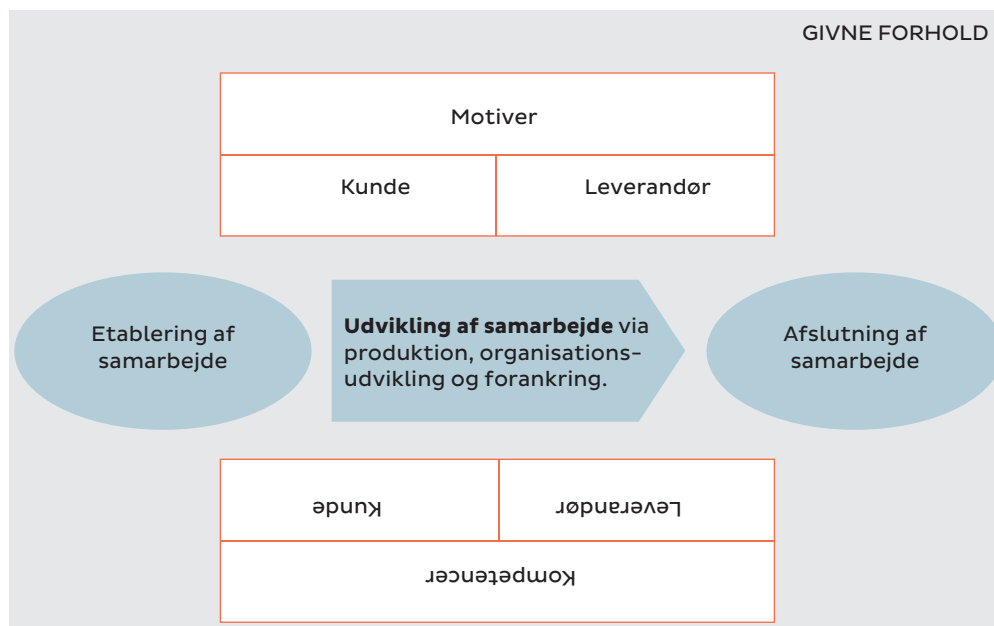
ProCure 21 placerer sig i mellem det, der i denne undersøgelse er karakteriseret som det industrialiserede og det serviceorienterede partnerskab. Sammenligneligt med det serviceorienterede partnerskab er entreprenøren involveret i en tidlig fase, og i lighed med erfaringerne fra casestudiet omkring det industrialiserede byggeri, er der et mellemlid, der skaber en rammeaftale, der kan bruges af mange lokale bygherrer og herigennem mindske udbudsomkostninger for samarbejdsprojekter, sikre kvaliteten i samarbejdet og at læringen mellem projekterne bevares.

Initiativet har været succesfuldt, særligt i forhold til omkostnings- og tidsbesparelser. Yderligere har det også vist sig at højne innovationsniveauet i byggeriet.

Konklusioner på tværs

Undersøgelsen har fokuseret på de motiver, der lægger bag et strategisk længerevarende samarbejde, og de kompetencer, der skal til for at drive og gennemføre samarbejdet. Tydeligt er, at der er forskel mellem kunde og leverandørsiden og at der er givne for-

hold, der kommer til at forme mulighedsrummet for, hvordan og på hvilken måde, der etableres et strategisk længerevarende samarbejde. Yderligere er det tydeliggjort, at et strategisk længerevarende samarbejde ikke er noget statisk, men noget der udvikler sig over tid. Nedenstående figur og beskrivelser af samarbejdets faktorer, danner således grundlaget for en sammenfatning af undersøgelsens resultater på tværs af cases, work-shops og teori.



Figur A: Illustration af de faktorer, der giver karakteren af et strategisk længerevarende samarbejde. Det gælder motiver og kompetencer både på kunde og leverandørsiden, de eksternt givne forhold, der kommer til at forme samarbejdet samt den udvikling, der finder sted i samarbejdet fra etablering til afslutning.

Samarbejdets faktorer

Motiver

Ses der på motiverne på kundesiden, så er forhold som omkostnings-og tidsreduktion, ressourcer og effektivitet de væsentligste drivkræfter bag etablering af et samarbejde. Samtidig får ønsket om øget kvalitet, forudsigelighed, lavere indkøbsomkostninger, fleksibilitet, bedre service en betydning særligt i det serviceorienterede partnerskab, hvor også en bedre kontrol med leverandørerne kan være en motivationsfaktor.

På leverandørsiden er det primært de forretningsmæssige muligheder; den øgede volumen og de deraf afledte mindskede risici og forudsigelige indtjeningsgrundlag, der er driver samarbejdet. Samarbejdet skaber et projektflow, der giver mulighed for en bedre ressource styring og et bedre arbejdsmiljø.

Undersøgelsen viser, at læring bliver en vigtig effekt af samarbejdet, og at der kan være et yderligere potentiale i, at tænke på samarbejdet som en kilde til innovation og udvikling.

Kompetencer

I det industrialiserede byggeri stilles der på kundesiden krav til, at der skabes en forståelse for leverandørernes kompetencer og at der skabes forudsigelighed i størrelsen af udbuddet, så projektet ikke ender ud i store udbudsrunder, som ikke er attraktive at byde på for leverandørteamet. Ligeledes er det centralt, at der skabes en forståelse af slutbrugernes behov, for at kunne lave det rette industrialiserede produkt og tilrettelægge optimale processer. For leverandørerne skal der oparbejdes kompetencer i forhold til at integrere og drive udviklingen med den resterende leverandørkæde. Det serviceorienterede partnerskab har en fælles udfordring på både kunde og leverandørsiden i forhold til at opbygge en kultur, der tilgodeser samarbejde og læring, og hvor leverandørerne ikke er passive, men aktive og deltagende. Der skal arbejdes med formalisering af samarbejdet, ligesom det kræver kompetencer i forhold til ledelse af relationer.

Generelt kan det siges, at undersøgelsen viser, at et strategisk længerevarende samarbejde kræver lederskab, træning og ikke mindst en tidsmæssig prioritering.

Udvikling i samarbejdet

I takt med, at der produceres noget i samarbejdet, organisationsstrukturen ændrer sig, viden opbygges og samarbejdet forankres skifter samarbejdet karakter. Samarbejdet udvikler sig med andre ord over tid, og det fulde potentiale realiseres først efter en periode. I forlængelse heraf viser undersøgelsen, at motiverne for at indgå et samarbejde kan ændre sig over tid, således at omkostningsfokus træder mere i baggrunden til fordel for effekterne af øget viden og læring samt bedre arbejdsmiljø mv. Samtidigt indikerer undersøgelsen dog, at det kan være svært at måle de langsigtede effekter af samarbejdet, der overskrider et omkostnings- og effektivitetsfokus.

De givne forhold

Der er to primære forhold, der sætter rammerne for graden og længden af et eventuelt samarbejde. Den ene er udbudsreglerne og den anden er organisationers praksis. Udbudsreglerne bliver strukturerende for mulighederne for samarbejde, men inden for de rammer der er, er undersøgelsen udtryk for, at der kan skabes værdifulde samarbejdsrelationer. Det kræver dog en praksis, der rækker ud over et snævert pris fokus ligesom, det kræver en forandringsparathed og nye kompetencer i organisationerne. Dette er det andet forhold, der sætter en barriere for udbredelsen af strategiske længerevarende samarbejde.

Et blik fremad: De seks anbefalinger

Strategisk længerevarende samarbejde har en legitim plads i byggeriet, men fylder lidt i Danmark. Casestudierne viser blot en afgrænset måde, der kan arbejdes med samarbejde på, som kan finde anvendelse langt bredere. Potentialet er stort og samarbejdet giver positive fordele både i forhold til økonomiske parametre, men også i forhold til en lang række andre parametre, såsom viden og bedre arbejdsmiljø.

På baggrund af forundersøgelsens resultater udledes konkluderende følgende anbefalinger til, hvad der kan arbejdes med for, at de uforløste potentialer for strategiske længerevarende samarbejdsrelationer i byggeriet kan realiseres.

1) Fokuser på de bløde effekter

Med undersøgelsen er det blevet synliggjort, at effekterne af et samarbejde overskrider et snævert omkostningsfokus. Et samarbejde giver foruden omkostningsbesparelser, også effekter såsom øget viden, læring og øget medarbejdertilfredshed i organisationen. I praksis kan det dog være svært at måle og dokumentere denne effekt, hvorfor det oftest ikke indgår som et primært formål med samarbejdet, men mere som en positiv sideeffekt. Hvis den fulde attraktivitet ved at indgå samarbejdet skal synliggøres, er det relevant at rejse spørgsmålet om, hvorvidt, der kan og skal skabes objektive kriterier, der indfanger de mere bløde værdier af et samarbejde.

2) Skab samspil mellem udbuds- og efterspørgselssiden

En af de primære udfordringer, der er fremhævet gennem undersøgelsen handler om, hvordan der skabes gensidige fordele for både kunde og leverandører, og hvordan et samarbejde således gøres attraktivt for både udbuds- og efterspørgselssiden. Som situationen er i dag, er et samarbejde meget bygherredrevet, og afgørende har været, at de aftaler der udbydes er tilpasset de kompetencer, der er i leverandørledet. Det bliver centralt både at se på hvordan bygherrerens kompetencer kan styrkes, men også hvordan der laves en attraktiv business case for leverandørerne, og hvordan leverandørerne kan blive en større driver i forhold til at samarbejde på nye måder.

3) Skab volumen og kontinuitet

Et strategisk længerevarende samarbejde vil oftest stille krav til en vis volumen og kontinuitet i opgaven for at investeringerne og risikoen står mål med værdien af samarbejdet. Det kan være fordelagtigt at bunde opgaver, og skabe nationale eller regionale rammeaftaler, der som i tilfældet med KAB, SABO og Procure 21 kan bruges af lokale bygherrer. Det skal gøre det lettere, billigere og mere attraktivt at indlede et tættere formaliseret samarbejde og med mere generiske modeller være med til at sikre kvaliteten og udbyttet i samarbejdet.

4) Opbyg interne kompetencer

Undersøgelsen viser, at succes af et samarbejde i høj grad er afhængig af nye kompetencer og en ny organisatorisk praksis. Derfor stiller et samarbejde ikke blot krav til de juridiske rammer og kontraktindgåelse, men i ligeså høj grad også krav udvikling af de interne forudsætninger for at indgå et samarbejde, og udvikle relationen i samarbejdet. Der skal opbygges nye kompetencer gennem træningsforløb, etableres synligt lederskab og arbejdes med organisationsudvikling.

5) Skab forankring på virksomhedsniveau

Casestudierne viser, at et strategisk længerevarende samarbejde stiller krav til en høj grad af viden, ressourcer og engagement. Dette kræver således, at der skabes et engagement i organisationen og mobiliseres de nødvendige ressourcer, og herunder at det accepteres, at det tager tid at få samarbejdet til at køre. Udfordringen med den situation, der er i dag er, at viden og erfaringer er meget personbåret, og at der oftest mangler en organisatorisk forankring og en videndeling mellem de forskellige processer, der igangsættes på tværs af organisationen. Udfordringen er at indlejre viden i organisationerne og sikre, at engagementet rækker ud over enkeltpersonerne.

6) Skab og del viden på tværs

I forlængelse af det femte punkt, er der en udfordring internt i organisationen i forhold til at indlejre viden. På et mere overordnet plan er der stadig brug for ny viden og flere erfaringer. Der er viden i b.l.a. Storbritannien og i Skandinavien, men erfaringerne fra undersøgelsen viser, at vi ikke har været gode til at dele den viden og de erfaringer der er, på tværs af organisations- og landegrænser.

DEL 2: EMPIRICAL CASES AND ANALYSIS

By: Anna Kadefors, Chalmers University of Technology

INTRODUCTION

The issue of how to integrate specialist knowledge and resources by more collaborative inter-organizational relationships in the construction industry has been on the agenda for several decades now. The US Army introduced the concept of partnering in the 1980s and other early applications of formalized collaboration were found in the off-shore industry and for serial production of shopping facilities.

In the early 1990s, the UK government began to worry about the productivity and competitiveness of the British construction industry in relation to a developing European market for construction services (Adamson and Pollington, 2006). Beginning with the Latham report 1994, a change process was initiated which took a more substantial form as the large scale reform program Rethinking Construction (RC) was launched following from the Egan report in 1998. The fragmented and discontinuous value chains of the construction sector are generally seen as important causes of poor quality and low productivity. Thus, although collaboration in individual projects was also promoted, the ideas of RC were strongly inspired by the focus in the automotive industry on achieving continuous improvement through performance measurement and close long term supplier relationships. Although the industry transformation has not been as fundamental as hoped for, and despite some backlash following from the financial crisis (Wolstenholme, 2009), results have been sufficiently encouraging to form the basis for subsequent policy initiatives, such as the recent UK Government Construction Strategy. A prominent UK example of a successful collaboration is ProCure 21, a framework agreement for supply chains within hospital construction that is now in its second term.

In many other countries all over the world, for example Australia, the Netherlands, Hong Kong and Finland, similar problems have led governments and clients to focus attention on how to restructure construction sector supply chains. Such initiatives take various forms in different countries, as shown by a European review by Manchester

Business School (Rigby et al., 2009) and more recently in an ongoing global project by Walker and Lloyd-Walker (2013).

In Denmark as well, there is a long history of government reviews and initiatives to drive change in the construction sector. In 1998, the Ministry of Housing and Urban Affairs released their Construction Policy Action Plan, in which the interrelated issues of productivity and collaboration were highlighted as a central political focus area. The UK development was an important inspiration for policy action, and in 2003 it was decided that partnering should be the default model for government funded projects. An official partnering guideline was produced (Erhvervs- og Boligstyrelsen, 2004) and the performance measurement unit, Benchmark Center for the Danish Construction Sector (Byggeriets Evaluerings Center), launched. There was considerable enthusiasm also on the supply side, and partnering in individual projects became common. However, despite that such project-based collaboration was generally considered successful in delivering value for money the step to long term strategic partnerships was never really taken. In the wake of the financial crisis commitment to partnering has declined in Denmark as well as the number of partnering projects.

In Sweden, there have been no political initiatives to promote collaboration in construction and much focus has been on how to ensure price competition. In the infrastructure sector, government clients and the main suppliers together initiated a program (FIA, Förnyelse in Anläggningsbranschen; Renewal in the Civil Works Industry) to support collaboration and innovation. This program was in operation between 2003 and 2012, and a general collaborative model is still used in many larger projects. In the building sector however, the development of collaborative contracting has been stronger than in infrastructure, despite the lack of any official support. This is much due to experiences and models spreading from UK and Denmark within companies (primarily the construction contractor NCC) and through courses and seminars arranged by the Construction Clients Forum. Individual champions have been important in this development, and the share of projects with a partnering label has grown steadily since the mid-2000s. This trend was in fact strengthened during the financial crisis, which has been less severe in Sweden than in Denmark. From being almost exclusively oriented towards project partnering, clients are now starting to establish strategic long-term relationships. Rhodin (2012) identified 10 such relationships initiated between 2009 and 2011, most of them in the public sector. The legitimacy of such solutions seems to have increased, although the share is still small in relation to total construction volume.

The purpose of this study has been to establish current state of the art regarding Swedish and Danish experiences specifically in the area of strategic long term collaboration and other relationships enabling learning by repetition. It is a pre-study based on five small case studies of two kinds of relationships. The first category comprises frameworks for

industrialized production of buildings provided by long term supply chains to numerous different clients on a project basis, while the second category includes frameworks for strategic service-oriented partnerships between a specific client and a specific supplier or supply chain. The cases are chosen to be good examples that may highlight both advantages and prerequisites for such arrangements to be successfully put in place.

The analysis is structured around two main questions:

- Which are the main drivers for such long-term collaborative relationships to arise?
- Which competences and other factors are required for success?

METHOD

Five cases have been selected, three Swedish cases and two Danish. The Swedish cases have been identified by Anna Kadefors, while Smith Innovation has provided access to the Danish cases. The cases are based on 1-2 interviews along with information in documents and on websites. In the case of Globechem, which is a codename, most information was gathered in a seminar involving a small group of participants. Case descriptions of 3-6 pages were written and sent to the interviewees for validation.

This report is primarily based on the cases and workshop discussions. The theoretical framework is general and parts relevant to the empirical context have been drawn on in the analysis chapter. The goal has been to produce a report that communicates insights and experiences to an audience of qualified practitioners.

In the next section, the five cases are presented.

