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# Understanding Collaborative Working in a Facilitated Interdisciplinary Environment

Understanding  
Collaborative  
Working

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John Connaughton

*School of Construction Management and Engineering, University of Reading,  
Reading, UK*

William Collinge

*Mechanical Aerospace & Civil Engineering (MACE), University of Manchester,  
Manchester, UK*

## Abstract

**Purpose** – This paper aims to report on a new form of project insurance in the UK construction designed to improve collaborative working among project participants. It aims to examine the interprofessional collaborative endeavour under the new insurance arrangements, drawing on a structuration model of interdisciplinary collaboration developed in the field of healthcare studies.

**Design/Methodology/Approach** – The research employed a longitudinal, action research approach with participant observation. A novel element included a project facilitator as part of the action research team. Qualitative and quantitative data were collected using semi-structured interviews with close scrutiny of the documented project record.

**Findings** – Project structure emerges as a more important element in the collaboration process than is typically recognised in practice-based studies; the analysis revealing the interplay of structure, the socialising processes of participants and how facilitation helps develop interdependence among project participants. The analysis provides a basis for understanding collaboration on the trial project.

**Research Limitations/Implications** – The project provides a unique context for the examination of collaboration under the new project insurance arrangements. The results have implications for the study of collaboration in highlighting the important relationship between project structure, collaboration and facilitation.

**Practical Implications** – Understanding how interdependency is developed through structure, the socialising processes of collaborators and facilitation has important implications for those concerned with designing project arrangements and managing collaborative processes.

**Originality/Value** – The paper reports on the first full trial of new project insurance arrangements in the UK. It highlights the significance of project structure, and the interplay between collaborators' emerging practices and facilitation.

**Keywords** Collaboration, Social practice, Insurance, Structuration, Interdependency, Healthcare studies

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## 1. Introduction

Collaboration is a subject of increasing interest, for both academic (Xue, *et al.*, 2010; Hughes *et al.*, 2012) and industry-based practitioners (Farmer, 2016). A common concern is how participants work together (London and Pablo, 2017), with questions remaining around day-to-day needs and how to understand collaboration and its effect on outcomes.

This paper presents an analysis of collaborative working on a live construction project in the UK between 2015 and 2017. The arrangements represent a departure from conventional UK construction practice, involving a new form of insurance (Integrated Project Insurance: IPI), together with supporting arrangements (see Connaughton and Collinge, 2018). The IPI policy insures the normal project risks and liabilities of key members of the design and construction team *as a “virtual company”* (Integrated Project Initiatives, 2014). IPI insures the team *as a whole*; individual members no longer being restricted by their specific insurance cover, contributing instead to project outcomes collaboratively for which participants are collectively, not individually responsible.

More specifically, collaboration is examined using a theoretical framework developed for healthcare, drawing on Giddens's (1984) structuration theory. In that sense, the analysis is positioned within the sociology of practice (Marshall, 2014), the aim being to examine inter-professional collaboration in terms of this framework.

## 2. Literature and analytical framework

### 2.1. Collaboration from a practice perspective

Collaboration refers generally to collective action in pursuit of a common goal (Xue *et al.*, 2010). The insufficiency of conventional contracts to support collaborative activity led to consideration of alternative contractual and procurement arrangements, including ‘partnering’ (Bresnen and Marshall, 2000; Cicmil and Marshall, 2005). However, such arrangements were seen as inadequate; scholars arguing that collaboration is a socially constructed, emergent phenomenon (Hartmann and Bresnen, 2011; Bygballe *et al.* 2015).

What such a “practice turn” in thinking (Bresnen, 2007; Marshall, 2014) offers is a way of thinking about collaboration that, such as Bechky (2006) and Okhuysen and Bechky (2009), focuses on the formal mechanism (for coordination, in their case), as well as how it is shaped to create favourable conditions (for collaboration, in our case). With reference to Bygballe *et al.*'s (2016) examination of coordinating activities, we are also interested in achievement of collaborative outcomes. In simple terms, IPI was introduced so more innovative solutions might be created through a collaborative design and construction process.

