

Driving programme delivery forward? A case study of owner-supplier collaboration in infrastructure development

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Abstract – Despite the growth of interest in collaborative working on major public sector projects and programmes of work, research on the processes and dynamics of relational contracting in this context is still scarce. Yet, such research can generate important insights into the enabling and inhibiting conditions of collaboration in such institutional contexts, as well as more widely; it can also add to our understanding of what relational contracting means in practice for public sector organizations expected to operate in more commercial ways. This paper delivers on these aims by examining the case of a UK government body responsible for delivering major new programmes of infrastructure development, which was embarking on a journey towards collaborative working with its main suppliers. Research was conducted over a two-year period and data were collected via interviews, direct observation and documentation. The principal contribution of the research is in demonstrating the fundamental impact that internal organizational structural/cultural conditions have upon shaping external relational contracting (and vice versa) and how the dynamics of the relationship created divergence in the trajectories of collaboration across projects, with resultant implications for achieving wider programme integration.

Managerial relevance statement – Developing and embedding collaborative contracting - particularly on major public sector projects and programmes - is a challenging prospect and one that requires both structural and cultural adjustments to ways of working within both client and contractor organisations. This paper highlights the reflexivity needed if public agencies are to understand and manage the unintended as well as intended consequences of their actions in designing and implementing new collaborative initiatives. It also highlights the importance of

reflection to ensure that new management processes are temporally and culturally synchronized with the dynamics of the emergent collaborative relationship and that this also occurs across projects within wider programmes of work. As such, the paper has important practical insights and lessons to be learned in assisting programme/project 'owners', particularly those in the public sector, to embed new ways of collaborative working on their projects, while not losing sight of how this translates into achieving integration across programmes of work.

I. INTRODUCTION

Considerable attention has been directed in recent years towards identifying and examining the conditions enabling and inhibiting forms of collaboration in construction such as alliancing and partnering [1], [2], [3]. The past twenty years has seen such forms of collaboration spread internationally, forming a key part of the discourse of change within the industry, both at a policy level and at the level of practice [3], [4]. As such, collaborative working has become a *sine qua non* of professional contracting practice and the almost expected way of doing business across the sector.

When compared to the private sector, progress within the public sector, both in the UK and elsewhere, has inevitably been slowed by the shifting sands of changing policy around competitive tendering for public sector work. Nevertheless, over the last 20 years, there has been a growth in interest in collaboration in public sector projects and programmes [5] and a corresponding greater research interest in the factors promoting the contractual and relational (project) capabilities deemed necessary for collaboration [6], [7], [8], [9], [10]. Such work has highlighted how contractual mechanisms and associated relational norms are pivotal in ensuring effective collaboration and greater integration between clients and contractors [8], [11]. It has also highlighted the fragility of collaboration in practice [3] and the various stages through which relational development might pass [10], [12], [13], [14].

Nevertheless, while such collaboration is now more commonplace and more intensely researched (whether or not manifested as a formal alliance or partnership), there continues to be a significant gap in our understanding of the micro-processes and dynamics of collaboration that lead to the development of such capabilities – particularly in the context of major public sector programmes of work [15]. This gap arises in part from a tendency to foreground relational contracting qualities at the expense of gaining a clear line of sight on supporting or inhibiting *organizational* structural/cultural attributes [16]; in part from the aggregation of relational qualities to the organizational-level construct of capabilities [7]; and in part from the downplaying of the distinctiveness of the public sector, particularly given that such organizations are increasingly expected to operate in more ‘business-like’ ways [17]. Indeed, public-sector organizations face distinct challenges in realizing the aims and benefits of collaboration through alliances and partnerships [3], especially in the context of major infrastructure programmes of work where public scrutiny is more intense [18] and where the challenges of within-programme project integration are more pronounced [19].

Consequently, there is still much to be learned from examining collaboration in practice on major programmes of work in a public sector institutional setting. Such research can also promote better understanding of the complexities and dynamics of effective collaboration between clients and contractors more generally, by highlighting key enabling and inhibiting factors that are more widely applicable. This paper sets out to deliver these contributions by examining the case of a UK government body responsible for delivering major new programmes of infrastructure development, which was embarking on a strategic journey towards collaborative working with its main contractors. Research was conducted over a two-year period and data were collected using interviews, direct observation and programme documentation. The principal contribution of the research is in demonstrating the fundamental impact that internal structural/cultural conditions

have upon shaping external relational contracting (and vice versa) and how the dynamics of collaborative working created the conditions for divergence in the trajectories of collaboration across the programme of work, with resultant implications for project/programme integration. The paper proceeds by first exploring work on collaboration in the context of public sector programmes of work, before then presenting its case study of an explicit drive towards collaboration.

II. COLLABORATION ON PUBLIC SECTOR PROJECTS AND PROGRAMMES

Early research on collaborative working in construction suggested that it could apply just as well to public as to private sector projects and clients [20]. Indeed, early reported success stories of collaboration in the public sector have found recent echoes in experiences on major public sector projects where modes of collaborative working such as partnering or alliancing have been the adopted forms of governance [3]. Experiences at Heathrow Airport's Terminal 5 Project stands as a good example [19], [21], as does the Sydney Olympics waste-water project, which was an alliance run on open book basis between three contractors [22].

However, in the UK at least, the importance of compulsory competitive tendering for government projects, combined with the development of new forms of contract in the 1990s that effectively proscribed non-competitive tendering led to a much slower, more constrained uptake [23]. Nevertheless, the importance of government as a consumer of construction services [18], combined with trends towards greater commercialism in the public sector [17], have ensured that, over the past 20 years, such restrictions have been eased and collaborative working has become more commonplace. Having said that, the importance of cost as the driving factor, combined with a stress on penalties under penalty/reward schemes, has tended to mean a continued emphasis on contractual compliance with less attention being paid to the development of trust and the promotion of relational aspects of 'partnerships' [24]. The same can be said internationally, for example in Australia, where, despite the growth in project alliances, commentators have continued

to lament the disconnect between the rhetoric of collaborative working and the reality of a more traditional, adversarial approach, driven by financial imperatives [3], [13]. At the same time, we are still witnessing a drive to improve collaboration in major public sector infrastructure projects. The UK government, for example, recently announced its national infrastructure strategy, which promises: “to move away from a confrontational approach, towards stronger relationship and contract management which will deliver continuous improvement over time” [25: 86].

