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John N. Connaughton & William H. Collinge

To cite this article: John N. Connaughton & William H. Collinge (2021) Trialling a new approach to interdisciplinary collaboration in UK construction: A projects-as-practice analysis, *Construction Management and Economics*, 39:7, 595-616, DOI: [10.1080/01446193.2021.1933558](https://doi.org/10.1080/01446193.2021.1933558)

To link to this article: <https://doi.org/10.1080/01446193.2021.1933558>



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Published online: 17 Jun 2021.



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Trialling a new approach to interdisciplinary collaboration in UK construction: A projects-as-practice analysis

John N. Connaughton^a and William H. Collinge^b 

^aSchool of the Built Environment, University of Reading, Reading, UK; ^bMechanical Aerospace & Civil Engineering (MACE), University of Manchester, Manchester, UK

ABSTRACT

This paper investigates the emergence of collaboration on a UK construction project pioneering a novel form of project procurement (Integrated Project Insurance: IPI). Using a projects-as-practice lens and an action research approach, examination of linked episodes of project activity chart the unfolding of collaboration praxis in an IPI context through the frequent interplays of praxis (situated doings), practice (rules, values, policies) and practitioners working together. The analysis focuses on important requirements in IPI: that project practitioners, supported by a facilitator, collaborate to develop joint solutions to project requirements and share responsibility for them. Findings show how practitioners understood how to collaborate through the progressive enactment of working together rather than by developing a prior agreement about what collaboration would involve. Thus, the doing of collaboration mattered more than sayings about it in how practitioners created meaning in developing new collaboration praxis. Through this enactment the facilitator role is understood more as a practitioner in the development of collaboration praxis than solely as a convenor of collaboration. Findings also show how the micro-activities of practitioners may be illuminated using a projects-as-practice lens combined with a focus on interconnected episodes of project life to understand the emergence of praxis on construction projects.

ARTICLE HISTORY

Received 12 March 2020
Accepted 19 May 2021

KEYWORDS

Action research;
collaboration; construction
projects; social practice;
projects-as-practice



Introduction

This paper examines how collaboration among project participants emerged and was put into practice on a UK construction project trialling a new form of procurement (Integrated Project Insurance: IPI). The IPI approach is designed to encourage interdisciplinary collaboration among project participants so that they may achieve improved project outcomes (Connaughton and Collinge 2018). While this new approach contains broad principles for collaboration and a range of contractual and commercial mechanisms to support it, it does not provide detailed guidance for how participants should work together. Instead, the participants, supported by a facilitator and working within these broad principles, are expected to work out for themselves how to collaborate in new ways that differ from usual project practice. Thus, this first UK trial of IPI presents a unique opportunity to examine the emergence of new collaboration practice, and to develop an understanding of how project participants evolved new ways of working together in

this specific context. This is important because, as will be argued, some of the difficulties in understanding collaboration in construction arise from a lack of attention towards how it emerges in terms of how project participants begin to work together in ways that depart from ingrained practice as usual.

Background

Characterizations of UK construction as an industry beset by professional fragmentation, contractual barriers to joined-up working and a perceived backwardness have dominated the industry improvement discourse for decades (for an overview, see Green 2011). Improved collaboration – viewed broadly as a form of purposive human action in pursuit of a common goal – has been promoted as a remedy for many of these ills, attracting the attention both of scholars (e.g. Xue *et al.* 2010, Monson *et al.* 2015) and of industry-based practitioners also (Morrell 2015, Farmer 2016). Considerable attention has focussed on what Xue *et al.* (2010) refer to

CONTACT John Connaughton  j.connaughton@reading.ac.uk  School of the Built Environment, Construction Management and Engineering, University of Reading, Chancellor's Building, Chancellor's Way, Whiteknights Campus, Reading RG6 6DF, UK.

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as the “business environment of construction projects” (p. 198) that include the formal contract and management arrangements that may support collaboration between project participants. These arrangements vary from partnering (e.g. Bresnen and Marshall 2000, 2002, Hartmann and Bresnen 2011) to alliancing (Hughes *et al.* 2012), relational contracting (Harland 1996, Rahman and Kumaraswamy 2004) and other models also. While a common concern is the influence of formal arrangements on how project participants work together, research has also examined how collaboration arises out of the day-to-day activities of participants. Though focussed mainly on partnering, this work has relevance for considering the emergence of collaboration on the IPI trial project.

Bresnen and Marshall (2002) argue that informal social processes surrounding the establishment of partnering relationships and their interpretation and enactment by participants are as important as the more formal project context of contracts and management arrangements. Cicmil and Marhsall (2005) similarly challenge the sufficiency of two-stage tendering arrangements on their own to effect team integration and collaboration, arguing for a greater focus on what is actually going on in the social relationships between participants to understand how they work together. Further exploring the relationship between formal context and informal interaction, both Hartmann and Bresnen (2011) and Gottlieb and Haugbolle (2013) examine the emergence of partnering relationships using activity theory. For Hartmann and Bresnen (2011), partnering is a highly contextualized emergence involving the constitution and reconstitution of collaborative relationships constructed during the project that are rooted in local project circumstances. Similarly, Gottlieb and Haugbolle (2013) see the development of partnering as highly contextualized, emerging out of existing practice in an incremental way rather than replacing it. In a further account, Bygballe *et al.* (2016) focus more specifically on the role of contract mechanisms and management arrangements. They show how the emergence of coordination as a highly contingent and contextualized activity helps participants give social meaning to what they do through interaction with more formal arrangements.

These important contributions recognize the recursive relationship between formal context and informal activity where context is not fixed and stable but part of the negotiated development of practice (Jarzabkowski *et al.* 2012). However, they have a strong interest in context in the form of contracts and other formal project arrangements. By focussing on how partnering rather

than collaboration (as acts of working together *per se*) emerges out of localized context, Hartmann and Bresnen (2011) and Gottlieb and Haugbolle (2013) in particular tend to foreground how the inter-organizational partnering or other relational structure is formed. This shifts attention away from the day-to-day efforts of participants to collaborate and the actuality of how different disciplines work together. Given the emphasis within IPI on interdisciplinary collaboration for achieving improved project outcomes, it is important to focus more explicitly on how participants work out how to work together as part of their ongoing engagement in project life to help understand the emergence of collaboration in this specific context. This is not to lose sight of the importance of context, but rather to foreground the emergence of collaboration as developed and enacted by those involved in it.

To do this, we retain the idea of collaboration as an evolving social practice constituted from the interaction of practitioners within particular project contexts (e.g. Bresnen 2008, 2009, 2010, Gottlieb and Haugbolle 2013). This pervades much scholarly work on collaboration in construction and draws on the so-called “practice turn” in social and organization studies (Schatzki 2001, Nicolini 2012), conceptualizing projects as social settings with a focus on interactions between parties to understand the day-to-day actuality of project work (Bresnen 2008). In seeking to understand the nature of the collaborative endeavour, we align with Marshall (2014) who emphasizes “the constitution of social phenomena as an active accomplishment which is historically, culturally and materially situated” (Marshall 2014. p. 109). This conceptualization views practice as a “becoming” rather than a “being” ontology (Chia and Holt 2006, Chia *et al.* 2013), directing attention towards the unfolding nature of collaboration performed by those who work together.

By foregrounding the interaction of project participants in the emergence of collaboration, we are consistent with theories of social practice that emphasize action and “doing” as the primary focus, placing the practice rather than the practitioner as the central unit of analysis (Nicolini 2012, p. 7). For Schatzki (2001), knowledge of practice is intertwined with the doing of it; thus, practitioners, by doing it, come to understand the practice and what it means through interrelated activities of “thinking, saying and doing” (Schatzki 1996, 2002). For Schatzki (2002), such understanding is part of “practical intelligibility” (p. 16): essentially the knowledge of what it makes sense to do in a given situation. Looking more specifically at the emergence and formation of practice in project contexts, Hällgren

and Soderholm (2011) and Blomquist *et al.* (2010) draw on developments in the strategy-as-practice area of practice theory (especially Whittington 1996, 2006) to provide a framework for understanding how project practices are developed. "Projects-as-practice" provides for the coming together of praxis (situated doings), practice (rules, norms, values and policies) and practitioners (the people who interpret and engage in activity). By focussing more equally on doing (praxis), project context ("practices" in strategy-as-practice terms) as well as the interaction of the practitioners involved, projects-as-practice provides a potentially powerful lens through which to examine how project participants worked together to develop and enact new collaboration practice on the IPI trial project.

Projects-as-practice research is still at an early stage of development, and this paper answers calls for the wider adoption of a projects-as-practice approach (Blomquist *et al.* 2010, Svejvig and Andersen 2015), extending the approach into the area of collaboration studies. It also responds to calls for further analysis of what practitioners in pluralistic project contexts actually do (Cicmil *et al.* 2006, Floricel *et al.* 2014, Bredilet *et al.* 2015) and for more "practice-based" studies (e.g. Kokkonen and Alin 2015, Boyd 2013) and descriptive accounts of collaboration (Mollaoglu *et al.* 2015, Bygballe *et al.* 2016) to enhance understanding of collaboration in interdisciplinary projects. More specifically, by focussing explicitly on the development and enactment of collaboration, attention is turned towards how project participants work out ways of working together in the complex and situated context of construction project life.

