Effective Stakeholder Engagement in the Planning Application Process of New Build Major Construction Projects in Scotland, United Kingdom

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Abstract—**Complex in nature, the Planning Application (PA) process of construction projects requires effective Stakeholder Engagement (SE). Looking at a "project" holistically, SE within the construction context has received good attention throughout the years. Little emphasis has been placed on what is considered effective stakeholder communication, preferred methods, and perceived stakeholder significance when it comes to the PA stage. The authors surveyed participants from complex new build construction projects in Glasgow, Scotland. The research outlined the key stakeholders involved in the PA process of the construction sites, examined the communication links between them and further investigated their preferred methods of communication. Further, the 58 participants were asked to determine the level of influence of each of the involved stakeholders in relation to 4 different aspects of the PA process-Planning, Design, Programme and Cost. The most common communication issues were highlighted along with their causes and potential preventative measures. The study contributes to the underdeveloped PA process stakeholder engagement niche, presenting structured stakeholder tiers, based on their influence towards each aspect of the PA process. In addition, it determines primary and secondary success factors for effective stakeholder engagement and provides recommendations for tackling the communication challenges during PA.**

Keywords—**construction project management, stakeholder engagement, communication**

I. INTRODUCTION

A. Stakeholder Engagement in Construction Projects

According to the Association for Project Management (Association for Project Management, 2019), stakeholders are defined as individuals or groups who display an interest in or influence over a particular project. The definition of the term *"Stakeholder Engagement"* has gone through various developments throughout the years, the latest being *"employing core principles to identify, analyze, plan, and implement actions designed to*

influence stakeholders to encourage their input" (Association for Project Management, 2019). The emphasis on studying the stakeholder engagement principles and tactics within the construction industry has grown over the years (Harrin, 2022), (Faris *et al.*, 2022) as it has proven valuable to improving project outcomes in several contexts (Morrell, 2015), (Gerges, 2017). However still the area is considered undertheorized (Collinge, 2020) and especially when it comes to the stages in the construction process projects.

B. Major Construction Project Stages

Since the establishment of the Royal Institute of British Architects Plan of Work (RIBA), the document and its adaptations are considered "the bedrock document" for the construction industry, providing a shared framework for the organization and management of building projects (RIBA, 2013a). It is widely used as both a process map and a management tool, providing important work stage reference points used in a multitude of contractual documents and best practice guidelines.

C. The Planning Application Process

The Planning Application (PA) is an application to the local authority for permission to erect a particular building on a specific site. The RIBA Plan of Work recommends that the Planning Application be submitted at the end of Stage 3 (RIBA, 2013b). A set period after Stage 3 is completed might be specified in the Project Programme to allow the final assembling of the planning information prior to submission of the Planning Application. The increasing complexity of these submissions, covering detailed topics such as energy use and accessibility, makes the end of Stage 3 the optimal point for submission. This timing allows several of the Planning Application Information Requirements to be absorbed into the Stage 3 Design Programme (RIBA, 2013c).

D. Scope of Study

The planning application process in the Glasgow area follows the national Guide to the Planning System in

Scotland (Fig. 1) (Scottish Government, 2019) as planning permission is required for any new development to proceed. For the purposes of planning applications, developments are put into one of three categories: local, major, or national. The different types allow councils to treat developments in a way which is suited to their size, complexity, and the issues they are likely to raise. This study focuses on Major Development planning applications of complex construction projects in the Glasgow area. Major development planning applications are defined by the Town and Country Planning and the planning applications are processed by the Glasgow City Council planning department (Town and Country Planning, 2009).
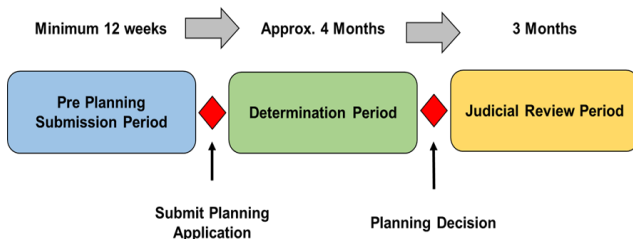

Figure 1. Planning application process in Scotland (Scottish Government, 2019).

E. Critical Success Factors for Stakeholder Engagement

Critical Success Factors in the context of project management were first defined by Rockart (1982) as the limited number of factors that should be satisfied to ensure successful completion of a project. For the purposes of this study both Primary and Secondary factors were extracted from the literature.

