

# COLLABORATION IN THE CONSTRUCTION INDUSTRY: A VIEW FROM THE RAIL SECTOR

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## ABSTRACT

*Need for collaboration in the construction industry has been emphasized constantly in research literature. Several forms of procurement and other approaches were introduced towards promoting collaboration in the past two decades.*

*This paper reports on an investigation into the nature and extent of collaboration within the rail sector in the UK. Rail sector which is a growth area in the UK's construction industry, and several more projects planned for the near future. A literature review, a questionnaire survey and data analysis were conducted. Literature review identified key elements and dimensions of collaboration. Data analysis conducted following the receipt of the questionnaires revealed varying views between the client and the other parties in terms of the extent and the success of collaboration within the rail sector. The findings have also identified several areas that require further research and development.*

**Keywords:** Attitudes; Collaboration; Processes; Rail Sector.

## 1. INTRODUCTION

Behaviours and attitudes of the construction industry has been heavily scrutinised over the past few decades by many government publications. There has been much discourse over which processes are necessary for to instigate the key changes necessary to improve such attitudes and behaviours. Collaboration as a behavioural approach has received significant attention in this regard.

Rail sector is relatively complex and requires the collaboration of many parties for the effective and efficient construction and maintenance of rail infrastructure. Rail is a growth sector in the UK construction industry. This paper reports a preliminary study on collaboration within the rail sector in the UK. Section 2 of this paper reports the literature review, and section 3 covers the research methodology. Section 4 reports the findings and the discussion of results. Final section provided the concluding remarks.

## 2. COLLABORATION IN THE CONSTRUCTION INDUSTRY

Wilkinson (2005) states that collaboration is a creative process undertaken by two or more individuals, sharing their collective skills, expertise, understanding and knowledge (information) in an atmosphere of openness, honesty, trust, and mutual respect, to jointly deliver the best solution that meets their common goals.

Several reports and publications in the past have highlighted the need for collaboration in the construction industry. Some of such publications are indicated below.

- Simon Report (1944)

As one of the early reports in to the construction industry, this report was commissioned to study and critique "The Placing and Management of Building Contracts". The report highlighted the requirement

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for collaboration in contracts and the early contractor involvement. It is one of the earliest occasions where the need for collaboration was highlighted.

- Latham Report (1994)

This report was significantly critical of the attitudes and the behaviours of the construction industry. Highlighting the inefficiencies of the construction industry, this report accused the practices which existed at that time as adversarial, ineffective, fragmented, incapable of delivering to its clients, and lacking the respect for its employees. Report encouraged the use of collaborative behaviours and partnering to be adopted by the construction industry.

- Egan Report (1998)

Egan report further established the need for industry standards and systems to change. Focus on processes was a major recommendation of the report. Report also urged the construction industry to learn lessons from other industries such as manufacturing and service industries.

- Wolstenholme (2009)

The publication “never waste a good crisis” was written at a time when the UK’s construction industry and the wide economy was going through a recession. Urging the industry to use the economic crisis as a way of lessons learnt, it recognised the need to further develop the industry based on the recommendations of Latham and Egan reports. A key recommendation was “to see the bigger picture” and to invest in the long term concepts such as whole life costing, integrated supply chains and invest in the development of people.

- Construction Strategy 2025

Published in 2013, this report highlighted the fact that lack of collaboration has limited the potential for learning in construction due to the short-term focus of construction teams. It recommended the creation of integrated supply chains with an emphasis on collaboration.

BS11000 – Collaborative Business Relationships is a focus area for Network Rail, the rail infrastructure provider for the UK rail sector (Pope, 2016). In a publication Network Rail states “BS11000 provides us with the strategic framework to develop with our key suppliers, the policies and processes, the culture and behaviours required to establish such collaborative relations and to drive continual improvement” (Network Rail, 2012, p5). Network Rails Collaborative Relationships Management framework which was built on BS11000, identifies eight (8) fundamental subject areas aimed at creating a strong and collaborative relationships along the supply chain as listed below.

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| <ol style="list-style-type: none"><li>1. <b>Awareness</b> – Visions, values, leadership and objectives</li><li>2. <b>Knowledge</b> – Strategy, outcomes, and implementation plan.</li><li>3. <b>Internal Assessment</b> – Policies, people skills and collaborative maturity</li><li>4. <b>Partner Selection</b> – Comparability, roles and responsibilities</li><li>5. <b>Working together</b> – Management systems and processes</li><li>6. <b>Value creation</b> – Continual improvement processes</li><li>7. <b>Saving together</b> – Team management monitoring, measurement and behaviours</li><li>8. <b>Exit strategy</b> – Disengagement triggers and processes</li></ol> |
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Figure 1: Collaborative Relationships Management (adapted from Network Rail 2012; Pope 2016)

UK Government is keen to ensure that Building Information Modelling (BIM) is used for construction projects, BIM is expected to foster collaboration. Already contractual forms such as Frameworks, and standard forms of contracts such as NEC3 are in use. Under such circumstances, it is pertinent to explore the current status of collaboration within the UK’s rail sector.

