

# EXPLORING THE CONTRIBUTION OF SITE MEETINGS IN NEW ZEALAND CONSTRUCTION PROJECTS

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## ABSTRACT

The construction industry has made a major contribution to the growing economy of New Zealand. Due to its rapid development in the past two decades, most construction projects have encountered time delays and cost overrun issues, which have caused a constant stream of disputes in construction. An Infometrics report (Kiernan, 2022) highlights "Current projects across various construction projects taking between 67% and 111% longer than normal to reach the milestone of their first inspection". Poor management, supervision and coordination, and lack of communication were reported to be major causes of construction project failures. It was observed that there was scope for site meetings to contribute to resolving these issues. In our study, a mixed approach of quantitative and qualitative methods was adopted with the aim of exploring, through a survey and a literature review, how site meetings contribute to successful construction project completion. The questionnaire included 11 questions for which 96 participant responses were received and analysed. The major finding of this research was that the site meetings have the potential to significantly resolve a range of construction project-related issues such as quality, safety, scheduling, payment and stakeholder communication. Site meetings provide an opportunity to evaluate the resource utilisation onsite, review the progress of the construction project, and facilitate scheduling and coordinating upcoming tasks. Furthermore, the research identified the key contributing factors as being the lack of coordination, traffic and site conditions, and unclear communication influencing contractual parties that do not attend the site meetings.

*Keywords: Construction, Poor management, Project failure, Site meetings, Successful completion*

## INTRODUCTION

According to Statistics New Zealand (Statistics NZ, 2023), building construction in New Zealand has been developing rapidly from the early 2000's. Despite the negative impact of COVID-19, building consent approvals increased in 2023, with the monthly number for new buildings consented to being higher than three years previously. However, almost all construction projects are more likely to experience delays due to miscommunication between contractors, subcontractors, and clients (Shah, 2016).

In New Zealand, more than 90% of construction firms have experienced delays, in most cases the project being delayed between 20-60 working days (Statistics NZ, 2023). The construction project delays are caused by overrun time and cost, disputes, and the poor quality of work-related issues (Ametepey et al., 2018). As indicated in a study conducted in 2013, the construction industry ten years ago was already facing long-term challenges, with around 70% of construction projects experiencing time delays and cost overruns amounting to 14% of the average contract cost (Hussin et al., 2013). These problems have since led to a sharp rise in construction disputes, as shown in a Global Construction Disputes Report (Arcadis, 2022) in which the global average value of disputes is said to have increased to 52.6 million US\$.

Furthermore, the construction industry presents a unique factor: construction projects are never identical but will vary at least in accordance with the team members involved (Anantatmula, 2010). Site meetings are a valuable management tool which can address the uniqueness of individual construction projects (Oke et al., 2016). According to Cahill and Puybaraud (2008), and Murray (2008), improving the working relationship between clients, designers and contractors is an essential factor which can help to reduce construction costs and meet the client's requirements. Site meetings can be an effective bridge for communication between different groups. To achieve successful construction project management, site meetings are adopted as an effective management tool to avoid or reduce disputes and ensure the construction projects

can be delivered successfully (Oke et al. 2016). Hence, there is clearly a need to explore the contribution of site meetings to successful construction projects. It is evident that much research has been conducted to evaluate the role of site meetings to address specific issues in construction projects. However, there is much scope for investigating the overall contribution of site meetings in the successful completion of construction projects in New Zealand, as well as to better understand the issues for the parties involved. This study seeks to examine the key features of site meetings conducted during the construction stage and specific construction project-related issues that were addressed during these site meetings.

## RESEARCH AIM AND OBJECTIVES

### Aim

The aim of our research was to analyse the key features of site meetings and provide evidence to demonstrate the contributions of site meetings on construction project performance.

### Objectives

- To identify the critical factors influencing successful completion of the construction project.
- To identify the key factors contributing to construction project failure.
- To study the key features of site meetings.
- To analyse the contribution of site meetings on construction project performance.

## LITERATURE REVIEW

The primary goal of the literature review was to offer a comprehensive overview of the relevant critical factors identified for successful construction project completion and to provide an overview of the significant effects of site meetings on overall performance of construction projects.