CASES

The five cases have been selected to represent successful and up-to-date practice. The cases further complement each other in terms of type, sector, size and country. As already mentioned, there are two main categories: industrialized construction and service-oriented partnerships.

The first category is represented by two cases: KAB AlmenBolig+ and SABO Kombohus, and the second by three: Telge Fastigheter, E&P service and Globechem. Basic information of cases and interviewees is shown in Table 1. Table 2 (p. 36) summarizes the main points for each type of case.

Case	Organization	Category	Scale	Interviewees
KAB AlmenBolig+ (Denmark)	Public client organization	Industrialized low-cost housing for rent	2000 apartments	Rolf Andersson, Building Director, KAB
SABO Kombohus and JSB (Sweden)	Public client organization and middle size construction contractor	Industrialized low-cost housing for rent	1200 (potentially 8000)	Petter Jurdell, Head of Real Estate Development, SABO Pether Fredholm, Managing Director, JSB
Telge Fastigheter and NCC (Sweden)	Public (municipal) real estate owner and large construction contractor	Two service partnerships for municipal building (primarily schools)	SEK 1Bn/ 5 years	Taina Sunnarborg, Head of Construction, Telge Fastigheter Matti Virkki, Contract manager, NCC
E&P service (Denmark)	Subsidiary of large construction contractor	Service partnerships for external maintenance	DKK 10m/ year	Rasmus Karkov, Relationship manager, E&P service
Globechem (Sweden)	Private industrial client	Service partnership for construction projects over MSEK 10	SEK 900m/ year	NN, Purchasing Manager NN, Manager of Construction Projects

Table 1. Cases and interviewees

CASE KAB AlmenBolig+

AlmenBolig+ is a series of framework contracts set up by KAB to provide low cost housing for middle-income families, primarily in the Copenhagen area. The low costs stem from a combination of low needs for professional maintenance, industrialized production and reduced indoor furnishing.

KAB is a non-profit company established by 50 tenant-owned housing associations in the Copenhagen area. KAB provides administrative and technical management services to these associations, which altogether own around 50,000 apartments. The housing associations are closely related to the municipalities, which are required by law to support them financially.

It is a problem for many cities today that people who perform work that is central to many functions in society – such as teachers, nurses and policemen – cannot afford to buy or rent homes in city locations, especially if they have children and need more space. To avoid commuting many of them prefer to find work close to where they live,

which often is in more peripheral locations. The municipality of Copenhagen wished to secure housing for this group, and AlmenBolig+ was set up to resolve this problem.

Conceptual socio-technical design

Over a period of 5 years, KAB has developed and developed and successively refined a program defining a new concept involving a combination of social and technical aspects. In 2007, a pre-study was carried out, showing that two aspects are important for this category of potential tenants: location and rent. All other qualities would be negotiable. KAB then concluded that it would be possible to reduce rents to a level 30% lower than normal for new housing developments by three means:

- Industrialized building methods, using pre-fabricated wood volume elements the size of an entire room. This would enable a higher level of pre-fabrication, thereby reducing risks for problems due to dampness related to site production.
- Most technical maintenance done by the tenants themselves. This meant that there could be no complicated heating systems and no lifts. Further, water-based heating would be avoided due to the risk associated with leaks in a wooden building. Ventilation heat exchangers were preferred, and this required highly insulated buildings. Cladding (facades) should be of stone, metal, or other materials not needing much maintenance.
- Apartments that include only the necessary and technically complicated functions: one bathroom and a basic kitchen placed in a central unit, and balconies and terraces. Interior walls, more kitchen facilities and an additional toilet would be added by the tenants themselves.

Despite that predictability and volumes were considered essential to attain low costs, KAB did not want large areas with similar houses: between 50 and 100 apartments was preferred to create small scale neighborhoods that would benefit social sustainability. The buildings should be low – 2-3 stories – not only to avoid lifts, but also to have more private gardens and less common areas requiring maintenance. Another key idea was that tenants would be more committed and less prone to move if rents were low and they had invested time and money in complementing the basic design.

Background and early phases

There was a predecessor to AlmenBolig+: in 2005 the Danish Ministry of Social Affairs issued a tender for a framework agreement with the same aim. However, there was no guarantee in this scheme that local housing associations and municipalities would use the framework. This was perceived as too risky by suppliers, and only one tender was submitted. Ultimately, no agreement could be reached for this framework. So when

KAB started AlmenBolig+ a couple of years later, it was important to make sure that there was a serious interest among customers. When KAB had developed the conceptual program they made a tour to present it to municipalities and housing associations. They further involved two additional companies of the same type as KAB, but operating in other geographical regions. This way, KAB got commitment from a number of municipalities and housing associations that they would together commission 500 apartments.

In a pilot phase two tenders were carried out, each comprising around 125 apartments. One was won by Jønsson A/S in collaboration with ONV Arkitekter. The design was based on two-dimensional (flat) pre-fabricated wood elements, which required site assembly. This was afterwards found to entail risks for damage due to insufficient water protection. The other pilot project was won by the Estonian company Kodumaja also in collaboration with Danish ONV Arkitekter and it used volume elements. For subsequent framework agreements it was decided to only use volume elements (it is this second design that is reflected in the description above).

Procurement and production

Four EU framework agreements have been carried out within the developed concept. Typically, 30 tenderers have expressed their interest in each call, 5 to 6 have been short-listed and 4 or 5 have submitted full tenders. An important prequalification criterion has been experience of industrialized building. A cost limit has been set (DKK7,500 per sqm for the first framework), and the final selection has been based on architectural and technical quality.

Special efforts have been made to attract foreign tenderers, but around 80% of them have been Danish and all frameworks have been won by Danish teams. Some German and Dutch contractors collaborating with Danish consultants have been shortlisted, but in the end they have not been able to fulfill the cost requirements and their prices have been around 40% too high.

The first full-fledged tender for a framework based on volume elements (2007-2010) was won by Scandi Byg in collaboration with ONV Arkitekter, the same architectural company that was involved in the pilot projects. Scandi Byg's background is in temporary, module-based buildings of various kinds, and they organize their process so that all design work is finished before construction starts. No adaption should be made on site.

The second framework tender (2009-2014) was won by Pihl & Søn in collaboration with Vandkunsten. It overlapped with the first and Scandi Byg did not participate. The third framework (2010-2013) was won by GVL Entreprise, also in collaboration with Vandkunsten, on the basis of superior architecture. The fourth (2013-2016) involved

all previous winners (plus two additional tenderers). This time Scandi Byg and ONV had improved the architectural aspects and secured the contract.

Organization and collaboration

In a project, the supplier team communicates with one client project manager from KAB, who manages land acquisition and the contacts with the municipality. An initial workshop with the supplier, the tenant association and the municipality is organized to decide how the standard design should be adapted to the specific conditions of the project. KAB also employs an external consultancy firm to review the design, and the KAB project manager also manages the move-in process. For example tenants need information about how the ventilation-based heating system works.

The framework is a form of strategic partnership, but KAB does not have a close relationship to the supplier team. There is local adaptation and KAB reviews the design, but there is no joint design process and KAB avoids proposing solutions. The goal is to have a clear division of responsibility, which implies that the relationship to the supplier is somewhat arm's-length.

Improvements and experiences

In the first framework, clients had committed to build 500 apartments. The winner was guaranteed a volume of 250 apartments and in the end 400 were built. Altogether, it is estimated that 2000 apartments will be built in these four frameworks. For KAB, the frameworks represent 25-30% of all new building.

Over the four frameworks, client requirements have been raised. Altogether, the building director of KAB estimates that quality has been improved by 15% while costs have been allowed to increase by 10%. For energy performance, the requirement in fourth framework is equivalent to the Danish 2020 requirements (initially it was 2015). Solar (PV) panels have been added to produce electricity to run the heat exchanges. Also, since the social development in the areas has generally been very positive, a very simple common building has been included in the last framework. The social mix has been another issue, and building with three stories instead of two has allowed for smaller units on the ground floor, more suitable for elderly and younger people.

There has been a great interest among potential tenants in the housing development created within AlmenBolig+ scheme. The concept has received considerable media attention, without any campaigns being launched by KAB. A questionnaire study has been performed of tenants in the 400 apartments that have been finished in the KAB area. It showed that the target group of families with middle range income had been reached, and that they were very satisfied. Tenants are even satisfied (80%) with the rent, a result that is exceptional. Very few tenants have moved during the first year

(10%, 3% and 0% in the three areas investigated compared to 30% for new housing developments in general). Thus, the concept is very successful in terms of tenant satisfaction and value for money.

It may be noted that all actors on the client side are non-profit organizations, thus there are no commercial drivers for innovation and development. There is however a strong tradition and culture in KAB of proactively driving development within housing that benefits society in general.

CASE SABO Kombohus

SABO, the Swedish Association of Public Housing Companies, is the organization of the municipality owned public housing companies in Sweden. SABO has 300 member companies which together own and manage 725,000 dwellings, nearly 20% of all Swedish housing. 50-70% of residential buildings for rent are built by the public housing companies.

SABO has established two framework agreements for low-cost residential buildings based on industrialized platforms. The intention is that the buildings should be easy to fit into existing residential developments. Up to now, more than 1200 apartments have been ordered by SABO clients within the first framework.

Background

In Sweden, there is a housing shortage both in the larger cities and in many smaller municipalities. Due to high construction costs it is very difficult to build especially apartments for rent in other locations than central areas in large cities, attractive to high income households. Finland, where costs are lower, builds nearly three times as many housing units per citizen as Sweden (and Denmark). According to Petter Jurdell, the Head of Real Estate Development at SABO, it was this kind of comparisons that convinced them that it should be possible to drive down costs if SABO could set up a scheme that combined the demand from a number of member companies to provide larger volumes of repetitive projects. This would create an incentive for construction companies to focus on industrialization and put more strategic effort into developing low-cost housing.

The SABO client group started to investigate possibilities to build smaller pre-fabricated standardized residential buildings that could be easily fitted into existing areas. As an initial step, they asked the SABO member companies how many apartments they would build if construction costs could be reduced to a level that potential tenants could pay. The response showed that there was a need for new apartments for rent all over the country, also in smaller towns. Often such complements are needed to provide

accessible housing for elderly even where there is no general housing shortage. SABO thus got commitment from member companies to build 500 apartments, provided that the price was sufficiently low.

Framework 1: SABO Kombohus

SABO then developed tendering documents for a framework agreement for low buildings (2-4 stories). This first framework was called Kombohus. Main requirements were that the maximum construction cost per sqm (BTA) should not exceed SEK 12000 (foundation and ground works not included; price level 2011), that there should be lifts and that energy performance should be superior to the level demanded by the national regulations. Work would be allocated to three suppliers by their ranking.

A pre-qualification process was carried out and around ten contractors participated. Six of these were selected, largely based on financial strength and size. In the second round, tenders were evaluated under strict anonymity on the basis of five criteria, all related to the product: design, exterior materials, interior materials, usability of apartments and technical equipment. A jury involving SABO representatives was established, and the result was announced in June 2011.

The tender ranked number one, with 45 points, was submitted by JSB, a small contractor company primarily operating in the south of Sweden. Their design was based on pre-fabricated concrete elements and could be used for both low and higher buildings. Second in order (35p) was BoKlok, a Skanska subsidiary, with their concept for 2-3 story wood buildings. Third (34p) was Lindbäcks Bygg, a company that produces pre-fabricated wood volume elements. An important reason that JSB won was that their concept is based on concrete elements, which gave high grades on criteria related to materials. However, they received their highest score on design.

JSB background

JSB is a construction company with 250 employees primarily operating in the south of Sweden. They have three units: one for construction, one for smaller services, and one for Trygga Boendet, the industrialized concept that won the SABO competition.

Within a previous unit for project development, JSB started a process to also analyze opportunities to meet the demand for low cost housing already before SABO competition was launched in 2011. By then, they had already engaged a group of partners within architecture, structural engineering, mechanical engineering, logistics, etc. to jointly develop a concept for a small apartment building that should be of high quality at a reasonable price. The MD and owner of JSB, Pether Fredholm, had a degree from a business school and a background as a property owner. To him, it was natural to have a strong customer focus in developing the concept. Thus, a questionnaire was sent out to

SABO clients, asking which building qualities were important to owners and managers of residential buildings with apartments for rent. Some aspects were materials and technical solutions with low risks in the maintenance phase, high energy and environmental performance, low lifecycle costs, and robust materials indoors. JSB started to develop their concept based on these answers.

By coincidence, Pether Fredholm got to know about the SABO tender and JSB decided that they should participate. This provided them with a real life case and a deadline. Winning was an important achievement for JSB, especially since one of the competitors was Skanska.

The JSB concept

To develop and deliver the buildings to local clients all over Sweden, JSB has established partnerships with around twenty strategic suppliers for concrete elements, kitchens, painting, etc. Only a few critical production processes are performed by their own staff. Further, a central unit is responsible for design adaptation, purchasing, resource coordination between projects and logistics. JSB also has project managers to manage contracts and other formal aspects in early stages and site managers responsible for the production process on site. The project communication process is also standardized: for example there are four site meetings with fixed agendas in all projects.

A key aspect is that the manufacturers involved as strategic suppliers perform the whole process, from manufacturing and assembly on site to problems that may occur during the liability period. This reduces the costs for handling cases of missing or defective parts. Another important principle is that the same team works together and performs the same work in all projects, thereby allowing for learning effects. JSB has a strong culture of continuous improvement and Pether Fredholm stresses that this way of working puts new requirements on people. For example, it is not sufficient to fix an error but the problem should also be reported back to the manufacturer or the central JSB unit in order to take care of it more permanently. JSB has improved their processes considerably between projects, but there is still more to do to eliminate all errors and reach perfection.

Pether Fredholm that to succeed with industrialized building, perfection in three areas is required: a product that responds to the needs of customers, is free of faults and fulfills other requirements such as building regulations; a standardized and optimized process that covers all stages from conception to liability; and a permanent organization that focuses on coordination and continuous improvement on a concept level. Today, he perceives the two biggest challenges to be to create a working environment that is stimulating to individuals despite those tasks are very similar between projects, and to be able to grow to meet the increasing demand from SABO clients.

Framework 2: SABO Kombohus Plus

A second framework was established in spring 2013 to provide SABO companies with the opportunity to order also higher buildings, suitable for infill projects in other types of existing areas. Four suppliers submitted tenders and three were contracted: NCC, Lindbäcks and Skanska. In this framework, projects are to be allocated between the suppliers by mini-competitions. No contracts have been signed yet, since all projects are still in the process of obtaining building permit. The expected volume in this scheme is according to SABO 5000 apartments, equivalent to SEK 6Bn.

Client side organization and management

For small SABO companies it is a great advantage to have access to a framework agreement instead of carrying out a public tendering process. SABO has however simplified the process even further: an important part of the concept is a web-based tool to help potential clients estimate total project costs and feasibility in only one day of work. The estimation includes all client costs, and the most uncertain part is the costs for ground work. On average, the cost certainty is +- 5%. The whole process from idea to finished building is also described in detail on the web. According to an interview with a client on the SABO website, this simplicity was an essential factor in their decision to build.

Experiences

The SABO contract has clearly been very successful in terms of volume. Initially, JSB estimated that 6-700 apartments would be produced within the framework, but today the forecast points at a total volume of 3000 apartments before the contract ends in 2015. Up to now, SABO clients have ordered around 35 projects from JSB, most of them between 10 and 100 apartments. This means that JSB is now the largest builder of apartments for rent in Sweden, despite being a small company.

Total production costs are typically between SEK 20000 – 23000/sqm BOA. This results in rents of around SEK 1300/sqm and year (normal is SEK 1400-1500), or a 2 room apartment (one bedroom, 60sqm) from SEK 6500-7500 kr./month.

Up to now, the framework has primarily been used in smaller towns where lower costs are a necessity for building at all. A SABO follow-up showed that only 3 of 30 projects would have been built without the scheme. In larger cities there are more constraints, both regarding spatial dimensions and planning restrictions. There is generally less tolerance for standard designs. However, also in city areas the framework offers opportunities to build just outside the center, where property prices are too low to justify normal construction costs. In Umeå, a relatively large university city in the north of Sweden, a project of 200 apartments is now being developed. The municipal housing company in Uppsala, just north of Stockholm, is also planning a larger project.

According to Petter Jurdell at SABO there has been criticism from architects and technical consultants because there is less work for them when design is standardized. He agrees that a substantial part of the cost savings result from reduced design, but emphasizes that since the framework contributes to an increase in the total volume of residential construction, the impact on the demand for design work should be small.

