IS INTEGRATED PROJECT DELIVERY SUFFICIENT TO REDUCE ADVERSARIALISM IN THE UK CONSTRUCTION INDUSTRY?

ABSTRACT

Adversarialism is an endemic feature of the construction industry, resulting in devasting effects on productivity, cost, performance and client satisfaction within the industry. This can be explained by various factors of which adversarial 'traditional' construction contracts is one. To reduce adversarialism and to establish sustainable construction methods and practices in the United Kingdom (UK), the Integrated Project Delivery (IPD) method has been advanced as a solution. The critical review and analysis of relevant literature as well as prominent studies show that; although the use of IPD resulted in a better, healthier outcome in comparison to normal/traditional adversarial system, IPD still suffered from significant limitations, challenges and persistent barriers. These barriers thus indicate and necessitate the need for further research in determining a sufficient way in reducing adversarialism within the UK construction industry. One of the recommended empirical investigations include whether legislation has an influence on good faith towards reducing adversarialism. Another empirical investigation recommended is the premise that the barriers and challenges IPD present may likely be overcome by the implementation of statutory-backed good faith legislation, thus improving collaborative working. This paper will contribute to the wider knowledge of IPD in the industry and to improving the performance of the UK architecture, engineering and construction industry through collaborative working.

Keywords: *Adversarialism; Collaborative Working; Construction Contract Good-Faith; Integrated Project Delivery (IPD).*

1. INTRODUCTION

Adversarialism is an endemic feature of the Architecture, Engineering and Construction (AEC) industry, resulting in devasting effects on productivity, cost, performance, and client satisfaction within the industry (Latham, 1994; Bishop et al., 2009; Arcadis, 2021). This can be explained by various factors of which adversarial 'traditional' construction contracts is one (O'Connor, 2009). These adversarial contracts focus on the consequences of failure (e.g., milestone penalties, and liquidated damages), reinforcing self-protective

behaviour and mistrust among contracting parties (Bishop et al., 2009; O'Connor, 2009). Adversarial contracting is normal in the industry (National Building Specification [NBS], 2018). To depart from this, experts have advocated that change in contractual approach towards construction contracts is needed (Latham, 1994; Egan, 1998; Murray and Langford, 2003; Cain, 2004). Therefore, to address the outlined issue(s), Integrated Project Delivery (IPD) has been advanced as a solution to sufficiently tackle adversarialism (American Institute of Architects [AIA], 2007; Ashcraft 2010). This paper explored the IPD solution to determine if it can be regarded as sufficient to reduce adversarialism, thus proffering better and healthier practices regarding construction contract negotiations.

2. LITERATURE REVIEW

2.1 THE CURRENT STATE OF CONSTRUCTION CONTRACTING

The AEC industry is highly fragmented and adversarial (O'Connor, 2009; Naoum et al., 2010). Conflict is the norm and numerous industry experts are dissatisfied with project outcomes; lamenting about inefficiency and the adversarial nature of construction services procurement and delivery (Lichtig, 2006; NBS, 2018). In the UK, the sub-optimal performance of the industry is evident. Over the last 80 years, reports have raised concerns over the industry's performance branding it 'under-performing' (Latham, 1994; Egan, 1998; Murray and Langford, 2003; Wolstenholme 2009). Presently nothing has changed as according to Arcadis (2021, 2022) conflict within the industry remains rising.

Globally, from 2020 to 2021, average disputes length increased by almost 15% (Arcadis, 2021). The UK experienced an 11.8% increase (Arcadis, 2022). From 2019 to 2020, the average UK dispute value increased to approximately $38.6 Mn, a 117% increase. Although, from 2020 to 2021, there was a dip in value at $37.8 Mn, levels remain historically high in comparison to levels from 2013 to 2019 (Arcadis, 2022). One of the most prominent factors causing conflict is non-cooperation due to fundamental differences in views and interests between parties (NBS, 2018). These differences foment a culture of hostility and distrust amongst parties leading to adversarial contracting (Bishop et al., 2009). To further elaborate, when traditionally negotiating construction contracts, clients are risk evasive, while contracting counterparties interpret contract clauses differently and for their own benefit (O'Connor, 2009). Risk assessment becomes a dark art and risk allocation an exercise in economic Darwinism (ibid). Often, risk flows down the contracting tiers to those least able to bear or control the risk causing parties to approach contractual negotiations with mistrust and self-protective behaviours (Bishop et al., 2009; O'Connor, 2009). The institutional framework of the industry does little to encourage collaboration between parties. Thus, they often end up working at arms-length in disjointed relationships, motivated by divergent objectives, hidden agendas, profit margins and bottom lines in order to squeeze value from each stage and structure of the production process (Ng et al., 2002; Bishop et al., 2009; O'Connor, 2009). Typically, it is commonplace for contractors at each point of construction or production process to exploit and undermine each other (Bishop et al., 2009). Not surprisingly, adversarial contracts combined with traditional delivery methods often produce sub-optimal results (O'Connor, 2009; Ashcraft, 2010).