Central to this are interdependence and interdisciplinarity, involving integration of knowledge and expertise of each professional/discipline to create shared solutions to complex problems. These are distinct from more multidisciplinary forms of working that emphasize professional autonomy with individuals working in parallel (though independently; Bronstein, 2003; D'Amour *et al.*, 2005). Many approaches to operationalising collaboration in construction do not make such distinctions, focusing more on multidisciplinary, highlighting specific aspects of collaboration such as coordination (Bygballe *et al.*, 2016), trust (Kadefors, 2004), knowledge management (Javernick-Will, 2012) and leadership (Zerjav *et al.*, 2014). Further, they are less concerned with providing a

framework for consideration of the potential effectiveness of interdisciplinary collaboration together with its operating infrastructure.

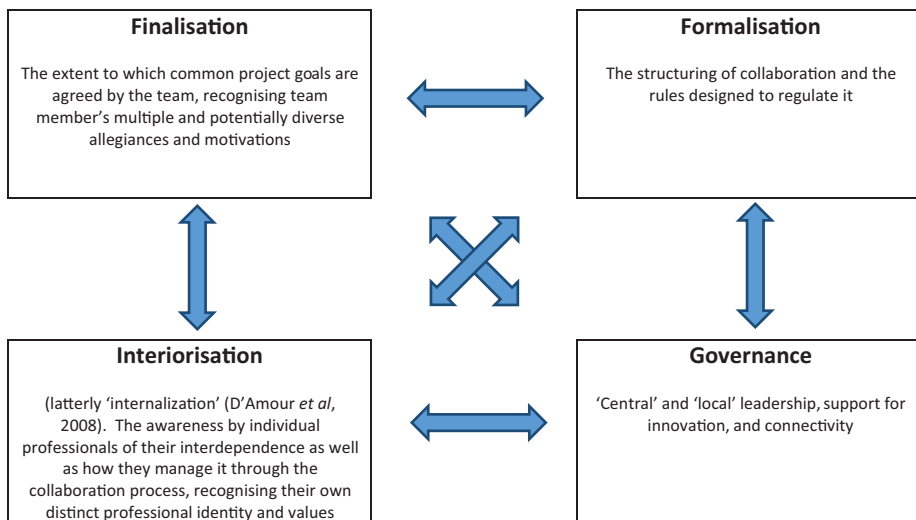
2.2. An analytic scheme

Work on collaboration in healthcare management has addressed very similar concerns to that of construction management, though with more explicit recognition of interdisciplinarity in improving (patient) outcomes. In particular, D'Amour and colleagues (D'Amour *et al.*, 2005; 2008) draw on the sociology of practice, recognising the socially constructed and emergent nature of collaboration and the importance of formal structure and mechanisms. Drawing on Giddens's theory of structuration (Giddens, 1984), D'Amour *et al.* (2005) propose a "structuration model of interprofessional collaboration" having four key components relevant for the present study (pp. 122–123) – see Figure 1.

While subsequent work (D'Amour *et al.*, 2008) attempts to operationalise the components of this model into quantitative indicators for assessment of collaboration, here we use the framework and its underlying theoretical basis as a lens to provide insights into key aspects of collaboration on the IPI project. Some of the results are discussed below, focusing on the role of collaboration mechanisms (formalisation) and governance arrangements.

3. Overview of research design and methods

A longitudinal, action research approach combined with participant observation from project team appointment (early 2015) through to handover of the facility (see Connaughton and Weller, 2013) was the chosen research approach. The authors spent approximately 3.5 days per week, embedded within the project organisation, attending meetings and accessing project documentation. Additionally, about 40 formal semi-structured interviews were undertaken, during and following project completion, to explore participants' views of IPI and the collaborative process. Twenty five informants participated, from design



Note: arrows indicate interrelationships

Figure 1. D'Amour *et al.*'s (2005) Structuration Model of Interprofessional Collaboration.

consultants, contractors, specialist advisors and sub-contractors. Client representatives, the project insurers and insurance underwriters were also interviewed. We also participated in a feedback workshop, shortly before project completion, to capture participants' views of the project arrangements and suggestions for further development. Finally, we had many informal discussions with participants, observing the conduct of meetings and day-to-day operation of the project which enriched our understanding.

#### 4. The “trial” project, findings and discussion

In addition to the new form of project insurance (IPI), arrangements incorporated a range of mechanisms designed to support collaborative working, such as team selection/procurement and a pain/gain share mechanism. Other specific arrangements are explained in an end-of-project report (Connaughton and Collinge, 2018). The following sections mobilise elements of D'Amour *et al.*'s (2005; 2008) structuration model as an interrelated set of analytic concepts to examine aspects of collaboration on the project.