As an illustration of the continuing emphasis on collaboration, thinking in the construction and engineering industries in the UK has recently crystallized around ‘Project 13’ [26], [27]. This initiative, originally introduced by the Infrastructure Client Group¹, is designed to spread the tenets of collaboration amongst major clients, including those in the public sector, and to promote stronger relational bonds between clients and contractors on major projects [5]. Project 13 redefines clients as *owners* and contractors as (lead) *suppliers* and envisages them collectively embarking on a transformational journey from ‘Simple collaboration’, through ‘Integrated functions and relationships’, to ‘High performing enterprise’. The latter represents a more integrated approach to delivering large scale infrastructure projects and programmes and such a transformation is based on five ‘pillars’: Capable Owner, Governance, Integration, Organization and Digital Transformation [26]. A good deal of case study evidence now exists of progress achieved in improving collaborative working on major projects and programmes across several prominent public agencies, including Anglian Water, Highways England and Network Rail [27].

This emphasis on a ‘capable owner’ ensuring that appropriate forms of governance, integration and organization are in place to deliver effective project performance dovetails closely with research on the development of project capabilities across the inter-organizational team that manages and delivers large scale and complex construction projects and programmes [7], [8], [10], [11], [19].

¹ See www.gov.uk/government/publications/infrastructure-client-group for further details

Drawing upon the concept of dynamic capabilities [28], work in this tradition has sought to understand factors influencing the emergence, development and deployment of project capabilities at the (project) operational level – particularly amongst suppliers – and how these interact (recursively) with an organization’s dynamic capabilities at a more strategic business level [7], [10], [14]. More recently, interest has been extended into focusing upon *owner* project capabilities as a key set of components in driving project performance [9]. According to Maytorena-Sanchez and Winch [29: 4], owner dynamic capabilities encompass articulating the voice of the customer, embedding a value driven mind set, articulating the voice of operations, creating and managing complex systems and recruiting building and retaining talent. At a more operational level, they relate to the owner’s commercial and governance capabilities [9].

Work in this area has highlighted not only the importance of collaborative working within public sector projects/programmes [8], [10], [11], [14], but also how developing relational capabilities goes hand in hand with enhancing contractual capabilities [8], [9]. Relational capabilities and contractual capabilities are seen as intrinsically connected, dynamically interactive and mutually reinforcing [8]. In turn, relational development and building and leading collaborations are seen as central to supporting the development and application of project capabilities for improved project performance [3], [8], [9], [11], [12], [13]. Developing integrated project teams is seen as a complementary step and an important one, not only for encouraging close collaboration and better coordination and communication between (often co-located) teams, but also for enabling value co-creation and its realization on projects [3], [8], [11].

Research on the development of project capabilities and its relational aspects recognizes the value of routinizing project processes [6], [8], [30], whilst at the same time acknowledging the limits to routinization in a project setting and the challenges and constraints affecting within-project and, especially, cross-project learning [7], [31]. Nevertheless, it is apparent that, on

projects/programmes of sufficient size and impact, there is scope for the development of project capabilities and the relational capabilities that underpin them, as well as the possibility of the wider diffusion of learning across projects or programmes of work [7], [12]. Moreover, that developing project capabilities in such contexts stems from combining the innovative needed to deal with the exploratory aspects of projects with established procedural routines used to exploit existing capabilities [7], [14].

Most of the work that has attempted to understand how project capabilities develop and evolve has highlighted the various experiential stages associated with transitions from traditional to more collaborative ways of working. Hartmann et al. [8], for example, illustrate how broad shifts in contracting strategy and approach led to collaborative interaction and value co-creation and thus to contractual and relational capability. Learning-based approaches are evident in Davies et al.'s [14] identification of learning, codifying and mobilizing narratives; and in Zerjav et al.'s [10] depiction of how project capabilities are reconfigured (at the project planning phase), adapted (as needed during execution) and maintained (during later stages, including handover).

Others have highlighted more specifically the phases occurring in relationship development. Davis and Walker [12], for example, identify five stages in building capability which they label: inactive awareness, pre-active initiation, active adoption, pro-active acceptance/adaptation and embedded routinization and infusion. Davis and Love [13] propose a model based on three stages – assessment, commitment and enduring. Similarly, Roehrich et al. [11], in their work on integrated project teams identify four phases: motivation, motivation and early search, continuous search and adaptation, implementation and validation. Importantly, all these models consider in their various ways the key antecedent conditions predisposing the organization to pursue a more collaborative approach; motivational circumstances leading to adoption; and situational factors leading to adaptation and application in practice. Many also highlight the importance of factors enabling (or

inhibiting) the embedding and/or reinforcing of capabilities in helping shape future practice [10], [12], [13].

This work leaves three remaining issues, however. The first is in the tendency for much of the literature to take the single project (or, most commonly, the mega-project or programme) as the appropriate unit of analysis (e.g. [10], [14]), rather than simultaneously considering the project/programme within its wider (organizational and inter-organizational) context. While there is great value in taking a project focus, it can detract from understanding the wider organizational influences that can shape interaction, both directly and indirectly [32]. As Winch and Leiringer have recently argued [9: 276-7], there has been limited attention paid in the literature on Project 13-inspired collaboration to capable ownership and to links between that and governance and organization (control) – particularly to exploring how governance can facilitate or impede interaction (see also [13: 449]).

Second, is the tendency to take an ‘aggregated’, organizational-level view of project capabilities and associated relational qualities that tends to privilege the (project) organization as the level of analysis, rather than drill down to understand the dynamics of interaction at the level of key individual actors and groups. This is not surprising, given the reliance on the more strategic management-inspired concept of capabilities, which has inspired work on understanding project and owner capabilities [7], [9]. However, in focusing on the wider (recursive) relationships that can exist between project and (organizational) dynamic capabilities (see [7: 319]), attention can be drawn away from the situated interaction through which such (contractual and relational) capabilities are instantiated in practice.

Third, the explicit inter-mingling of public and private sector practices and norms in such contexts and how they shape the development of contractual and relational capabilities tends to get overlooked. ‘Corporatization’ of public services has increased significantly and spread

internationally over recent years [33], leading to government agencies being transformed into semi-autonomous organizations that have commercial and managerial independence and are expected to adopt private sector goals and practices but which are still under state control [17]. Arguably, such organizations face particular challenges and constraints in pursuing a collaborative approach due to their quasi-public sector status [3: 5]. Yet, we know comparatively little about manifestations of collaborative contracting in major public sector projects and its organizational correlates at the level of practice. Filling this gap can yield important insights into collaboration in such relatively under-explored institutional settings and highlight the factors that impede or facilitate collaboration and integration across major (public sector commissioned) programmes of work. Highlighting the blending or bridging of private sector management practice with the institutional imperatives associated with delivering public sector projects can also help examine how, in the context of major projects/programmes, the competing logics of achieving public service outcomes and acting commercially (see [34]) are reconciled in the pursuit of (public) owner capabilities.