1) Primary critical success factors

When it came to the Construction process, 11 significant factors / issues in relation to stakeholder engagement were determined to have a major influence over a project (Table I):

TABLE I.   CRITICAL FACTORS INFLUENCING THE CONSTRUCTION PROJECT OUTCOMES

Common Issues	Studies
Breakdown of Stakeholder Relationships	Bourne and Walker, (2005), Pan (2005), Schmidt *et al.* (2001), Phillipson *et al.* (2012), (Bourne 2005), Coleman (1998) Xue *et al.* (2021).
Miscommunication Between Stakeholders	Zain *et al.* (2006), Ma et al (2009), Cervone (2014), Lehmann and Bailin (2003), Atkin and Flanagan, (1995), Smith *et al.*, (2001), Gamal and Rahman (2021) Zwikael *et al.* (2022)
Stakeholders Not Understanding Relevant Information	Morsing and Schultz, (2006), Jensen (2001)
Failure to Get Stakeholders to Engage	Hart and Sharma (2004), Gohary *et al.* (2006)

Stakeholders Not Feeling Valued in the Engagement Process	Hoffman (2002), Donaldson and Preston (1995), Rosnow (1997), Wright (2006), Doyle and Stern (2006)
Failure to Engage the Right Stakeholders in the Right Time of the Process	Shepherd and Bowler (1997), Shindler and Cheek (1999)
Stakeholders Not Sharing the Correct Information with the Project Team	Beynon-Davie (1999), Plouffe| *et al* (2004), Pinto (2013), Flyvbjerg *et al.*, (2009), Ebrahimnejad *et al.* (2010)
Lack of Project Governance	Mason *et al.* (2007), Mathur *et al.* (2008), Sternberg (1997), Jensen (2001)
Key Decisions Not Communicated to Relevant Stakeholders	Reynolds *et al.* (2006), Pinto (2013)
Stakeholders Not Receiving Regular Updates on Project Progress	Ho (2017), Chinyio and Akintoye (2008)
Lack of Decision Making	Neef and Neubert (2011), Edelenbos and Klijn (2006), Erdogan *et al.* (2017)

The list of factors was ranked by the participants in the study to establish which of them were the most frequently experienced during the PA process stage of the major construction projects the participants have been involved with.

2) Secondary critical success factors

Secondary CSFs were explored to identify other factors that may affect how stakeholders engage with each other. Secondary factors are different to the common issues as they establish if project hierarchies are present and explore the potential power and influence of the stakeholder:

Stakeholder Influence

The influence of a stakeholder can profoundly affect the success or failure of an initiative. For the success of an initiative, it is very important to know whether (and how) a stakeholder can act, be involved, and how much capacity they have to contribute. Concerning failures, it is important to know the possible (negative) influence a stakeholder has available to constrain or even stop an initiative.

Aragones-Beltrana *et al.* (2017) describe the concepts of Stakeholder Influence and explores the concept of influence of stakeholders is broken down into criteria or viewpoints. This study will look to measure the influence of each stakeholder with respect to the different aspects of the PA process.

Stakeholder Tiers

Categorizing stakeholders in Tiers is a necessary management process to determine how the probable stakeholders are likely to react to project decisions. This highlights the influence their reaction will carry, how the stakeholders might interact with each other, the project's

managers, and other professionals to affect the success of a proposed project strategy (Freeman *et al.*, 2010a).

Freeman (2007) develops a two-tier model that distinguishes between primary and secondary stakeholders. Fig. 2 shows a typical stakeholder map using Freeman's two-tier stakeholder model. The map shows 'The Firm' at the centre and shows the primary and secondary stakeholder groups:
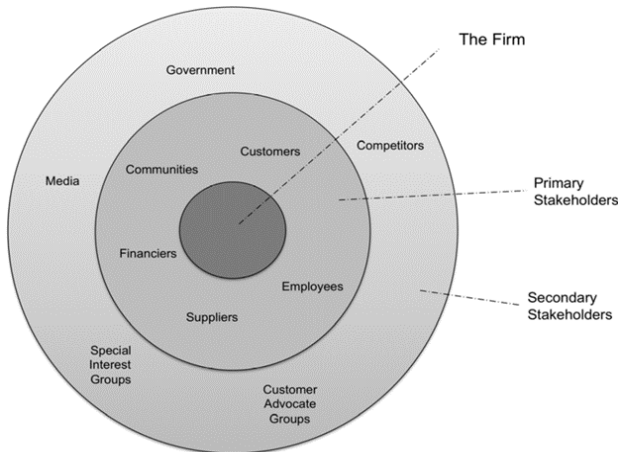

Figure 2. Stakeholder tiers (Freeman *et al.*, 2010b).