Aim

Drawing on the projects-as-practice framework, the aim of this paper is to develop an understanding of how collaboration emerged on the IPI trial project. As noted, project participants under IPI are supported by a facilitator in working out new ways of collaboration. In directing attention towards the activities of participants, we also wish to examine the role of the facilitator, an important actor in IPI arrangements. As will be shown, projects-as-practice, through its antecedents in strategy-as-practice, allows account to be taken of the action of participants who may be outside of the formal contractual project arrangements – such as external consultants and facilitators (see Whittington 2006, p. 619). Thus, to fulfil our aim, we address the following questions:

1. How do project participants work together to develop a new way of collaboration on the trial project and put it into practice?

2. What is the influence of the IPI facilitator – an important actor in IPI arrangements – in how collaboration emerged and was put into practice on the trial project?

The paper is structured as follows. Following this introduction, we describe the theoretical framework of projects-as-practice used to analyse the empirical data from the IPI trial project. A research method section describes the approach adopted, the nature of the empirical data and how it was analysed. A description of IPI and the trial project covers IPI contractual and management arrangements and provides a chronology of project events. An empirical section presents three inter-linked episodes in the emergence of collaboration, mobilizing the empirical data collected. A discussion section examines the account from a projects-as-practice perspective, showing how collaboration is an ongoing and emergent enactment of working together among participants, including the facilitator. A closing conclusions section draws the findings together and clarifies a number of important contributions from the research. These enhance current understanding of collaboration, showing how the "doing" of collaboration rather than "sayings" about it helped project participants to create meaning in their development of new collaboration praxis. Further, they contribute to research in construction management by showing how the micro-activities of participants in the emergence of praxis on construction projects can be illuminated through the application of projects-as-practice combined with a focus on a series of interconnected episodes of project life.

Theoretical framework

In this section we present the theoretical framework used to develop an understanding of how collaboration emerged on the IPI trial project. We start with a review of developments in projects-as-practice to describe the theoretical lens for our study. We focus in particular on core concepts of praxis, practice and practitioner that help address the study questions: to understand how collaboration emerged on the trial project and the role and influence of the IPI facilitator.

Projects-as-practice and its key elements: praxis, practice and practitioners

Drawing on work in the strategy-as-practice field (Whittington 2006, Jarzabkowski 2005, Johnson *et al.* 2007), Hällgren and Soderholm (2011) and Blomquist

et al. (2010) propose a projects-as-practice framework to help understand how practices develop in project contexts. This framework sees practice emerging from the interaction of practitioners (those people who do the project work), practices (the social, symbolic and material tools through which work is done) and praxis (all the activities involved in the deliberate formulation and reformulation of project work).

Instances of the formal application of projects-as-practice that could provide an elaboration and mobilization of the core concepts in project settings are somewhat rare. That said, recent work drawing on projects-as-practice focuses on the actuality of project work, emphasizing the enactment of it. van der Hoorn and Whitty (2017) focus on the praxis of how project managers build rapport and trust in seeking team alignment to project goals. Rather than starting with a clear pre-conceptualization of praxis, they view it as emerging out of the observed activities and sayings of project managers, subsequently categorizing these into a set of alternative tools (praxis that would lead to potential practices) that include a range of communication mechanisms that project managers use for “alignment seeking” (van der Hoorn and Whitty 2017, p. 988–90).

A similar approach to the post-hoc analysis and categorization of emergent praxis is adopted by Brunet (2019), who draws more explicitly on the strategy-as-practice literature (e.g. Johnson *et al.* 2007). Brunette examines how an institutional governance framework was interpreted across different levels (institutional, organizational and project) related to project governance. Her observance of enactment at the micro project level enables a set of governing practices to be highlighted that, though informed by institutional-level requirements, are nonetheless emergent and interact with elements of the framework at higher levels.

We draw on both approaches to foreground the enactment – praxis – of collaboration and to recognize that it is emergent both in what it means and how it interacts with other elements of the framework. In doing this, we follow Whittington who argues:

Practice-orientated studies do not need to combine all three elements of praxis, practices and practitioners at the same time. Giddens (1979) explicitly allows for “methodological bracketing” of one or more elements. However, practice theory does assume interconnectedness and provides means for understanding this. (Whittington 2006, p. 620)

Hällgren and Soderholm (2011) also note that aspects receiving less focus in projects-as-practice

work will unavoidably be part of the study (because of their interconnectedness) and will need some representation. In foregrounding praxis, therefore, we are not losing sight of the practice and practitioner elements but focussing attention on the doings and sayings of practitioners in what Whittington (2006) refers to as the “hard labour of praxis in creating and diffusing influential practices” (p. 625).

While praxis may have a strong focus in the praxis-practice-practitioner framework, practitioners as “carriers of the practice” (Reckwitz 2002 p. 252) retain a significant role. Jarzabkowski and Spee (2009) distinguish three levels of practitioner (internal individual; internal aggregate – i.e. organizational groups; and external aggregate). Neither these levels nor the levels of activity are absolute, exclusive categories that are easily discernible, but rather broader and interconnected theoretical concepts. However, the concept of external practitioners allows the possibility that actors external to the formal strategizing process – such as consultants, facilitators and others – may be considered as active in it (Whittington 2006). Indeed, the concept is extended to “those with indirect influence – the policy makers, the media, the gurus and the business schools who shape legitimate praxis and practices” (Jarzabkowski and Whittington 2008, p. 101–102) and, in the case of strategizing in project-based organizations, to project managers also (Söderlund and Maylor 2012, Löwstedt *et al.* 2018). This means that rather than separating the roles of facilitators and members of design and construction teams under IPI, the projects-as-practice approach recognizes the facilitator as a potential collaborator in their own right.

Further, the importance of understanding and making sense of what to do in particular situations (part of what Schatzki 2002 refers to “practical intelligibility”) is given a prominent and potentially useful role in many accounts of strategy-as-practice (for a review, see Kieran *et al.* 2020). Hällgren and Soderholm (2011) recognize the role of practice (rules, policies, ingrained ways of working) in how practitioners “draw upon previous knowledge in order to make sense of the situation, and these new experiences will influence future behaviour” (p. 506). They further draw on Reckwitz (2002) to highlight the essential inseparability of emergent praxis and practices that govern activities that together form the practice of project management (Hällgren and Soderholm 2011, p. 508). In our enquiry, we are particularly interested in the extent to which project practitioners developed a sense of purpose or meaning at a

working level that is broadly understood and shared as a common way of doing things (Bowen and Ostroff 2004). In this, the potential role of facilitators in helping to develop such sense and understanding is also recognized (Maitlis and Christanson 2014).

The nexus of practice – where praxis, practice and practitioners combine

If practice emerges from the interaction of praxis, practice and practitioners, a key analytical and practical challenge for researchers is to understand how and where this takes place. Jarzabkowski *et al.* (2007) refer to the “nexus” of these elements as the location of the doing of strategy (p. 10–11), and within strategy-as-practice research this has tended to be operationalized in terms of “episodes” of observable activity (Hendry and Seidl 2003, Whittington 2006). Hällgren and Soderholm (2011) also argue for a focus on “episodes” in project life where practice, praxis and practitioners meet (p. 505). Such episodes could include ad-hoc conversations just as much as more formal project or strategy meetings, for example (Whittington 2006, p. 619, 621). For Hällgren and Soderholm (2011), project meetings exemplify such episodes, showing how the situated actions of practitioners occurring within meetings led to the emergence of meeting praxis.

To support an examination of the emergence of practice, such a micro-focus on project episodes may be combined, as Vaara and Whittington (2012) note, with a “processual sensitivity to longer-run evolution” (p. 292) by charting sequences of connected episodes over time (Denis *et al.* 2011, Spee & Jarzabkowski 2011). This has considerable potential for the study of the emergence of collaboration in project work, and we return to the point below where we describe how we do this on the IPI trial project.

Finally, while focussing on project episodes is one way that the embeddedness of a practice may be understood, it also helps address what Hällgren and Soderholm (2011) consider as the “pattern challenge” (essentially how to move from observations of particular issues to more general conclusions) in focussed, projects-as-practice work (p. 510). More theoretically, Schatzki’s concept of “site” as not just incorporating the physical or temporal location of action but the broader contextual realm (Schatzki 2002, p. 64–65) is relevant in conceptualizing both the location of collaboration, its interrelated elements and how they interact, and we pay attention to it in our empirical focus on episodes in the life of the IPI trial project.

In summary, by drawing on the projects-as-practice perspective, we foreground praxis in an examination of a series of project episodes to help illuminate what practitioners do in the emergence of collaboration on the IPI trial project.

Research approach

The first use of IPI on a project in the UK was for the design and construction of a new academic building, Advance II.¹ The UK Government’s innovation agency (Innovate UK – IUK) was interested in how IPI could improve construction outcomes through collaborative working. Accordingly, IUK funded a research and development (R&D) project with two broad aims: to support the use of IPI on Advance II, and to learn from the experience. This R&D project was undertaken by a consortium led by industry specialists and included the initiators of the IPI approach (who were also engaged as facilitators on Advance II) as well as the authors as academic researchers. These arrangements are detailed in the final project report to IUK (Connaughton and Collinge 2018).