The research presented in this paper therefore highlights the prospects for collaborative working on major public sector programmes – particularly those inspired by Project 13. The aim of the project was to focus on cultural readiness and resilience, viewed as a multi-level phenomenon and, in doing so, address two inter-related questions. First, how and to what extent (and with what effects) do internal structural/cultural conditions related to governance and organization facilitate or impede the development of owner capabilities? Second, how do the dynamics of the emergent collaborative relationship and the mechanisms used to promote relational development affect collaborative trajectories (and with what implications for wider programme integration)?

III. RESEARCH METHODS

Following the ethos of Maytorena-Sanchez and Winch [29] and the desire to generate research that combines practical relevance with academic rigour, this research project took an engaged scholarship approach to address these questions. Engaged scholarship is a relational model of

research, reliant on practitioners and academics working together to co-produce knowledge and which, in turn, lends itself to the study of complex, large-scale industry collaborations [35]. As such, the project was collaborative in its design and execution, consisting of four interrelated elements: problem formulation, theory building, research conduct and design, and problem solving [36]. These are summarised in Figure 1 and described further below.

FIGURE 1 HERE

The case study was of change at one regional office of a large-scale, publicly owned organization in the UK responsible for delivering a major programme of multi-million-pound infrastructure development projects. The organization's total investment programme amounted to over £8bn over a 6-year period and was split across 6 regions, each of which managed its own programme of work, with 2-5 main contractors (5 in the focal region) acting as lead supplier responsible for delivering packages of project work within the overall regional programme. The organization, which is hereinafter referred to as 'The Owner', aspired to progress from simple collaboration with its lead suppliers to fully integrated regional enterprises within 5 years. This goal was directly inspired and explicitly informed by Project 13 aspirations for integration based on making progress as a 'capable owner' and supported by changes in governance, organisation, integration and digitization [5]. It was to be realised through a major change of its mode of programme set-up and delivery, driven by new collaborative contracting arrangements, a performance management framework, KPI measures and metrics, and shaped through various cultural and behavioural change initiatives.

The research (funded by The Owner²) was tasked with focusing on the lived organizational reality of the process of building collaboration as experienced by The Owner and its partners, concentrating particularly upon contractual and relational elements [8]. A social constructionist approach was taken, providing a platform for practitioner voice which directly informed the development of our

² The authors would like to thank the case company for funding this research and also to thank all those from the company and its suppliers and consultants who generously gave of their time to support this research.

theory. Through this approach, we aimed to advance both the theory and the practice of value co-creation within collaborative working relationships within the industry [3], [8], [29].

Problem formulation was carried out collaboratively with The Owner. The research team conducted preliminary open, unstructured interviews (n=12) in spring 2018, with the intention of engaging The Owner in a conversation around the governance and administration of the organization and its projects which, in turn, would allow an assessment of its capabilities as an owner, as defined by Project 13 principles. Interviews were conducted with internal senior executives, project managers and specialist (business and finance) staff, plus representatives from two external suppliers. The findings were presented to The Owner's SMT in a continuation of that conversation, enabling collaboration to develop further between practitioners and academics. There was a joint recognition of the need to better understand the effectiveness of measures and metrics being used and the responses of industry partners to new contractual and relational mechanisms. This resulted in a specific set of research questions being formulated around the cultural readiness of both Owner and lead suppliers; the appropriateness of the measures, mechanisms and metrics used to promote greater collaboration; and the identification of any issues that might require adjustments and/or new initiatives moving forward.

Theory building needed to recognize the complexity of the transition from traditional contracting and simple collaboration to integrated collaborative working, both in terms of the embedding of contractual measures and their recursive interplay with unfolding relational norms and values [8], [26]. The research sought to focus on the lived experience of practitioners across levels within the (inter-)organizational team, capturing the relational aspect of collaboration and identifying behaviours and processes that indicated a cultural readiness (or otherwise) for change. Drawing together the initial work and joint understanding achieved with The Owner through the early interviews and discussions, and reflecting the multi-level and longitudinal complexity of the

envisaged transition [8], [26], the following model was developed to support both the research design and the continued development of the underpinning theory (cf. [29]).

FIGURE 2 HERE

The model depicts the progression of a collaborative relationship from early-stage collaboration, through tendering and contracting processes, to project delivery and outcomes. It highlights the importance of the wider institutional and socio-economic context in helping shape collaborative antecedent conditions (e.g. legal context, competitive conditions, cultural factors, organizational capabilities) and the contracting and collaborative mechanisms available and used. As such, the model also drills down to emphasize not only the structural/cultural conditions shaping the formation of collaborative relationships on the ground, but also the consequences of the contracting and relational mechanisms driving and mediating the relationship (cf. [8]) as well as the range of potential outcomes (including continuity in the relationship).

Research Design and Conduct aimed to map out and evaluate factors influencing progress towards collaboration using the above model and, though this, identify any further changes and development required. Research involved semi-structured interviews with 18 senior executives across The Owner and (4) lead suppliers in 2019 (some were interviewed twice). Interviewees were initially suggested by The Owner's regional CEO but, as the research progressed and in line with the agreed research protocol, further interviewees were selected by the research team to reflect and capture the views of all relevant senior managers involved in the programme. This approach was pursued until informants from all relevant groups were interviewed and data saturation was reached. An Interview Schedule developed from the initial problem formulation stage contained questions reflecting shared concerns around cultural readiness, the effectiveness of contractual initiatives and collaborative measures, and the design and integration of appropriate metrics. Interviews were held with 11 operational, commercial and specialist staff from the Owner, 6 senior

operational and commercial staff from across 4 of the suppliers and the (independent) behavioural consultant. Interviews were conducted in person or by phone and all were recorded and transcribed.

To gauge directly the impact of collaborative working as well as to cross-check interview accounts, data triangulation was used with several meetings and workshops being attended and observed. These included 4 full-day workshops on: presenting and working through the new contracts and KPIs; introducing behavioural maturity; vision setting; and team maturity results feedback. Workshops were attended by both owner and supplier staff, with numbers ranging from around 8 (results feedback) to over 20 (contracts presentation). Whilst attendance at these workshops was passive for the research team, they did provide opportunities to cross-check understanding and to hold follow on informal discussions to confirm assumptions made through interview and observation. Written artifacts of the new, collaborative way of working were also collected and analyzed, including (all) previous workshop documentation and slides, project delivery framework guidance and manuals, collaboration framework details, and lists of KPIs.