### Critical factors for successful completion of construction projects

Many researchers in different countries have identified various critical factors that influence construction project performance and success. Cooke-Davies (2002) observed that project management success is not the same as construction project success. Objective management, monitoring construction project performance, feedback systems, teamwork, risk management and stakeholder management were all identified in this study as key critical success factors in construction project execution. Iyer & Tha (2006) concluded, in a survey of construction projects in India, that the two most critical success factors are the commitment of all those involved and the owners' level of competence. Furthermore, Arian (2007), found that the most important factors which align with strategic, technical and managerial subsystems of construction projects in the Pakistan construction industry are the project goals, leadership style, clarity on the scope of work, teamwork, planning and programming techniques, the team selection process, and the construction project managers' competence and authority. Meanwhile, Boyer et al. (2008) decided that leadership, innovative concepts, business planning and marketing, triple bottom-line planning, community engagement and risk management are the key factors in successful construction project implementation. Similarly, in a study conducted by Ogwueleka (2012) focusing on Thailand, India and Pakistan, it is reported that there are 16 essential factors for achieving satisfaction in the completion of construction projects. The findings identified project objectives, technical design, risk management and the role of top management as the critical success factors (Ogwueleka, 2012). In addition to cost, schedule and technical aspects, other factors in the success of a construction project include safety, client satisfaction, employee satisfaction, payment schedule, benefits, environment and professional development (Silva, et al., 2016). Rajasekaran & Valli (2014) identified 17 factors for construction project success through a literature review and a survey of engineers, site engineers and contractors in India. Of these factors, construction quality, on-time project completion, compliance with specifications, client satisfaction, and technical performance were the top five elements influencing successful construction project performance. Furthermore, Jari & Bhangale (2013), conducted their research by dividing the different aspects involved into two groups, "Project Success Criteria" (PSC) and "Project Success Factors (PSF)". The first of these categories includes the expectations of the owner, designer and contractor, while the second includes time, cost, quality, construction project management (control, scope and change), stakeholders' satisfaction, the construction project team and top management support. Their conclusion was that time, cost, quality and risk control can be considered as the most significant factors for construction project success. McDonagh (2010) researched the critical factors in land development in New Zealand and the study revealed that risk analysis, strong communication, regular review of the development plan, and market conditions all have a role to play in the overall success of the construction project. Project understanding and a competent project team were identified as the most important Critical Success Factors (CSFs) in a study conducted in Australia (Baccarini & Collins, 2003). This study emphasised the need for the project manager to promote a strategic approach rather than focus on project management techniques.

## Key factors contributing to construction project failure

Construction projects may not always be successfully completed on the assigned budget and schedule due to a range of different reasons. Poor management, planning and scheduling, and lack of communication and coordination were identified as serious factors for construction project failure in a case study of Australia, Malaysia, and Ghana (Shah, 2016). According to Baccarini and Collins (2003), meanwhile, the lack of clear objectives or development management and organisation, as well as inappropriate reporting strategies and performance measurement systems are the main causes of construction project failure. Financial concerns and shortcomings of the bidding process were reported as significant factors by Shahhosseini et al. (2017). El-sokhn & Othman (2014) saw management and financial factors as major contributors to project failure. Their study revealed that most projects fail during the construction phase, where the skills of the contractor and project manager play a significant role (El-sokhn & Othman, 2014). In *Improving New Zealand Construction Industry Productivity* (New Zealand Institute of Building, 2021) there is an overview of various factors for construction project failure, the most common problem being the failure to provide adequate time for design including time to integrate and coordinate with the stakeholders.