2.2 COLLABORATIVE WORKING AND "GOOD-FAITH-LIKE" SOLUTIONS

Consequently, industry experts like Latham and Egan have advocated for collaborative working as a solution to combat adversarialism (Latham, 1994; Egan 1998, Wolstenholme, 2009). However, its impact has been minimal (Ng et al., 2002) due to reasons such as lukewarm attitudes within the industry (Ng et al., 2002; NBS, 2018). Experts also proposed the use of "good-faith-like" wording within standard-form contracts to potentially combat adversarialism. For example, in the UK, Latham suggested that parties should agree to deal with each other in a spirit of mutual trust and co-operation (Latham, 1994). These types of wording are prevalent in the New Engineering Contract (NEC) and to an extent the Joint Contracts Tribunal (JCT) forms. Despite their use over the last 20 years (Christie, 2019), adversarialism continues to worsen. This suggests that, trying to insert collaborative or good-faith-like wording into adversarial contracts will not solve the issue. A more drastic solution is needed and IPD has been proposed as that solution.

2.3 INTEGRATED PROJECT DELIVERY

IPD is a method of delivery which fully integrates collaborative working amongst all contracting counterparties (O'Connor, 2009; Ashcraft, 2010; Reaves, 2012). Its principles are: (i) mutual respect and trust, (ii) mutual benefit and reward, (iii) collaborative innovation and decision making, (iv) early involvement of key participants, (v) early goal definition, (vi) intensified planning, (vii) open communication, (viii) appropriate technology; and (ix) organisation and leadership (AIA, 2007; Ashcraft, 2010;). IPD evolved out of an industry frustration with construction and design mistakes, excessive costs and delays, as well as the aggressive and adversarial methods of construction contracting (O' Connor, 2009; Reaves, 2012). It goes beyond using good-faith-like wording, partnering techniques and the early involvement of construction managers in the design phase. Rather, it is a process that reinforces collaboration from the beginning of the design to the end of construction and gives every party to the project a stake in the outcome of the project (Reaves, 2012). Thus, parties share risk and reward equitably. To elaborate, IPD's compensation structure follows a project alliancing model with the goal of stimulating efficiency and alignment of interests for the benefit of the project in its entirety (Australian Department of Treasury and Finance [ADTF], 2006; Ghassemi and Becerik-Gerber, 2011). Project participants are compensated on a cost-plus basis where the owner guarantees the direct cost, but a portion of the profit and participants' bonuses are dependent on project outcome (AIA, 2007; Ghassemi and Becerik-Gerber, 2011).

Furthermore, risk management in IPD is handled differently in comparison to typical/standard construction contracts. Overall risk essentially remains the same (AIA, 2007) because risk and uncertainty are tied to the project outcome and is collectively managed by all parties to the project (Darrington and Lichtig 2018). The structural elements of IPD are intended to create a self-regulating system (Ashcraft, 2010). Therefore, by aligning the goals of all parties around collective project success, and by making each party accountable for the behaviour of others, project teams gain more control of the overall process and better mitigate the overall risk (Cohen, 2010; Ghassemi and Becerik-Gerber, 2011).