For this study, a five-tier model was developed to capture and categorize the stakeholders involved in the planning application process of new build major constructions. The five-tier stakeholder map was considered better suited as it provides a range of tiers suitable to capture the quantity of varying, internal and external, stakeholders in the planning application process of the projects.
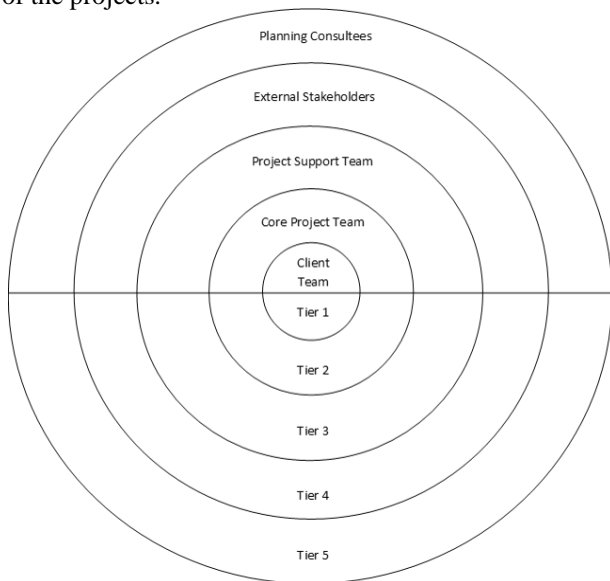

Figure 3. Five-tier stakeholder model.

Project Governance

According to the Association for Project Management, Project Governance refers to the set of policies, regulations, functions, processes, procedures, and responsibilities that define the establishment, management and control of projects, programmes and portfolios. Derakhshan *et al.* (2019) review Project Governance literature to draw attention to the context within which the stakeholders are positioned, to extract their roles and relationships inside and outside of the organization and to develop new avenues for research, generalizing to the whole project, rather than looking into the specific stages.

F. Research Objectives

Within the context of the PA process stage of major new build construction projects, the objectives of this study were (1) To investigate the stakeholder interaction preferences; (2) Rank the stakeholders involved in the projects based on their level of influence in relation to 4 aspects of the PA stage (Planning, Design, Programme and Cost); (3) Evaluate the extent of use of Project Governance during the PA process stage, and finally (4) Gather industry's views on the major stakeholder engagement challenges during the PA process stage and the causes behind them.

II. METHODOLOGY

A. Scope of Study

Glasgow City Council (2023), following Scottish regulations (Scottish Government, 2006) defines major construction projects based on the following criteria: For housing and accommodation, the development comprises or exceeds 50 dwellings, or the site area exceeds 2 hectares. For commercial and business purposes, the gross floor space of the building, structure or other erection is or exceeds 10,000 square meters or the area of the site is or exceeds 2 hectares. Purposive sampling was applied with 71 participants targeted based on their job description, geographical area, and experience in major new build construction projects, achieving 81.7% response rate, 93% of the returned questionnaires were validated following data cleanse and considered for analysis.

B. Methods

A questionnaire was chosen as a data gathering tool for this research as the most practical and reliable way to collect information in an efficient and timely manner. This is especially important in large projects with several complex objectives, where time is one of the major constraints. The findings from multiple participants, as opposed to a handful of interviews also allowed for generalization to the whole sample population of major new build project stakeholders in the Glasgow area.

The authors applied a Positivist research philosophy (Igwenagu, 2016) and deductive research approach (Saini, 2020), as considered to suit best the nature of the data required to meet the research objectives (quantitative).

The purpose of the questionnaire was to identify the industry's view on engagement between different project stakeholders. It was developed on a standard Microsoft Word document and distributed both via email and handed out as a paper copy.

For clarity, all participants were provided with the same definition of a "stakeholder" at the beginning of the

survey–*"Stakeholder: any individual, group or organization that can affect, be affected by, or perceive itself to be affected by, an initiative (programme, project, activity, risk)"* [1].