Private sector clients cannot make use of the framework but can still benefit from the cost transparency: it is hard for contractors to sell similar buildings at significantly higher prices to private clients. The larger contractors are ambiguous, in the short run it is negative but according to Petter Jurdell they can also see positive effects since they get a clear external pressure to drive internal processes towards increased industrialization and repeatability. In the long run, this will be necessary for the large actors to be able to compete with small and smart actors such as JSB or foreign contractors with lower wages. It has already happened that local builders approach SABO companies and say that “we know what you pay for the Kombo buildings, and we are prepared to submit tenders on that level”.

For the future, SABO would like to develop concepts for city locations and renovation projects. This is however more difficult, since physical and planning constraints vary much more for these locations.

CASE Telge Fastigheter and NCC

Telge Fastigheter is a company owned by the municipality of Södertälje. Telge Fastigheter owns and manages municipal properties, both commercial facilities and facilities for public functions, primarily schools, nursery schools and homes for elderly.

Telge Fastigheter has had two strategic partnering contracts in the form of framework agreements. The first one was set up in 2008 with NCC and concerned a series of nursery schools and schools based on pre-fabricated volume elements. The second contract was procured in 2010 and concerns all construction work undertaken by Telge Fastigheter and Telge Bostäder. This time, there are three contractors rated 1st, 2nd and 3rd.

Framework 1: 2008–2012

Around 2007, a new law entitling parents to obtain a place in municipal childcare within four months of making a request resulted in a sharp increase in the need for nursery schools in the municipality of Södertälje. This demand was difficult to fulfill, partly due to a lack of suitable locations but also because of high construction costs. The demand for construction services was high at that time, and municipal projects procured as traditional contracts in lowest bid competition were not particularly attractive to contractors.

The Head of the Construction Department at Telge Fastigheter, Taina Sunnarborg, started to look for ways to use serial effects to reduce cost, improve quality and shorten delivery time of nursery schools. She and some of her coworkers had already gained knowledge about partnering in general by taking courses. She had also participated in a study trip to the UK, involving visits to municipal clients using strategic partnering based on framework contracts. As a result, she suggested that Telge should establish a similar partnership with a contractor. The new managing director of Telge supported the idea and Telge Fastigheter decided to issue an EU tender for a strategic partnering framework agreement to provide the municipality with nursery schools. The municipality had previously bought temporary buildings for different purposes, and the intention was that manufacturers and construction contractors should adapt their existing platforms for standard designs to fit the municipality's program for school facilities.

An external lawyer specialized in partnering contracts was engaged to help them draft the tendering documents and the contract. About six tenders were received, and two of them were selected for further development. However, it turned out that neither of the tenderers had adapted their standard platforms enough to fulfill the pedagogical needs of the nursery schools. Yet, the design of NCC was considered possible to develop. NCC agreed to do this and a year later the system was ready to use. In 2008, a contract for a framework agreement was negotiated and signed and six nursery schools and also two larger schools were built within this scheme.

Framework 2: 2010–2014

In parallel, Telge Fastigheter needed to refurbish one of their schools. This project could not be carried out within the existing framework, since volume elements could not be used. It was decided to establish a new framework agreement, this time encompassing all larger construction projects (each more than SEK 10 million) of both Telge Fastigheter and Telge Bostäder, another municipal company that owns residential property. Experiences were sought from UK frameworks and also from a framework in the municipality of Staffanstorps, which was the only Swedish example that could be found at that time. A tender was issued for a framework agreement covering four years (2010–2014) plus a possible prolongation of 1+1 year. Tenderers would be assessed on the basis of competence, previous partnering experience and management plans as well as on price. Ten tenders were received from companies of various sizes. Only the larger actors were however considered competitive, since Telge preferred their partners to have specialist functions to support them with for example environmental competence in early feasibility studies. This was something that middle-sized contractors could not offer. Framework contracts were signed with three contractors: Skanska (1st), NCC (2nd) and Arcona (3rd). Notably, another large contractor that previously used to perform much work for Telge was not selected. Skanska was ranked first largely due to their low price, but has chosen to only carry out a few projects within elderly care, residential construc-

tion and commercial properties. All schools and nursery schools have been passed on to NCC. The third supplier, Arcona, has not done any work within this contract.

Altogether, NCC has up to now carried out 19 projects, eight within the first contract and eleven within the second. All projects have been schools, nursery schools or sports facilities. Some pre-studies resulting in decisions not to build have also been carried out. The total sum of construction work delivered by NCC within the two frameworks is SEK1Bn.

Organization

The organization set up for the framework contract with NCC consists of one overarching steering group, project steering groups and collaboration groups. The steering group members are from the management and contract management levels, four members from the client and four from the contractor. The group has the role of a management board for the entire framework contract, and meets once a month for a whole day to discuss progress on all projects. The project steering groups are set up for each project separately and involve project management on both sides and often also user representatives. The collaboration groups are operational and carry out the work according to plans approved by the project steering group.

In the tender, NCC was required to indicate which consultants and subcontractors they preferred to work with, and these have also participated in most of the projects although not formally parties to the framework agreement.

General process

For each project, there is a cycle in three phases: 1) feasibility study/brief, 2) design development, and 3) detailed design and construction.

NCC gets involved at a very early stage – as soon as the client knows that there is a need for a project and has investigated possible locations. Project groups are set up and a feasibility-study is carried out, resulting in schematic designs, a preliminary budget and a time schedule. The phase starts with a workshop, in which a partnering declaration is developed, and ends with a go/no go decision by the client.

In phase 2, the design is developed and submitted to the building and planning authorities to obtain a building permit. Cost estimations are refined and the parties agree on a realistic budget that may form the basis of the financial arrangements for this specific project. A detailed time plan for design and construction is set up.

In phase 3, detailed design is performed by the contractor in collaboration with the client, and the building activities carried out. A workshop is held at the start of phase 3.

Since there are numerous parallel projects involving the same people, who also meet in the steering group and general project meetings, regular follow-up workshops in each project (as originally stated in the contract) were found too time-consuming. Instead, it was decided to have an annual partnering conference assessing all projects in the framework.

Financial arrangements

In phases 1 and 2 all suppliers are reimbursed for actual costs according to the Swedish standard contract for consultancy services. Hourly rates for different categories of personnel are set in the tender and renegotiated each year. For phase 3, the budget set in phase 2 forms the basis of a target cost. The contractor is paid a fixed fee covering site management, overhead, risk, profit and other fixed costs, and is further reimbursed for their actual, verified costs for labor and material. The fee is calculated as a percentage of the target cost, but transformed to a fixed fee. The contract between the client and the contractor is a design-build contract, and the building contractor uses a similar payment model in their contracts with subcontractors.

It is stated in the framework contract that the parties should strive to include bonuses in the project contracts. Such bonuses amount to approximately 1% of the project budget and are based on performance in five dimensions: quality and economy, collaboration ability and attitude, user satisfaction, project control, and accident rates and work environment. Other aspects such as time, energy performance and maintenance costs may also be included. Together, the fixed fee and the bonus provide financial incentives for contractors to keep costs down and meet other project goals. Bonuses have been agreed and paid in most projects. Exceptions are projects where the initial budget did not allow for bonuses to be included at all.

Some amendments are made to the Swedish standard contract for design-build contracts. Notably, the contractor assumes the responsibility for designs and documents jointly produced in phases 1 and 2, exceptions to this have to be explicitly stated in the project contract. Another aspect is that the client is not exclusively bound to the framework contract but is free to procure contracts in competition.

Improvements and experiences

In the contract, it is stated that Telge municipality applies lean principles to increase efficiency in their operations and that the intention is to set up a close collaboration with the contractors focused on reducing costs and improving quality project by project.

Thus, the client had high expectations for creating a learning culture based on repetition. The collaborative process was outlined by the client already in the contract but has been complemented by NCC routines for both partnering relationships and project management in general.

Both parties state that there have been clear improvements in the ways of working during the contract. Early in the relationship, after about 6 months of the first framework, the client representative was dissatisfied with the collaboration – she felt that there was still distrust related to financial risks that hindered a true partnership. Contractors added risk to their cost estimates although the intention of the client was that this should not be needed. To change this behavior, the client brought in a consultant from the UK, who she knew from partnering courses, to hold a workshop for key members on framework and project management levels about financial issues. The result was that many fears and concerns were sorted out, enabling a more constructive collaboration.

The start-up time for a project has been shortened as the parties have got to know each other and developed a clear structure for communication processes. The system of meetings is similar between projects, and there have also been serial effects in production. However, although there were gradual improvements right from the start, the full potential became visible only after 3-4 projects, or 1 ½ -2 years. According to the contractor, it took that time for all participants to fully realize that the client has only a certain amount of money available for the project and that everybody benefits from collaborating and helping each other out. It has been easy to build trust also between subcontractors and consultants. An indication of the collaborative spirit, mentioned by the client, is that the construction sites are exceptionally clean as different trades take care of each other's waste.

Over time, there have also been significant developments in joint design and planning. The client has actively encouraged the contractor to adopt new practices and the Telge contract has on several occasions acted as a pilot case for NCC in applying and refining new company processes. A new form of design meeting, where a larger group meets during an entire day and work jointly to develop the product, has been implemented. Visual planning involving all parties in developing schedules is also used, and meeting minutes are visualized by color coding. Telge and NCC jointly produce a newsletter to communicate more widely.

The quality management system of NCC is ISO certified, requiring that follow-up reports are produced for all projects. A follow-up meeting with the client is then included. NCC also has a partnering performance index to measure how the relationship evolves, showing that the relationship with Telge has been smooth and good over time. A questionnaire has revealed that consultants are also very satisfied with the collaboration.

All funding to the framework collaboration is granted on a project by project basis. Thus, there are no financial resources to support more long term joint development. According to the contractor's contract manager it could be an advantage to have such resources, but he also says that the construction industry is used to work in projects and that it works quite well to include a sum for development work when setting the target cost for each project. In terms of internal development functions, NCC has several framework agreements of this type but there is no meta-organization to share experiences and develop ways of working between individual frameworks.

Effects

The parties agree that there have been clear effects on costs, time and quality by using a framework approach. Time effects are easiest to measure and compare, and the total project time from idea and political decision to the delivery of a finished building has been shortened by an entire year. For example, the completion time was reduced by 40% in the fourth nursery school compared to the third. By gaining an increased knowledge of the whole process, including the municipal decision process, the parties have jointly designed the project process backwards: if a building should be ready to use at a certain date, which documents need to be produced at what time to feed efficiently into the municipal planning and decision processes?

Cost effects are also clear but more difficult to measure and compare. This is because costs are dependent on building quality and other situational variables. In Södertälje municipality, construction costs are prominent on the agenda and politicians have been concerned that the absence of project level cost competition in the framework agreement would lead to higher costs. Thus, Telge Fastigheter has recently been required to present an analysis of how their costs compare with those of other municipalities. The results showed that the investment costs per square meter or per child/pupil were comparable with those of other municipalities and private providers of education, but that the quality of the Telge buildings is significantly higher, also leading to lower operational costs. For example, new and refurbished schools built by Telge should fulfill Swedish Green Building Council requirements of 25% lower energy consumption than stipulated in the national building regulations, but do not cost more than a building that only fulfills the basic requirements. Other additional qualities include durable materials requiring less maintenance, open and flexible learning spaces, kitchen facilities and outdoor areas that support pedagogical goals. Since all these qualities originate in political decisions, it has been important for Telge Fastigheter to state the relationship between municipal policy for education, food, environment, etc. and the costs of building. In general, politicians were satisfied with the analysis and reassured regarding the commercial viability of the concept.

The parties have jointly identified a number of areas for continuous improvement, and one of them concerns the relationship to the municipal agencies. The client would like

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to establish a better collaboration with the user functions, such as those with a pedagogical competence, in designing buildings that save money for the operational municipal activities they ultimately serve.

Competence, attitude and work environment

Many key competences relate to teamwork and are similar for contractors and clients. Before establishing the framework agreement, Telge Fastigheter sent all their project managers to partnering courses. NCC has an internal training program in partnering which most of their personnel employed in this contract have attended.

As for specific client competences, the contractor's contract manager emphasizes that it is important that client representatives are willing to develop their own competences and ways of working together with the suppliers. Collaboration also benefits client representatives as individuals: their work becomes more creative as they get more influence in design and construction. He is involved in five steering groups and sees great differences in commitment and work satisfaction between client representatives in the two partnering relationships compared to the clients in the more traditional contracts. The client as well reports that work satisfaction is now much higher among their own personnel, but also says that this way of working in fact requires less client resources. Client project managers can run more contracts when they can trust the contractors to assume responsibility for project costs and quality.

Regarding key contractor competences, both parties especially mentioned alertness, responsiveness and initiative. The contractor has to be active in listening to client needs, learning about the user functions and driving development. In this respect, the client perceives a considerable difference between the NCC contract and the Skanska contract, in which projects have been satisfactory in terms of costs and quality but there has been much less joint process development.

Advantages and drivers for strategic partnerships

In the material presented to the Södertälje politicians, Telge Fastigheter highlights the following advantages:

- Quicker project start up: saves time when contractors do not have to be procured for each project.
- More efficient process saves both time and money.
- Better use of project competences – all parties engage in identifying opportunities to save costs.

- Knowledge of which aspects drive costs provides a better basis for decisions in early phases and reduced budget uncertainty.
- May benefit from contractor's discounts on materials.
- More satisfied employees.

Further, Telge collaborates with the tax authorities to ensure that suppliers have paid their taxes, and this control is also easier with a framework agreement involving a limited group of suppliers.

For NCC as a commercial actor the advantages are that they get a more substantial volume of work in one contract, that risk is lower and that profit is more predictable. Another aspect is that the contract supports a safety culture. As NCC designs the product in collaboration with the client and consultants they may influence building designs so that production processes reduce accident risks.

General development on a national level

According to both interviewees, long term, strategic partnerships are becoming more common but the development is not comparable to the increases in project partnering in recent years. In Stockholm, NCC's building division has 90% of their turnover in partnering projects, and in Göteborg the proportion is 60%. According to NCC, there are several clients that use project partnering regularly but hesitate to take the step to strategic partnering although this would often provide more value for money.

The first framework agreement of this type was a contract for schools in the municipality of Staffanstorp while Telge Fastigheter is the second. NCC has three other ongoing framework contracts: one for low energy nursery schools in Huddinge, another municipality in the Stockholm region, one for nursery schools in Varberg municipality on the Swedish west coast and one for elderly care buildings in the municipality of Örebro in the middle of Sweden. Contracts in the Stockholm Region with other contractors than NCC are Lidingö municipality and SISAB, the company that manages school property.

CASE E&P service

Over the last few years, E&P service has developed a model for managing service partnerships for exterior maintenance of buildings. Most of their customers have been real estate functions in municipalities, but recently contracts have been signed also with private companies.

Background

The Danish contractor company Enemærke og Petersen (E&P) established a service division around six years ago, primarily to provide services to buildings that they renovated for clients. A couple of years later E&P bought two smaller firms which provided services to public social housing corporation. In 2011, these units were merged to form an independent subsidiary focused on providing building works for exterior maintenance. Today, the annual turnover is DKK 100 million and E&P services employs 130 craftsmen and 30 white collar workers located at two offices in Glostrup and Aarhus. The vast majority of their contracts are individual commissions but within informal long term customer relationships. These commissions are small and therefore seldom put out for competitive tendering neither by private nor by public clients. There is also much work for insurance companies.

The last 1 ½ years, it has however become more common that both municipalities and private real estate owners in Denmark establish strategic partnerships with suppliers for maintenance work. E&P service has been a pioneer in developing models for such strategic maintenance partnerships, and now has contracts with three municipalities: Rudersdal (MDKK15-20/year), Hørsholm (MDKK5-10/year) and Næstved (test phase with pilot project). These contracts are generally for 2-3 years plus an option of one year, and procured in a public procurement process where price and soft criteria are weighted 50/50. Price is generally evaluated based on hourly rates for different categories of personnel, while the information used to assess soft criteria include organization (CV's and references) and descriptions of how the task will be solved and what a partnership implies. There are also tender presentations. In Hørsholm, for example, E&P got the contract despite that they were second on price. Within Denmark as a whole, there are 3-4 other municipal contracts with other contractors.