### **3. RESEARCH METHODOLOGY**

An online questionnaire survey was conducted using SurveyMonkey online software. This tool proved to be an effective way for the participants to complete the survey online instead of having to receive, read, complete and return hardcopies.

The questionnaire was divided into several sections. Section 1 consisted of questions to ascertain the level of experience and exposure of the respondent to the rail sector construction activities. Section 2 included questions aimed at understanding the principle position that the respondent. The section included questions such as “How would you define collaboration”. Section 3 was designed to ascertain the collaborative environments / platforms that the respondent has experienced. In this regard care was taken to specifically address technology-enabled environments such as Building Information Modelling (BIM) and Procurement / Contract based approaches such as the use of New Engineering Contract (NEC) or Frameworks. Section 4 was designed to evaluate the effectiveness of the collaboration and challenges.

The survey was sent to 130 professionals within the rail sector. 45 professionals agreed to respond to the survey. There was a wide variety of job roles amongst the participants. These include CEOs, Commercial Directors, Engineering Directors, Project Managers, Quantity Surveyors and several other categories.

### **4. FINDINGS AND DISCUSSION**

The word cloud generated as part of the data analysis indicates that “working together” is the most widely accepted meaning of the term collaboration amongst participants. Other meanings that stand out are “common”, “shared”, “project” and “goals”. With regard to the frequency of collaborative working, there is a significant difference in the responses. 38% of the client group state that they work collaboratively, whilst it is 12% for the contractor group. 53% of the client group stated that they sometimes work collaboratively, whilst the respective figure for the contractor group was 84%. In relation to formal training received to develop collaborative work skills, 20% of the respondents indicated that they have not attended a training workshop. Breaking the responses between client, contractor and subcontractor categories, the percentages vastly increase from 15%, 28% to 40% respectively. This is an indication that there is still room for training on collaborative working to be extended to the lower tiers of the supply chain. With regard to leadership in facilitating collaboration, it is clearly evident that the workshops are arranged by the client in most instances. Relatively low level of participation by the subcontractors is a possible sign of low level of supply chain integration as far as the collaboration is concerned.

There was unanimous acceptance that collaboration is predominantly a principle over a process. This is a noteworthy observation as most of the respondents agreed they work in Framework arrangements that are designed to facilitate collaboration. This reinforces the view that collaboration is behavioural and requires attitudinal change. 65% of the respondents stated that they do not use technology for collaboration. The technology referred to in this instance is CEMAR (Contract Event Management and Reporting) for NEC3 contracts. One respondent said they used the programme but “CEMAR does not aid collaboration. It is a contact management tool”. In relation to BIM, it is evident from the responses that BIM is not known as a way of collaboration, but as an electronic management tool for transfer of digital information. The government has mandated the use of BIM within the public sector (Department for Business, Innovation and Skills, 2013). However, at the time of the survey, only 36% of the participants are using BIM.

65% of the respondents believed that NEC3 contracts aid the process of collaboration. However it is also noteworthy that 35% disagree, hence the use of NEC3 as a facilitating tool for collaboration requires further attention.

Commercial issues were cited as the key barrier for fostering collaboration. This was supported by 70% of the respondents. Majority of the respondents had a key commercial role within their respective organisations. However, the survey failed to dig deep into this aspect hence requires further research.

70% of the respondents believed that collaboration can be fully integrated into the construction industry, However, 30% disagreeing is a noteworthy and requires further attention.

## 5. CONCLUSIONS

Need for collaboration in the construction industry has been highlighted by successive reports in the UK. At a time when the UK government is actively encouraging the use of BIM and with NEC3 standard form of contract already in use, a preliminary investigation was carried out to explore the nature of collaboration in the UK's rail sector.

It is encouraging to note that 70% of the participants believe that collaboration can be truly integrated into the construction activities of the rail sector. It also highlights the need for continual efforts to improve the status of collaboration in the sector. More effort on training in relation to collaborative environments, aimed at the lower tiers of the supply chain, needs to be focus area for further research and development.

As further research, it is recommended that a larger sample size to be selected, and the data be triangulated using other research techniques such as interviews and observations.

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