The questions contained within the survey were split into themes in response to the outlined research objectives (Table II).

TABLE II.   QUESTIONNAIRE DESIGN

Question No.	Research Objective	Question Type
Q1–Q10	Investigate stakeholder's interaction preferences during the PA process stage	Multiple Choice Likert Scales
Q11–Q14	Rank stakeholders based on their influence in the PA process stage	Likert Scales Ranking Questions
Q15–Q16	Evaluate extent of use of Project Governance during the PA process stage	Multiple Choice
Q17–Q20	Investigate common issues and their causes during the PA process stage	Ranking Question Open-ended questions

The acquired data was analyzed via Descriptive Statistics (Luyten, 2017) using Mean Approach to summarize the findings (McLafferty, 2017).

The study was approved by the University of the West of Scotland Ethics Committee.

III.   FINDINGS

A.   Surveyed Participants

1) Degree of experience in the construction industry

The studied sample comprised of a mix of varying positions and expertise. Due to each company having its own unique job descriptions and hierarchy, for the purpose of analysis, the respondents were categorized into Senior employees, Mid-Level employees and Junior employees.

'Senior' employees formed 51.85% of the respondents, 'Mid-Level' employees from 46.30%, and just 1.85% of respondents were 'Junior' employees. The years of experience of participants within the industry was presented in Table III:

TABLE III.   PARTICIPANTS EXPERIENCE IN THE INDUSTRY

No. of Years of Experience	% of Respondents
0–9 years	22.22%
10–19 years	33.33%
20–29 years	27.78%
30+ years	16.67%

2) Participants stakeholder tier mapping

Following the development of the Five-Tier Stakeholder Map, each respondent was assigned a Tier level in relation to their company and where their company sat within the Tier map. Table IV below shows involvement of participants from all 5 Stakeholder Tiers, with T2 Core Project Team stakeholders being predominant. The low percentage of respondents

involved from T1 and T5 can be considered a limitation to the study as the Tiers are not represented evenly to the rest of the Tiers.

TABLE IV.   STAKEHOLDER TIER MAP OF STUDY PARTICIPANTS

Tiers	% of Study Participants
T1. Client Team	11.11%
T2. Core Project Team	46.30%
T3. Project Support Team	25.93%
T4. External Stakeholders	14.81%
T5: Planning Consultees	1.85%

B.   Findings as Per Research Objectives

1) Stakeholder interaction preferences in the PA process stage

The results of Q1 showed clear preference of all respondents in relation to the best preferred form way of interaction. 100% of the respondents noted Telephone and Email, followed by 96.3% preferring Face-to-Face interactions, 12.96%-communication via letters. Surprisingly, only 11.11% and 5.56% Chat/Messenger.

Q2 looked at the frequency with which each stakeholder uses each form of communication (Table V). Email ranked 1st, followed by Face-to-Face and Telephone interaction. It was noted the ranking of frequency of Face-to-Face and Telephone was inconsistent with the preferences displayed in the results of Q1.

TABLE V.   FREQUENCY OF USE OF COMMUNICATION METHOD

Rank	Communication Form	Score (Out of 5)	Frequency
1	Email	4.09	80–100%
2	Face to Face	2.72	40–60%
3	Telephone	2.64	40–60%
4	Letter/Written –	1.45	20–40%
5	Video Call/Skype	0.55	0–20%
6	Chat/Messenger	0.27	0–20%

Although the Face-to-Face interactions were somehow neglected in the 1st two questions, respondents noted despite all, Face-to-Face being the most effective form of communication between stakeholders during the PA process stage (Table VI).

TABLE VI.   PERCEIVED EFFECTIVENESS OF COMMUNICATION METHOD

Rank	Communication Form	Score (Out of 5)	Effectiveness
1	Face to Face	4.36	80–100%
2	Email	3.64	60–80%
3	Telephone	3.55	60–80%
4	Letter/Written –	1.82	20–40%
5	Video Call/Skype	0.91	0–20%
6	Chat/Messenger	0.54	0–20%

Q4 was developed to determine if participants agreed that all stakeholders should be engaged in the same way and in turn follow a concept that "one method suits all" approach to stakeholder engagement. The question scored

an average of 2.18 out of 5 (disagree) which showed that stakeholder share the view that stakeholders should be engaged by tailored methods.