##### 4.1. Development of “common goals”: “finalisation”

The agreement of common goals is a typical prerequisite for collaboration (Xue *et al.*, 2010; Hughes *et al.*, 2012). Leaving aside problems associated with a common, “unified” project goal (see London and Pablo, 2017), client requirements under IPI are stated in a “strategic brief”. While this defines general performance parameters (e.g. numbers of staff to be accommodated), it is not prescriptive about what should be provided, nor how. It is accompanied by “success criteria”, including overall cost and time targets and other mainly qualitative aspirations. This creates an opportunity for the Integrated Project Team (IPT) to develop solutions together for achieving them. Solutions are then submitted to insurers and advisers (including TIRA/FIRA) for review, as the basis for the IPI policy. Once placed (“policy inception”, an IPI milestone) the policy becomes part of the contract committing the IPT to deliver solutions within the TOC.

Two vignettes from the project bring into focus the process and significance of agreeing such common goals D'Amour *et al.* (2005) characterise as “finalisation”. The first is the development of a natural ventilation scheme, unusual for this building type (including a large mechanical engineering workshop). The IPT's proposal (designed around a high performance building envelope) emerged in response to broad “success criteria” requiring innovation and energy performance improvements. This was despite the client's previous scheme having adopted a mechanical ventilation strategy for a similar building, and opposition from the TIRA who was not always convinced these proposals would work.

The second concerns selection of the building cladding system. Shortly after appointment of the IPT, the project was delayed and work formally suspended. During that period, the client asked the architect to progress the cladding design, believing that momentum should not be lost and that clarity on the building design would help the college promote its growth aspirations. On resumption of work, the IPT agreed to adopt the architect's proposal despite it having been developed independently. As costs escalated, the lack of IPT involvement in the cladding proposal became a focus for debate and potential dispute.

The examples of solution (goal) development on the project highlight the importance of participation in the collaborative process, as much if not more than the goals themselves. Closer scrutiny using other components of the structuration model – including interdependency as well as the more formal collaboration arrangements shed light on the IPT's commitment and adherence to these goals.

#### 4.2. *Recognising, creating and managing interdependency: internalisation*

Interdependency derives from a concern to achieve common goals: this requires sharing of ideas and proposals from all participants (D'Amour *et al.*, 2005). IPI makes one important aspect of interdependency explicit: sharing of project risk. While the IPI policy covers the IPT for their collective liabilities, a novelty is that it insures against cost overrun. It does so above an amount that the IPT will pay (a policy "excess"). This excess is the "pain" component of gain/pain, and was 4 per cent of TOC in the trial project (above this amount, the insurer pays up to a liability cap of 20 per cent of TOC). The IPT also shares in any "gain" to incentivise project delivery at below TOC (to a maximum of 7.5 per cent on the trial project).

The point is that IPT members must agree their respective shares in gain/pain before submitting the project for policy inception, helping create interdependency and encouraging them to reflect on obligations to each other and make somewhat abstract notions of mutual dependence more explicit (albeit in narrow financial terms). In this context, it was surprising that, with the exception of one IPT member, all agreed to have equal shares in gain/pain:

"I went into the meeting expecting [parties to share based on their relative revenue from the project] . . . but when the designers said, "we're all in this together so we should all have equal shares" I was surprised. I think the decision was made from a principle of trying to make the [process] work . . ." (client representative).

There was, of course, no requirement – and little expectation – for IPT members to share equally in gain/pain. The precise sharing formula emerged out of the IPT, reflecting a collaborative "bond" that had developed among them. In the event, the TOC was exceeded by about 1.8 per cent, with most IPT members, including the client, sharing equally in "pain" (about 0.34 per cent of TOC each). Such a bond had other implications, especially for the operation of more formal collaborative arrangements.

#### 4.3 *Working within the structure: formalisation*

Given such an extensive formalisation of arrangements for IPI, it is not surprising that a high degree of collaborative endeavour was observed. As will be seen, facilitation (and the convening" of collaboration – Wood and Gray, 1991) played an important role, as did the collaborators themselves. Indeed, such was the extent of new arrangements that many participants felt frustrated by the effort required to understand and implement them:

"Because there is an absence of any [prior] structure . . . it has been difficult to make any headway. . . . We're being asked to take on board a completely new procurement method with new structures . . . and we have some very tough targets and . . . that is an unrealistic requirement" (IPT member).

The infancy of new arrangements gave IPT members a unique opportunity to internalise and shape them to their own ways of collaborating. This was not only about how they worked within or around the formal mechanisms, but also how they effectively replaced some of them. And here we return to the choice of cladding system.