The Rudersdal contract and the service portal

The model that E&P has for managing service partnerships is unique and differentiates them from their competitors. It was developed within their first contract of this type: a contract for the municipality of Rudersdal signed in 2009. At this time E&P had no experience from partnerships and was not aware that the client expected the contractor to take part in their planning process. Thus, E&P started out by passively waiting for the client to request the work to be done. At first, activity was low but after a year and a half the client started to order projects in so large numbers that E&P could not handle all the work. It was clear that something had to be done, and a development group was set up to create a process to plan the work and provide for a more efficient delivery. A key person in this work was Mogens Kornbo, who was the real estate manager of Rudersdal municipality and initiator of the contract, but also the head of Dansk Facilities Management. He helped to develop the service culture of

E&P. The development group comprised 10-15 members from both the municipality and E&P, and they put much effort in defining how the service provider could act as an integrated part of the customer organization. One response was to establish a call center and ensure that E&P could be reached at all times. A workshop further resulted in the development of an online service portal where all municipal facilities were listed with their maintenance needs and who was responsible at both the municipality and at E&P. The portal made it possible to get an overview of the total maintenance needs and plan the work more efficiently.

The Rudersdal contract was for 2 years plus an option of one year. When it ended there was a pause, as Mogens Kornbo left the municipality and was succeeded by another manager, but recently E&P won the tender for a second agreement.

The contract with ATP Ejendomme

The partnership with ATP Ejendomme is the first formal partnership with a private client (although ATP is in fact semi-public). The background to the contract was that the E&P building division had constructed an office building for ATP and then presented the service portal concept developed with Rudersdal municipality for them. ATP owns around 500,000 m² of buildings, primarily offices. The real estate management is organized as a central management unit and a number of local units, each responsible for a geographical area. Before the partnership with E&P, maintenance work was handled by the local units but decided and financed centrally. This process required much management resources from ATP, especially on the local level, and also involved a great number of suppliers of maintenance work.

The contract with ATP Ejendomme was signed in 2012, and is for one year but intended to be prolonged. It comprises external maintenance work for the premises on Sjælland and Fyn (Jylland is further away and not included, partly because the ATP premises there are newer and do not need the same level of maintenance). Small, day-to-day operations and indoor work is still the responsibility of the local units. E&P also carries out ad hoc maintenance and sometimes also interior work for tenants, although this is outside the arrangement with ATP. Architects and other consultants are seldom involved in this type of work, and there is little subcontracting.

The service partnership includes that E&P, together with the local units, makes an annual inventory of all work that needs to be carried out, prioritizes between needs and suggest a list of projects to the central ATP unit, which makes the formal decision. ATP is semi-public, and in their directives it is stated that all construction work should be procured by competitive tendering. Thus, E&P bundles the projects into larger packages based on geography or type of work and prepares all the documentation to tender these packages. The total annual maintenance need is between DKK 10-20 million,

divided into around 10 packages. Each package is priced by E&P and a competitor in a tendering process run by ATP centrally. E&P secures around 50% of the contracts, but also manages the contracts won by competitors for a percentage fee.

According to E&P, advantages for ATP are that they get a better overview over the entire maintenance expenditure and that less administration is required at both central and local levels. The local units may therefore focus more on their relationship to the tenants. The partnership also delivers better quality and provides a better service to tenants than conventional contracts. ATP measures customer complaints, and these are fewer for work that is carried out within the partnership. There is also a general perception that the customer gets more work for the same money, but this is hard to measure. The bundling of similar work clearly allows both for repetition effects in production and lower prices for material. Another advantage is that the customer gains access to competence and resources of the whole E&P construction business.

Organization and competence aspects

E&P has developed a general set of values and a process to govern their service partnerships. The values include “being a professional guest”, “communicate in a professional manner”, and “everyone has 100% knowledge of the task”. The shift from a project culture to a service culture implies that both blue and white collar workers need to develop new competences and attitudes. To emphasize this change, employees have been given new titles that are associated with a service context. Examples are relationship manager, service workers and service leaders.

There is a very high focus on communication with tenants and local client property management staff. Craftsmen are grouped according to sites and areas and E&P provides them with training to become skilled in multiple trades, thereby reducing the number of people involved in each project. Craftsmen are also trained and coached in communication skills and should be able to communicate by email and to handle IT tools in general. It is not only communication with customers that is important, but also that E&P personnel working on the same site share information.

In initial phases, the process is different for private and public customers. With private customers, there is relationship building that starts before the contract is signed and often pilot projects. In the public sector, a tender is put together and a tender presentation is held. In both cases, the relationship manager Rasmus Karkov is strongly involved in the start-up phase.

For each contract, a service team is established, consisting of a service leader, 1-2 foremen and one or more groups of craftsmen. A steering group representing the management level is set up. In Hørsholm, for example, the steering group consists of the client’s

real estate manager and maintenance manager and Rasmus Karkov. Further, there is a planning group including the maintenance manager, the E&P service leader and back-office representative and representatives of various user/tenants, altogether around 10 persons.

A start-up workshop is held with key representatives from the client and E&P. Participants present themselves, formulate the expectations they have for the relationship and discuss how they should handle examples of key situations. The process is outlined and general roles and responsibilities of individuals are defined. A client-specific service portal is established and the work jointly planned. During the contract period improvements are discussed in regular status meetings. There are also meetings with local unit managers every 1-3 months.

Within E&P, internal production meetings with all service leaders (10 in total) are held to coordinate resources. One problem is that it is difficult to achieve an even workload over the year. E&P has not enough work in Jan-March and too much in summer. One reason is that external maintenance is less suitable to perform in wintertime, but there are other causes. Municipalities receive their budget in March/April and there is therefore little work in Jan-March. In ATP the plans come in December, but the E&P organization is then too busy finishing the previous year's work to plan tenders for new projects. The implication is that some craftsmen have to be laid off in wintertime, which reduces continuity and motivation. E&P plans to specifically target customers that carry out work in wintertime, such as Legoland and Tivoli, but also sees a need to be better at planning.

Other potentials for improvement are associated with communication: to warn tenants in due time, start and finish work as planned, be accessible and provide feedback. The conflicts in establishing service partnerships relate primarily to the loss of work for real estate units in the client organizations, which may lead to layoffs, and for smaller local contractors who carry out maintenance work for municipalities.

Other contracts

E&P has recently secured a fully private client for a service partnership. The contract is with IKEA and concerns kitchen installations over the whole of Denmark. IKEA sells 25-30.000 kitchens each year and installs 5-10% of them. This is a different service relationship, involving a great number of short service relationships with private customers as well as a long term relationship with IKEA.

In the Danish market, there are also partnerships for both soft and hard Facilities Management (FM) services, but these contracts are different and often based on service level agreements and performance requirements. One large private real estate owner

which is now in the process of developing a long term strategic partnership is Siemens, who owns around 500,000 m2. However, they will bundle maintenance with hard FM services (energy management, etc.) in a first step and later also with soft FM services. E&P service partners with another supplier to bid on the hard services in this contract and with still another to be able to bid also on soft services. Notably, the initiator at Siemens is Mogens Kornbo, who moved to Siemens from Rudersdal.

CASE **Globechem**

Globechem (codename) is a global manufacturer of chemical products. In Sweden, Globechem employs more than 5000 persons. There are two sites in different parts of Sweden. In spring 2013, Globechem Sweden signed strategic partnering contracts with three suppliers: one for design, one for construction work and one for M&E work. The total annual procurement volume is 900 MSEK. Design stands for 20%, construction for 30% and M&E for 50%. The contracts cover investment projects for both sites during a period of three years, with a 2 year prolongation option. There is a separate contract with another supplier for maintenance and facilities management.

Background and drivers

Globechem operates in a competitive industry and works hard to cut costs in all areas, including premises. To reduce direct construction costs is however only one of several motives for establishing a strategic partnering relationship. Other reasons are related to service quality, cost certainty and increasing general requirements to limit commercial and reputation risks. Globechem has a global process for supplier management, and construction-related suppliers are listed on the high risk end in all countries. Globechem in Sweden used to have more than 100 regular suppliers in the construction area, a number that has to be significantly reduced in order to conform to stricter company rules for limiting supplier-related risks.

The industry is heavy regulated with very specific requirement for facilities. Also, the construction organization has to be able to respond swiftly to changing needs in the core business. Thus, there are several advantages relating to service quality that makes it valuable for Globechem to have suppliers that are familiar with their needs and processes.

When procuring construction work, Globechem has previously used primarily general contracts and trades contracting, often in combination with cost reimbursable pricing methods. There has been very little contractor involvement in design phase and no control over their subcontractors. Although many suppliers were recurrent, relationships were not formalized and each contract was procured separately. In the design area, Globechem has had long-term, informal relationships with individuals at different

companies who over time have got to know the processes and needs of Globechem well. In general, project managers have run projects much according to their individual preferences.

Globechem has a general stage-gate process for projects, where project managers apply for funding in several steps. To have a high certainty in early cost estimations is very valuable, and Globechem has experienced that traditional procurement methods very often resulted in cost increases compared to initial estimates. An important intention in establishing a strategic partnering arrangement is that the contractor and the client will collaborate to produce reliable cost estimations, improve value for money and keep costs within budget. Further, since construction is not their core business, Globechem wants to work closely with the suppliers in improving project processes on both sides to ultimately become a joint process. Thereby, the delivery process will be also more uniform between projects. Additionally, a long-term relationship is expected to lead to increased predictability through reduced market dependence and stable price levels.

Initiation and procurement

Globechem decided to establish a formalized strategic partnering relationship with one or several suppliers to deliver the whole range of construction services. Important for this decision was that the responsible purchasing manager at Globechem had previously worked as a purchasing manager in construction company and was familiar with partnership design and processes. In order to overcome internal resistance to the change, Globechem consulted suppliers, other clients and academics to gain legitimacy and collect input on aspects such as how to divide contracts. Since no suppliers had all required competences, it was decided to contract with three different suppliers for design services, construction services and M&E services.

Globechem thought that the annual contract volume would be large enough to be attractive to potential suppliers. A formalized procurement process was organized, and ten suppliers submitted tenders. The input required included a written part, oral presentations and questions sessions. Key individuals were important and CVs and references for these were provided, but there were no interviews. Globechem found the written parts overall impressive, but also that oral tender presentations often revealed shortcomings and inconsistencies. For example, attitudes to partnering were in one case quite different on the managerial and operational levels. Candidates should have experience from strategic partnering and have in-house competence to serve both sites. Both these criteria turned out to be hard to meet: suppliers were generally strong in some competences and weak in others, and competences also varied between the two regions. Since consortia involving several companies could not be accepted by the Globechem management system, some compromises were necessary. To Globechem, it was further important to find suppliers that were similar to them in terms of manage-

ment systems and ethical codes of conduct in areas such as health and safety and tax evasion. Thus, three suppliers were contracted, all of them major companies within their fields. For the construction contractor, the primary contract is the unit that handles smaller construction projects, while other units will be brought in to perform the larger projects.

Financial arrangements

With each supplier, there is a 3-year contract with a 2-year prolongation option. The basic principle is that contracts should be based on net costs, and that hourly rates should be fixed over the three years to reduce cost variations due to market fluctuations. For consultants as well as contractors net hourly prices have been agreed for different categories of personnel. For construction materials, a purchasing plan is developed and the contractor is compensated for verified costs according to the plan plus an additional fee. Globechem will benchmark suppliers based on cost data, and the contract allows them to purchase from other suppliers if costs are not competitive.

Pricing arrangements will differ between projects. Due to the strict budgeting process that Globechem has, cost need to be fixed early and it is hard to get approval for extra funding. Thus, incentive arrangements are difficult and probably cost plus pricing with a ceiling will be used in most cases.

Subcontractors

Although the aim is that subcontractors should be avoided, there are a few areas (for example painting) where this has been necessary. Then, the strategic suppliers have signed the same type of contracts with their subcontractors as Globechem has with them.

There are also social requirements, where all suppliers are obliged to follow standards for responsible procurement. Independent audits are performed of selected subcontractors by an external firm.

Contract management and continuous improvements

A model has been established to manage the partnership based on three levels: strategic, tactical and operational. Much of the development work will be done on the tactical level (comprising both sites), such as following up performance indicators and making decisions about process changes. This is a difference compared to the traditional model for managing construction projects, where all supplier control and development activities took place on the operational level.

The intention has been to break with traditional roles and signal that the suppliers are part of the client organization. An important requirement was that each supplier company should have one manager placed at each site. These managers are co-located with the client staff and participate in the FM department meetings.

Two-day workshops have been held at the tactical level at both sites to develop implementation plans. These have been facilitated by an external consultant, but implementation leaders will be internal. The project processes are to be developed jointly by Globechem and the partners. The collaboration will be built on lean principles, which are implemented in Globechem core business processes.

Challenges

For design work, it is a challenge to break the relationships with individuals and contract with firms instead. This means that there is a risk that all the strict requirements for cleanliness, etc. will not be fulfilled. However, it is also found risky to rely on individuals, especially since many of the existing partners are approaching retirement.

The internal change process has been the most difficult. Project managers are used to lead and allocate work, while contractors are used to receive drawings and specifications to guide their work. Thus, a cultural change is required from both sides. The Globechem project managers have had different attitudes towards the strategic partnership. In the beginning most of them were suspicious and over time they have taken up the idea to varying degrees. Today, some are very committed while others still have their doubts. An effect that is visible already is that project managers are beginning to work more similarly.

ANALYSIS

The cases fall within two categories: industrialized building and service-oriented partnerships. In the cases of industrialized building included in this study, the advantages of repetition relate to the same design platform being used in sufficiently large numbers for the increased efficiency to outweigh investments costs, and the long term collaborative processes occur within the supply chain and do not include the client side. In service-oriented partnerships, the advantages arise as the service provider over time accumulates knowledge about the client organization that allows them to contribute with their own knowledge in pursuing customer goals. In this analysis, the two types of cases will first be dealt with separately before being discussed more generally. The themes in focus are “Drivers and focus”, and “Enablers and competences”. The analysis is summarized in table 2 below.

Case type	Drivers	Enablers and competences
Industrialized building	<p>Clients</p> <ul style="list-style-type: none"> • Low costs to serve societal needs <p>Contractors</p> <ul style="list-style-type: none"> • Business opportunity 	<p>Clients</p> <ul style="list-style-type: none"> • Knowledge of client and tenant preferences, competences and restrictions • Knowledge of supplier competences available on the market. • Predictable or guaranteed contract volumes. <p>Contractors</p> <ul style="list-style-type: none"> • Knowledge of tenant and client preferences • Capabilities to integrate and drive development jointly with suppliers, logistics, etc.
Service-oriented partnerships	<p>Clients</p> <ul style="list-style-type: none"> • Cost and time reductions through repetition effects • Lower procurement costs • Better quality • More value for money and more reliable cost estimates • Increased flexibility • Reduced client resources • Better service to tenants (flexibility, responsiveness, communication, etc.) • Better control of suppliers <p>Contractors</p> <ul style="list-style-type: none"> • Higher volume in one contract • Reduced risk • More predictable profit • Both • Better working climate • More interesting work 	<ul style="list-style-type: none"> • Attitudes and culture that favor collaboration and learning • Formalized processes for relationship building and continuous improvement • Appropriate financial arrangements • Active and responsive supplier • Knowledge to design contract and collaborative model • Resources to manage relationship

Table 2: Case summary

Industrialized building

Over the years, many contractors and manufacturers have invested in developing standard platforms for residential building based on varying levels of pre-fabrication. However, while standard single family housing has been successful on the consumer market, initiatives for multifamily buildings have often failed to produce significant cost savings and attract high interest among customers. The two parallel cases in this study, KAB AlmenBolig+ and SABO Kombohus, nicely illustrate both opportunities and potential pitfalls associated with framework contracts for industrialized building, especially from a client perspective.

Drivers and focus

In industrialized building, the costs and time for production may be reduced by learning effects as the same processes are repeated over and over again. Further, shifting from site production to pre-fabrication means that quality risks are reduced and larger volumes may lead to economies of scale when purchasing materials and components. All these aspects have been important in the two cases, and the focus on cost reduction is stronger than for the service-oriented partnerships. The clients' goals are to produce housing at a price that potential customers can pay. However, in neither case is a low cost achieved at the expense of quality, and in the Danish scheme also architecture has been paramount.

It is interesting that innovation in both cases is driven by non-profit organizations with small economic interest in the business activities resulting from the framework. Rather, the motivation is to provide a solution to an important societal problem. Also, it is in the interest of SABO and KAB as organizations to be able to respond to the needs of their members.

Enablers and competences

Both cases point at the importance of designing a holistic business model that encompasses not only the supply side companies but the whole value chain from end user to manufacturer. In the case of multifamily residential building for rent, this chain involves both municipal housing companies and non-profit service organizations established to unite and support these companies.