## Key features of site meetings and its effects in construction project performance

The construction industry is known to be constituted of various indispensable professionals. Oley and Macmillan (2005) analysed the interaction between clients, consultants and contractors in construction project team meetings, and illustrated the different patterns of communication in four types of team meetings through observations of a major United Kingdom construction project, including progress meetings, technical meetings, interim technical/cost reviews and strategy/problem-solving meetings. The authors indicated that the objectives of each type of meeting were to identify the issues related to progress, resolve technical and design problems, review cost-related items and consider future issues to avoid disputes. Bicharra Garcia et al. (2004) proposed a four-step meeting plan, and a system to improve the effectiveness of meetings, while Mäki (2015) focused on design-related issues in site meetings through two case studies of construction projects in central Finland. The latter revealed that the meetings were too long, spanning between three and four hours, and that site managers played an important role during these site meetings where most issues were initiated by them. In Awe Foluso et al. (2022), a few aspects of project performance such as delivering quality projects, achieving on-time completion, and identifying problem resolutions were reported as key benefits of site meetings conducted during construction. Almost all project-related issues can be discussed in site meetings, and this will include project payments, which helps to track all payments that are due and over-due to the contract parties (Denim 2007). The wide range of variations normally occurring on the construction project site can be addressed in a site meeting, which will help the client to see if the amount for unforeseen work has been overrun or not (Sergeant & Wieliczko, 2014). Preventing claims and disputes, using programme charts for time management, holding regular site inspections and testing, cost checking, proposing quality control planning, and evaluating workmanship and specifications were all identified as objectives of site meetings in sustainable construction (Oke et al., 2016).

## METHODOLOGY

In this study, both qualitative and quantitative approaches were adopted. A questionnaire was used for the collection of primary data, which was further validated using literature review information in the discussion.

### Survey

The questionnaire proved to be an effective and easy method for collecting data and achieving the research objectives. It contained ten closed-ended questions and two open-ended questions and was prepared using Google Forms and shared through LinkedIn. Three questions were designed to understand the participants' demographics such as their experience in the construction industry, as well as their familiarity with site meetings. One question was based on the 'level of importance', and a four-point Likert scale was used to assess the participants' attitudes regarding the importance of site meetings. The adopted scales were 4 = very high / strongly agree, 3 = high / agree, 2 = neutral / likely, and 1 = low / disagree. Participants were required to record their responses from the options provided for each question. It was ensured that no confidential data was collected, and the anonymity of participants was maintained.

### Participants' characteristics

The study was conducted over a period of three months. The study area was the Auckland region, with a focus on participants connected to the construction industry. The questionnaire was shared with construction industry professionals performing different roles in construction projects and 96 responses were received. Figure 1 shows the roles of the participants. Subcontractors accounted for 21% of participants, which was the highest proportion, followed by contractors (17%) and suppliers (16%). Site managers and project managers made up 14% of the total number, while council workers made up 12%.