While the IPT accepted the client's choice of cladding – essentially in a "collaborative spirit" – they were under no formal obligation to do so. The contract, through provision for Review Events, allowed the IPT to advise the client of events having a significant impact on programme, cost and risks, and to agree revisions to the TOC and other parameters. That they did not use this mechanism was mainly owing to their enthusiasm for the collaborative environment and their desire not to disrupt it:

" . . . everybody was confident it'd all be all right. [X]. . . should have advised them that that's a Review Event. . . . And as a result we're in a pain situation . . . . Because what they've carried on doing is saying, well actually we're all in this together" (independent facilitator – IF).

However, as cladding costs escalated, threatening the achievement of the TOC, the IPT argued for a “retrospective” Review Event to help cover additional cladding costs (review events being meant to be invoked when the event occurs, not subsequently). A revision to the TOC was eventually agreed in negotiation more in a spirit of risk-sharing than in terms of any more formal legal settlement. And, as noted, the TOC overall was exceeded by some 1.8 per cent, with IPT members and the client involved in pain share.

#### *4.4. Leading the collaborative process: governance*

London and Pablo (2017) characterise the dominant conceptualisation of collaboration as being driven by a single convenor (Wood and Gray, 1991). While at one level, the role of IF – as both developer of IPI and project facilitator – would seem to fit this characterisation, closer inspection reveals a complex picture more consistent with ideas of collaboration leadership as emergent practice (Zerjav *et al.*, 2014). Indeed, the IF was keen for leadership to emerge consensually from the IPT, avoiding any provision for leadership in the formal arrangements, seeing this as potentially anti-collaborative. But while the IF focused on coaching collaborative behaviours, the members looked to the IF not only for clarification of the IPI process but also to lead it. This was an unintended consequence of providing opportunity for leadership to emerge from among the IPT. But in the context of how the IPT internalised interdependence and collaboration as an equitable sharing of responsibility, it is not surprising that they looked outside the group to the IF as a trusted, knowledgeable authority (Kissi *et al.*, 2013).

A further observation on governing the collaborative process relates to formalisation. Important features of the IPI structure included an Alliance Manager, providing management of an Alliance Board (representing the Alliance business interests), and a project coordinator (from the IPT) providing coordination of project activities and project delivery. Neither was mandated to focus on overall leadership nor on leading collaboration, and neither did so. In structural terms, the Alliance Manager could possibly have emerged as a legitimate collaboration leader, but as an external consultant preferred by the client, did not share in collective responsibility via the gain/pain share mechanism. IPT members felt this excluded the Alliance Manager from any effective involvement in collaboration. And again, we observe how a strong collaborative bond internalised by IPT members acted both to select a collaboration leader (the IF) who did not want the role and at the same time exclude one that could have legitimate claims to it.

## **5. Conclusions**

Key elements of D’Amour *et al.*’s (2005; 2008) structuration model help to illuminate aspects of collaboration on the IPI project. The picture emerging aligns with other studies (Cicmil and Marshall, 2005; Hartmann and Bresnen, 2011; Bygballe *et al.* 2016; Zerjav *et al.*, 2014), in which collaborators socialise the collaborative endeavour, developing processes, rules and norms derived from their interpretation of what collaboration means and the desirability of accomplishing it. However, the findings suggest a more significant role for formal structure than is generally acknowledged in practice-based studies. While this is partly because of the prominence of formal mechanisms in IPI arrangements, an important element of IPI concerns the removal of structure perceived to act counter to collaborative endeavour (i.e. individual insurance arrangements) as well as it does the inclusion of alternatives.

More significantly, the analysis reveals the interplay of facilitation, structure, and the socialising processes of participants to shape collaboration was more compelling than the singular significance of particular elements of the IPI apparatus.

The extent of IF involvement – particularly given the IF’s status as IPI developer – raises the question of the durability of such collaborative endeavours in the absence of such close support. Additionally, the project came under a degree of public scrutiny as a UK Government Cabinet Office trial project (Cabinet Office, 2012). The potential for such attention to heighten the intensity of collaborative working cannot be discounted, though neither can it be easily identified. Nonetheless, the trial suggests that established jurisdictions of professional practice in design and construction teams can be re-negotiated in favour of more collaborative enterprises when interdependency among team members is recognised and connected explicitly to project outcomes.

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