Given IUK’s two aims, an action research (AR) approach, in the “Northern tradition ... [of] reforming organizations through problem solving” (Brown 1993, p. 243) was proposed – Connaughton and Weller (2013) provide a more detailed rationale for its use here. The intention was to mobilize AR as a form of “second person enquiry” (Reason and Bradbury 2008) in which Advance II participants would be supported in their understanding of collaboration and in how to enact it. The widely used “action learning stage loop” (Baskerville 1999, Argyris and Schon 1978, Greenwood and Levin 2007) was proposed involving an AR cycle of observing, reflecting, diagnosing, action planning and action taking activities (see Al-Balushi *et al.* 2004 and Azhar *et al.* 2010 – summarized in Collinge and Connaughton 2017). In the technical setting of construction projects, we judged that supporting the Advance II team required informed expertise (Coghlan and Shani 2008). The IPI initiators in the R&D consortium – who were also the Advance II facilitators – were therefore included as part of the AR function, focussing on diagnosis, action planning and action taking, and drawing on their knowledge of IPI and their previous experience of collaboration in construction project teams. The academic researchers would focus more on the observing and reflecting elements of the AR cycle, with an emphasis on improving understanding. A series of formal workshops with the

Advance II team, structured around the AR cycle, was anticipated.

However, as the Advance II project got under way, the extensive programme of meetings required for IPI mobilization squeezed the time and team resources available for separate AR-focussed events. Accordingly, the diagnosis, planning and action-taking responsibilities of the facilitators became more integral to their facilitation of workshops and meetings as part of the IPI framework. Observation and reflection continued to be done, helped by discussions at regular meetings of the R&D consortium that provided further opportunity for reflection, learning and feedback to the Advance II project team. But overall, the link between reflection and diagnosis/re-diagnosis in the AR cycle was not so explicit, with Advance II practitioners relying more on the facilitators for interventions (in the form of interpretation of, and guidance on collaborative working under IPI) than on the academic researchers.

These issues highlight potential challenges in using AR in a dynamic, technical project setting in which informed expertise is required to effect significant practice change. Further elaboration is beyond the scope of this paper, though a more detailed discussion is provided in Collinge and Connaughton (2017). Nonetheless, they help clarify the basis of our empirical account that draws also on interpretive research methods (including observations, interviews and document analysis) to build up a picture of collaboration on Advance II.

Data collection and analysis

In line with AR, a longitudinal approach was adopted involving close participant observation from shortly after the appointment of the trial project team in early 2015 through to handover of the completed facility in September 2017. One of the authors (hereinafter referred to as “the researcher”) spent 3.5 days per week embedded within the project, attending project meetings and having access to key participants and project documentation.

Our specific data collection methods involved direct participant observation, semi-structured interviews, and examination and analysis of project documents. A methodological challenge is in knowing beforehand which events and activities to observe that will feature the issues of interest,² especially in the fast-moving dynamic of project life with many simultaneous activities, both formal (e.g. planned meetings, workshops) and informal (e.g. ongoing conversations, ad-hoc meetings). So, an expectation that such issues would

feature in particular project events and activities drove our decisions to attend them and not others. This was a learning process requiring ongoing decisions about what may be important (and, by implication, what is less so) both in advance of, and during observations. Audio or video recording of project meetings was not permitted so the researcher took notes to capture observations of a range of matters concerning the implementation of IPI on the trial project, including how practitioners sought to develop their understanding of collaboration and how they worked together. The researcher also had access to project documentation including meeting minutes, project drawings and other technical information.

A total of 45 semi-structured interviews (lasting between 1 and 1.5 hours) were conducted throughout the trial project process. Interviews were audio-recorded and transcribed. Altogether, 25 different informants participated in these interviews, including design consultants, contractors, specialist advisors, sub-contractors, client representatives, project insurers and insurance underwriters. The researcher also participated in a facilitated feedback workshop organized by the facilitators shortly before project completion. Finally, informal discussions with project participants enriched the researcher’s understanding of project life.

Our approach to analysis was initially exploratory. Fieldwork data in the form of the researcher’s notes of project meetings and the project documentary record allowed us to construct initial accounts of what participants did. The researcher’s notes attempted to capture what participants said at these meetings also, though in the absence of audio recordings these accounts are inevitably partial. Interview recordings were transcribed and coded inductively for analysis using NVivo and from this a wide range of potential themes on the use of IPI emerged that were of interest to our enquiry. These were used for comparison with the initial account and to provide further insights on it. Through this process we narrowed the themes of interest to develop more focussed accounts including, for this paper, to provide a clearer understanding of the emergence of collaboration in terms of the praxis, practice and practitioner elements of the projects-as-practice framework.

Throughout data collection and analysis, we are mindful of the particular characterization of practice in terms of thinkings, sayings and doings, and the challenges raised for observation and understanding of practice in these terms. Marshall (2014), for example, categorizes these challenges as problems associated with “observability, representation and intelligibility”

(p. 115). While Marshall's primary concern is with problems of observability in relation to thinking, our focus on the praxis of collaboration foregrounds sayings and doings. For sayings, the principal problem according to Marshall (2014) is representation, which is "partly about the capacity of the researcher to understand what is being said (or expressed) in a given situation" (p. 115). In paying attention to the challenge of understanding emerging collaboration, we were able to draw not only on data available from interviews but also on less formal discussions with project participants, the facilitator and others in the wider IUK research consortium, as well as on our own experience of project life. Similarly, actions and doings while raising problems of observability and representivity, highlight the "intelligibility" problem. Here, like Marshall (2014), we draw on the idea of "practical intelligibility" (Schatzki 2002) and the experience and understanding of project participants to help deepen our understanding of what is being done in the situated project context and why it seems to make sense (to practitioners) to do it.

Settings and "episodes"

Following Hällgren and Söderholm (2011), Hendry and Seidl (2003), and Whittington (1996), we use episodes of observable activity in which praxis, practice and practitioner combine and interrelate to focus our analysis. For our purposes, episodes are based around formal project activities (meetings and workshops) that were expected to involve discussions and actions about collaboration and how it would be done. Further, to illustrate the emergence and enactment of collaboration over time a series of inter-connected episodes are presented rather than just one (Denis *et al.* 2011, Spee & Jarzabkowski 2011). In this way we seek to highlight and examine the sayings and doings of practitioners in their development and enactment of collaboration through the early trial project stages (see Table 1) as the design and construction team started working together.

IPI and the trial project

Integrated Project Insurance (IPI) is designed to encourage interdisciplinary collaboration among members of a project design and construction team in order to exploit its potential benefits. At the core of IPI is a new form of single project insurance that covers the normal project risks and liabilities of project participants as a single entity or "virtual company"

(Integrated Project Initiatives 2014). This is a significant departure from conventional UK practice, whereby team members arrange separate insurance to cover their individual risks (ter Haar *et al.* 2016). By insuring the team as a whole, the core IPI proposition is that individual members are released from their discipline-specific insurances, and are free to contribute creatively to project outcomes for which they are collectively and not individually responsible (Integrated Project Initiatives 2014, p. 7–8). In addition to these new insurance arrangements, IPI incorporates an extensive contractual apparatus, supported by an active and ongoing facilitation role to support collaborative working, and includes:

1. Team selection/procurement arrangements to assess the ability of design and construction team members to work collaboratively.
2. A governance and management structure, centred around:
 - a. A governing "Alliance Board", formed of senior personnel from each participating firm including the client (collectively, the Alliance), to oversee and direct the project.
 - b. An "Integrated Project Team" (IPT) formed of project team members from each participating firm responsible for day-to-day project design and delivery.
3. A "pain/gain share" mechanism to reward (financially) the IPT for delivering the project below a "Target Outturn Cost" (TOC) or penalize them for any cost increase.
4. An "Independent Facilitator" (IF) to encourage collaborative working using a set of principles (referred to as FUSION).³ The IF supports the Alliance and IPT, but is not part of their contractual relationship and does not share in the risk and reward of project outcomes.
5. Experts appointed separately by the client to appraise the IPT's work and provide independent assurance for the client and the IPI insurer on financial and technical aspects: the Financial Independent Risk Assurer (FIRA), and the Technical Independent Risk Assurer (TIRA).
6. A new form of alliance contract incorporating these arrangements and requiring the IPT to work collaboratively with the client, focussing on "best for project" decision-making aimed at achieving innovative outcomes below the TOC.

Other specific arrangements were also part of the IPI approach – see Connaughton and Collinge (2018).

Collaboration under IPI

With IPI, there is a strong requirement for team members to work collaboratively to deliver a more innovative, better performing and lower cost solution than might otherwise be provided under conventional arrangements. While IPI has an extensive contractual apparatus, there is no detailed guidance or template to follow for the enactment of collaboration. Further, collaboration has a distinct conceptualization under IPI that arguably goes beyond ideas of enhanced cooperation or coordination between project participants that sometimes feature in the literature (see, for example, Bechky 2006, Boudeau 2013, Bygballe *et al.* 2016). In IPI, collaboration is more about what Schöttle *et al.* (2014) describe as a *joint* enterprise by participants working within a common structure who attempt to achieve project goals by solving problems mutually and sometimes also sharing in the risk and reward of doing so.