Figure 1: Roles of Survey Participants

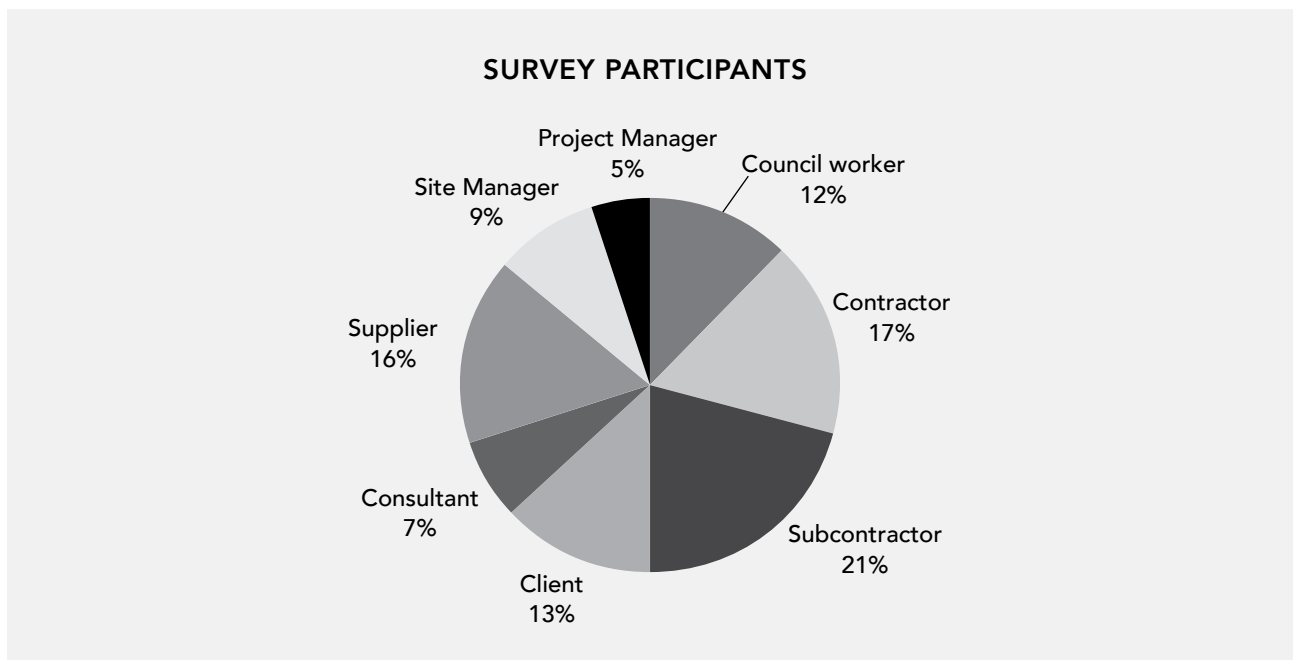


Table 1: Demographics of the Survey Participants

EXPERIENCE	FREQUENCY	PERCENTAGE
3- 5 years	29	30%
5 -10 years	49	51%
above 10 years	22	19%
Experience in Site meeting		
Preconstruction	32	33%
CONSTRUCTION	46	48%
POST CONSTRUCTION	18	19%

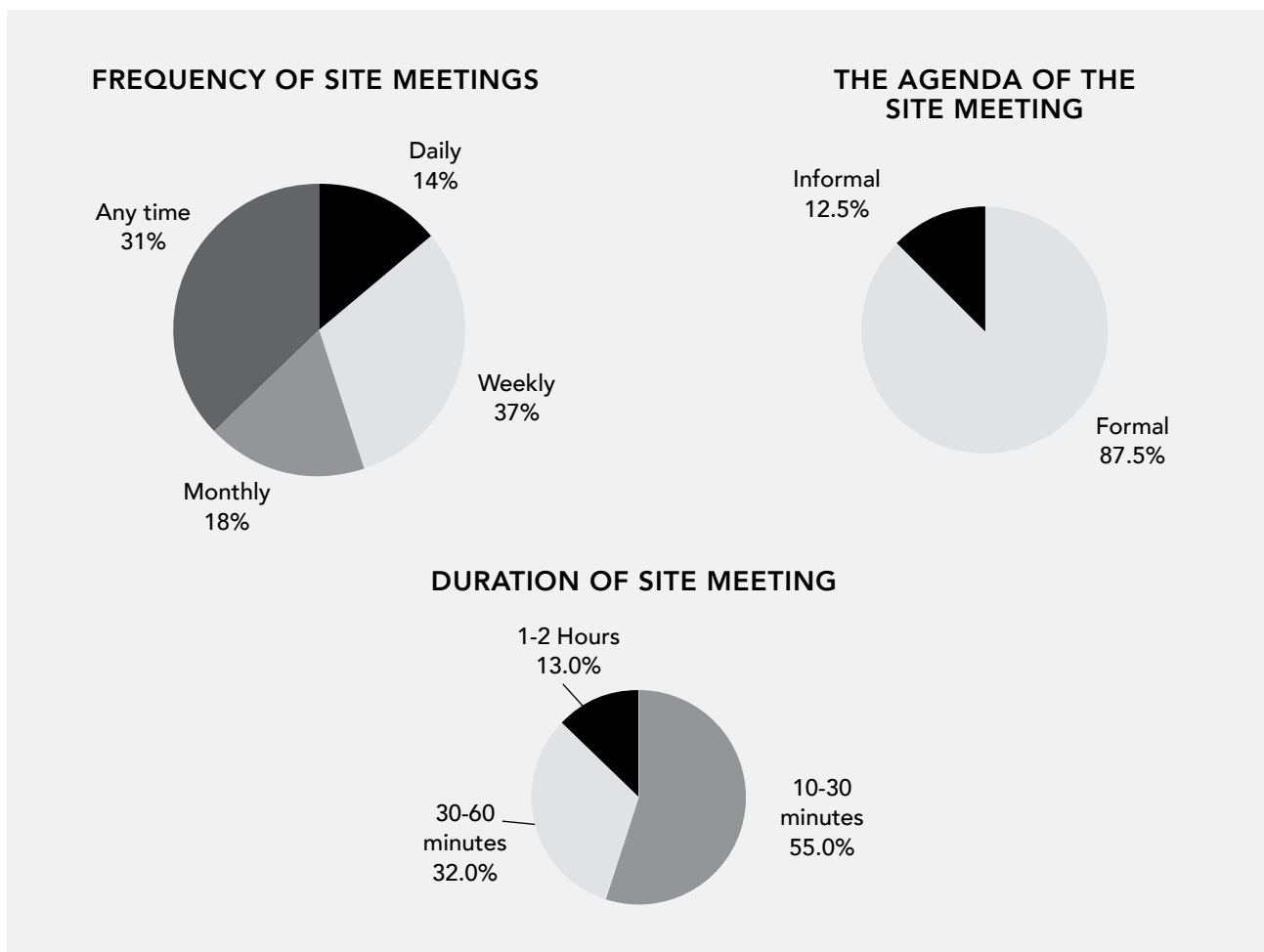
Table 1 presents the demographics of participants. The data shows all the participants’ experience in the construction industry with 51% of participants reporting experience of 5 to 10 years and 23% reporting more than 10 years’ experience in the construction industry. The data revealed that most of them attended site meetings conducted at the pre-construction and construction stages. Post-construction meetings were held after the project completion, allowing the contractor to review the construction project with the clients to ensure a successful delivery.