Problem solving: Interview data were cross-checked against notes taken from observations and documentation and the data were analyzed thematically according to the framework in Figure 2, allowing capture of the main antecedents of the relationship and the mechanisms used to embed new contractual and working arrangements. The process of coding and analysis was iterative, involving organizing and analyzing the data in relation to the framework's constituent elements, while, at the same time, interrogating and fine-tuning that model in response to the emergent findings [37]. Two significant points to emphasize from this modelling are, first, the importance of seeing relational approaches to contracting as a multi-levelled phenomenon – shaped by institutional level forces (e.g. policy and legal context), but also significantly impacted by relational conditions at the meso-(project) level, by capabilities at the organizational level and by behaviours at individual and team levels. Second, relational contracting also has a dynamic quality to it, where

the effects of collaboration not only produce cycles of positive or negative reinforcement but are also directly conditioned through the ongoing evaluation of past actions and assessment of future finite possibilities [38].

In what follows, we take a narrative approach to our case study (cf. [14]), structuring our presentation of the data according to four ‘experiential’ phases that correspond broadly to the flow depicted in Figure 2 and which emerged from the thematic analysis of the main data set (most of which was collected between the ‘Tendering and Contracting’ and ‘Project Delivery’ stages). The phases correspond closely to the earlier-noted emphasis in the literature on motivations (*Revelation*), antecedent conditions (*Readiness*), situational adaptation and application (*Resilience*) and embedding/reinforcing conditions (*Reinforcement*). These experiential phases constituted an addition/refinement to the original model as they capture the lived experience (and passions) of this early-stage transition to collaborative working and so emphasize the human, relational elements of collaboration much more strongly. *Revelation* and *Readiness* data capture the antecedent conditions reported retrospectively and/or evidenced in real time; whereas *Resilience* and *Reinforcement* data related to experiences during the programme mobilization stage (and beyond). The case study concludes with an assessment phase (*Renaissance or Regression?*) which reflects the mixed views captured about the future trajectory of collaborative working on the programme. This framing (and the model as a whole) was further validated via a 20-page final report presented to The Owner’s SLT meeting at the end of the project, at which the findings were presented verbally and feedback was given. This in turn generated jointly identified and agreed recommendations for future action.

IV. CASE STUDY

A. *Revelation*

The starting point for change was The Owner’s relative lack of success in previous attempts to instill a more collaborative approach to contracting. While the aim of improving collaboration had been

the explicit attention, the retention of traditional tendering and contractual arrangements, combined with a highly regulated, process-based project governance model (including multiple major stage gate approvals for developments in design), had meant that interaction with suppliers usually defaulted to a more traditional, adversarial approach. Now, the desire to reduce project costs and lead times by exploiting suppliers' design and build capabilities had inspired those on The Owner's commercial side to embark on a Project 13-inspired journey towards 'integrated enterprise' with a selected number of design-build contractors:

We want to empower the supply chain to optimise its capability, to improve on efficiency. And in doing that, to have the ability to retain all of the benefit of that efficiency, but against a matrix of benefit that we can rationalise to the investor (Owner, commercial)

For both The Owner and suppliers, what was being proposed was a different *modus operandi* that was broadly understood and clearly articulated across The Owner's commercial and specialist teams:

The principle is really simple - this is how much we can afford, and you guys are clever guys ... what we need you to do is come up with a solution that fits within what we can afford, and we're quite happy for you to challenge whatever you need to do to hit that budget ... That is a whole new mindset for our supply chain (Owner, specialist)

Incentivization of innovation and improvements in design, time and cost would be secured through agreed budget targets and designs for work packages with a risk-reward formula built in.

Importantly, the desire to move in this direction was shared by all the suppliers:

I see this as a huge opportunity to transform the industry through this contract, and prove to others what can be done, with the right people, with the right behaviours, with the right commercial arrangements in place. How we can move it to a completely different place from the very traditional, transactional arrangements with lots of game-playing commercially, and lots of finger-pointing (Supplier, operations)

And similarly, recognizing too the scale and depth of change required:

They're asking us to agree a budget and own that budget which ... is a really good collaborative way of saying, 'Right, you go and do it.' The thing that people are scared of is they're agreeing a budget and they'll say, 'You own the budget, you're in control.' ... The whole industry has to change to make this work. That's a mindset of trust (Supplier, operations)

Crucially, making the new contractual approach work meant developing integrated owner-supplier project teams (cf. [8], [11]) with a concomitant willingness and ability across both parties to share leadership, value and risks (cf. [3]).

B. Readiness

A key challenge facing both owner and suppliers was their readiness for change. As already noted (and as confirmed through feedback on initial findings from the preliminary interviews), The Owner had historically adopted a very process-oriented approach to project governance, which was seen by all of those interviewed across both parties as excessive:

I understand why you have to follow that process and I understand that there are things... that we need to do ... It's always going to be process heavy ... but I just think that some of it is ridiculous (Owner, operations)

Successive attempts had been made to rationalize processes but with mixed results. Moreover, such a strong project governance framework had reinforced a command and control approach internally, as well as in external dealings with suppliers. This had helped promote a more cautious, rule-bound culture that the organization was now trying to change to one in which project managers were more involved in projects from the start and empowered to take decisions, acting more autonomously and flexibly. However, both owner and supplier staff agreed that this was still work in progress with more change being needed to enhance project management capabilities:

It's quite an immature organisation when it comes to project management (Owner, specialist)

I look at the calibre of their project managers who effectively face off against our project directors and would be concerned (Supplier, operations)

Competitive tendering was used for the overall programme of work, with suppliers bidding for preferred (large or small) packages of work (with £100m being the cut-off point) over an 18-month 1st tranche of projects. A strong emphasis in tendering was put on suppliers' commitment to a collaborative approach (estimated at ~30% of the decision) and to achieving adequate performance levels across 20 project KPIs. These can be grouped under 7 broad headings: safety (of customers and workforce); customer (efficacy and satisfaction); disruption minimization; employment (including development and EDI); supplier payments; environment; and performance (efficiency, quality and value). Consequently, there was an unusually strong emphasis on embedding and articulating the value for the customer (as well as community and environmental concerns) in performance criteria (cf. [29: 5]).