The trial project – Advance II

Representatives of the Advance II client organization agreed to adopt IPI early in 2014 during discussions with advisers on the need for a new educational facility. They believed that problems encountered on previous projects – including delays and contractual claims for increased costs – could be alleviated through improved collaboration, and were persuaded by the originators of the IPI approach to trial it on their proposed new project.

The IPI approach is structured around a staged process, summarized in Table 1 which also provides a broad chronology of the trial project. As well as highlighting the practice episodes chosen for analysis, Table 1 identifies other significant project events and milestones. This helps to support our narrative of how collaboration emerged on the project, but is necessarily selective, foregrounding activities and developments of interest to the emergence of collaboration praxis. We recognize, of course, that alternative accounts of collaboration from other perspectives (e.g. client, insurers, individual IPT members) would likely highlight different aspects, but the account presented here is consistent with the prominence given to supporting collaboration in IPI arrangements as observed by the researcher.

Emergence and enactments of collaboration

Episodes of project activity, occurring within the early design stages of the trial project help chart the

emergence of collaboration among trial project practitioners. These occur in the period from the initial involvement of practitioners through to the development of a shared responsibility for elements of the design solution – a passive ventilation approach to address sustainability goals. The specific episodes presented are:

1. A Cultural Alignment workshop (February 2015) intended to enable the Alliance “to agree and take ownership of ‘Alliance Principles to ... act in good faith and collaboratively in a spirit of mutual trust and cooperation” (Dudley College 2014, p. 60).
2. An Activity Day workshop (May 2015) held following a six-week project hiatus, intended to reconvene the team and reinforce collaborative working principles.
3. A Sustainability Review workshop’ (July 2015) at which a passive ventilation approach was debated and identified as a key component of the project solution.

Through these episodes, an emergent and extensive unfolding of collaboration is discernible, encouraged by facilitators and situated within the highly specific context of the IPI trial project and its associated apparatus. Observations of activities both preceding these episodes and in the periods between them help connect these episodes and provide a thicker description of practice evolution and emergence.

Activity in advance of Episode 1: procurement and team selection

A precursor to adoption of a new praxis requires acceptance by practitioners that existing/normal practices are problematic (Hällgren and Soderholm 2011, p. 509). The selection of design and construction team members for the trial project (Table 1, Phase 0) confirmed this and assessed tenderers’ commitment to collaboration. Tender documentation required tenderers to adopt an “... integrated collaborative working approach... [demonstrating] an understanding that all members of the supply chain are valuable and how the best design solutions arise from the input of all team members” (Dudley College 2014, p. 8–11). This imperative was emphasized during pre-tender briefings (“industry days” – Table 1) that also helped to explain the IPI approach. Further, as part of tender evaluation, “behavioural workshops” with tenderers assessed their willingness and perceived ability to

work using FUSION collaboration principles. These preceding activities sensitized tenderers to the need for a new collaboration practice, their participation and success in being appointed suggesting they had demonstrated some agreement with the values of collaboration via various doings and sayings in the interactions with the client and project selection committee.

Episode 1: “cultural alignment” workshop, February 2015

Five firms were selected for design and delivery of the project, covering architecture; structural engineering; construction, building services strategy/project coordination; and building services design/installation). Two representatives of each of these firms who would subsequently be formed into the IPT met for a day-long workshop organized by two members of the IF organization and attended also by three client representatives and the researcher. In this Episode putative IPT members are referred to as “the team”, with individuals identified as [designation] 1, 2, etc. Under IPI, firms enter a contractual alliance with the client, but this is not formally signed until two initial processes are completed: (i) “Cultural Alignment”, in which alliance members work out how they will work together; and (ii) “Commercial Alignment”, in which the commercial elements of the relationship between alliance members are established (see Table 1 and Connaughton and Collinge 2018). As the first trial of IPI, a workable process for the Cultural Alignment workshop had yet to be established. However, it was clear that the facilitators expected the workshop to provide the sole opportunity for firms to negotiate and agree collaboration principles in anticipation of the contract being signed at the first Alliance Board meeting scheduled for March.

Welcoming everyone to the workshop, IF1 spoke about the event as an important team-building exercise, with collaboration being at the heart of IPI. An ambitious agenda for the day included: familiarizing attendees with IPI; identifying key collaboration principles to include in the contract; understanding the roles of parties under IPI; outlining a broad project programme; and setting an agenda for the first Alliance Board meeting in March. Our account, based on the researcher’s attendance and contemporaneous field notes, focuses mainly on discussion and activity directed at developing an understanding of collaboration.

Following IF1’s introductory comments, he went on to emphasize the importance of “breaking down barriers” to problem solving through collaboration, arguing that existing project practices were inadequate and new forms of collaboration were needed. He contended that “true collaboration” overcomes barriers by dissolving boundaries, helping team members to work together creatively in the search for innovative solutions to project objectives and challenges. Implicit in these sayings was that collaboration under IPI required a new way of working, where participants could contribute ideas freely regardless of disciplinary or organizational boundaries in an environment in which openness and mutual respect would be prioritized. These statements were met with general approval by team members, some briefly recalling previous experiences where they felt their potential contributions were either ineffective or overlooked because of a lack of collaboration.

A series of exercises followed, facilitated by IF1/2 in which team members worked together on problem-solving tasks. In one task, for example, they were given separate though incomplete task instructions, and only by sharing these could they collectively address the problem in the allotted time. Exercises were followed by short, facilitated sessions at which participants’ reflections were discussed. In this, IF1/2 were observed to move the terms of the earlier discussion away from the need for collaboration towards what it could involve. Workshop participants’ reflections were probed further, with IF1 asking: “How can we set a collaborative agenda for the project?”; “What principles do we want in the contract?” Participants’ responses were often limited to short phrases or single words, such as, “supporting each other”, “sharing information” and “valuing each other’s ideas”. Rather than exploring these ideas further, IF1 then made a short presentation on the FUSION principles (Box 1) that he suggested could be incorporated into the Alliance contract.

Box 1. FUSION principles

FUSION	
Fairness	Inclusivity, listen & hear, objective, ethical
Unity	Consensus, common goal, supportive
Seamless	Not constrained by personal or organisational processes or boundaries
Innovative	Challenge the norm, encourage each other, value each other
Open	Honesty, be approachable, be receptive
No Blame	Be accountable, resolving problems without recrimination

Source: Cultural Alignment Workshop presentation material

Table 1. The IPI process^a and the Advance II project chronology.

IPI phases (Milestones)	IPI on Advance II Advance II dates	Key activities/commentary
(Phase 0): Pre-appointment and team selection		
Preparatory work	Summer 2014	Project success criteria agreed between the IF and Client, and expressed primarily in performance terms (e.g. new building capacity; investment target to be achieved; key performance-in-use requirements, etc). Procurement arrangements set up and managed by the IF.
EOI ^b published	Sept 2014	Advance II strategic brief and tender documents prepared by IF to explain performance requirements and the IPI approach. Documents emphasized the need for selected appointed firms to work collaboratively under IPI and develop innovative solutions to performance brief.
Industry days	Sep/Oct 2014	Workshops facilitated by the IF and focussed on explaining to tenderers what IPI involved and collaborative “behaviours” that are expected.
PQQs ^c submitted	Oct 2014	Evaluation of the experience and track-record of tenderers described in their PQQs. An assessment of tenderers’ “openness” towards adopting a collaborative approach that was observed by the IF at the Industry Days workshop was also part of the evaluation.
PQQs evaluated	Oct/Nov 2014	
ITT ^d issued	Nov 2014	As in IPI guidance, the ITT requested details of the individuals that tenderer’s intended to assign to the project if appointed.
Behavioural workshops	Feb 2015	Interviews and “behavioural workshops” with tenders prior to final evaluation focussed on tenderers’ understanding of the project brief and IPI arrangements, as well as their commitment to collaborative working.
Tenders evaluated	Feb 2015	Tenders evaluated by assessment panel managed by the IF, with strong emphasis on collaborative working potential in terms of FUSION principles (see Box 1). Five firms selected for: architecture, structural engineering, building services strategy advice/project coordination, building services design and installation, and construction.
Phase 1: work to identify agreed project solution		
Cultural Alignment workshop	Feb 2015	<p>NB The researchers became formally involved in the project at this point.</p> <p>This is a project “kick-off” meeting in the form of a workshop having a range of objectives, including helping the appointed firms and project personnel become acquainted with each other and with project and IPI requirements, and, crucially, to foster a team “mentality” by seeking participants’ agreement to collaboration principles by which they will work together.</p> <p>Under IPI this is essentially a process of reviewing and challenging the performance brief and developing innovative solutions to achieve or exceed it at reduced cost. A variety of project meetings, workshops and other events too numerous to describe here were used on Advance II to structure the design development process. Key events that provide the empirical basis for this paper are part of the early stages of design development and are identified here so they can be seen in the context of overall project timescale:</p> <ul style="list-style-type: none"> • Alliance Board meetings – March and April 2015. • Activity Day workshop – May 2015. • IPT meetings and Briefing Workshop – May to June 2015. • Sustainability Review workshop and follow up meetings – July 2015. <p>Under IPI, alliance members are required to agree to deliver the project brief within an agreed Investment target (essentially the client’s total budget), and also to agree their costs and how they will be paid, as well as their respective shares in a “risk and reward” scheme to incentivize performance. These commercial agreements are meant to be concluded early in Design Development at a Commercial Alignment workshop. However, on Advance II the process was more protracted as participants got to grips with the IPI approach and their commercial obligations to each other. They were eventually concluded in December 2015 with agreement to an Investment Target (£11.7m) and a project Target Outturn Cost (TOC; £9.99m). Alliance members also agreed to have equal shares in the “risk and reward” scheme, despite having different financial “stakes” in the project.</p> <p>Following commercial alignment, IPI requires the alliance to request insurers to place (“incept”) an integrated project insurance policy that will insure them as a virtual company for all usual project risks. This is done on the basis of a Project Execution Plan (PEP) for an agreed project solution and a TOC, and is assessed by insurers with independent advice on technical and financial viability. The policy also provides cover for cost overrun in excess of the TOC. On Advance II, the request from the alliance was made in Dec 2015, but policy inception took longer than anticipated. This was mainly because insurers were uncertain about how to evaluate and “price” (in the form of a policy premium) their risk on a project with novel procurement arrangements and no prior “claims history”.</p>
Design Development	Feb 2015 to Dec 2015	
Commercial Alignment	Mar to Dec 2015	
Policy inception	Feb 2016	

(continued)

Table 1. Continued.