In a similar manner, in Q5, respondents clearly disagreed that *"All project stakeholders require the same level of engagement"* (2.45 out of 5 score).

The majority of respondents shared the opinion that Project Meetings with Multiple Stakeholders are very important (Q6), with an average score of 4.54 out of 5 (Strongly Agree). 98.15% of respondents either Agreed or Strongly Agreed.

Q7 investigated the most effective form of conducting a project meeting with multiple stakeholders at once. Respondents scored Face-to-Face Meetings being the most effective form of meeting with an average score of 4.27 out of 5 which represents 60–80% effectiveness. Telephone Conference was viewed as the next most effective with an average score of 2.55 out of 5 (40–60% effectiveness) closely followed by Video Call/Skype with an average of 2.09 out of 5 (40–60% effectiveness). Online Chat Platforms were viewed as the least effective with an average score of 1.18 out of 5 (20–40% effectiveness).

With a score of 3.37 out of 5 in Q8, most respondents agreed that stakeholder engagement activities must be recorded during the PA process stage of major new build projects.

The most popular forms of recording stakeholder engagement were also identified in Q9, as presented in Table VII:

TABLE VII. PREFERRED FORMS OF STAKEHOLDER ENGAGEMENT RECORDING

Rank	Meeting Form	Score (Out of 54)	Popularity
1	Meeting Minutes	53	98.15%
2	Email Correspondence	49	90.74%
3	Weekly/Monthly Reports	46	85.19%
4	Dashboard Reports	26	48.15%
5	File Note	15	27.78%
6	Online Document Storage Software	13	24.07%

Finally, Q10 sought to establish, whether despite of the preferences in relation to stakeholder engagement method, the respondents ranked the methods in the same way when it came to the perceived effectiveness of the method. The only difference noted in the rankings was between the Dashboard Reports and File Notes:

TABLE VIII. PERCEIVED EFFECTIVENESS OF RECORDING METHODS

Rank	Meeting Form	Score (Out of 5)	Effectiveness
1	Meeting Minutes	4.54	80–100%
2	Email Correspondence	4.09	80–100%
3	Weekly/Monthly Reports	3.18	60–80%
4	File Note	2.27	40–60%
5	Dashboard Reports	1.36	20–40%
6	Online Doc Storage Software	1.27	20–40%

2) Stakeholder rankings in the PA process stage

An adaption of Brown's Project Diamond was used to visually display the respondents' results on stakeholder influence in relation to 4 core areas. The diamond has been adapted to include the planning package resulting in the headings; Planning Package (Scope), Design (Quality), Programme (Time) and Costs/Viability (Cost).

The stakeholders' answers were recorded and average scores for each element, for each stakeholder were calculated, Fig. 4.

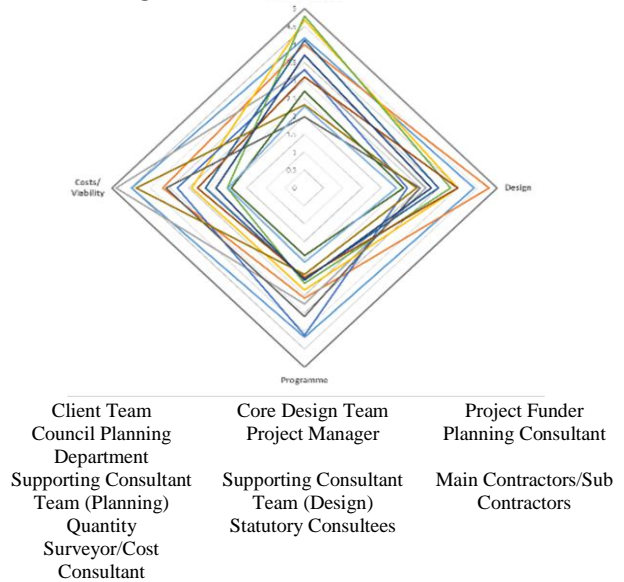| Client Team	Core Design Team	Project Funder
Council Planning Department	Project Manager	Planning Consultant
Supporting Consultant Team (Planning)	Supporting Consultant Team (Design)	Main Contractors/Sub Contractors
Quantity Surveyor/Cost Consultant	Statutory Consultees	

Figure 4. Stakeholder influence in relation to programme, design planning package and cost.