There were five successful bidders for the packages of work on offer in the region and, while they varied in size, most had experience of working for The Owner and with collaborative working more generally. While budget setting was undertaken by The Owner, the actual target budget for suppliers was to be based upon their tender price. Framework contracts were let under standard NEC4 terms and conditions with limited bespoke amendments, while packages of work were let under NEC4 ECC (Engineering and Construction Contractor) Option C with X22 Early Contractor Involvement. Incentivization was offered through a risk/reward formula that entitled suppliers to take a proportion of any savings achieved and which operated in a way explained by the commercial director, who was seen as the architect of the new approach:

Under this model ... the only way to drive a better return to your business is to drive the direct and indirect costs down. Generally, that would be a disincentive because your turnover would be going down. Because we've given them the ability to retain 100 per cent of the gain share, whilst

their direct and indirect costs will go down, their margin will go up and their gain share will go up. Counterintuitively to the way that they run their businesses, if they drive the direct and indirect costs up, their margin will go down and their ability to gain share will reduce. The behavioural nudge that we've put in place for that won't start taking effect until the[y] ... realise that ... they [are] reducing the margin that the project's returning to the business rather than increasing it. (Owner, commercial)

Efforts would also be made to leverage performance improvements for longer term learning by sharing best practice between contractors through the setting up of regional centers of excellence.

C. Resilience

Once contracts were let, lengthy and intense interaction ensued during 'mobilization' – a phase that corresponded to the period between the award of contracts and the start of work on site and which was associated with the translation of outline into detailed designs. In addition to multiple workshops, webinars and meetings set up to familiarize staff with the new way of working, all programme staff were expected to participate in (and meet the performance requirements of) a programme designed to enhance behavioural maturity – in anticipation of the more intense collaboration to come through working together on projects. This emphasis on relationship development across the teams [12] was well received by both parties. However, some interviewed (from both parties) felt that these workshops were concentrated in the early stages, whereas their full value would emerge later:

We're doing some great stuff ... It's easy at the moment, because we're just mobilising ... We're not in difficult conversations ... That's when the collaboration becomes powerful or not, is when things go wrong. At the moment, nothing's going wrong (Supplier, operations)

However, it very quickly became apparent that the mobilization phase was not free of problems.

One key issue that was shaping the emerging relationship related to concerns raised by suppliers

that this first tranche of projects required them to work to outline designs that had already been produced by The Owner's original design team. This meant that suppliers had to take on the risk based upon the tender prices already submitted and target budgets already agreed. Their concerns centered around the due diligence work required to ensure that designs were viable commercially, on the tight timescale for doing this work, and its associated costs (which had not been included in the budget). One respondent clearly articulated the shared concern:

You don't get pain-gain on the target costs ... you get the pain-gain on the budget. So, all the incentives and mechanisms are related to the budget and we don't know what the budget is, so it's a blind situation really. That's why everybody was ... saying: we need to verify the budget and go through it, and if we're not happy and if there isn't enough money in the budget, then we're not signing up to something where we lose money. Nobody would (Supplier, operations)

The Owner's view as expressed by the commercial team was somewhat different:

We're asking them to do due diligence to adopt the design and to agree the budget that we have derived out of our historic modelling. It's no different to the budget that we would have tried to achieve in the first place. Their scepticism is we've gone away and taken a chunk of the money away and then given them a problem to solve. So, we're having to go through the process of explaining that isn't the situation (Owner, commercial)

Subsequent tranches of projects would be based upon suppliers' own outline designs, with The Owner's designers (yet to be appointed) taking on the role of assuring quality. Consequently, this was seen by both parties as a transitional effect with subsequent projects being less problematic:

We've been told we're going to use this new delivery model, and I'm really bought into it. I think it's the right thing to do ... [But] it's going to be a real pain with retrofitting our [current] project ... into this new model (Owner, operations)

The next, second tranche schemes ... will be so much simpler because everything's within your own power, within your own gift, whereas ... you've picked up stuff that others have done and you're taking the liability for that (Supplier, operations)

Nevertheless, in the meantime, this proved to be the first test of both a mutual understanding of the new way of working and of the group's ability to resolve the issue. Indeed, much of the afternoon discussion at the first workshop (which was set up to run through the new approach with all lead suppliers present) became focused on the due diligence work issue and led to some robust exchanges between owner commercial staff and suppliers' operational team representatives.

According to The Owner's commercial team:

This is, I suppose, part of this whole journey away from: we'll tell you what you have to do and you'll do it, to: let's decide these are the key metrics that are really important to us, and we need to define it to say what they look like and you can then help us define them and then we'll measure you against them to make sure they're achieved (Owner, commercial)

However, the position was complicated by the fact that programme high-level requirements and their associated KPIs had yet to be finalized; and a belief too by contractors that The Owner had done their own costings but were not sharing them with suppliers:

We're still very suspicious of the commercial team and how they interpret ... and ... administer the contract because quite often ... we get the commercial team applying what they intended the contract to do, rather than what's written in the contract (Supplier, operations)

These concerns were shared across the suppliers' operational teams, albeit with some differences in strength of feeling.

The net effect was a questioning by The Owner's commercial team of whether the suppliers' teams had bought into or fully understood the new way of working:

A lot of these guys have taken longer than the required time in the contract because they've had to do a bottom-up estimate, and against the budget. I think we were a bit naïve in saying you guys need to adopt a top-down approach (Owner, commercial)

As such, the owner's view reflected a concern that a value driven mindset [29] may not yet have been fully appreciated or internalized by suppliers. By the same token, however, the suppliers' operational teams questioned whether there was sufficient clarity and understanding about contract requirements across The Owner's team, suggesting a similar lack of internalization and embedding of the value driven approach. For example:

Only one or two people in [The Owner] understand their contract. As you go out to the regional teams, they do not understand it, they haven't got their head around it and we, as partners, we all have a different interpretation of it, so we probably don't understand it either (Supplier, operations)

As the above quote indicates a lot also hinged upon differentiation within each organization between those involved in tendering and those responsible for putting the plans into effect. The 'legal disconnect' that occurred between those responsible for establishing contracts and those managing projects [39] was clear evidence of the information asymmetry that occurred between the parties [40]. From the viewpoint of The Owner's commercial team:

The tender team would've known what they were signing themselves up to ... [but] the flood of questions start coming in because [the delivery team] haven't had a brief ... or there hasn't been enough of a handover (Owner, commercial)

The following was typical of the suppliers' alternative view on the contract:

The contract says one thing, the intent is something different. I am okay with working to an intent, but ... we've not got the ability to collaborate with the commercial team. We collaborate with the regional team, but they aren't the people driving the contract (Supplier, operations)

The obvious danger here was that relations would or could default to a more adversarial stance, a view that was shared by staff across both teams:

What we're finding at the moment is it's very easy to see a slip into old behaviours ... If any of the parties ... feel like they're not getting what they want from the relationship, then I think there is an assumption that they would revert to the contract (Owner, specialist)

At the same time, interactions in workshops suggested there was a good deal of flexibility on both sides and a recognition too that it was not just about one party's lack of understanding. Indeed, one respondent noted differences amongst suppliers, depending on their 'risk appetite':