Essential requirements for success are that the scheme matches the supplier competences available on the market and also represents an attractive business opportunity for them. For example, the first framework agreement announced by Telge Fastigheter for platform-based nursery schools nearly failed since none of the tenders fulfilled the user requirements. In the case of the framework agreement announced by the Danish Ministry of Social Affairs, potential contractors perceived the risk as too high and no contract could be signed. When KAB developed their concept, they had this failure in mind and were careful to present an estimated contract volume that the suppliers could trust. For SABO as well, it was central to assure potential suppliers that there would be enough procuring clients. Another measure taken by KAB was to specifically invite foreign suppliers. Particularly in the Swedish case, it was a great advantage that also smaller contractors could be competitive. The second SABO framework for multistory building was more dependent on the participation of the larger contractors, but this time the customer interest was already proved by the success of the first.

However, in both cases the ability to attain economies of scale relied on a careful analysis of customer needs and preferences. As for AlmenBolig+, KAB designed a concept

that would be attractive to precisely the customer segment they targeted and combined it with a management support adapted to the needs of housing association clients. SABO not only developed a framework that would deliver the kind of buildings that their members needed the most, but also a web-based tool that enables potential clients to produce a feasibility study in just one day. Without this service, much fewer inexperienced clients would have taken the step to make use of the framework. Predictability in design and costs combined with tailor-made process support thus turned out to be a very powerful combination in overcoming resistance on client and municipal levels. In effect, bundling of demand to a considerable extent depended on possibilities to reduce transaction costs and general perceptions of uncertainty on the customer side. Thus, key client side competences relate to the ability to design a model that is attractive to both suppliers and customers and reduces not only production costs but also transaction costs.

As for suppliers, industrialized building requires capabilities in areas such as process management and continuous improvement, purchasing and supply chain management. This transition from a project focus to a process orientation seems straightforward but may be difficult to implement in practice in a contractor company. Further, the strategy of JSB to start by analysing the market: "Who are the prospective customers and what do they want?" *before* developing the product turned out to be surprisingly unusual. This approach resulted in a design that by far outperformed those of the competitors. Other unconventional aspects regarded the division of labor and responsibility between manufacturers and site-based contractors. This indicates that the core supplier competence is in fact cultural – that the JSB owner comes from the customer side may be more fundamental than any other firm characteristic in explaining their success.

General comments

The two cases in this study however represent only one category of product-based repetition. There are many long-term partnerships between regular clients of standardized buildings and contractors, where intermediaries are not needed. In Sweden, McDonalds had one such relationship for building similar restaurants, and the Swedish Post had a contract to refurbish a series of post offices. In the UK, Tesco operates in this way. The cases in this study are more complex in terms of stakeholders and the products are more universal (and not tailor-made for a specific client).

Another aspect worth mentioning is the role of timing. Framework agreements that require contractors to put effort into developing new concepts are likely to be more attractive when demand is relatively low, which has been the case for the two frameworks in this study. Further, the optimal length of a framework could be discussed. A period of four years does not seem to be a big problem in these cases. The KAB case shows that it may be an advantage to have more frameworks if diversity in design is an issue.

A limited length also allows for successively raised requirements, following general developments in technology and learning effects. The cases indicate that the economies of scale reach a certain level and that further increases in volume might not bring much additional value.

Strategic service-oriented partnerships

The category of strategic service-oriented partnerships involves three cases: Telge Fastigheter, E&P service and Globechem. Client drivers in these cases are typically a mixture of motives relating to access to resources, control and cost reductions. Repetition effects are achieved by performing similar tasks several times, but also in the form of the increased knowledge that the parties successively develop of each other's needs, capabilities and processes.

Drivers

In these relationships, clients are looking for a partner that can complement their own organization much in the same way as an in-house supplier unit. Globechem wants a supplier representative to be co-located with the client to feel part of the organization and the E&P teams are related to particular buildings and clients. Such seamless integration allows clients to focus less on specifying and controlling supplier performance and more on the relationships to their own tenants and users. For both Telge Fastigheter and Globechem it is an important advantage to have partners who are able and willing to adapt their own processes to the strict and lengthy decision-processes of the client core business. Ultimately, suppliers may add value to the customer in ways that would have been difficult for the customers themselves to anticipate and specify in advance.

A service partnership thus presents an opportunity for clients to influence supplier processes and develop their competences to fit the client's needs. Telge municipality uses lean principles to drive improvement work and actively pushes supplier development. Lean methods are also used in Globechem, and for E&P it was a customer who initiated the development of the service model that the supplier now markets to other customers. Thus, such client push is often of considerable value for suppliers.

Other drivers relate to access to resources more generally. Traditional lump sum contracts are often less attractive to contractors, especially in the public sector. A partnership then becomes a way for the client to secure construction competence and be able to influence which individuals from the contractors that will be involved. The client function may then respond more swiftly to changing needs of the core business than when using traditional contracts. As suppliers become familiar with client processes, the client may also handle more projects with the same staff.

The increasing importance of supplier control following from ethical codes of conduct is another important driver for some clients to reduce their supplier base. In the Glo-bechem case, this was one of the factors that triggered the establishment of a strategic partnering relationship in the first place. Telge Fastigheter as a municipal client has similar obligations.

Cost reductions are important also in service partnerships but are often difficult to measure, especially in non-standard service-related tasks such as those of E&P. However, the comparisons performed by Telge Fastigheter of relatively standard buildings (nursery schools and schools) show that their partnership performs well in terms of costs – the municipality receives significantly better quality for the same money than comparable clients do. More straight-forward cost-related drivers are that the client pays only net prices for material and that the bundling of several contracts may increase purchasing volumes. Further, cost certainty is often valuable in itself. A partnership provides the client with a more reliable cost estimate in early phases, since the contractor has more knowledge of the factors driving costs and also because the parties may collaborate to ensure that the budget is not exceeded.

For the contractor, the drivers are related to lower transaction costs by the higher volume of work in each contract, reduced risk and more certain profit. NCC further mention advantages in worker safety. As already mentioned, it is also obvious that partnerships provide opportunities for learning and competence development for both parties, for the organization as well as for individuals. This may impact on employee turnover and health. However, especially for a contractor a partnership may be more demanding than traditional contracts where the contractor role is more reactive.

Enablers and competences

The key success factors in a service-oriented partnership are strongly related to individual behavior and company culture. Parties need to focus on continuous joint improvement, which requires initiative and mutual respect. A contractor has to be active and responsive to the client's needs, and the client has to refrain from their traditional role to give orders and control and instead begin to trust and support contractors. For example it is important to plan work so that the contractor has an even workflow. Thus, cultural change is often needed on both sides. In E&P service the transition from a product focus to a service focus is manifested by new titles relating to service management, and craftsmen are trained in communication.

As the parties interact repeatedly, suppliers gradually increase their ability to combine their own specialist knowledge with their growing knowledge of customer needs and processes to help the client to attain their goals. Such client-related knowledge constitutes an important pre-requisite for trust. However, it is only when the supplier is

perceived to have both the competence to act in the client's interests and the motivation to do so that clients refrain from their traditional controlling role. Thus, while relationship management is one key factor to enhance supplier motivation, it is also important that the financial model does not counteract collaboration. Then, transparency and a sound risk allocation are fundamental ingredients. Further, financial bonuses are used by Telge Fastigheter for the construction stage, but then related to performance in multiple areas and not only to costs. A fixed part in their project contracts provides an additional incentive to the contractor to keep cost down.

It may also be important that the contractor possesses specialist functions relating to for example environment. This implies that large contractors have an advantage before small and middle-sized companies that lack this kind of resources. This applies also to the service partnerships of E&P service, which is part of a large company.

Finally, the results indicate that formalization is an important enabler in itself. Interestingly, previous informal partners were not competitive either in the Telge case or in the Globechem case. E&P service also has a tradition of informal relationships involving recurrent contracts for the same clients, but this did not help them to meet the client's expectations in their first formal partnership. Formalization introduces a longer term perspective on the relationship, and this provides an incentive for investing in the relationship by spending time to learn about each other. A formal partnership involves explicit and planned processes for relationship building, joint development work and performance appraisal, activities that are seldom part of informal long-term relationships. In the tendering process many aspects that are never discussed in an informal relationship will be clarified. For example, suppliers are compared in terms of their competence, systems and attitudes. It may be noted that there is no big difference in the level of formalization between the private client Globechem and the public clients in this respect.

General comments

An important but somewhat underdeveloped area seems to be resources for relationship management on a meta-level. Although there are framework-level steering groups that extend individual projects, financial resources related to this level seem to be small. On the client side there is a permanent organization, but contractor involvement is primarily tied to the project level. This means that all development work has to be carried out within projects and that opportunities to for example use a period with low activity to invest in developing new systems are limited. However, to establish development resources outside projects is a challenge in both municipalities and private companies where there are strict procedures for allocating funding.

Both clients and contractors would further benefit from sharing experiences with other frameworks. For actors that are involved in several frameworks it makes sense to establish an overall partnership management unit. E&P has a small organization that has this kind of approach and Globechem also has a global level for supplier management, but not NCC. Clients that have only one construction-related partnership, such as Telge Fastigheter, will need to benchmark and exchange experiences with other clients.

Regarding the optimal length of relationships, the service-oriented partnerships are different from the frameworks for industrialized building. Here, significant investments are made during the procurement phase, and processes and knowledge need to be jointly developed before the relationships begin to be really productive. Also, the investments are mutual while in industrialized building client and supplier development processes are separated. Both parties are therefore likely to have an interest in prolonging a successful relationship. In the public sector, the limit of four years may then be seen as too restrictive, although both the E&P partnerships and the Globechem partnership are shorter than this.

The ProCure21 frameworks

At the second workshop in this project, a UK framework for strategic long term collaboration was presented. ProCure21 and its successor Procure 21+, are frameworks comprising six supply chains for hospitals and other health care buildings, established by the UK Department of Health. After a mini-competition, local health care clients may use the framework to set up a collaborative relationship with a supply chain in an early phase of a project. The framework is combined with common systems and processes for performance management and there is mandatory training for the local clients prior to a project. There is also collection and sharing of information across projects and supply chains, leading to standardization of materials, products and components. The frameworks have been very successful in terms of cost savings, shortening pre-construction time, innovation and lower life cycle costs. The second ProCure21 scheme has successfully argued for a duration of six years, due to the significant costs for setting up the scheme.

A note on theory

Viewing the empirical findings in the light of the theoretical framework outlined in Appendix A it is obvious that there are many types of relationships in the construction industry with different properties. Increased integration may occur in one end of the value chain but not in the other, and this for good reason. Depending on the focus of the relationship, different theoretical perspectives are more or less relevant to understanding the cases. In the analysis, it has been noted that minimizing transactions costs may

be an important enabler, that reciprocal resource interdependence in complex decision processes may drive collaboration, that access to resources is also important, and that joint learning is a core aspect especially of service oriented relationships. Transaction cost theory, contingency theory and resource dependency theory may help us understand which types of relationships that may develop between different actors in the value chain, while theories related to learning, knowledge sharing and organizational behavior are useful in helping us to make the most of the close relationships that develop.

CONCLUSIONS AND FUTURE DIRECTIONS

This study clearly shows that strategic long term collaboration has a legitimate place in the construction industry and that the potential is far from fully used. However, it is also important to state that a successful application requires significant knowledge, resources and commitment, especially on the client side.

The cases within industrialized building for multifamily housing demonstrate that a deep knowledge of customer needs, restrictions and capabilities is a key requirement for success. In a market where customers are non-professional it may be difficult for suppliers to bridge this barrier by themselves, partly due to legitimacy problems. The cases thus indicate that there may be a need for a sophisticated intermediary, such as SABO and KAB, to interpret consumer needs, translate them into a concept and complement it with a support system in order to establish a viable industry-level business model. This may be especially important in a public context governed by procurement regulations. Clearly, the most important innovative approaches in the cases relate to the demand side.

As for service-oriented partnerships, it is crucial that both parties recognize that these are fundamentally different from traditional informal long-term relationships. Formalized relationship building, collaborative processes and performance measurement are essential, not only to create trust and drive continuous improvement but also to legitimize the relationship. However, far from all clients have the internal competences that are required to set up and manage this type of collaboration. Future development thus strongly depends on access to knowledge from external sources such as consultants, courses and guidelines. In the past, Denmark has relied on knowledge and models from the UK and Swedish clients have been able to benefit from both UK and Danish experiences. However, as discussed in the second workshop, more organized efforts could be made to translate successful models and practices between national contexts. Both research environment and industry associations could then assume stronger roles in developing toolkits and organizing learning and benchmarking between countries and partnerships. This would contribute to reducing transaction costs and client uncertainty.

Interestingly, the Procure21 frameworks may be seen as a mixture of a service-oriented partnership as described in the cases of Telge Fastigheter, E&P Service and Globechem, where a contractor is engaged at an early stage to collaborate with the client in designing and constructing a building that meets project goals, and the KAB and SABO cases, where an intermediary sets up a framework that may be used by numerous local clients. In many situations, this type of national or regional framework involving the best supply chains, standard models for management and contracts as well as training for client representatives would be a useful delivery model for complex projects. The KAB and SABO cases show that the idea of a trustworthy intermediary – or a ministry – setting up a framework is not strange to the Swedish and Danish context. One could imagine national or regional frameworks not only for health care projects, but also for refurbishment of residential areas or for non-standard residential buildings. Procurement costs for collaborative projects would be reduced, the quality of the collaborative process ensured and learning between projects enhanced.

A general conclusion of this study is that it is highly valuable to exchange experiences between partnerships and also between national contexts, which this study is an example of, and that development in the fragmented construction industry is often more efficiently driven in collaboration than by individual companies. Such bundling of initiatives also constitutes a better basis for collaboration with research.

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APPENDIX A: FRAMEWORK FOR UNDERSTANDING LONG TERM STRATEGIC COLLABORATION

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The appendix summarizes different theoretical positions from organizational theory addressing the question of strategic long term collaboration. The purpose of this study has been to develop a framework for understanding and analyzing forms of collaboration and long term strategic relationship in the construction sector.

INTRODUCTION

Across industries, one of the most fundamental business decisions is “make” or “buy” – should production be internally in the firm or purchased from others. And if the decision is to “buy” - which supplier and relation to choose?

In order to make a business profitable, a firm will have to consider and balance multiple objectives:

- Reduce costs and achieve economies of Scale and Scope
- Ensure market penetration and position in national and foreign markets
- Get access to skills and technology
- Influence industry structure
- Reduce risk and uncertainty
- Get access to and manage financial assets
- Promote organizational Learning
- Understand customers and value creation
- Develop new business opportunities through new products and services
- Understanding the right timing for changes internally and externally

All of these objectives are significantly affected by the depth and nature of interaction a firm choose to have with it suppliers, customers and competitors. And consequently, shaping and choosing the right relations are one of the most crucial aspects of making firms and industries effective in the short and long run.

Within the last three to four decades, the issue of handling external relations has gained momentum. The increased importance of focusing on core competencies including the option of outsourcing, increased complexity in the final solutions and reduced time to market makes it increasingly difficult to rely on other full internal production. This in turn makes the actions of the previous or subsequent part of the value chain even more important. To bring the argument to the fore, competition today is between value chains rather than firms.

Within the construction industry, these considerations have had a certain flavor. Rather than being a question of the need to disintegrate, it has been a matter of allowing more integration in a fragmented and ad-hoc based value chain. However, the fundamental question is the same: how should I as a firm interact with the rest of the value chain of which I am very dependent?

As in other industries, particular focus has been given to the possibility of forming closer and more binding relations between independent companies. “Long term strategic collaboration” could be one term for such a relation (and will, as explained below, be the termed used here). The fundamental idea is that perhaps it is possible to have some of the qualities of repeated and rich interactions within the firm without losing the flexibility and competitiveness of the market.

The issue of how to integrate processes and motives along the value of the construction industry has been a recurrent theme within the Danish construction industry in the postwar period. And if one takes a view across innovation programs for construction in the neighbor countries of Denmark “integration and collaboration” is still considered a major theme.

Long term collaboration is in other words considered as one of the strategies by which efficiency and innovation can be propelled in the construction industry. And as the industry apparently not yet seems fully to have managed these challenges it is still worth to consider the potential of this development strategy. Here, more than twenty years after concepts such as partnering and framework agreements saw daylight it seems justified to ask the question: What have we learned from previous experience with long-term strategic collaboration and is its potential fully utilized today?