The total average rankings were presented in Table IX:

TABLE IX. TOTAL RANKINGS OF STAKEHOLDERS' INFLUENCE

Rank	Stakeholder	Planning Package	Design	Programme	Costs/ Viability	Total
1	Client Team	4.19	4.41	4.17	4.48	17.24
2	Core Design Team	4.00	4.80	3.07	3.69	15.56
3	Project Funder	3.28	3.15	3.24	4.89	14.56
4	Council Planning Department	4.69	3.98	2.85	2.93	14.45
5	Project Manager	3.30	2.67	4.11	3.30	13.37
6	Planning Consultant	4.80	3.80	2.67	2.00	13.26

Rank	Stakeholder	Planning Package	Design	Programme	Costs/ Viability	Total
7	Supporting Consultant Team (Planning)	4.11	3.48	2.56	2.57	12.72
8	Supporting Consultant Team (Design)	3.09	3.98	2.50	2.78	12.35
9	Main Contractors/ Sub Contractors	1.98	3.00	3.59	3.59	12.17
10	Quantity Surveyor/ Cost Consultant	2.31	2.91	2.41	4.37	12.00
11	Statutory Consultees	3.70	3.30	2.57	2.30	11.87

| 12 | Non-Statutory Consultees | 2.70 | 2.57 | 1.89 | 1.89 | 9.06 |
| 13 | Other External Stakeholders | 2.28 | 2.39 | 2.07 | 1.98 | 8.72 |

3) Project governance

The respondents answered Q15 with an average score 3.64, indicating agreement that Project Governance positively impacts stakeholder engagement.

Results from Q16 revealed that although seen as important, the use of Project Governance in stakeholder engagement during the PA process stage was not widely adopted (1.72 out of 5 score). The results showed that there was a higher percentage of Tier 2 and Tier 4 stakeholders using Project Governance as compared to the other Tiers.

4) Common issues and causes

The most common stakeholder engagement issues during the PA process stage were ranked by responds in Q17 (Table X).

TABLE X. MOST FREQUENTLY EXPERIENCED STAKEHOLDER ENGAGEMENT ISSUES

Rank	Common Issue	Average Score
1	Lack of Decision Making	1.815
2	Miscommunication	2.759
3	Stakeholders not Sharing the Correct Information with Project Team	2.852
4	Key Decisions not Communicated to Relevant Stakeholders	4.722
5	Failure to Engage the Right Stakeholders at the Right Time	5.167
6	Failure to Get Stakeholders Together	5.241
7	Stakeholders Misinterpreting the Provided Information	7.056
8	Lack of Project Governance	7.278
9	Stakeholders not Feeling Valued During the Process	9.574
10	Stakeholders not Receiving Regular Updates	9.667
11	Stakeholder Relationships Breaking Down	9.870

Participants were given the opportunity to state the most common issue experienced in the PA process stage of the projects they have participated in an open-ended question (Q18). Among other less significant reasons, a word cloud analysis displayed that *"Getting Stakeholders to Stick to Timescales"* was the most significant of all.

The most common denominators were examined also in relation to the causes of stakeholder engagement issues, resulting in "Conflicting Stakeholder Needs" being at the core of poor stakeholder engagement (Q19).

The final questions (Q20) sought to determine the industry's perspective on how the above-mentioned issue and cause can be prevented. The respondents collectively agreed that implementation clearly defined "Processes" could have a largely positive impact on the effectiveness of stakeholder engagement.

IV. ANALYSIS AND DISCUSSION

Within the context of the PA process stage of major new build construction projects, the objectives of the study were:

1) To investigate the stakeholder interaction preferences

When looking at ways stakeholders engage with each other, Telephone, Email and Face-to-Face engagement were found to be the most popular form of engagement, with email being the most frequently used form, however Face-to-Face engagement was seen to be the most effective way to engage. Stakeholders also stressed that they found Project Team Meetings very important when engaging while multiple stakeholders at once. The analysis again showed that stakeholders saw Face-to-Face meetings as the most effective way to engage. These findings support the findings that face-to-face meetings are still the best way to communicate with construction project stakeholders.

The results of the questionnaire are also a contradiction to many modern claims that digital technology will change communication. The stakeholders in this study still viewed Face to Face engagement, and communication, being more effective than tech-based technology such as Online Chat Platforms and Video Calling. This preference could be an indication of the culture of the individuals and organizations that operate within the construction industry.