We're trying to focus on managing the risks ... rather than go down a rabbit hole of checking everything to the nth degree ... A lot of this is about maturity of relationships and trust ... [and] different organizations' risk appetite (Supplier, operations)

Members of The Owner's specialist and operational teams were also acutely aware that the need for flexibility applied just as well to their own organization:

Are they taking on the culture change and the different ways of working and applying them; or are they still resisting? If they're still resisting, they're not the right person to be there. That works for both [The Owner] side and [suppliers] (Owner, specialist)

Importantly, representatives from both parties explicitly referred to the value of these interactive workshops in providing the forum for resolving such early problems:

It was a frank discussion, which was great and ... if you asked everyone what was the meeting like, they would all say brilliant, it was really good. It was open. We could talk about issues ... that's all what collaboration is about. It isn't being nicey, nicey to one another; it is to solve the problems (Supplier, commercial)

Indeed, while those observed exchanges had been frank, they had also led to some resolution of outstanding issues and an agreed plan for taking discussions forward in meetings with suppliers.

D. Reinforcement

In addition to the mechanisms used in the short term to embed new ways of working (such as the behavioural maturity workshops), a whole suite of project management systems and controls was being developed and implemented to reinforce the desired change (for example, the Project, Portfolio and Project Management Maturity Model [41] and integrated project controls). While significant progress had been made in developing these systems, members of The Owner's team felt that the infrastructure of systems and controls to support collaboration was under-developed and so they were *"learning on the job"* (Owner, operations):

We're having to answer some fairly routine stuff on the fly ... It's a completely different model and therefore how we capture our costs, how we forecast our costs, how we estimate our costs, we're having to develop that as we go along (Owner, specialist)

Similar points were made about delays in the setting up and operation of the new regional center of excellence to support collaboration:

We're going to be moving from mobilisation into delivery in July, and we don't yet know how we're shaping our regional centre of excellence ... it's running a bit behind where it should be (Supplier, operations)

As such, opportunities for cross-project learning and the sharing of best practice were somewhat constrained at this stage. The fact that suppliers would in due course be in competition for the next tranche of projects was also flagged up by some owner staff as potentially inhibiting knowledge sharing and learning.

More generally, it was felt that three key internal institutional factors could act as barriers to further change. First, the highly elaborate project governance regime already mentioned potentially constrained the achievement of faster design-build integration, due to the need for intense and lengthy stage gate reviews. As one owner team member put it:

If we continue to carry out our current governance arrangements, we're going to continue to slow down projects ... I think we'll be on the hook for a lot of money because there'll be contractors saying, 'We were ready and you weren't, and that's why the project's now in pain and not in gain' ... there's hundreds of thousands, millions of pounds because [The Owner] couldn't make a decision quick enough (Owner, operations)

One potential solution was in the use of workarounds, although this would inevitably pose a direct challenge to existing institutional governance arrangements:

There's no guidebook, there is no set process. The blessing side of it is well, we'll just make up the process, we'll be the people who'll make the process work the way we want it to work, and ... vary the old school way of doing things (Owner, operations)

Importantly, there was a shared desire across The Owner's team to overcome structural constraints linked to programme governance, although no clear indication was given of how this would be achieved, other than through workarounds.

Second, a potential break on innovation in design and methods of construction would arise (with consequences for gainshare/painshare) if the historical importance of suppliers meeting internally generated design standards was not appropriately relaxed:

The next challenge will come into our business if they start to come up with these creative ideas, are we ready for them? Are our technical teams willing to accept them? Are they willing to flex their standards if that's what it is? (Owner, specialist)

This view was expressed by some, but not all, members of The Owner's team. Significantly, however, internal cultural change initiatives that had involved project operational and support staff had not yet encompassed those technical teams who continued to sign off construction designs and methods. As such, there was a continuing and potentially heightened disjuncture between the incentivization of innovative design solutions and established internal design governance processes.

A third potential factor influencing change was found in significant cross-regional differences in the nature, extent and pace of change, as regions engaged with the new system at different points in time. Because different integrated operational teams were involved across regions, and since making progress depended crucially upon how those regional teams developed their own *modus operandi*, the form of collaboration was likely to differ:

One of the things that I don't think we've got a grip on yet is how that operates as a composite, if you like, how that comes together (Owner, specialist)

Again, this concern was explicitly raised by only some members of The Owner's team. However, it was seen as a distinct (paradoxical) possibility, given the strength of commitment across those integrated teams to making collaboration work in their own locale on their own programme of work.

E. Renaissance or Regression?

By the end of the fieldwork, there was still some doubt as to whether the rhetoric of a new way of working was being matched in reality with the required levels of commitment needed for the new model to work. While there was a clear determination on both sides to make it work, the relational advances made at the operational level were contrasted by both teams with the challenges still faced at a wider organizational level. To some extent, this reflected continuing questioning by The Owner of the suppliers' ability to appreciate the new approach and internalize its key features. The following depiction was typical:

[Suppliers] are still operating in a very master/servant type environment, and to a certain extent they are partly to blame for that ... They are still in that space where they want to be told what [The Owner] want. They aren't challenging ... what's the right thing to do. I don't think that we are necessarily making it that easy for them to challenge, and I certainly don't think we are accepting of challenge (Owner, specialist)

As the quote suggests, however, it also reflected what were considered to be very mixed messages about collaboration within The Owner organization. One owner representative characterized this as senior management at The Owner “not letting go of control” and being unwilling to empower their own operational staff as well as fully trust the suppliers:

We're not listening to what they're saying and we're not taking what's important to them on board and just saying, 'This is how we said it was going to be, you signed up to this contract, now you need to do it'. It can be collaborative to follow a contract ... but where there are big problems that are occurring and where it just feels like we're not listening, I think that sets the wrong tone for the start of a six-year relationship (Owner, operations)

Indeed, it was noticeable that those interviewed across both sets of teams were virtually unanimous in how they viewed The Owner’s own progress towards collaboration:

The biggest challenge will be [The Owner], it won't be the partners. The partners, all of us, to a greater, or a lesser extent, work in alliancing and partnering arrangements across our businesses. So, we'll all be relatively comfortable and have people with good knowledge of doing it. [The Owner] will be the entity that will struggle the most with moving to that kind of arrangement (Supplier, operations)

I think the organization has got a long way to go to even achieve simple collaboration, to even operate in a way where collaboration is the norm, and that moving to integration and enterprise feels years off, it doesn't feel like we've got the maturity to get there or the understanding of it (Owner, operations)

V. DISCUSSION

At one level, the above results are not surprising, insofar as they demonstrate the early teething problems associated with moving to a new contractual method and associated collaborative arrangement and highlight continued challenges of embedding new practices, achieving internalization of norms, empowering of teams and instilling confidence and trust in owner-supplier

relationships. Indeed, research has indicated for a long time the learning curve associated with embarking upon a collaborative arrangement [42]. These findings also demonstrate neatly the inherent challenges associated with developing and embedding new contractual and relational capabilities [8].