IPI phases (Milestones)	IPI on Advance II Advance II dates	Key activities/commentary
<i>Phase 2: execute agreed project solution to completion</i>		
Construction	Mar 2016 to Aug 2017	<p>The main contractual and governance arrangements were established in the early part of Phase1 (Design Development). These included the Alliance Contract; the “risk and reward” mechanism; and a management structure for project delivery which were implemented following Policy Inception.</p> <p>Under IPI, the design and construction team is meant to focus on improvement throughout detailed design development and construction. In addition to the normal project meetings and events, the IF facilitated a variety of workshops during this period focussed on understanding “risks and opportunities” and on reducing the TOC by up to 10%. A range of detailed changes were made in this way, including improvements in the pre-fabricated heating plant and detailed façade improvements. In the event, however, the TOC was exceeded by some 3% due primarily to design changes that are outside the scope of this paper – for further details see the project Final Report (Connaughton and Collinge 2018).</p>
<i>Phase 3: monitor/improve performance post-completion</i>		
	Sep 2017 to Sep 2018	<p>Under IPI, the IPT stays together to support post-completion processes, monitor seasonal performance and rectify defects occurring in first 12 months. This phase was not part of the research project reported here. It may be noted that shortly following project completion (in Sep 2017), the IF facilitated an end-of-project workshop intended to capture lessons for the future application of IPI that may have been learned on the project.</p>

^aThe process outlined here is based on IPI guidance (Integrated Project Initiatives 2014) covering a two-stage tender widely used for public procurement in the European Union.

^bEOI is an “Expression of Interest”, normally invited as a key part of the first stage in a two-stage tender process.

^cPQQ is a “Pre-Qualification Questionnaire”, a form of submission for EOIs widely used in construction procurement across the European Union.

^dITT is an “Invitation to Tender”, a formal invitation usually issued to shortlisted bidders in the second stage of a two-stage tender process.

The researcher became involved in the project at the start of Phase 1 (February 2015) until project completion (September 2017). Shaded areas indicate the main focus of this paper, though activity in other Phases (particularly Phase 0) is also discussed.

Although these principles had been used to assess tenderers’ commitment to collaboration, team members present (apart from client representatives) had not seen them before. The terms were not discussed in any detail, perhaps due to time pressures of the agenda, and both IF1/2 and participants appeared keen to move on to other topics, especially the roles of parties under IPI and the project timescale. That said, a brief discussion of “Fairness” ensued in which team members grappled with some overlapping and multiple meanings embedded in this concept. For some, fairness was about “treating everyone the same” (Contractor 1), while for others it meant “listening carefully to each other” (Architect 1), though listening carefully was more about another FUSION principle of “Openness” for others (Client 1) than it was about fairness. One participant noted afterwards:

...so we had the FUSION principles at the start, everyone sharing this collaborative ethos, that was a big expectation. But we didn’t really know what it all meant, and I think people believed that partners would develop greater understanding as we went along... (Building services designer/installer 1, July 2015)

Following this short discussion, the workshop broke for lunch and the afternoon agenda focussed on participant roles and the project programme. The

researcher observed that participants seemed more comfortable debating these more practical matters.

From a projects-as-practice perspective, these workshop interactions evidence the dominance of the IF in sayings about collaboration. Having accepted the case for it, team members seemed ready to rely on the IF to answer the first key question confronting them: “what [collaboration] principles do we want in the contract?” Their apparent acceptance of FUSION principles is not solely explained by time limits on the workshop agenda, nor by the IF’s authoritative status as architect of IPI. Seen through the lens of practice (defined as ways of working that embody sets of rules, norms and values – Hällgren and Söderholm 2011), the FUSION concepts provided a starting point for considering what collaboration might involve, albeit in ill-defined and ambiguous terms. Team members seemed to prefer this over the opportunity to work out collaboration principles for themselves *ab initio*, and, by contrast, were more prepared to debate the more practical aspects of the project discussed in the closing part of the workshop. And on these practical issues – including the underlying commercial model; the work breakdown structure and preferences for off-site manufacture – they became more animated and prepared to challenge each other, in contrast to their

earlier, largely consensual discussions around collaboration. The researcher's contemporaneous field notes reflect this changing dynamic:

Participants still getting to know each other throughout the day and learning about how an IPI project may potentially work. The enthusiasm about participating was tempered by frequent questions/concerns about potential problematic issues on the project... Some doubts raised about the viability of the entire IPI idea at end of day when people had to think about [the Alliance] Board Agenda... (Researcher's field notes, 28 February 2015)

Activity in the period between Episodes 1 and 2 – March to April 2015

Immediately following the Cultural Alignment workshop, the Alliance Board was constituted from one senior member of each participating firm and two client representatives, all of whom had attended the workshop. The Board met for the first time two days after the workshop, chaired by IF1 and attended also by IF2 and the researcher. The meeting opened with an item on Alliance Principles, with IF2 reminding attendees of the FUSION principles introduced at the Cultural Alignment workshop. As some participants could not remember what FUSION stood for, IF2 agreed to circulate a short note of explanation (essentially [Box 1](#)) with the meeting minutes. Asked how FUSION would support people working together, IF1 replied there would be a regular "stock-take of behaviours" on the project to challenge any departure from these principles. However, it was not clear who would do this, IF1 saying that it was not the IF's role to "police the team"; rather, as FUSION will be "enshrined in the alliance contract", he expected that members would get used to them, "challenging each other when they feel performance/behaviour falls short of what is expected". There was no significant further

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Open	Honesty, be approachable, be receptive
No Blame	Be accountable, resolving problems without recrimination

Source: Cultural Alignment Workshop presentation material

discussion of FUSION principles, nor any opposition to the idea of including them in the alliance contract. Afterwards the client noted:

... whilst we understood the generality of the process and agreed with the FUSION concept, the intricacies of the process are less clear... it's a bit like learning to write with your left hand when you've been writing with your right hand all your life. But you've got to get on and do it. (Client 1, July 2015)

The meeting moved on to consider a wide range of issues concerned with project governance arrangements and forming an Integrated Project Team (IPT) for design and construction. These issues dominated two further meetings of the Board during March, and at the second meeting, the client announced that due to funding delays, the project would be suspended for at least four weeks. At this point, the alliance contract had not yet been signed (FUSION principles had been incorporated but further details relating to Commercial Alignment were awaited).

Episode 2: activity day workshop May 2015

Project activity resumed with an Activity Day workshop, six weeks following the suspension of work. Those firm representatives attending the Cultural Alignment workshop had now been formed into the IPT, and this was the first opportunity for them to meet since that workshop 10 weeks earlier. Conceived as a planning event in which a programme for the three broad project phases would be developed (see [Table 1](#)), the workshop was facilitated by IF1/2 and attended by two client representatives and the researcher. Participants were formed into three groups to plan separate phases of the project. Each group reviewed the work of the other in rotation; a group representative then presenting the amended programme for their phase for further discussion.