## RESULTS AND DISCUSSIONS

### Frequency, agenda, and duration of site meeting

As indicated in Designing Buildings (2023), site meetings can be planned and formally scheduled, whether weekly or monthly, depending on the stakeholders involved and the complexity of the construction project which might require a more regular schedule. Our survey investigated the frequency and flexibility of site meetings attended by research participants. This is illustrated in the figure below showing the results regarding the frequency and duration of these meetings, as well as their level of formality (as evidenced by the use of agendas).

Figure 2: Participant Responses on the Frequency, Agenda and Duration of Site Meetings

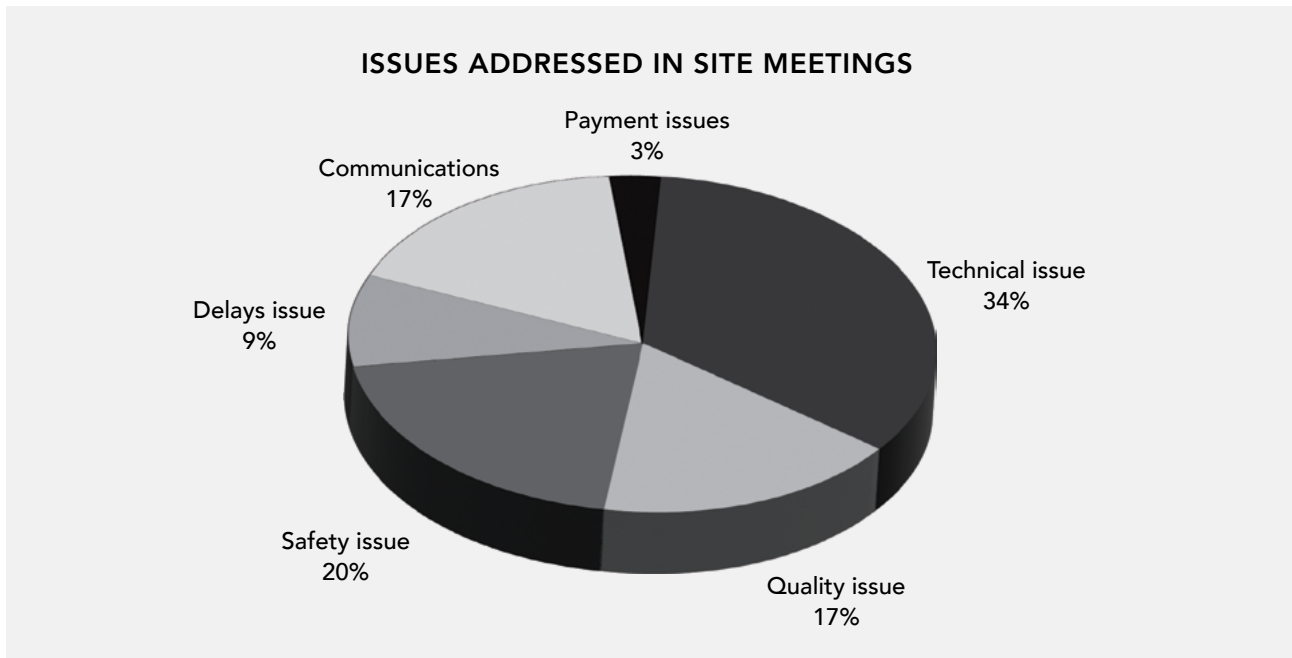


Of the participants, 37% stated site meetings occur weekly, while 31% reported that during construction projects they attended site meetings at any time, with 18% saying this was monthly attendance and 14% daily attendance. This can be compared to a study in Nigeria where monthly site meetings were more popular than other scheduled meetings (Awe Foluso, et al., 2022). Meanwhile, the regularity of site meetings in our results can be viewed in terms of the research by Gorse & Emmitt (2007), in which regular face-to-face site meetings are stated to be more important for the success of construction projects. It is also important to point out here that 87.5% of the participants in our survey said the meetings they attended were formal, which implies they were all based on a clear agenda. Having an agenda is important for controlling the flow of site meetings and enabling them to be more focused on project direction (Ludwig, 2009).

#### Issues addressed and outcome achieved in the site meeting

Construction industry site meetings play a critical role in project discussions and alignment because they establish solid relationships between stakeholders and lay the foundation for future deliberation (Smith, 2020). Research conducted by Oke et al. (2016) concluded that during site meetings, issues related to construction projects such as cost, time, quality, function, adherence to standards, scope, human resources, risk management strategies, health and safety issues etc. should be considered. Our own survey investigated the issues discussed in the participants' site meetings, as presented in the following diagram.

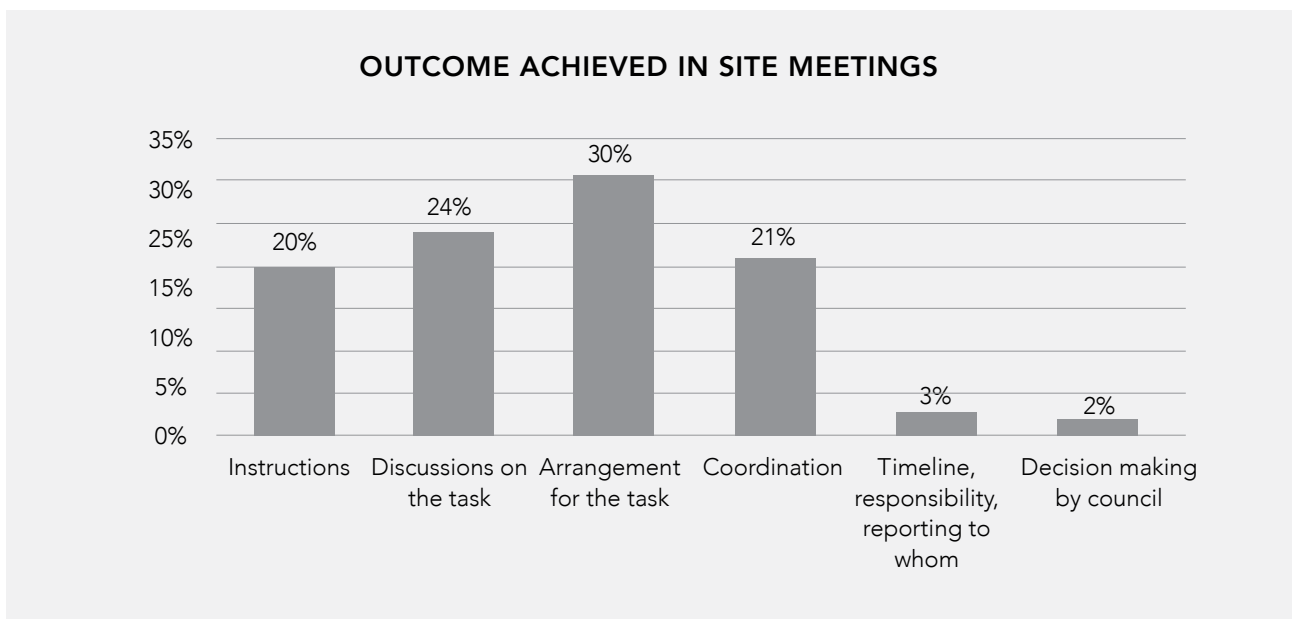
Figure 3: Participant Responses on Issues Discussed in Site Meetings