2.4 BENEFITS OF IPD

In addition to its compensation structure, and risk management (self-regulating) system there are other benefits to using the IPD method. IPD brings the skill of key project participants like developers, administrators, manufacturers, contractors, architects, planners and other professional consultants together prior to tender (Abrishami et al., 2014; Dalui et al., 2021). This ensures a project plan and structure that is optimised for quality, aesthetics, constructability, convenience and ensures collaborative working during the lifecycle of the project (Aschcraft, 2010; Dalui et al., 2021). Collaborative working can help to facilitate the delivery of construction projects to time, budget and specification by encouraging open communication, knowledge sharing, and by assisting in forming closer relationships between the parties to a project (Larson, 1997; Constructing Excellence, 2004). For example, Dodge (2017) found that 91% of contractors and owners agreed that collaborative working reduced risk on construction projects. Thus, collaborative working is required to achieve a common objective within the project team and to extend the efficiency and quality among the group (Dalui et al., 2021). This is what IPD offers.

2.5 COMPARISON BETWEEN TRADITIONAL ADVERSARIAL DELIVERY (CONTRACTING) AND IPD

Table 1 presents a comparison between traditional adversarial delivery/contracting and IPD.

Table 1: Traditional adversarial delivery (contracting) vs integrated project delivery

Traditional Adversarial Delivery (Contracting)		Integrated Project Delivery
Typically appointed/engaged on "just-as-needed" or "minimum-necessary" basis, strongly hierarchical, controlled	Teams	IPD composes of key project stakeholders, who were appointed/engaged early (from FEED design to project end), knowledge sharing, open and collaborative.
Fragmented, distinct, segregated, knowledge gathered	Process	Multi-tiered, early contributions of know-how, knowledge and expertise, information openly shared and parties/stakeholder trust and mutual respect.
Individually managed, flown down through the (tiered) supply-chain	Risk	Collectively managed, equitably and appropriately shared, creation of a self-regulating system.
Rigid, two-dimensional, and analogue	Communications/Technology	Flexible, digitally based, virtual and Building Information Modelling (three-four- and five- dimensional)
Individualistic, individually pursued, adversarial, minimum effort for maximum return.	Compensation/reward	Equitably shared, cost-plus bonuses, team success tied to project success and value based.
Encourages unilateral effort, poor allocation and transfer of risk and no sharing	Agreements	Risk sharing, equitable allocation of risk (i.e. who can better bear the risk), promote and support multilateral open sharing and collaboration

Source Adapted: AIA (2007); Kahvandi et al. (2020)

3. IPD AS A POTENTIAL SOLUTION TO REDUCE ADVERSARIALISM?

3.1 SUITABILITY OF IPD

IPD is not entirely suitable for all construction projects. For example, most governmental entities regardless of jurisdiction may be unable to proceed with a true IPD project because governmental procurement codes, rules, statutes and/or regulations may mean that certain professional consultants (e.g., architects) are engaged under a defined fee schedule with a prescribed contract form (Reaves, 2012). However, in the case where IPD may not be suitable, its characteristics may still be applied in negotiating construction contracts to achieve a smoother and more successful project (Reaves 2012; Kahvandi et al., 2020). This premise was explored by the Ghassemi and Becerick-Gerber (2011) study (Refer to Table 2), which examined nine industry cases with varying degrees of IPD characteristics embodied in the projects.

Table 2: IPD characteristics embodied

Case No	Early involvement (Y/N)	Shared Risk/reward (Y/N)	Multi-Party Contract (Y/N)	Collaborative decision making (Y/N)	Liability waivers (Y/N)	Jointly developed goals (Y/N)
1	Y	N	N	Y	N	N
2	Y	Y	Y	Y	N	Y
3	Y	Y	Y	Y	N	Y
4	Y	Y	Y	Y	Y	N
5	Y	N	N	Y	N	N
6	N	N	N	Y	N	N
7	Y	N	N	N	N	N
8	Y	Y	Y	N	N	Y
9	Y	Y	Y	Y	N	Y

Source: Adapted from Ghassemi and Becerik-Gerber Study (2011)

The conducted study revealed that none of the projects utilisng IPD characteristics suffered from the commonly observed issues within the industry. However, the authors discovered that IPD suffered from four main barriers/challenges, namely: (i) cultural, (ii) financial, (iii) legal and (iv) technological barriers (Ghassemi and Becerik-Gerber, 2011).

3.2 CHALLENGES AND BARRIERS FOR USING IPD

The following subsections are reviewing challenges and barriers for using IPD.