During the initial group discussions, the researcher observed that some participants appeared not as engaged as others; contemporaneous field notes recording:

Today's meeting is the first group meeting for some time and the groups sometimes seem to have forgotten the FUSION principles that underlie the project. Certain individuals (...) are [challenged by others as being] problematic in the meeting in terms of communication, dogmatism and reluctance to listen to reasoned arguments. (Researcher's field notes, 12 May 2015)

At the following plenary discussion, IF2 felt that the project suspension had allowed some IPT members to "forget about FUSION", asking if they were now

working on other projects. Many confirmed that they were. IF2 noted that while this raised resource implications for the project, it was important to be aware that a “different mindset was needed for IPI which can easily be forgotten”. IF1 then presented the FUSION principles using a slide shown at the February workshop, opening up a general though brief discussion about what “true collaboration” might mean under IPI. As before, IPT members did not really challenge or explore these principles, focussing instead on Fairness. For some, this was about “all of us listening to each other” (Architect 1); for others it was about “treating each other with mutual respect” (Contractor 1). Most participants seemed to welcome a contribution from the Building Services Strategy Adviser/Project Coordinator (BSSA/PC 1) when he said that in IPI everyone needs to support each other as “we have to share risk so we’re all in this together”. When some IPT members questioned what this might mean, others seemed to become frustrated at the ongoing discussion. Afterwards the contractor commented:

... we’ve just been circling and every time... we’ve tried to settle on something... and we start to get a bit of purchase someone says “hang on guys, have you really considered this?” And...away we go circling again. (Contractor1, May 2015)

This growing impatience with discussions around terminology was shared: the structural engineer commenting after the meeting:

We seem to have got into too many theoretical discussions about the meaning of words, precise meaning of terms ... and too often [the IFs] take us through a theoretical that has meant that a lot of our meetings have gone on and on and on which hasn’t been good for morale... (Structural engineer 1, May 2015)

Whilst the precise nature of collaboration remained unclear at this workshop (even when articulated as FUSION principles), its place in the project was uncontested. Further, IPT members accepted a broad sense of it, especially in terms of how they should relate to each other in day-to-day work. When queried by the researcher during this period about what collaboration meant to individual participants, they repeatedly used terms such as “treating everyone the same”, and “we’re all in this together”. During the Activity Day workshop, the researcher observed that such a simplified and open-ended idea of what collaboration entailed seemed to be enough, and there was no significant effort devoted to developing more precise rules to guide subsequent action. Instead, IPT members wanted to get on with planning Phase 1, and the

discussion moved on to programme issues. Commenting later on the process of Commercial Alignment, in which team members agree to equal shares in the risk/reward mechanism, the client noted:

I’ll be honest, I went into the meeting expecting [members to share based on their relative revenue from the project] ...when it was then said by the designers, “well no, we’re all in this together so we should all have equal shares”. I think the decision was made from a principle point of view, trying to make the [process] work ... (Client 1, August 2015)

Activity in the period between Episodes 2 and 3: May to June 2015

In the weeks leading to the Sustainability Review workshop (Episode 3), a good deal of IPT and Alliance Board activity was devoted to understanding client requirements and planning for Phase 1. An Alliance Board meeting in June returned briefly to the FUSION principles, but participants at this point started to express frustration at the extent of such discussions, arguing for the need to “get on” with the project, noting that project funding had not yet been confirmed and the contract not yet signed. Little progress was being made on immediate technical challenges (e.g. diversion of an underground sewer traversing the site) and there were suggestions that the completion date of March 2017 might not be achievable. These interventions were decisive in moving the discussion quickly to project planning and financial matters relating to costings and the commercial basis for members’ participation. Reflecting on progress during that period, the structural engineer noted:

There is a point in time at which you’ve got to start making headway because if you don’t then the client is massively exposed.... It was not too long ago when I came out of a meeting and I thought if we don’t start to do something soon, I’m going to have to go and have a chat with [the client] about it because I’m really uncomfortable... (Structural engineer 1, July 2015)

Other meetings around this time included a Briefing workshop on 19 May, to understand the client’s strategic brief (see Table 1) and identify project solutions. The brief requirement for “improving sustainability and low energy/carbon performance” was identified as a priority and opportunity for innovation to exceed brief requirements. Following confirmation of project funding in June, work accelerated with many project meetings taking place, and it was not possible for the researcher to attend them all. At an IPT meeting on 9 June to review project target costs,

frustrations at a lack of progress again came to the surface. Some participants argued that the need to collaborate did not mean consensus had to be achieved on every minor decision:

Is it because we're collaborative that nobody will sort of lay down the law? ... collaboration doesn't mean you throw out the baby with the bath water of basic project management. (Contractor 1, July 2015)

To make more rapid progress, several IPT sub-groups were proposed, including one focussed on Building Services Strategy, to be led by the BSSA/PC and involving other disciplines (architecture, building services design/installation, structural engineering and construction). This would initially focus on the requirement for improving sustainability and low carbon/energy performance.

Throughout this period, interactions of project participants highlight how ambiguous concepts of fairness and openness remained. Discussions about FUSION principles became less prominent and somewhat negatively implicated in a perceived lack of progress. The desire for action may be observed as a transition from the sayings of collaboration to the doing of it. So, while participants agreed upon a broad and open-ended idea of collaboration, it is only through "doing" that the unfolding interplay of sayings and doings would become clearer. We now focus on a specific episode to highlight how these sayings and doings evolved into an initial enactment of collaboration on the trial project.

Episode 3 – sustainability review workshop July 2015

Following the Briefing workshop in May, BSSA/PC 1 and Architect 1 had discussions about improving low energy/carbon performance. BSSA/PC 1 was interested in a passive, naturally ventilated solution for the project. This would represent a significant, energy-reducing innovation – and a riskier one – as the mechanical engineering workshop to be included in the trial project would normally require extensive mechanical ventilation, as on the precursor project, Advance I. BSSA/PC 1 offered to facilitate a Sustainability Review workshop to explore how low energy/carbon performance might be achieved, to be attended by an IPT member each representing the architect, contractor, and the building services designer and installer. A specialist external consultant with expertise in low energy/carbon design was invited by BSSA/PC 1 to advise the team on low energy/low carbon strategies. Primarily because this was viewed as a technical, design

development meeting, IF1 agreed with BSSA/PC that the IFs would not attend.

The meeting started with a presentation from BSSA/PC 1 to explore a simple question: "What is sustainable design for the trial project?" He explained that the workshop was designed to help participants to "think collaboratively", drawing from de Bono's "Six Thinking Hats" (de Bono 2000) in which participants would be encouraged to change their thinking modes to suit different imaginary situations. The sustainability consultant then spoke about low-energy/low-carbon building design, arguing that it requires smaller services systems with reduced peak installed capacity, achieved by exploiting passive heating and ventilation. To achieve this, designers must challenge accepted design norms, and more effort would be needed in assessing likely performance in-use compared to conventional, rule-based approaches.

Returning to the opening workshop question, participants were then encouraged to identify positive and negative aspects of low energy/low carbon design. Suggestions were recorded on post-it notes and flipcharts, including what could block such an outcome and how blockers could be overcome. The introduction from the sustainability consultant seemed influential in shaping suggestions around a passive ventilation approach, with terms such as "passivhaus", "passive design" and "natural ventilation" reflecting further ideas about a possible solution. Concerns covered a range of issues, including client acceptability, how to maintain consistent thermal comfort for users, as well as team-oriented issues including a "lack of joined-up thinking from IPT" and a "lack of confidence to rely on passive measures rather than mechanical systems". The meeting concluded with agreement to explore passive options in more detail in a follow-up session, with the support of the sustainability consultant.

Two follow-up workshops (Sustainability Reviews 2 and 3) involving the IPT members from the first Sustainability Review workshop were held in the following week. These focussed on developing some of the technical details of what a passive, naturally ventilated solution would entail. In Review 2, the sustainability consultant suggested principles for a passive approach covering aspects including expected occupation densities, the potential use of natural daylight, and other matters. As participants discussed these, they gathered around flipcharts to make sketches and initial calculations on the extent and configuration of glazing and openable windows needed, potential overheating implications, and the thermal mass

required from the building structure. Asked about this problem-solving process, the building services designer/installer commented:

Well, if anything it's flipped it round. Usually ... the architect will draw something that meets the client's requirements and do a scheme before we'd get involved, but this kind of working was very different for us.... and I don't think we provided as much input as perhaps others would expect... (Building services designer/installer 1, July 2015)

Participants concluded by identifying a need for thermal modelling to understand the implications of their design. Building services designer/installer 1 and Contractor 1 agreed to take on this modelling work, noting how this was normally outside their remit. Review 3 was given over to a presentation by the sustainability consultant on the potential for a Thermally Adaptive Building System (TABS) approach for using the thermal storage capacity of the building structure and floor slabs to help provide a source of winter heating and summer cooling.

The strong influence of BSSA/PC 1 in this account is evident – initially suggesting the passive ventilation approach, convening and facilitating the Sustainability Review workshop, and enlisting the support of a sustainability consultant. Collaboration under IPI does not include any expectation that ideas will arise simultaneously from all participants; rather, it is that ideas are considered positively regardless of where they come from and developed further if participants agree. Argument and persuasion, as part of the sayings of collaboration praxis were very much part of this endeavour. By organizing the workshop in a way designed to encourage collaboration – regardless of the merits or otherwise of the Six Thinking Hats format – BSSA/PC 1 was arguably taking the collaboration practice of facilitated workshops used by the IFs into a new praxis, reflecting also the rather broad sense of fairness and openness that had framed IPT members' evolving understanding of collaboration. And by not being specific about what a passive approach should entail, workshop participants were able to enact further praxis by working out some of the key elements for themselves, discussing their viability, testing them initially with broad-brush sketches and calculations and actioning further analysis that took them beyond what they would normally do. In the doing of this collaboration, we can see how ideas of working together were being put into practice without direct IF involvement.

By the time of the next IPT meeting in July, Architects 1 and 2, Building services designer/installer

1 and Contractors 1 and 2 were already working closely on the further development of a naturally ventilated solution supplemented by TABS. And, in a brief coda to this account we note that as design activity progressed during the summer and into autumn 2015, with a strong focus on developing and appraising the naturally ventilated scheme, IPT members continued to work closely together. They were observed to remind each other about the need for “openness”, “mutual support” and “sharing” in their day-to-day work. Such terms were articulated at different times by different IPT members and reflect an evolution of shifting and multiple meanings without ever reaching some identifiable and stable new state of collaboration practice. Instead, attention was focussed more on developing the naturally ventilated solution and IPT members' growing collective commitment to it. It is notable that this solution provided the basis of the scheme put forward for insurance under the IPI policy (see Table 1, Phase 1 “Policy inception”) – and eventually constructed – despite repeated concerns raised by the insurers' independent technical advisor (TIRA) that it may not achieve acceptable internal comfort or air quality levels.