Questions of this reflective nature are perhaps always in place. However it seems in particular appropriate for us to ask it now. Not only because the subject hasn’t been analyzed for a while but also because we after a decade of constant growth more than ever need to find solutions that can improve efficiency and innovation without requiring substantial external investments.

Consequently, the purpose of this working paper is to develop a framework for understanding and analyzing forms of collaboration and long term strategic relationship in the construction sector.

Questions to the construction industry

- To what extent is the degree and character of collaboration with suppliers and customers a focus area companies within the construction sector work with strategically in order to optimize their revenue in a short and long term perspective?
- Which of the above mentioned reasons are especially important in choosing cooperation relations – is the motive for example primarily reduction in cost, access to knowledge or increased innovation?
- To what extent has the degree of collaboration changed in pace with changes of external conditions such as a higher product complexity or a need of getting faster to the market with new solutions?

What is a long term strategic collaboration?

In this section we encircle and define the concept of “long term strategic collaboration”. Firstly, we clarify how coordination and contracts are traditionally considered as a question of either short term interactions on the market or binding relations within the firm. Secondly, we introduce how long term strategic collaboration can be seen as one out of many examples of a growing interest for commitments that are more binding than the market but yet made between independent firms and we pin down some of the characteristics related to the concept. Thirdly we conclude the section by providing a definition for long term strategic collaboration in general as well as for the construction industry and finally we sketches the different subject matters for the collaboration.

Market and hierarchy

Strategic long term collaboration is a special kind of coordinating inter-organizational activities. Through the history the optimal organization and coordination of inter-organizational relationship between firms has been discussed concentrated on two opposites: The market and the hierarchy. Market and hierarchy can be perceived as two distinct coordination modes taking place either between two (or more) independent companies or solely within the company. ¹

1. Milgrom, P. and Roberts, J. (1992): Economic, Organization and Management, Prentice-Hall, New Jersey.

The strategic long term collaboration must be understood as a middle position “somewhere” in between the non-integration on the market and the full integration in the hierarchy. Even though the dichotomy between none or full integration does not leave room for the strategic long term collaboration, these two different poles are important to clarify in order to understand and define the concept.

The market: On the one side we have a liberal explanatory model of the coordination of economic activities that can be addressed back to Adam Smith’s theory of the invisible hand. Using common codified information (i.e., price), each agent makes up an independent decision based on his local knowledge of his own productive or consumption activity. Besides price, no information is transferred between agents and no further commitment than the one of single transaction is made. ² From this standpoint no integration between firms (or persons) are necessary. In the terminology of Hirschman, the market is based on an exit-strategy: “if it does not work, find another.” The argument for the market as the most optimal form of organizing is often related to the question of flexibility. The market ensures a high degree of flexibility, which gives the opportunity of choosing and changing partners according to the one having the most beneficial offer in a short term perspective.

The hierarchy: As a contrast, we find the logic of hierarchies – the full integration- as the most profitable way to coordinate activities. Here decisions are made by authority in which a central agent makes decisions on, and control of, subordinates’ behavior. This coordination mechanism is consequently based on the premise that the central agent has the capacity to handle the information required for directing (and monitoring) the behavior of subordinates. This interaction is usually based on the premise of an employment contract in which the employee within a rather wide set of conditions transfer decisions rights and manpower to the employer. From this standpoint the degree of integration between actors are very high. The argument for integration is based on the advantages of continuation. Continuation lowers the transaction cost, because of trustful relations and transferring of knowledge. Hirschman will term the strategy found in relation to integration as a voice-strategy (“if it does not work, let us find a solution”). This approach will both be represented in the full integration, but also in collaboration forms with a lower degree of integration.

The advantages and characteristics of respectively market and hierarchy can be summarized as follow:

2 Grandori, A. Governance Structure (1997), Coordination Mechanism and Cognitive Models, The Journal of Management and Governance, 1, pp. 29-47.

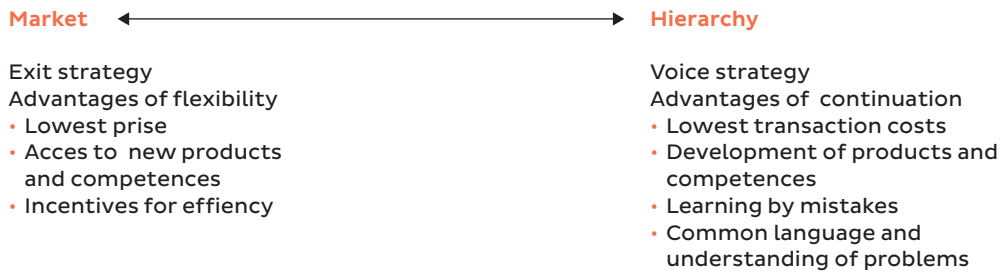


Figure 1: characteristics of market and hierarchy.³

From this we can derive that we on the one side have a view on the market as the organizing principle of the transaction between non-integrated units and on the other side the fully integrated unit. In between there are different variants combining the principles of the market with the principles of the hierarchy to different degrees. In general terms we can make the following distinction between different ways inter-organizational activities are coordinated going from the market to the hierarchy:

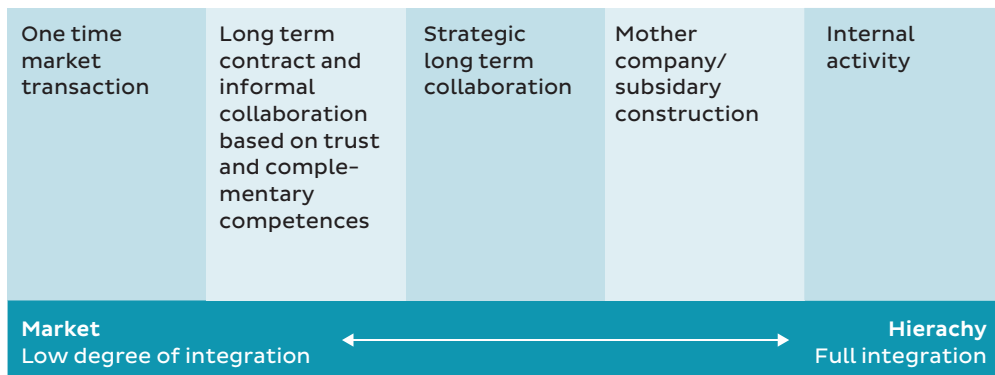


Figure 2: Forms of coordinating inter-organizational activities.⁴

The strategic long term collaboration places itself in between two poles. It is more than the one time exchange we find in the market and the traditional ad hoc collaboration or contractually based exchange between contractor and subcontractor but less than the full integration of inter-organizational activities and less than subsidiaries, mergers and acquisition. The long term collaboration combines advantages of continuation with advantages of flexibility in the market. In the following we will take a deeper step in understanding strategic long term collaboration as the concept “in the middle”.

3 Figure developed from: Thomassen, M. A (98): Projektering of prissætning i byggeriet Tidlig prissætning med en 3 fasemodel som grundlag for Erhvervsfremmestyrelsen, December 98.

4 Figure is developed with inspiration from: Gottlieb, S. C. and Storgaard, K.(2006): Besparelsespotentialer for det offentlige ved længerevarende samarbejde I nybyggeriet. Udarbejdet for Erhvervs-og Byggestyrelsen. 1. udgave., p. 10

Towards collaboration “somewhere in the middle”

Theoretically and empirically the very black-and-white picture of market vs. hierarchy as the organizing principle has been challenged for a long time, and the advantages and different possibilities of collaboration has been discussed.

As early as 1972 Richardson⁵ argued that there are more nuances to the story on the organization of coordination than simply direction within firms or coordination by prices between firms. Here, Richardson makes a distinction between identical or different *capabilities* are important. In short the argument goes that in case different capabilities are involved in production of specific products, inter firm coordination of a more far reaching - with respect to duration and information involved - character than market transactions arises.

Later on theories on, and concepts for, inter firm collaboration and hybrid forms of governance have blossomed. Since the 1990s there has been a shift of focus going from collaboration based on a product and a market focus to more competence and knowledge driven alliances.

Strategic long term collaboration is part of the tendency to explain and utilize inter-organizational collaboration in between the market and the firm. Strategic long term collaboration is a conceptualization that covers different denominations and specific forms of collaboration in practice, going from public private partnership, horizontal collaboration between actors in a market or the vertical collaboration across the value chain. The collaboration can be established among suppliers, customers, competitors including organization offering the same product on different markets, public institutions and knowledge institutions. In the construction sector we often talk of *partnering* as a typical concept for long term strategic collaboration established vertically between the client, the client design advisor and the contractor.

In general the characteristics of the strategy of collaboration compared to the strategy of market can be summarized as follows:

5 Richardson, G. B. (1972): The Organisation of Industry, The economic Journal, September

Characteristics	Market	Collaboration
Supplier Power	Low	High
Dependency	Low	High
Bindings	Minor	Extensive
Benchmarking	Price/quality	Competences
Input	Low value input	High value input
Learning	Observational learning	Acquiring
Competences	Stable, routine, operational	Dynamic, flexible, developmental
Dialogue	Low, schematic	Intensive, interaction, trust based

Figure 3: Characteristics of the collaboration in contrast to market. ⁶

Even though we find these common characteristics the formation of the collaboration can have different starting points and foundations. The contractual basis for coordinating inter-organizational activities in between the market and the hierarchy plays a different role. It is argued that the higher level of integration changes the focus from the contractual basis and prices to a focus of competences and personal relations. According to Cheung⁷ we find the following characteristics related to different kinds of contracting relations.

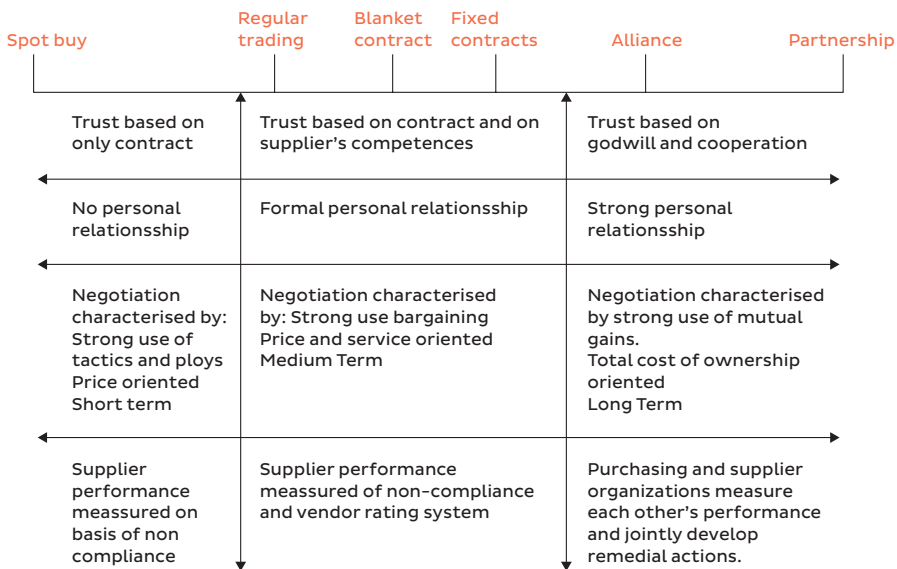


Figure 4: Characteristics of contracting relations. Cheung 2003 quoted in: Gottlieb, S. C. and Storgaard, K.(2006).⁸

6 Figure developed from: Møller, M. M. (2002): Sourcing af teknologi, kompetencer og viden i et interorganisatorisk leverandørperspektiv. Phd. Afhandling, center for Industriel Produktion Aalborg Universitet. P.63

7 Cheung 2003 quoted in: Gottlieb, S. C. and Storgaard, K.(2006): Beparelsespotentialer for det offentlige ved længerevarende samarbejde I nybyggeriet. Udarbejdet for Erhvervs-og Byggestyrelsen. 1. udgave.

8 Gottlieb, S. C. and Storgaard, K.(2006): Beparelsespotentialer for det offentlige ved længerevarende samarbejde I nybyggeriet. Udarbejdet for Erhvervs-og Byggestyrelsen. 1. udgave.

The strategic long term collaboration is mostly associated with the “Alliance” and the “Partnership” but can also be found in forms with characteristics related to “Blanket” and “Fixed contracts”. Thus strategic long term collaboration is a widespread term bases on different foundations and contractual forms.

Questions to the construction industry

- *Is the foundation for trust in a collaboration found primarily in competences or on goodwill?*
- *Is the construction sector most likely to collaborate on basis of formal or personal relations?*
- *Is the negotiation driven by bargaining power or use of mutual gains?*
- *Is the collaboration oriented towards price and service or total cost and ownership?*
- *Is the performance measured by one part according to the degree of compliance or is it a mutual evaluation followed up by joint strategies for action?*

Core elements of the concept

We have now reached a first pin down of the concept of strategic long term collaboration. But as there are other collaboration can take place in other forms than the strategic long term collaboration we must ask what conditions that must be fulfilled before we have not just a kind of collaboration and integration between inter-organizational activities but *strategic long term collaboration*?

Despite a fragmentation found in the literature of strategic long term collaboration, we find a common understanding of the core elements of the concept. Summarized the concept is characterized by the following primary conditions:

The collaboration is set up between two or more organizations that remain **independent**.

The collaboration is formed with the purpose of **obtaining a goal** of mutual and high priority to the companies involved.

The cooperation is based on a **binding commitment**.

The goal of the collaboration has a **long term perspective** either expressed in long term collaboration on a single project or by repetition (or expectation of repetition) of projects.

These conditions entail that there between organizations involved in the collaboration is a share of benefits and also to some limit a share of control over responsibilities related to the functioning of a collaboration meaning that the single organization must relinquish its control over the process.

Definition for the construction sector

In the construction sector strategic long term collaboration is understood as a horizontal or vertical binding collaboration agreement between two or more independent organizations in order to pursue a high priority goal. The collaboration is either established in regard to a long term construction project or according to a repetition of activities.

Subject matter

As mentioned in the introduction, a firm has to optimize many different objectives. And therefore different areas can be subject for the long term collaboration. A crude, but nevertheless perhaps useful way of encircling the subject for collaboration is to look at the core functions of the company as shown in the following figure.

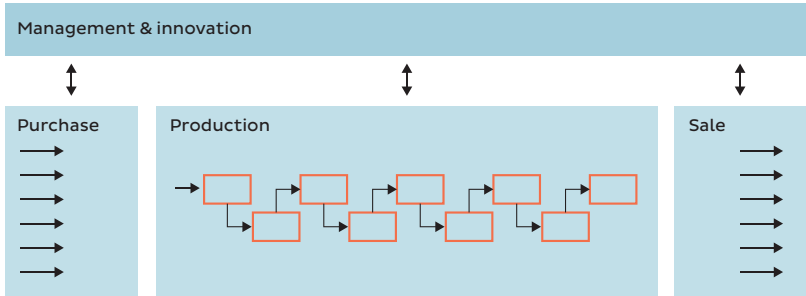


Figure 5: The basic functions of a firm

In this view, the company has four main functions:

- Purchase: Buying the right amount and quality of input in order to reduce costs and secure a smooth production.
- Production: Optimize output with as little consumption of time, input, manpower and equipment as possible
- Sale: Optimize sales price and minimize inventories
- Management and innovation: The overall lay-out of purchase, production and sale as well as the development of new product and strategies.

All these four core functions can be a subject for collaboration vertically or horizontally and thus a matter for long term strategic collaboration.

Questions to the construction industry

To what extent is strategic long term collaboration constituted in order to strengthen:

- Purchasing function for example through joint purchases or through establishing supplier relations?
- Production for example through agreements of equalizing production in bottleneck situations or sharing of production facilities?
- Sales function for example through common sale or through establishing distribution agreements with primary costumers?
- Leadership function for example through a share of knowledge or common development projects?

Perceptions of long term strategic collaboration

In this section we will outline different theoretical perceptions of strategic long term collaboration. The different theoretical perspectives will offer different explanatory models for the rationality behind forming strategic long term collaboration and thus give rise to different questions to the construction industry. The section will examine:

- Transaction Cost Theory
- Resource Dependency Theory
- Contingency Theory
- Organizational Learning theory
- Network Theory
- Cluster Theory

As recapitulation we will in the last section take a look at the different approaches driving the formation of long term strategic collaboration.

Transaction Cost Theory

The basic insight of the Transaction Cost Theory is that there is a cost of using the market. These transactions cost can be perceived as the “friction” of using the market during:

Contact: Finding the right supplier or buyer

Contract: Setting the terms for the transaction with supplier or buyer

Control: Ensuring that the objectives of the contract are met.