Technical issues were the top of the discussion list, making up 34% of all issues discussed during site meetings. By contrast, payment issues were the least discussed, constituting only 3% of all issues discussed. Site safety issues and challenges were also important discussion points, accounting for 20% of all issues discussed. Both issues relating to quality and communications contributed to a combined 34% of all discussion points. However, delays did not rank among the most frequently discussed issues during site meetings, with only 9% of the participants responding that such issues were discussed.

As for the outcomes achieved in these meetings, it is evident from Figure 4 below that discussions about the construction project site tasks, arrangement for tasks and coordination were the topmost responses from the participants. Each of these aspects accounts for over 20% of all outcomes, closely followed by instructions which account for 20% exactly. These responses indicate that the issues that may hinder successful completion of construction projects the most were coordination and task management, and they could potentially be addressed through site meetings. Our analysis reveals the extent to which conducting site meetings can significantly address critical issues in construction project progress, thereby supporting the conclusions of other studies on this topic (Bicharra Garcia et al., 2004; Mäki, 2015).

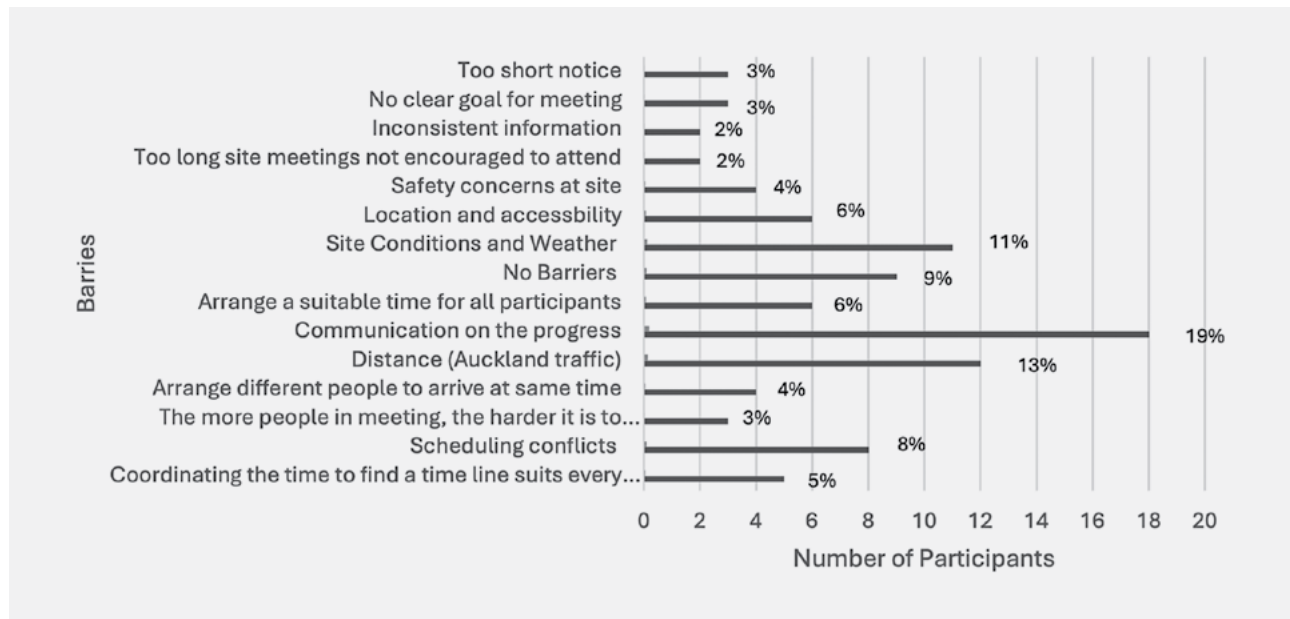
Figure 4: Participant Responses on Outcomes Achieved in the Site Meetings