Discussion

These episodes show how project practitioners in the IPT evolved a new way of working together to develop an innovative solution to a sustainability goal of improving energy and carbon performance. We now use a projects-as-practice lens to highlight the enactment of collaboration as a praxis emerging out of practitioner understandings in the situated project context. We also explore the role of the facilitator/IF as an active participant in collaboration and how enactments of collaboration were bound to practitioner sayings and, in particular, doings. In this way we use this productive account of how collaboration emerges and is put into practice to contribute to current understanding both of collaboration in construction and of how praxis evolves from the actuality of project working.

Emergence of collaboration praxis

Central to the emergence of collaboration praxis on the trial project was the individual and collective learning process in which IPT members developed an understanding of what collaboration meant and how they should enact it. While it is possible to treat such learning as a form of “sensemaking” practice (see for

example Brown *et al.* 2016 and Kieran *et al.* 2020 who draw on sensemaking concepts in Weick 1995 for use in a strategy-as-practice context), we use a broader conceptualization as in other strategy-as-practice accounts of actors gradually learning how to do work (Whittington 2006, Jarzabkowski *et al.* 2012) to explore how IPT members came to enact collaboration.

Underlying how collaboration emerged – and IPT members' tacit acceptance of the need for it – was a belief that it would help improve project outcomes. Such belief pervades a good deal of the collaboration literature (see Xue *et al.* 2010, Hughes *et al.* 2012), including practitioner-oriented work (e.g. Morrell 2015, Constructing Excellence 2011). But more than that, the particular conceptualization of collaboration in IPI – requiring IPT members to work together in a joint endeavour, sharing responsibility for the development of innovative solutions to project requirements – arguably focussed attention as much on outcomes as it did on the *modus operandi* of collaboration. This focus – and the actions needed to achieve outcomes rather than a more abstract aim of collaboration as providing some kind of improved working environment – can help explain IPT members' broad acceptance of FUSION principles and their reluctance to require any more precise articulation of what collaboration would involve. As the early project stages progressed, IPT members remained content with a vague and ambiguous notion of “we're all in this together” that seemed to capture a workable sense of what collaboration meant and, crucially, was sufficient to enable action (Bowen and Ostroff 2004, Maitlis and Chrisitanson 2014), especially in this particular context in which they shared collectively and equally in the risks and rewards of project outcomes. And so, their impatience to “get on with” the project, to enact the collaboration needed to develop innovative technical solutions – and more generally, to progress the project – subordinated a need for more precise definitions of what collaboration meant and how it should be done. We argue that this focus on outcome essentially helped elevate the doing of collaboration over the saying of it.

Viewed more specifically through the projects-as-practice lens, we can start to see also that, in the desire to “get on with it”, the progressive enactment of collaboration was an essential part of working out what it meant and what it involved. While the trial project procurement process and subsequent Cultural Alignment activity (Table 1) sensitized IPT members to the need to work together in new ways, the IPI apparatus did not provide a template or guidance for how

to do this. Further, although these practitioners had experience of interdisciplinary working on previous projects, they had not experienced collaboration where they are jointly responsible for design solutions. Thus, lacking the relevant practice to provide “previous knowledge ... [to draw upon]... in order to make sense of the situation” (Hällgren and Soderholm 2011, p. 506), they started to crystalize sense and meaning through enactment.

We see this progressive enactment evident in the series of Sustainability Review Workshops. In the first of these, BSSA/PC 1 drew on the key practice of facilitated workshop meetings used by the IFs to encourage collaboration, working with an independent consultant and focussing initially on building team confidence to take on the unfamiliar technical challenges of sustainable design. Given that many IPT members had expressed impatience with discussion-based workshops up to that point, it may seem surprising that these formed a starting point for their enactment of collaboration. But in the absence of other know-how, they provide a means by which these practitioners could start to work out for themselves what working together entails, with a new collaboration praxis emerging around their active participation in idea generation and joint problem solving. This emergent, collaboration praxis has elements of a bottom-up process (Bresnen 2008, 2009, Marshall 2014, Bygballe *et al.* 2016) that is not some fixed representation of collaboration practice, but an ongoing, progressive constitution and re-constitution of it (Marshall 2014).

We can see how this unfolds across subsequent workshops in which IPT members worked together within their evolving understanding of the broad principles and rules of IPI. This involved finding new ways of working together (including how Building services designer/Installer 1 and Contractor 1 took responsibility for thermal modelling at the Sustainability Review 2) to advance thinking about a design solution to sustainability requirements. And in the unfamiliar context of collaboration under IPI, such putting-into-practice also raises the importance of “practicing” – in terms of practice as learning through trial and error that is often, according to Schatzki (1996), overlooked by social practice scholars (p. 89) – in the emergence of praxis. Maitlis and Chrisitanson (2014) consider such experiential learning in which “people construct provisional understandings that they continuously enact and modify” helps create meaning and understanding of what it makes sense to do (p. 67). This is not to argue that the idea of practice in the practice-praxis-

practitioner scheme as providing the rules and procedures that frame the emergence of praxis was not important. Rather, it is to say that enactment was not simply the application of encoded instructions in the IPI apparatus, but also part of a progressive “learning by doing” (Ahern *et al.* 2014) of how IPT members could work effectively together that not only generated experience but knowledge also.

In these terms also, there is no obvious transition from practicing as rehearsal to practicing as a more deliberate doing. Indeed, in the series of Sustainability Review workshops we can see the gradual emergence of collaboration praxis, framed by an expectation that IPT members would develop innovative low energy/low-carbon solutions that they would share responsibility for. The particular technical challenges of such solutions arguably required a strongly interdisciplinary approach, highlighting the imperative for collaboration and encouraging IPT members to think about how they would work together to achieve it. Other technical challenges (or desired outcomes from different perspectives) could no doubt invite different responses and configurations of interdisciplinary collaboration. But the point here is that context-specific outcomes became interwoven into the way in which praxis emerged. It is the combination of desired outcomes *and* the practitioners’ responses to them, together with their developing understanding of collaboration through its progressive enactment by their collective engagement in developing a passive design solution that help define and shape the emergence of collaboration praxis.

Role of the facilitator/IF

Regarding the facilitator/IF role, the study raises broader questions about who practitioners are in projects-as-practice – questions that arise in strategy-as-practice also (see Löwstedt *et al.* 2018). The strategy-as-practice literature recognizes the involvement of facilitators and consultants in being part of the strategy making process (Whittington 2006, Jarzabkowski and Spee 2009, Jarzabkowski *et al.* 2012, Löwstedt *et al.* 2018). By contrast, facilitators are typically viewed as providing a more top-down convening and governing function in the construction collaboration literature, rather than being an active part of the collaborative endeavour. In a meta-analysis, London and Pablo (2017) characterize this role as establishing, legitimizing and guiding the collaborative alliance (p. 557). However, when viewed in terms of the emergence of praxis through a projects-as-practice lens, we

reach a different and more dynamic understanding of the facilitator/IF role.

We have noted that IPT members in the trial project had little experience of the kind of collaboration expected under IPI. Unlike corporate strategy making, where organizations may already have established strategic practices (Jarzabkowski 2005, Whittington 2006) to help frame the doing of strategy, no specific guidance on how collaboration was to be done was available from IPI documentation. Rather, it contained a general expectation that adopting the IPI approach would of itself create “a new environment of integrated collaborative working” to free IPT members from their normal liabilities, enabling them to work together to create innovative project solutions (Integrated Project Initiatives 2014, p. 20). In these terms then, the IF – who is also not contractually a part of the Alliance nor IPT and does not share in the risk and reward of project outcomes – performs a mainly governing role comparable to the top-down, convening role acknowledged in collaboration studies (London and Pablo 2017). This is concerned mainly with ensuring that rules of IPI are appropriately implemented to create an environment in which collaboration is then assumed to happen.

However, our detailed account of episodes in the emergence of collaboration practice presents a more active and dynamic role for the IF. In observing that IPT members had little prior experience of the kind of collaboration expected under IPI to go on, we note that the IF had little prior experience either. Apart from a set of FUSION principles distilled from an earlier project, there was no existing or desired collaboration practice to adopt or implement. Nor was there much belief that collaboration would simply arise spontaneously following adoption of the IPI apparatus, despite contrary expectations in IPI guidance. So, in working-out what collaboration meant and would involve, the role of the IF was as much about a joint search for meaning as about the imposition of some prior understanding of what it should consist of.