3.2.1 Cultural Challenge

Over the years the industry has mainly implemented a traditional adversarial delivery system, thus could be unwilling and/or reluctant to apply a different approach (Ng et al., 2002; Lichtig, 2006; Reaves, 2012; Viana et al., 2020). To overcome this challenge, one of the potential solutions is to implement a training system for the purported IPD project team and project stakeholders in order to demystify the method (Viana et al., 2020). Ghassemi and Becerik-Gerber (2011) conducted a survey to prove the efficiency of this solution. They found that an intensive training system appeared to help the transition from the traditional method to IPD. Therefore, the application of intensive learning and

personal behavioural changes aiming to overcome cultural challenges may be considered a viable solution (Viana et al., 2020)

3.2.2 Financial Challenge

The financial challenge could be considered as an issue to select the compensation and incentive structure. Traditional adversarial contracts foster individual responsibilities that cause and inhibit collaboration. This is the industry norm (NBS, 2018). Therefore, when implementing IPD, the practice of minimum effort for maximum reward (AIA, 2007; Kahvandi et al., 2020) must be overcome. Intensive IPD training may aid in overcoming this barrier (Fischer et al., 2017), however until there is an entire shift in mindset, an openness and a willingness to accept IPD, this barrier will continue to persist.

3.2.3 Legal Challenges

The main issue regarding legal challenges could be addressed as the structure and/or framework of the contract applicable to the project, as well as the insurances and liabilities that may accrue to the project. (Viana et al., 2020). Insurances assign liabilities to each party involved in the project. This could create a complex environment related to proper management of risks and insurance allocation (Cohen, 2010; Ghassemi and Becerik-Gerber 2011). To overcome these issues, within the study conducted by Ghassemi and Becerik-Gerber (2011), some construction companies selected a (form of) contract with a multi-party agreement that was suitable for traditional insurance companies. Utility of such a contract will mitigate or eliminate the capability to build a lawsuit between the parties (Ghassemi and Becerick-Gerber 2011).

3.2.4 Technological Challenge

Technological challenges could be considered as the liability, ownership, and interoperability to implement the integrated software's into the project (Kent and Becerik-Gerber 2010; Viana et al., 2020). The IPD method integrates people and systems, thus an integrated software is essential (McCurley and Powell, 2015). BIM software is usually used on construction projects. However, this could create a problem for IPD team members who are entirely new or lacking the skills to utilise the software (Viana et al., 2020). To overcome this challenge, it has been suggested by Rachid (2021) that taking BIM training courses prior to the commencement of the project may increase the popularity and use of BIM software.

3.3 THE SIMONSEN ET AL. (2019) CASE STUDY

The case study investigated the implementation of IPD at the Tonsberg project (a hospital project in Norway). Table 3 indicates the different elements of IPD implemented into the project.

Table 3: IPD contractual behaviour and supporting elements implemented at Tonsberg project

Implemented elements of IPD	Tonsberg project
Contract	
A. Early Involvement of key participants/ stakeholders	Implemented
B. Shared risk and reward	Implemented
C. Joint project control	Implemented
D. Reduced liability exposure	Partly implemented

Implemented elements of IPD	Tonsberg project
E. Multiparty agreements	Implemented
F. Jointly developed and validated targets	Implemented
G. Fiscal transparency	Partly implemented
H. Intensified design and planning	Implemented
Behaviour	
A. Respect and trust	Implemented
B. Willingness to collaborate	Implemented
C. Open communication	Implemented
Co-location	Implemented
Lean construction	Implemented
BIM	Implemented

Source: Simonsen et al. (2019)

The Tonsberg project study produced the following findings contained in Table 4:

Table 4: Categorisation and summary of lessons learned regarding implementation of IPD