In this view, the overall objective of the firm is to minimize the total costs of production and transaction costs.

In the outset Coase 1937)⁹, transaction cost theory was used to explain why we have companies at all (which is hard to understand in classical economic market theory). However, later refinements made by in particular Williamson (1985)¹⁰ also addressed the possibilities of intermediate relations (termed trilateral and bilateral governance structures). According to Williamson the appropriate governance structure depends on the frequency of the transactions. The more frequent a transaction is, the more it makes sense to place it within or in close relation with the company rather than buying it on the market (which makes a lot of sense for items that are purchased occasionally). Secondly, the specificity (the uniqueness) of the transacted items (for instant product) matters. The more unique the item is, the higher the risk it involves as the product cannot easily be sold or purchased elsewhere. Strategic alliances or internal ownership can be a way of internalizing and consequently reducing the risk associated with items with a medium or high degree of specificity.

In short, according to transaction cost theory, long term strategic collaboration can be understood as a way of minimizing the sum of transaction costs and production costs for transactions. The costs and the risks of using the market are the central variables to consider.

Questions to the construction industry

- To what extent is the degree of integration and choose of collaboration form driven by a motive of minimizing costs? And in this case, which costs are important to minimize: cost of contact, cost of contract or cost of control?
- To what extent varies the degree of collaboration according to frequency as well as specificity/uniqueness in the objects of exchange?

9 Coase, R. (1937): „The Nature of the Firm“ i *Economica*, Vol. 4, No. 16, pp. 386-405.

10 Williamson, O. E (1985): *The Economic Institutions of Capitalism – firms, markets, relational contracting*, New York Free Press

Contingency theory

Another way to understand coordination and organization is by considering different informational characteristics of the involved activities. This approach has been termed “contingency theory”, referring to the idea that the best way to organize is contingent upon a set of variables that differs from one situation to another. Hence, a key element of contingency theory is to locate different forms of contingencies and assess their impact on in particular coordination modes but also for organizational forms in general which makes it relevant in the context of this report.

One of the founding figures here is Thompson in his work *Organizations in action* from 1967¹¹. His central idea is to explain the workability of different coordination modes with the different ways activities can be interdependent on each other. Thompson introduces the following typology for interdependence:

- *Pooled interdependence*, referring to a situation where activities belong to the same system, while not being interdependent in any direct way.
- *Sequential interdependence*, describing a direct, non-symmetrical, relation between activities; for instance, activity 1 has to be carried out before activity 2 can proceed.
- *Reciprocal interdependence*, characterizing a direct and ongoing symmetrical relation between two activities: Activity 1 depends on activity 2 and vice versa.

Thompson then goes on to relate these interdependencies with types of coordination. The implicit assumption seems to be, that the informational complexity corresponds to this directionality (i.e. the three types of interdependence) in a clear-cut (and in the order mentioned, increasing) way. Pooled interdependence should be coordinated through *standardization*, involving “the establishment of routines or rules which constrain action of each unit or position into paths consistent with those taken by the others in the interdependent relationship”. With sequential interdependence, *coordination by plan* – such as work schedules - is suitable. And finally, with reciprocal interdependence, *coordination by mutual adjustment* (or by *feedback*) is suitable, encompassing “new transmission of information during the process of action”.

11 Thompson, James D.(2003), *Organizations in Action: Social Science Bases of Administrative Theory*, Transaction Publishers

Thompsons' *Organizations in Action* inspired a number of empirical and theoretical studies conducted mainly in the 1970s. *Contingency theory* is the label often used to classify these related contributions. Contingency theory expands on the idea of Thompson by proposing different aspects affecting the degree of interdependence:

- *Task complexity* (introduced by Van de Ven)¹², *task diversity* (introduced by Galbraith)¹³ or *task difficulty* (by Van de Ven and Delbecq)¹⁴ refers to the degree of difficulty in the search process, the amount of thinking time, and the knowledge required to perform the task.
- *Task variability* refers to the number of different cases encountered in work. Hence, task variability relates to the stability and uniformity of inputs and outputs.
- *Task uncertainty* is seen as the combination of task complexity and task variability by Van de Ven. However, Galbraith conceives it as a contingency in its own right characterized by the degree to which it is known in advance and can be preplanned, or conversely, if it is not well understood *ex ante*, the degree to which information must be processed *during* task execution.
- *Size of work unit* simply refers to the total number of people of a work unit. Restricting the question of number of people involved in coordination to the work unit makes sense for Ven de Ven, whose sole focus is on coordination within this unit. However, in more general terms, this contingency can be understood simply as the total number of people involved in coordinating a given set of activities.

These contingencies are by contingency theory hypothesized to favor particular organizational forms and coordination modes. With respect to the latter, contingency theory expands Thompson's view on coordination modes. Firstly, new coordination modes – of which *teaming* is probably the best known – are proposed. Teaming refers to situations where work and activities do not only flow back and forth (as in Thompson's reciprocal interdependence), but are done at the same time within a group. Secondly, a number of refinements are made – for instance if coordination is done in an impersonal, personal or group mode; if it is done in a planned or unplanned way; by vertical or horizontal relations within the firm; by centralized or de-centralized decision-making; or by rules and programs, hierarchy or goal setting; or by highly or less educated personnel.

12 Van de Ven, A. H. Et al (1976): Determinants of Coordination Modes within organizations, American Sociology Review vol. 41, 322-338.

13 Galbraith, A. (1973): Designing complex organizations, Massachusetts, Addison-Wesley Publishing Company.

14 Van de Ven, A.H. and Delbecq, A.L. (1974): A Task Contingent Model of Work- Unit Structure, Administrative Science Quarterly, 183-197.

Even though the main purpose of contingency theory is not to explain inter-firm relations, it is not hard to see how it can inform this discussion.

For instance “reciprocal interdependence” (that activity 1 depends on activity 2 and vice versa) can explain why firms choose to place activities within the firm or in close collaboration with other firms. As activities of this nature are highly interdependent it would be difficult to make them subject for a market based interaction based on complete contracts. For instance, Peter D. Ørberg Jensen¹⁵ has argued that Thompsons approach might be useful to understand when and why it is possible to outsource knowledge intensive consultancy services within among other the construction industry.

Or as another example, increased task complexity might make it necessary for firms to engage with external competencies. But at the other hand might also make it difficult to purchase this service as the seller knows more than the buyer, which in term could be an argument for establishing long-term relations with associated trust building.

Questions to the construction industry

- To what extend is the mutual dependency between tasks a criterion for choosing collaboration form in the construction sector?
- Does the parameters enhanced by the contingency theory change? And do we find similar changes in the forms of collaboration in the construction sector?
- Does a higher task complexity due to for example a demand of sustainability, cause a higher interdependency between the work of engineers and architects and thus create a need for more collaboration?

Resource dependency

The Resource Dependency Theory (RDT) finds its origin in Pfeffer and Salanics publication: *The External Control of Organizations: A Resource Dependence Perspective* from 1978¹⁶. Since 1978 the theory has had a remarkable place within the organizational theory.

The theory takes a resource based view on the organization arguing that organizations are a portfolio of resources not of products and thus that the competitive advantages

15 Peter D. Ørberg Jensen (2008): Offshoring of advanced and high-value technical services : Antecedents, process dynamics and firmlevel impacts, Samfundslitteratur Forskning › PhD. afhandling

16 Pfeffer and Salanics publication (1978): *The External Control of Organizations: A Resource Dependence Perspective* from 1978, Stanford University Press

of a company is based on the company's access to resources. It works with the premise that organizations are not self-sufficient in their own resources, but are depended on resources found in the environment. Organizations are open systems, related and connected to its environment. Thus there is a dependency between organizations and inter-organizational activities becomes a natural part of company behavior.

RDT focuses on power in inter-organizational relations. The theory argues that there is a direct link between the resources and the power of a company given that the company having resources others are dependent on is the most powerful. It is theorized how companies are working with two objectives: 1) Companies are searching to minimize their dependence by getting control over resources and 2) attaining control over resources that increases others dependency of the firm.¹⁷ Thus an important question in RDT is how to manage dependencies.

In continuation of the Transaction Cost Theory, RDT argues that it is profitable for companies to integrate not just in order to minimize transaction cost but also in order to minimize uncertainty and the dependency of the environment and thus creating a stronger power position on the market. The integration strategy has traditionally been described as the most profitable way of managing dependencies, where collaboration is an alternative and more flexible way of reducing uncertainty and getting access to resources.

Summarized companies collaborate in order to get access to resources that otherwise would be rare and unavailable. Thus the motivation for collaboration is based on a *lack* of resources and the collaboration is set to give access to the necessary resources. Furthermore the collaboration is at the same time a way of handling power relations. Therefore the question may be how the collaboration is set up in order to either minimize dependencies of others or increasing others dependency on them in the end with the goal of increasing the competitiveness.

Questions to the construction industry

- *Where do we find the critical resources in the construction sector that may motivate a collaboration?*
- *How do resources in the construction sector create power relations that can make collaboration beneficial?*
- *To what extend is collaboration formed in order to minimize the partners dependency?*
- *To what extend is collaboration formed in order to make other actors more dependent?*

17 <http://www.istheory.yorku.ca/resourcedependencytheory.htm>

Organizational learning theory

The theory of organizational learning is widespread and both deals with learning processes within an organization and learning among organizations. The theory rose around the 1980s and can be traced back to Argyris and Schon's theory of single and double-loop learning (1978)¹⁸, Senge's Fifth Discipline (1990)¹⁹ Levitt and March (1988)²⁰, Nonaka & Takeuchi (1995)²¹ etc. The theory is based on the assumption that knowledge is embedded in individuals and organizations, and in difference to RDT the theory takes a cognitive and behavioristic approach in understanding the individual and organizational learning processes.

The theory of organizational learning has a starting point common to the one found in RDT: Knowledge is a crucial resource in the organization. It is stressed that knowledge gives the direction of the performance of the company and that organizational knowledge always needs to be developed and transformed through learning. Thus learning becomes a strategic matter and a strategy for change.

In the knowledge and learning theory we find a difference between tacit and explicit knowledge (Nonaka & Takeuchi 1995). The explicit knowledge is defined by its transferability: It is easy to communicate, code and transfer between individuals and organizations. Thus the explicit knowledge can easily be bought and licensed. The tacit knowledge on the opposite involves the more unspoken knowledge such as skills, knowhow and contextual knowledge that cannot be directly transferred between individuals.

Collaboration is a way a way of facilitating organizational learning, both in regard to the tacit and explicit knowledge. The most common argument used is that the collaboration is the driver for transferring and absorbing the knowledge of the partners in the collaboration. But as Grant and Baden-Fuller(2004)²² argues, the theory often has missed to describe the possibilities of not just acquiring knowledge (the knowledge exploration) through strategic alliances, but also how collaboration can give the possibility of applying knowledge (knowledge exploitation), and how this can create new value. The exploitation strategy focuses not on the transfer and absorption of knowledge but on how knowledge is shared in order to strengthen knowledge spe-

18 Argyris, C.; Schön, D. (1978). *Organizational Learning: A theory of action perspective*. Reading MA: Addison-Wesley

19 Senge, Peter M. (1990). *The Fifth Discipline*. Doubleday/Currency. ISBN 0-385-26094-6.

20 Levitt, March(1988): Organizational Learning, Annual Review of Sociology, Vol. 14, 319-340

21 Nonaka, I.; Takeuchi, H. (1995). *The Knowledge Creating Company*. New York: Oxford University Press. ISBN 0-19-509269-4.

22 Grant, R. and Baden-Fuller, C.(2004): A knowledge Accessing Theory of Strategic Alliances, Journal of Management Studies 41:1

cialization between partners of the collaboration. This means that we on the one side have an argument of knowledge transfer and on the other a strategy for knowledge exploitation.

Furthermore we find a third learning strategy: The creation of new knowledge through a collaboration. This is not just a transfer of knowledge or an application of knowledge. Creation of new knowledge involves mutual learning processes where the exiting knowledge of all parts is transformed.²³

Thus we have three arguments behind the formation of strategic long term collaboration seen from a learning approach:

- Knowledge transfer
- Knowledge exploitation through specialization
- Creation of new knowledge

The relevance of the different type of learning will be depended on the purpose and partners in the collaboration.

Questions to the construction industry

- How important is the focus of changing and transforming the organization through learning in the construction sector?
- In what form do we find the critical knowledge driving the learning process in the construction sector: As tacit or explicit knowledge?
- To what extend is collaboration in the construction sector focused on knowledge transfer, knowledge, exploitation or creation of new knowledge?

Network theory

The network theory has been theorized and used in many disciplines within organizational studies and in the social science, going from marketing research, company studies, supply chain research etc. The theory offers an explanation of the ties between individuals and between organizations. The theorization of strategic networks can be seen parallel with the strategic long term collaboration.

23 Dierkes, M. (et al) (2001): Handbook of organizational learning and knowledge, Oxford University Press.

The network theory stands in opposition to neo-classical economic theory by arguing that companies are not autonomous and isolated units, but units connected to and formed by its environment through loose and strong ties. The environment is not just a given, but a socially constructed infrastructure of possibilities. The structures of networks are formed by the contextual structures (social, economic, political). These structures give the pattern for relations among actors. But companies are not only dependent on existing structures, but are actively creating it.

One of the prominent theorists within the network theory Mark Granovetter²⁴ is known for his theorization of how individuals are embedded in the social structure. In regard to economics the embeddedness has the consequence that economic transaction cannot be understood independent of the social structures like we for example see in the TCE, but must instead be understood according to relations.

The fundamental premise for the network theory is trust and the possibility to create trustful relations. This foundation stands in opposition to the assumption of opportunism and bounded rationality in TCE. With the premise of trust and the social context the strategic collaboration is formed on basis of relations and ties, not of mistrust and uncertainty.

Network can have more or less formal character, but common is that network is seen to gives access to information and resources. The ties between the actors in a network are channels for transfer of resources. The theory argues that managerial action can shape the context for future action²⁵ through network strategies including strategic collaboration.

The focus on social structures of network implies that collaborations are more than its contractual basis and quantified results. Given the relational approach legitimacy, trustworthiness and reputation becomes important both for the current collaboration and for future possibilities of collaboration and thus the access to resources. In this continuation the network theory argues that the question of integration cannot be reduced to a question of costs. The theory addresses advantages of learning, R&D etc., but of particular interest is the networks reflection of social prestige and reputation. Strategic network can in this perspective be formed on a basis of social dimensions and with the motivation of a future positioning in the network structure. This perspective gives a new basis for evaluating the results and functioning of the collaboration as well as the strategy for choosing partners.²⁶

24 Granovetter (1985): Economic Action and Social Structure: The Problem of Embeddedness *in* American Journal of sociology, vol. 91, no.3

25 Walter, J. (2005) Collaboration within and between firms: Network structures, decision processes, and their impact on alliance performance, Dissertation of the University of St. Gallen, Graduate School of Business Administration, Economics, Law and Social Sciences (HSG)

26 Source: Mønsted, M.(2003): Networking, I do: Strategic Networking in Small High Tech Firms, Samfundslitteratur, s. 60-122

Questions to the construction industry

How important is the building of trust and trustworthiness in the relation?

- To what extent is the collaboration build on relations between individuals and/or organizations?
- How is the collaboration set up to create future possibilities and relations?

Cluster theory

Closely associated with network theory, we find theories on *industrial districts* and *clusters*. As for network theories, a core observation is that inter-firm relations cannot be understood merely as a relation between A and B. Rather firms are part of a wider network with underlying shared resources, information and beliefs. This creates a number of potential benefits: Transaction costs are reduced as it is easier to locate and monitor the right counterparts. Production costs are lowered, as the local community constitute a pool of resources (manpower or equipment) that easily can be employed or laid off, innovation is enabled by the closer and richer interaction that enables knowledge transfer and use.

Theories on industrial districts and clusters have been used to explain why certain regions are more successful than others and why we find spatial concentrations of some industries (like for instance “silicon valley”). Clusters can be a way to gain and maintain competitive advantages in an increasingly globalized economy. Thus, clusters have been seen as an important political and economic tool for countries like Denmark troubled by high labor and production costs.

Thus a core feature of this set of theory is that proximity / geography matters and clusters can be understood, or defined as, as a geographical concentration of coordinated economic activities and competencies within a given field.

Partly the existence of clusters has to do with the social (possibly face-to-face) interactions that enable trust building and sharing of resources also stressed by network theory.

But clusters can also be on a more institutionalized and formal level between firms, knowledge institutions, authorities and skills.