However, what they do emphasize are the problems associated with, and the importance attached to, differentiation and integration *internally* within each partner organization as prime conditioning influences upon the generation of collaborative relations at the operational level. Indeed, the results echo findings elsewhere of issues surrounding the lack of communication between project and procurement teams [8]. Moreover, they give an insight into the constraining effect of internal organizational conditions on the development of Project 13-inspired 'capable ownership' [29]. In other words, what was demonstrated in this case was not the unwillingness and/or inability of actors to collaborate at the level of the *project*; rather, it was the conditioning effect of internal structural/cultural conditions within each *organization* within which new ways of working were nested and which, in turn, played a powerful part in defining each party's readiness, resilience and reinforcement of new ways of working.

As such, continued challenges to the development of each party's project capabilities [7] occurred that were primarily due to the almost paradoxical effects of within-organization differentiation and the resultant lack of internal communications and effective handovers between teams. A good example here was in the heightened information asymmetry due to the greater devolved responsibility required under new ways of working that threatened to derail interaction by exacerbating the legal disconnect between the parties [39]. The more important general point, however, is that such tensions and issues only emerge this clearly from an analysis that foregrounds surrounding organizational, as well as project, patterns of governance and control [32]; and from an analysis that disaggregates (and arguably deconstructs) the concept of project capabilities by

throwing light on the impact of its constituent, contributory elements working at (multiple) inter-organizational and inter-group/inter-personal levels to shape project-based interaction.

A similar effect of differentiation (again, at an organizational level but with clear implications for wider programme management integration and, by implication, project/owner capabilities) can be seen in the challenges noted in progressing towards achieving a consistent model of collaboration across regional teams within the broad owner/supplier 'conglomeration'. While it was too early to confidently predict such an outcome, the ground conditions for creating collaborative working were highly dependent on local structural/cultural conditions, as well as personal styles and relationships.

As one participant put it:

People on the package make a difference, because it's the individuals that will choose to, or not to, engage or collaborate (Owner, operations)

Given the varying configuration of these conditions across regional teams dealing with various parts of the overall investment programme, it was as much likely that *divergence*, rather than *convergence*, would occur in ways of working across the wider multi-organizational network. The result was that different trajectories of change were already occurring across regional partnerships that would most likely lead to integration challenges for all parties concerned in the future.

The case also gives an illustration of the particular challenges of developing public-private collaboration, due to significant and obvious internal structural/cultural differences and modes of internal project governance. The analysis highlighted the longer-term potential impact on collaborative working of project/programme governance processes – both currently and in the foreseeable future. This case study was only researched in its early stages, and it could be that The Owner's internal governance would be adjusted somehow in due course to match the desired more flexible collaborative arrangements. In other words, this 'co-mingling' of the institutional logics of public propriety and commercialism [43] might be reconciled in a number of ways. Seo and Creed

[34] point to the exercise of *praxis* – or the artful mobilization of internal contradictions generated by internal legitimacy and conformity pressures – to suggest that institutional change could be achieved by key actors exploiting internal institutional contradictions. However, the interviews suggested that the likely outcome was as much a fundamental clash between the new way of working and existing systems of governance, or, at best, an uncomfortable reliance on workarounds to bypass governance restrictions that were perceived as too rigid. Whether those workarounds would or could be seen as sufficient to constitute the exercise of *praxis* in the interest of enhancing the necessary flexibility and adaptability, remained to be seen.

A further important theme that emerges is the continued emphasis on the importance of ‘making the relationship work’ and the continuing dual reliance on both *instrumental* methods (such as the edifice of KPIs and gainshare/painshare targets) and *developmental* processes (such as the behavioural maturity programme). Again, this is not entirely unexpected. However, what is significant here is both the emphasis placed on the ‘engineering’ of change, including the explicit reliance on nudge theory [44] and KPI metrics to try to shape suppliers’ thinking; and the challenges of effectively synchronizing each set of processes with the natural flow of work across design and construction stages. This was most clearly shown in the paradox of behavioural maturity workshops taking place before they were most useful for working through mobilization issues; yet they were important to create the prior mutual understanding needed to help deal with those issues. Their concentration in the early stages also contrasted with a longer-term, more phased approach to relationship development that might have more profoundly embedded collaborative norms [12]. Similarly, a more complete set of sophisticated project controls would have helped the progression of the project through its various stages. However, the principles of collaboration needed to be understood and properly embedded before those controls could be effectively designed and implemented.

In other words, it is difficult to circumvent the impact of what is in fact a great deal of heterogeneity in project organizational processes and timelines [45] that creates complexities in designing a well synchronized over-arching transitional arrangement – or, indeed, a firmly embedded, permanent system of collaboration – particularly that aims to transcend project/programme boundaries [31]. Moreover, as some of the quotes suggest, this heterogeneity not only related to project processes; it also related to cultural differences between organizations and their subunits that, as the evidence suggests, may or may not have been transformed or transformable through the experience of collaborative working. Such differences posed clear challenges to interaction and performance further down the line due to pre-existing, less flexible governance processes and potentially self-reproducing organizational cultures. Such an observation that marks out collaboration as more of an ongoing social accomplishment than a firmly achieved outcome [46] contrasts somewhat with a good deal of the literature on relationship development reviewed earlier which tends to take a more linear, cumulative and equifinal view of the development of collaborative relationships over time.

In presenting the model in Figure 2, the paper makes a conceptual and empirical contribution to our understanding of the development of collaboration on large scale, complex public programmes of work by distilling from the case study findings an explicit recognition of two key elements that are often overlooked, but which are crucial in shaping the emergence, development and institutionalization of associated contractual forms and relational norms. First, by making explicit the multi-organizational and multi-level nature of interaction that shapes and impacts upon collaborative relationships the model goes some way to identifying key factors that enable and constrain project capabilities. Second, by making explicit the dynamically unfolding nature of collaborative interaction, the model highlights the recursive interplay of those organizational and other conditions over time, presenting a much more nuanced picture of relationship development

than that commonly presented in the literature. The model also allows for the paradox that successful collaboration at the project level almost inevitably creates challenges for achieving integration at the programme level – and vice versa – with all that implies for achieving integrated programme development [15].