It is notable how the introduction of the FUSION principles in the early Cultural Alignment workshop was an attempt by the IF to draw out from IPT members how they might want to work together: “What principles do we want in the contract?” Notable also were repeated though unsuccessful attempts by the IF subsequently to clarify their understanding of collaboration principles that would guide how they worked together. By abandoning these in favour of a more gradual and practitioner-centred process of emergence and enactment, the IF recognized that what mattered

to IPT members was an initial and workable sense of what collaboration was about *and* the opportunity to work it out for themselves by doing it. And providing this opportunity was not simply an act of governance in establishing conditions for collaboration. It entailed more of a dual role for the IF: explaining the details of IPI governing practices (in terms of rules and expected norms) and helping to translate these practices into workable praxis for collaboration. And in this, we can see the IF's interpretation of what collaboration meant becoming interwoven with IPT members' enactment of it, not least in the adoption of the IF's approach of facilitated workshops as a form of collaboration praxis for the Sustainability Review workshops. In these terms the IF is actively participating in collaboration praxis and is not some independent governor focussed mainly on establishing the conditions for its development.

Conclusion

Our study examined the emergence of collaboration on the IPI trial project to address two key questions: (1) How do project participants work together to develop a new way of collaboration on the trial project and put it into practice?; and (2) What is the influence of the IPI facilitator – an important actor in IPI arrangements – in how collaboration emerged and was put into practice on the trial project?

In response to the first question, our findings overall show that the social processes of the practitioners, working within a specific project context, mattered to how collaboration emerged and was enacted. In these terms, the findings are broadly in line with studies of collaboration that adopt a practice-based perspective, recognizing collaboration as an evolving practice constituted from the social interaction of practitioners within particular project contexts (e.g. Bresnen 2008, 2009, 2010, Gottlieb and Haugbolle 2013, Marshall 2014, Marshall 2014). But in contrast to studies that focus more on how the collaboration entity (partnering and other management arrangements) emerges out of context (Hartmann and Bresnen 2011, Gottlieb and Haugbolle 2013, Bygballe *et al.* 2016), our analysis instead highlights the importance of collaboration enactment by practitioners to understand how they come to work together. We contribute to an understanding of how collaboration emerges by using projects-as-practice to show that the progressive putting into practice of general ideas of what collaboration might entail was more important to practitioners in working out what to do than having an explicit

agreement of what that involved. Understanding what collaboration meant did not need to precede the doing of it but was ultimately entwined in a “learning by doing” activity (Ahern *et al.* 2014), not explicitly acknowledged in practice-based studies of collaboration, in which practitioners, through their enactments, literally worked towards a tacit understanding of what collaboration entailed. Despite considerable effort by the IF to get them to articulate collaboration principles, using FUSION as a basis, a simplified “saying” (“we’re all in this together”) was sufficient for practitioners to launch a more active “doing” of collaboration focussed on the passive design solution. In the language of social practice, it was doings rather than sayings that created meaning for practitioners in their collaboration endeavour. For projects-as-practice, an additional contribution relates to this dominance of doings, emphasizing praxis and practitioners over pre-existing practice. In situations where new praxis is called for, focussing on related practice may be of limited value in understanding how it emerges. We suggest that this may have particular relevance in construction project settings, where new teams of practitioners are formed on a project-by-project basis.

In response to the second question on the influence of the facilitator/IF, we showed how insights from strategy-as-practice were useful in helping to see the facilitator as a practitioner in the emergence of collaboration praxis rather than a more independent governor focussed on establishing the conditions for collaboration. Our contribution here is to make the case for considering a potentially richer role for facilitators as both tutors and developers of praxis than their more limited characterization as convenors in a good deal of the construction collaboration literature (see London and Pablo 2017, for example). This is potentially important for projects-as-practice also. Actors not legitimately part of formally constituted project delivery teams (for example, client advisers and, indeed, external stakeholders) may nonetheless need to be considered as having legitimacy as practitioners in the development of project praxis through the practice-praxis-practitioner framework.

More generally, we draw attention to our use of episodes to help locate the nexus of praxis, practice and practitioner to examine the actuality of project working. The selection of those project events and activities that may exemplify such a nexus will remain a challenge. But by focussing on a series of interconnected episodes (Denis *et al.* 2011, Spee & Jarzabkowski 2011), contextualized against a complete project chronology (Table 1) and overview of the IPI

contractual setting and apparatus, we have been able to illuminate the micro-activities of collaboration, and understand how they unfolded over time within the broader project context. This approach highlights the strong temporal dimension of praxis and further work in the projects-as-practice domain could usefully examine such extended processes of project praxis as well as the circumstances and contexts within which they might emerge through a similar approach.

While we did not focus specifically on facilitation practice, we observed how practitioners in the project team (e.g. BSSA/PC 1) adopted a facilitation role and associated workshop practices to help initiate collaboration. This suggests that understanding the fluidity and interchangeability of role identities and diverse social practices is potentially important in explaining the emergence of collaboration praxis and its constitution into new practice. We also did not focus on implications for IPI in this paper, though future projects adopting the approach could draw on our findings. Specifically, attention could be given to how the emergent collaboration praxis documented here may stabilize and become consolidated into new practice, perhaps with the IF in a more central role, in terms of new “rules” and procedures for the application of IPI. At the same time, recognition is needed of how future members of IPI project teams, who may be unfamiliar with the particular conceptualization of collaboration under IPI, may need to work out for themselves how to do it. In summary, rather than focussing on creating the conditions for collaboration to happen, efforts need to be directed more towards more the active involvement of project practitioners including the IF in the enactment of collaboration as a way of learning how to do it.

Limitations and future research

A limitation, noted throughout, is that the construction project providing the basis for our study was the first trial of the IPI approach. The trial project came under a degree of public scrutiny as a UK Government Cabinet Office trial of a series of new procurement approaches, including IPI (Cabinet Office 2012). The potential for such public attention to heighten the intensity of collaborative working among project participants cannot be discounted, though neither can it be easily identified. But it is because of its novelty and its explicit focus on improving collaboration that the trial project provides an interesting setting in which to study the emergence of collaboration praxis.

A further limitation relates to our role on an IUK R&D project focussed on the IPI trial and working alongside the facilitator/IF who strongly believed in the value of collaboration and the potential for IPI to support it. While we cannot completely remove the potential for bias, we note that we worked throughout with other members of the IUK R&D team and trial project participants to check our accounts and confirm our understandings. And by providing a detailed account both of research arrangements and the project episodes examined, we leave open the potential for alternative approaches and interpretations.

Important elements of the research approach – including using action research – have relevance for projects-as-practice researchers. A significant question in examining the situatedness of practice is the need for informed expertise (Coghlan and Shani 2008) to understand it. This is brought into sharper focus within an action research setting where the aim may be to help improve it also. While our approach was to use the facilitator/IF as part of the action research function, the wider question is how to acquire and use informed expertise for insightful investigations of the micro-activities of practitioners, and the potential challenges as well as benefits. This is particularly relevant in the highly technical, construction project context, and we would like to see more attention paid to it in construction management research.

Following our analysis, further questions arise in relation to the conditions and dynamics of praxis emergence and practice change. One question relates to practitioners’ ability and competence to collaborate, which is somewhat taken for granted in IPI guidance – and, indeed, in a good deal of the construction collaboration literature also. While we have foregrounded the emergence and enactment of collaboration in terms of practitioner understandings and how they did it, future work could emphasize the acquisition and use of knowledge in terms of developing competence and know-how: having the skills required to perform practice as an important ingredient in its emergence and transformation (Shove *et al.* 2012, p. 23). A related question for construction concerns boundaries of knowledge and competence. Collaboration, when conceptualized (as in IPI) as a shared enterprise focussed on the development of jointly-produced solutions – in which all contributions from team members are potentially valuable, regardless of which professional discipline they come from – challenges how professional competence is organized and managed. A useful area for future research would

be to examine how jurisdictional boundaries of professional practice may need to be reinforced or reconfigured under different ways of working collaboratively.

Finally, and on reflection, we can see that a more conventional interpretation of collaboration on the trial project could simply view it as arising from the imposition of an extensive apparatus of rules and expectations by a powerful facilitator on practitioners willing to adopt it. Instead, our analysis recognizes the extent to which the IPI context and apparatus, facilitation (in its dual role of tutoring *and* developing collaboration), and the primacy of practitioners' actions (doings) all interrelate and are mutually co-productive. In this way, a collaboration praxis emerges that is related to – but not entirely dictated by – its governing principles. Further, it provides the basis for the constitution of a new practice of collaboration as well as the nascent mechanisms for how future practices might emerge (Jarzabkowski *et al.* 2012).

Disclosure statement

No potential conflict of interest was reported by the author(s).

Notes

1. The project was part of the UK Government Cabinet Office programme of trials of new procurement approaches (Cabinet Office 792012).
2. While the focus of this paper is on how collaboration emerged on the Trial Project, the aim of our funded research had a broader remit, understanding how well collaboration worked and the role and influence of the extensive IPI apparatus in supporting it.
3. FUSION: Fairness, Unity, Seamless, Innovative, Open, No Blame. These principles derive from a collaborative working approach developed for Glaxo Wellcome in the 1990s – see <https://www.ipinitatives.co.uk/resources> and Cartlidge (2004, p. 265–272).

Acknowledgement

The research reported was part of Innovate UK's Rethinking the Build programme and acknowledgement is made of the financial support provided by that programme. Specific results and their interpretation remain the responsibility of the authors.

The authors would like to thank the anonymous referees and the journal editors for their insightful commentary and advice that helped to develop the arguments in this paper.

ORCID

William H. Collinge  <http://orcid.org/0000-0003-3387-1649>

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