Case specific learnings	Initial barriers to overcome	Persistent barriers
I - Allocate enough time for careful selection of the right people to be involved early in the project	I - Lack of experience and knowledge to understand and make a fair contractual agreement and ensure that IPD and the supporting methods are applied as intended	I – Difficulties in determining realistic cost estimates in early phases which makes it difficult to create a fair sharing of risk and rewards
II- Freeze the conceptual design in an early stage and avoid going into detailed design before the main concept is defined (freezing the initial design also has a positive effect on cost estimates	II – A better understanding of IPD is needed for the project participants to fully understand their new roles and to get the full potential out of the collaboration	II- Joint project control is difficult to achieve because the owner has to be willing to give up power in decisions which influence the product, he/she is purchasing
III- From the start focus should be on ensuring constructability and cost efficiency of the main concept	III – Development of national templates and adoption of national regulations and laws to fit with the IPD method	III – Opposing objectives between project participants makes it challenging to jointly develop targets that all parties find acceptable, Moreover, the owner again has to be ready to give up power.
IV- Contractual documents should be adapted and signed as early as possible to increase financial transparency.	IV – Development of guidelines for applying TVD to ensure the method is applied as intended.	IV- It is difficult to achieve fiscal transparency through the entire project organisation
V- Cost estimates should be carried as an iterative process		V – Ensuring that all project participants work towards the

Case specific learnings	Initial barriers to overcome	Persistent barriers
to improve the quality of the measures		common goals (and predefined targets)
VII – in the pre-project and design phases, the co-location can be located where it is most practical for the project participants. Locating it closer to project participants lower travel expenses		VI – A risk of opportunistic behaviour of project participants which will influence as the allocation of risk rewards and liability.
VIII – Make early agreements and predefined standards on level of detail in BIM. Using BIM for communication directly to craftsmen was found challenging and required extra education of the craftsmen.		

Source Adapted: Simonsen et al. (2019)

This study revealed that the Tonsberg project had several positive outcomes. According to the data, overall, it led to increased ownership among project participants (i.e., effective self-regulation) as suggested in the literature review (Abrishami et al., 2014; Dalui et al., 2021), and fewer surprises in the construction phase due to more buildable solutions (Simonsen et al., 2019). The study also reported improved collaboration amongst the project participants as the focus was shifted toward common project goals instead of individual achievements as suggested by Reaves (2012).

However, according to the study, using IPD presented challenges. These included: (i) change of law - adapting national standards and laws, (ii) the need to develop national templates that fit with IPD, as well as (iii) developing guidelines for ensuring contractual elements and supporting methods are well understood and applied as intended. There were also persistent barriers as evidenced in Table 4. Some other barriers included (iv) difficulty in determining realistic cost estimates in the early phases of the project, (v) creating a fair sharing of risk and rewards, (vi) achieving joint project control (which means the owner being willing to give up power in decisions), (vii) developing common targets due to opposing objectives between project participants, and (viii) financial transparency. The first and second studies are eight years apart, yet the outcome of both studies reflect the position that IPD still suffers from significant limitations. Although IPD has had an impact in reducing adversarial practices, the persistent and recurring barriers revealed in both studies suggest that the implementation of IPD is not sufficient to reduce adversarialism within the industry. Thus, leading to a conclusion that a further drastic step is required to reduce adversarialism.

4. IS LEGISLATION THE FURTHER STEP NEEDED?

The introduction of laws and regulation (via the use of legislation) is established as an effective way to change practices, attitudes, and behaviours (Bilz and Nadler 2014). This is demonstrable in the UK AEC industry (Constructing Excellence, 2007; Willmott Dixon 2010). Thus, the further step needed to achieve sufficient reduction of adversarialism in

the UK may be to create a statutory-backed law (via legislation) which creates a statutory duty of good faith. It may be the case that such a measure may bolster and support the IPD philosophy, changing adversarial behaviours and fostering collaborative working.

5. CONCLUDING REMARKS

This paper has established that IPD is not sufficient to reduce adversarialism within the UK construction industry due to persistent challenges/barriers. A further step is needed and the creation of a statutory duty of good faith has been proposed as the solution to attain sufficient reduction of adversarialism. Drawing on the points covered in this paper, the following propositions and hypotheses need empirical investigation:

- Legislation has an influence on good faith towards reducing adversarialism,
- IPD barriers/challenges will be easier to overcome if there is a statutory-backed law/legislation of good faith in the UK,
- Collaboration in construction projects is likely to increase if statutory-backed good faith duties are inserted into construction contracts, and
- Adversarial, hostile, lukewarm attitudes towards collaborative working are likely to change if statutory-backed good faith duties become the norm in industry standard.

The next phase is an empirical study investigating the above propositions and hypotheses and using qualitative research to advance the understanding.

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