2) Rank the stakeholders involved in the projects based on their level of influence in relation to 4 aspects of the PA stage (Planning, Design, Programme and Cost)

The analysis shows that stakeholder influences vary and suggest a hierarchy within the project. The analysis also shows that there is a clear bias from stakeholders that they see themselves as more important than other stakeholders. This could be a result of the findings from Zhang and Liu (2006) that hierarchy and clan cultures are dominant in the construction industry. Varying influences and stakeholder bias can lead to conflict as supported by Carney *et al.* (2011) which often results in project failures.

Study participants viewed that external project stakeholders having more influence in the Planning Application process than some internal project stakeholders.

The participants ranked their own influence higher than the other stakeholders. This indicates that stakeholders see themselves more important in the other stakeholders and this again can lead to potential conflicts.

The findings suggest a bias is present in the stakeholders' view of other stakeholders which can lead to potential conflicts and aid the formation of project silos.

3) Evaluate the extent of use of project governance during the PA process stage, and finally

The results of the questionnaire show that the most common issue that arises during stakeholder engagement is lack of decision making in a project stakeholder organization. This issue can be addressed by clear identification of the decision makers within a stakeholder organization early in the process. This would be assisted using a robust governance process that records the decision-making stakeholders in each organization.

Project governance is seen as an important tool to manage and mitigate risks and common issues arising in

stakeholder engagement. The analysis shows that the majority of stakeholders see governance as an important tool for engaging, and governance as the most common tool to prevent common issues from arising. Studies by Van Buren III (2001), and Foster and Jonker (2005), support the need for governance when engaging with stakeholders.

4) *Gather industry views on the major stakeholder engagement challenges during the PA process stage and the causes behind them*

The findings in this study show that miscommunication is the most common challenge when stakeholders engage and communicate with each other. The majority of stakeholders agreed that engagement should be recorded. The setup of a robust engagement governance process in the initiation stage of the project should minimize the potential for miscommunication and promote a clear engagement process. Proactive management of the governance process is required to preserve the engagement needed with the number of stakeholders involved in a major construction project.

The analysis of the questionnaire shows a challenge that is highlighted is the existence of Project Silos, that can develop throughout a project encountered by other stakeholders, as 'Stakeholders Not Sharing the Correct Information with the Project Team' and 'Key Decisions not Reaching the Relevant Stakeholders' were ranked 2nd and 4th most common issues respectively.

An engagement culture of openness and willingness to collaborate needs to be adopted at the outset of the project and supported throughout by pro-active stakeholder management in the Planning Application process. Project silos can take many different forms, containing a variety of stakeholders, at different stages of a project and need to be monitored throughout the project lifespan.

The analysis of the questionnaire shows that lack of decision making in a project stakeholders' organization as the most common issue experienced by project stakeholders and in the author's experience, this is a challenge that is commonly experienced throughout the lifeline of a project.

The lack of decision making by a project stakeholder usually results in project delays and can lead to frustrations experienced by stakeholders, as potential delays in make decisions can have knock-on-effects on other stakeholder work streams.

V. CONCLUSION

Despite the Planning Application process in major construction projects having numerous stakeholders spread across different disciplines and stakeholder tiers, effective engagement is possible.

The findings in this study show that stakeholder influences are a critical factor in how stakeholders engage with each other and is a major consideration in critical success factors of stakeholder engagement.

Successfully identifying and understanding the stakeholder influences within the project team is critical when engaging with stakeholders. The research shows that each stakeholder values their needs above others within the team which naturally breeds project politics and conflict.

An engagement culture of openness and willingness to collaborate needs to be adopted at the outset of the project and supported throughout by pro-active stakeholder management in the process. Project silos can take many different forms, containing a variety of stakeholders, at different stages of a project and need to be monitored throughout the project lifespan.

To successfully manage this engagement, a robust governance process needs to be established at the initiation stage of the project with buy-in from the team.

The project governance should set out clear communication and engagement plans and highlight all the stakeholders needed to produce a successful planning application. This will help minimize potential project silos, create clear lines of communication, and a clear engagement process that all stakeholders understand and adhere to.

Although the study is based on the Scottish PA process and PESTEL requirements, the lessons learnt can be utilized to drive improvements in other locations.

CONFLICT OF INTEREST

The authors declare there is no conflict of interest associated with this study.

AUTHORS CONTRIBUTION

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