## The importance of site meetings and the barriers to attending

The four-point Likert scale was adopted to collect responses on the importance of site meetings. A total of 46% of responses were very positive, supporting site meetings with a rating of 'Very High', followed by 40% who rated them as 'high'. Although 9% of the responses were 'neutral', these results clearly show the vast majority of participants in our survey agreed that site meetings could be used as a tool for collaboration and avoiding disputes. To understand the barriers that prevent participants from attending site meetings, an open-ended question was included in the questionnaire. There was a range of responses from participants which were further categorised and rated using the content analysis method. The following diagram provides an overview of their responses to this question.

Figure 5 Participant Responses on Barriers to Attendance in Site Meetings



As for the barriers which prevented them from attending, these are summarised below.

Table 2: Ranking of Barriers to Attending Site Meetings

CATEGORY	COUNT	PERCENTAGE (APPROX.)	RANK
Communication	20	21%	1
Distance (Auckland traffic)	18	19%	2
Weather	12	13%	3
Scheduling conflicts	10	10%	4
Coordination	8	8%	5
Too short notice	6	6%	6
Duration	6	6%	6
Site Safety	4	4%	7
Agenda	3	3%	8
No Barriers	9	9%	9

Table 2 displays the categories of all barriers stated by participants. The top three categories identified were communication, followed by Auckland traffic, and weather conditions. Scheduling clashes with other meetings and poor coordination between stakeholders were also identified as important barriers. The analysis also indicated that an appropriate duration and sufficient notice in the scheduling of meetings came in technically sixth position (each with 6% of responses).

## CONCLUSIONS

This study was focused on the key features of site meetings in order to analyse their importance in reducing construction project failures. The results indicated that site meetings needed to be properly communicated and scheduled regularly with a clear agenda for discussion. Effective risk management, coordination, communication, and monitoring of progress in construction project sites were identified as the key to a successful build. Improving working relationships between clients, designers and contractors also emerged as an essential factor for construction project performance. Site meetings can be an effective bridge for communication between different stakeholders. The analysis of participants' responses revealed that site meetings play a significant role in addressing the issues related to technical aspects, quality and safety, delays and conflicting issues such as payments and communication. While some issues may not always be resolved through site meetings, they nevertheless provide a platform for clear instructions or arrangements for conflict resolution, effectively avoiding time and cost overruns as well as potential disputes. Hence, the contribution of site meetings in reducing construction project failures and increasing performance is considerable and should not be underestimated. The study also identified the key barriers to participating in site meetings as lack of planning and coordination, traffic, site conditions and unclear communication.

## RECOMMENDATIONS

The following recommendations may be considered for enhancing the effectiveness of construction project site meetings:

- The application of digital project management software could be an effective tool for planning and organising site meetings.
- All meetings should be well planned and communicated early to all intended stakeholders with clear objectives.
- The site meeting agenda can be prepared with pre-determined timeframes for each section of the discussion, which will assist in keeping the meeting on-track and moving forward.

The agenda should be prepared without missing details and should include clear action plans, thus helping to avoid miscommunication and misinterpretation.

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