VI. CONCLUSION

The above analysis has drilled down into the unfolding development of a new, collaborative way of working, inspired by Project 13 principles, between a major infrastructure owner and its lead suppliers across a major regional investment programme. The research has highlighted the motivations and cultural readiness of the parties, the dynamics of relationship development during its early stages, and assessed prospects for the further reinforcement (and thus deeper embedding) of collaboration across the owner's wider (national) programme of work.

The perspective taken is one that is attuned to the influence of surrounding organizational conditions within which such interaction is nested *and* to the dynamics of collaboration at the level of the programme and its constituent projects. The model generated through a process of engaged scholarship, captures these features, emphasizing the interplay of contractual and relational measures as well as the multi-levelled nature of interaction shaping the development of collaboration. A key contribution of the research is in demonstrating the influences of pre-existing internal organizational structural/cultural differentiation and established project governance procedures in shaping the development of owner capabilities, and of project capabilities more broadly within the integrated programme team. Too often, the approach taken is one that privileges exploring relational qualities at the point of contact *between* organizations, effectively treating organizational embedding conditions as extraneous influences. Furthermore, a tendency to focus on project capabilities at an aggregated level (whether strategic or operational) can seriously discount the impact that multiple interactions at personal, group, project, and inter-organizational levels have

upon instantiating collaboration in practice. This research argues for greater recognition of both the multi-levelled nature of interaction and the recursive interplay of project and organizational conditions and its effects on owner-supplier collaboration.

A further key contribution of the paper is in highlighting the importance of the dynamics of relationship development and the impact they can have upon the synchronization of processes explicitly adopted or adapted to promote collaboration. It also shows the impact that developmental logics may themselves have upon the (disparate) trajectories that collaboration can take when one considers any wider network differentiation and associated integration challenges – a theme which is particularly pertinent to large-scale, public sector programme management. By the same token, it also brings into question the closure implied in models of relationship development that can present collaboration as achieved, rather than as an ongoing challenge and (fragile) social accomplishment.

These conceptual contributions have important practical implications, as they emphasize the importance to practitioners of being attentive to both conditions on the project at the boundary between organizations, as well as to internal conditions within their parent organization which may be (systematically, but unintendedly) inhibiting or enabling change. The implication here is the need for greater *reflexivity* regarding the impact that wider organizational conditions and governance processes can have upon constraining the prospects for collaboration at operational levels. The findings also highlight the importance of being attuned to the unfolding dynamics of collaboration and to the design considerations needed to synchronize the measures used to promote the journey towards collaboration. Here the call is for greater *reflection* on the part of those promulgating change based on a consideration of both the intended timeline of action and how this recursively relates to the dynamics of interaction created by the drive towards collaboration itself.

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Figure 1: Engaged Scholarship approach

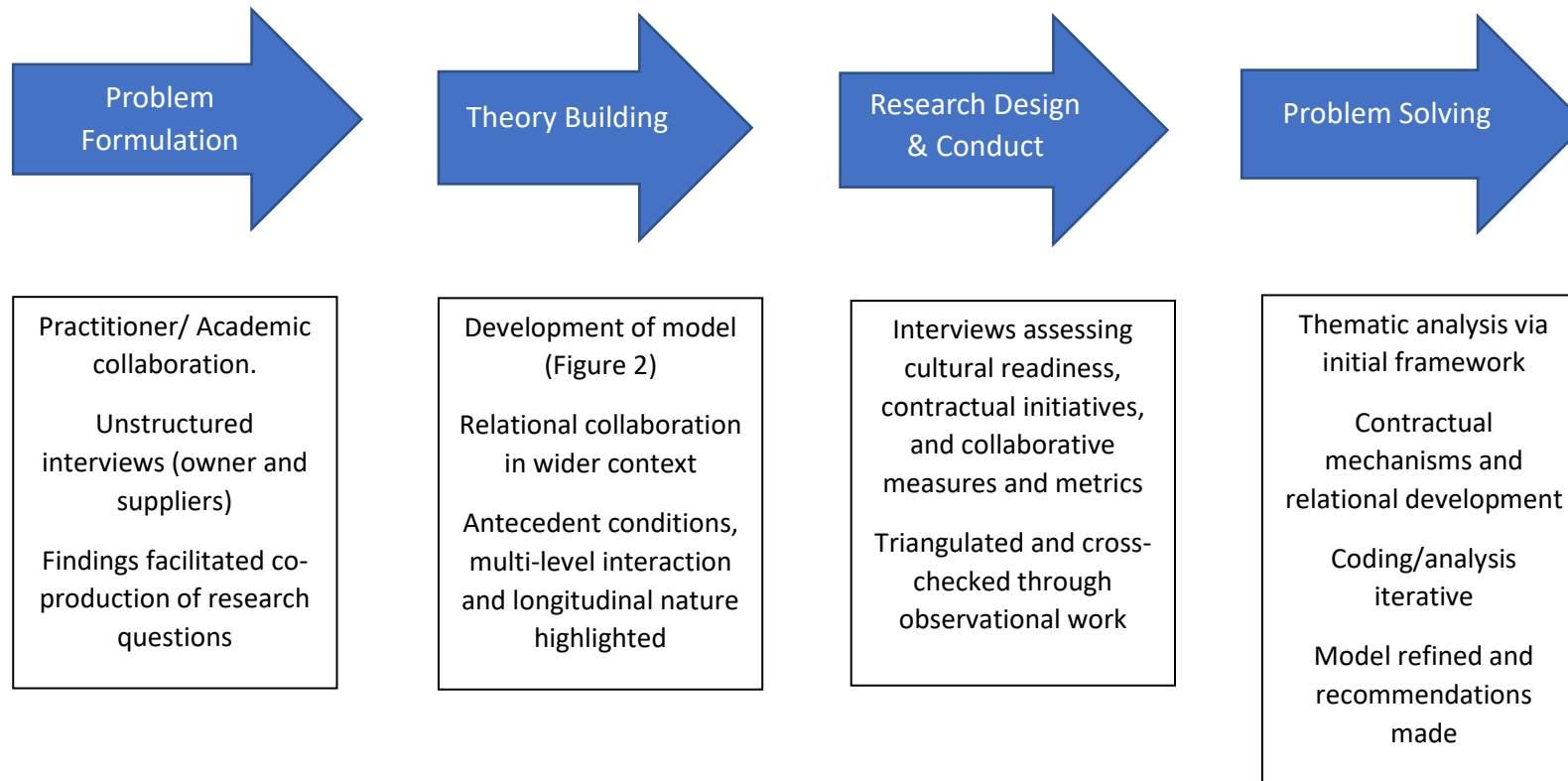


Figure 2: Summary Model