The interaction can be illustrated as follow:

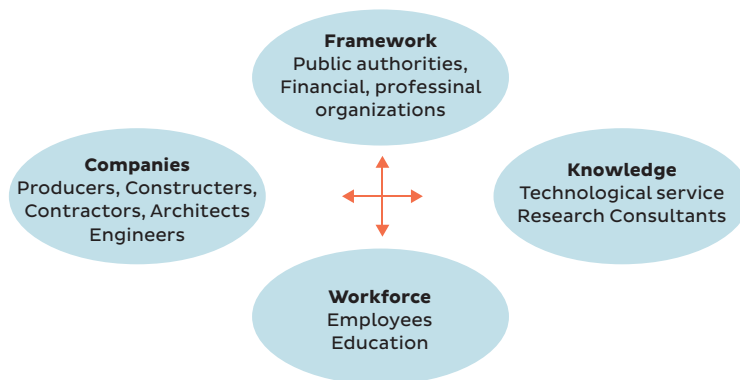


Figure 6: Cluster participants²⁷

The interaction between firms, knowledge institutions and authorities (taking skills for granted) is also known as “Triple-helix” arrangements. The main idea here is that as products and services becomes more and more knowledge intensive as well as dependent on the demand and regulation from governmental institutions, a smooth working and focused interaction between these different types of actors is crucial in order to create and maintain competitiveness.²⁸

Questions to the construction industry

- To what extent do we find clusters in the Danish construction sector – are there geographical concentrations within specific parts of the construction sector?
- Is the possibility of being a part of a cluster a strategic consideration for companies in the construction sector?
- Can the constitution of clusters be maintained and increased – and who would be the driving actors?
- Given there are dynamics of clusters in the construction sector, do we then speak of social based network clusters or formalized triple-helix constructions? Which possibilities are there for developing the two kinds of clusters?

27 Smith Innovation (2010): *Erfaringer og perspektiver omkring udvikling af grønne kompetenceklynger i dansk byggeri*, DAC.

28 Sources: Andersen, Poul Houman, Anne Bøllingtoft og Poul Rind Christensen (2006): *Erhvervs-klynger under pres - Globaliseringens indflydelse på dynamikken i udvalgte danske erhvervs-klynger*, Analyserapport udarbejdet til Landsplankontoret Skov og Naturstyrelsen, Miljøministeriet af Institut for Ledelse, Handelshøjskolen i Århus., Center for Strategisk Byforskning (2009): *Arkitekturklyngen i Århus - En undersøgelse af klyngens historie og aktuelle status*, Realdania Forskning, FORA (2005): *Kompetenceklynger – fremtidens vækstmotor*, arbejdspapir (forfatter ukendt), Lorenzen, Mark (1999): *Localised Learning and community capabilities*, CBS, ph.d.-afhandling, Lorenzen Mark (2001): *Kompetenceklyngeperspektivet og udfordringen for erhvervs- og uddannelsespolitikken*, Samfundsøkonomen, Lorenzen, Mark og Peter Maskell (2004): *The Cluster as a Nexus of Knowledge Creation*, i Cooke, P. and Piccaluga, A., (Eds.) *Regional Economies as Knowledge Laboratories*. Cheltenham, Porter, Michael (2003): *The Economic Performance of Regions*, *Regional Studies*, Vol. 37.6&7, pp. 549–578, August/October 2003, Sölvell, Orjan (2009): *Clusters – balancing Evolutionary and Constructive Forces*, Ödershög.

Forming the collaboration

The arguments and strategies for forming strategic long term collaboration are all grounded in some general assumptions and fundamental approaches. In the following we sketch two different axes of approaches that influence the strategy and the formation of the collaboration.

On the one side we can conclude that there are two basic philosophies underlying the behavior of a company: Companies either adapt to their environment or attempt to influence their environment.²⁹ This gives us to different strategies behind the long term collaboration:

1. The collaboration is based on a proactive strategy, driven by a goal of influencing the environment. This strategy is often seen in collaboration having a purpose of development and innovation.
2. The collaboration is based on a reactive strategy, where the companies are searching to adapt to the environment and contextual factors through the collaboration. This strategy is often seen according to operational issues.

On the other side the formation of the collaboration strategy is dependent on the way the collaboration is tied to either the object of the collaboration or the relations in the collaboration.

1. The object approach has the task in its center, and is focused on how to improve the results of this task. The approach involves evaluation and quantification of progress in the project like it often will result in tighter contracts. Furthermore the partners in the collaboration are chosen according to the specific task on a rational ground. Given the focus on the object, there is a likeliness to use an “exit strategy” if the goal is not improved through the collaboration. This approach is built on the assumption of rationality meaning that a collaboration can be based on rational decision making, where full information is possible. Furthermore there is an assumption of causality, where the input in the collaboration is directly related to the output. From this point of view the collaboration is evaluated according to the proportion between input and output like there must be a linear strategy for governing the cooperation.

²⁹ Source: Hynes,N. Mollenkopf (1998), D. Strategic Alliance formation: Developing a framework for research, samform.doc

2. On the opposite we find the relational approach, with the focus on how to reach a goal through individual and organizational relations in a collaboration and how relations can create surplus value. The relations are in the center, and are most likely to strive for a voice strategy. This approach is based on the basic assumption that companies in the first place are able to build relations which involves an assumption of trust. It means that it stands in contrast to the assumption of opportunism. It is a non- rational philosophy, arguing that companies are not always able to make decisions based on reason and full information but may be more driven by non- rational factors, such as emotions or cultural norms. This means that contextual factors and social relationships will influence the constitution of agreements in the collaboration. Here the collaboration is seen as an emergent practice that is contextually embedded and socially constructed. The governing practice will follow the emerging nature of the collaboration.

Summarized this gives us four categories representing four approaches behind the strategies of the strategic long term collaboration, and the different theoretical perception examined above are reflected in these categories as illustrated in the following figure:

	Operation	Development
Object	<ul style="list-style-type: none"> • Transaction Cost Theory • Ressource dependency theory 	<ul style="list-style-type: none"> • Organizational learning theory
Relation	<ul style="list-style-type: none"> • Cluster theory • Organizational Learning theory • Network theory 	<ul style="list-style-type: none"> • Network theory • Cluster theory • Organizational Learning theory

Figure 7: strategies for formation of strategic long term collaboration

APPENDIX B: OPSAMLING FRA WORKSHOPFORLØB

Af Mikkel A. Thomassen og Minna N. Jørgensen, Smith Innovation

Som en del af projektet er afholdt to workshops, hvor en gruppe af eksperter inden for samarbejdsformer i byggeriet, har kvalificeret undersøgelsens resultater. Følgende appendix skitserer de væsentligste resultater fra disse workshops.

WORKSHOPFORLØBET

Første workshop, afholdt i april 2013, fokuserede på, hvordan motiverne for at indgå et strategisk længerevarende samarbejde kan belyses via de teoretiske positioner, gennemgået i appendix A. Yderligere fokuserede workshoppene på, hvad byggeriet kan lære, af andre industrier. Dette gennem oplæg fra Morten Munkgaard Møller, Center for Industriel produktion, Aalborg Universitet.

Anden workshop fokuserede på erfaringerne fra det gennemførte casestudie af cases fra Sverige og Danmark, samt erfaringer fra Procure 21 som blev præsenteret af Nigel Barr fra Stradia.

Følgende personer, deltog i forløbet:

- Rolf Andersson, KAB
- Michael Loft Nielsen, (tidl. MT Højgaard, Michael Loft Rådgivende Ingeniører)
- Søren Faebo Larsen, Enemærke og Petersen
- Rasmus Karkov, Enemærke og Petersen
- Jan Quitzau Rasmussen, Bygningsstyrelsen
- Jørgen Nilsen, SBI
- Stefan Gotlieb, SBI
- Ib Steen Olesen, DTU
- Rolf Simonsen, Værdibyg
- Morten Munkgaard Møller, AAU
- Nigel Barr, Stradia
- Hans Blinkilde, NCC
- Anna Kadefors, Chalmers

- Mikkel A. Thomassen, Smith Innovation
- Lennie Clausen, Realdania
- Minna N. Jørgensen, Smith Innovation

Resultater fra workshopforløbet

Motivation

Det blev tydeliggjort, at motivationen afhænger af typen af opgaver, hvilken rolle man har/placering i værdikæden og er faseafhængigt. Med afsæt i de fem cases fra Sverige og Danmark samt det engelske Procure 21 og deltagernes egne erfaringer, er der følgende motivationsfaktorer for at indgå strategisk længerevarende samarbejde :

Mere end pris: Den kortsigtede pris, og pris som udvælgelseskriterium er ikke det væsentligste motiv for at indgå et SLS og udvælge samarbejdspartner. Men den omkostningseffektivitet, der kan følge af et SLS kan være en væsentlig driver. Generelt er der et fokus på, at motivationen (også) skal forstås ud over et spørgsmål om pris og omkostninger – der er fokus på den øgede værdi og de øvrige effekter, som fx øget kvalitet, der kan komme ud af et SLS som en væsentligste driver.

Minimere ressourceforbrug: SLS ses som en måde at løse udfordringer omkring en uhensigtsmæssig brug af ressourcer. Procure 21 blev sat i gang for at undgå en række af de problemer, der tidligere havde været i forhold til overskridelser af budget og forsinkelser på overdragelse og afslutning med store ressourcestab til følge. Også i tilfældet med ATP var en ineffektiv ressourceudnyttelse anledningen til at etablere samarbejde.

Service vs. omkostninger: Det empiriske studium viser, på nuværende tidspunkt, en forskel mellem de service- og de omkostningsorienterede samarbejder. I servicesamarbejdet (eks. E&P, Telge Fastigheter, AstraZeneca) er motivationen den øgede værdi der skabes for en bestemt kunde. I et omkostningsbaseret relation (SABO Kombohus, AlmenBollig+) handler gentagelse om at kunne skabe en større volumen, der bidrager til en mere effektiv produktion og hermed omkostningsreduktion.

Herforuden er ønsker om en højere kvalitet, lavere usikkerhed, styrkelse af markeds-mæssige vilkår, medarbejdertilfredshed og specialisering også drivkræft for længerevarende samarbejde.

Forudsætninger og fokusområder

En række forudsætninger og fokusområder blev fremhævet som afgørende for en succesfuld udbredelse af strategisk længerevarende samarbejde:

Udbudsregler og praksis

Udbudsregler ses at afgøre længde og graden af samarbejde. Der er altså i flere (men langt fra alle) sammenhænge et ønske om tættere samarbejde, men udbudsregler bliver strukturerende, og begrænser ofte mulighed for længerevarende samarbejde. Foruden regler, er der praksis i udbud, hvor der fokuseres på pris, som ofte vil have den betydning at de længerevarende relationer fravælges.

Gensidige fordele

SLS skal give gensidige fordele. I Udgangspunktet er der en interessekonflikt mellem køber og sælger, og derfor skal SLS bygge på andre incitamenter og fordele end, hvad der sker i traditionelt markedstransaktion. Yderligere fjerner samarbejdet et konkurrenceelement, og dermed er risikoen at SLS bliver en *sovepude*. Forudsætning for et succesfuldt samarbejde er, at der træder nye mekanismer og engagement i stedet for konkurrencen.

Fra contract til contracting

SLS kræver løbende investeringer. Det er ikke bare længden, men også investeringen i samarbejdet der er afgørende. Og det er ikke gjort med bare at lave en strategisk samarbejdsaftale – relationen kræver løbende fokus. Dermed vigtigt at gå fra at se på kontrakt/samarbejdsaftale som et dokument (og dermed engangsbegivenhed) til en relation (og dermed fortløbende begivenhed). Skaber et fokus på proces.

Yderligere fokusområde er, at relationerne ikke skal være personbårne, men indlejres i organisationen for at opnå gentagelseeffekt.

Kompetencer, ledelse og segmentering

Forudsætningen for at få SLS til at lykkes er, at der opbygges de rigtige kompetencer internt. Ofte nødvendigt organisatorisk at adskille de forskellige typer samarbejdsrelationer. Segmentering kan give overblik over leverandør og kunderelationer, og på den måde give en bedre prioritering af, hvordan man vælger at samarbejde samt mulighed for differentiering både i forhold til kunder og leverandører.

Derudover kræver SLS ledelse. Succesen vil afhænge af, hvordan der arbejdes med ledelse af samarbejdet samt måling i organisationen.

Standardisering og volumen

Praksis er i høj grad, at der altid startes med det unikke, hvilket ikke fremmer samarbejde. En højere grad af standardisering i efterspørgslen og større udbud vil kunne give anledning til mere samarbejde i værdikæden. Et fokus på at gøre det ens og det forskellige forskellig vil kunne fremme SLS. Yderligere er det fremhævet at strategisk

samarbejde fordrer, at der er et stort marked og en stor volumen i opgaven. En ændring i praksis, kræver nye arbejdsmetoder og nye kompetencer samt en risikovillighed.

Interne kompetencer

Følgende interne kompetencer bliver set som vigtige for at få glæde af strategisk længe-revarende samarbejde:

Lederskab: Bliver vigtigt, at der er en dedikeret projektleder til projektet, og at der er et synligt lederskab, der kan være med til at legitimere arbejdet og bistå med viden.

Forandringsvillighed og kultur: Det er en ny måde at arbejde på, der kræver en forandring i organisationen, en udfordring af kompetencer og en forståelse for processen blandt de involverede. Erfaringer fra Procure 21 viser, at spørgsmålet om virksomhedskultur bliver centralt. Det kræver træning og opbygning af nye kompetencer, og ændring af mind set.

Bygherre kompetence til at samle opgaver: Et vigtigt skridt for udbredelsen af SLS i DK bliver bygherrens evne til at samle opgaver.

Selektion: Erfaringerne fra Procure 21 viser, at det kræver en god selektionsproces at vælge de rette leverandører. Der skal defineres kriterier for udvælgelsen (som rækker ud over pris).

Tid: Der skal være en accept af at det tager tid.

Hvilken viden behøver vi?

Hvilken type innovation kan vi skabe gennem SLS?

Der er behov for mere viden om, hvordan der kan skabes innovation gennem samarbejdet, som overskrider et omkostningsfokus.

Erfaringerne fra Procure 21 viser, at det at stille spørgsmål til *how* i selektionsprocessen, og at have hele værdikæden med i processen gør det lettere for fx producenter at byde ind, og ikke bare arbejde efter, hvad der er besluttet i en designfase, hvilket åbner for nytænkning. Ligeledes går samarbejdet fra at være vertikalt til at være mere horisontalt, og at der derfor er en styrket mulighed for at arbejde på tværs gennem hele forløbet og hermed skabe basis for en øget innovationskraft. Yderligere viser erfaringerne fra E&P er at samarbejde kan give anledning til større grad af Co-creation, der kan skabe nye ideer. Disse erfaringer kan med fordel udbygges.

Samspil mellem udbud og efterspørgselssiden

Det handler om, at gøre det attraktivt for både udbuds- og efterspørgselssiden. I dag er det meget bygherredrevet, men hvordan bliver det mere leverandørdrevet? Hvordan bliver det attraktivt for begge parter? Hvilke gensidige fordele kræver det? Og hvordan skabes der det rigtige mindset?

I England har de lavet det, der betegnes som en 'soft market testing'. Når de har lanceret et nyt SLS projekt, så er virksomhederne blevet inviteret ind til workshopforløb, hvor de er med til at forme forløbet. Hermed tages små skridt for at modne leverandørerne, så det ikke kommer som et stort nytænkende udbud før virksomhederne er med på, hvad det handler om, og hvad fordelene er.

Det skal undersøges, hvordan udbudssiden kan være en større driver for at igangsætte SLS samt hvordan, der kan skabes en attraktiv business case for både udbuds- og efterspørgselssiden.

Kriterier og effekter

Hvis udvælgelseskriterierne for at vælge leverandører overskrider et prisfokus, bliver spørgsmålet, hvordan der kan skabes objektive kriterier, der indfanger de øvrige værdikriterier samt hvordan effekten af dette måles?

Manglen på viden på tværs

SLS kræver viden. Der er viden i UK og i Skandinavien, men vi har ikke været gode til at dele den og benytte de erfaringer der er. Det er derfor relevant med et studium, der samler og organiserer erfaringer fra Skandinavien og UK på tværs af forskning, rådgiver og byggeriets parter og afprøver nye metoder. Kræver at byggeriets parter er med på at lave demonstrationsprojekter. Eventuelt kunne dette gøres ved at opdele feltet i under-tematikker.

