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URBAN DEVELOPMENT AND CONSTRUCTION PROJECT MANAGEMENT: ISSUES CONSIDERING EXTERNAL STAKEHOLDERS

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ABSTRACT

Large construction projects can create numerous hazards and pose many risks, making it one of the most dangerous industries in which to work. This element of risk increases in an urban development, which can negatively impact the external stakeholders associated with the project, along with their surrounding environments. Therefore, this paper aims to identify and document the numerous issues encountered by project managers from external stakeholders and how they affect construction projects, particularly in a confined site environment. In addressing this aim, the core objective is to identify what issues are involved in managing the stakeholders in these inherently risky environments. A qualitative methodology encompassing an informative literature review is undertaken, followed by five case studies with professionals in industry. The data gathered is assessed qualitatively using mind mapping software, and cognitively summarised. Twenty-six issues are identified, and collectively five main themes occur; environmental, traffic, legal, health and safety and communication issues. A wide range of issues can develop depending on the complexity of each project, but this research will illustrate and reinforce to project managers that early identification of issues, combined with effective response strategies, can be used to manage the issues considering external stakeholders on urban construction projects.

Keywords: community engagement, confined site construction, site management, stakeholder management, urban development.

INTRODUCTION

Since 2011, 3.6 billion people live in urban areas, equating to 50% of the global population (World Bank 2013). As our urban centres continue to develop, the need for stakeholder involvement in the decisions being made in the construction of these centres also require redress (Isaacs, et al. 2010). With the continuous population influx into these urban centres, there is a need to redevelop and modernise often dilapidated and neglected environments (Jones and Evans 2008) to sustain and encourage future growth. In order to accommodate and inspire the growth and expansion of these urban centres, it is essential to coordinate and manage the various environmental, social and economic factors, as researchers (Giddings, et al. 2002; Isaacs, et al. 2010) maintain sustainable development incorporates these three elements when approaching urban development. Particular attention must be given to the management of the numerous external stakeholders that can have both a positive or negative effect on the overall

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success of a project (Nash, et al. 2010). However, research on the effective management of this environment is scant, with authors failing to delve into the topic in detail (Gilchrist, et al. 2002; Spillane, et al. 2013); thus failing to identify and address the plethora of issues that prevail in such an environment.

To address this issue and to fulfil a succinct but prevalent gap in the research area, it is essential to acknowledge and provide results, based on the actuality of events that emerge when constructing in such environments. In order to address this aspect of concern, this study aims to identify and document, within an urban context, the numerous issues encountered by on-site project managers from external stakeholders and how they affect a construction project. This is achieved by undertaking a sequential mixed method approach, encompassing qualitative (literature review and unstructured interviews) techniques for analysis, using mind mapping software which can be cognitively summarised. From this research, the core objective is to identify what issues are involved in the management of the stakeholders in these inherently risky environments. In addressing this aim, it is anticipated that this study will assist and aid project managers in identifying and documenting issues considering external stakeholders, particularly on urban construction projects.

URBAN CONSTRUCTION AND EXTERNAL STAKEHOLDER MANAGEMENT

It has been long argued that construction projects are amongst the most complex of all undertakings (Winch 1987), and Bertelsen (2003) agrees that they should be understood as a complex, dynamic system. The construction industry is one of the most risky and challenging business sectors (Bal, et al. 2011), incorporating various materials, products and stakeholders relevant to the design, build and operation of buildings. Cooke and Williams (2004) also agree that construction is undeniably a risky business. Due to the increased size and complexity of many projects, Maytorena, et al. (2007) state that the ability to manage risk throughout the construction phase has become a central element in preventing unwanted consequences. As urban areas are usually densely populated, effective management is essential to mitigate the possibility of accidents occurring on-site and also to ensure the well-being of residents and people nearby. Construction sites are a common feature within urban areas with large numbers of projects constantly emerging (Hendrickson 1998), but if they are not managed effectively they can provide disruption to their surrounding community.

New construction projects can attract a lot of attention from many parties, affecting a variety of interests throughout the whole construction phase. Representatives of these interests are referred to as the projects stakeholders (Olander 2007), which Yang (2010) defines as individuals or groups who can affect or be affected by a construction project. In recent times numerous studies have identified the emerging importance of stakeholder management within the construction industry. Nash, et al. (2010) state that stakeholder management is a part of project management that requires good communication and relationship networks, but Loosemore (2006) states that it has a poor record due to the complexity and uncertainty of projects. Regarding the UK construction industry, this issue has been highlighted and stressed in two major reports (Latham 1994; Egan 1998), where the inadequate attention paid to stakeholder requirements is criticised. Wideman (1990) suggests that, in order for a project manager to succeed at stakeholder management, they need to be attuned to the cultural, organisational and social environments surrounding projects. Winch (2004)

differentiates between internal and external stakeholders, stating that internal are those who are formally members of the project coalition and hence usually support the project. On the other hand, external stakeholders are those who are not formally members of the project coalition, but may affect or be affected by the project.

METHODOLOGY

This study is at the beginning of an initial investigation aiming to contribute to both academia and industry. The subject being investigated is at the early stages of a broader topic, and it is anticipated that the preliminary findings of this paper will be used to further solidify the results at the conclusion of the whole study. Considering the theoretical position this paper and subsequent research is founded upon, a critical realism approach is considered and adopted. As the nature of this study primarily deals with the opinions of human participants, a subjectivist approach is applied to the ontology, which provides a basis for the case study methodology. A qualitative methodology encompassing an informative literature review is undertaken, followed by five case study interviews with construction professionals in the industry. The subject of theory in the context of the interactions between construction projects and their physical and social environments is also worthy for consideration; however, this is beyond the scope of this paper due to the preliminary nature of the study in question.

Literature Review

A comprehensive desk based literature review is undertaken, with literature considered from primary and secondary sources including journal publications, conference proceedings, industry reports and textbooks. This is done in order to gain a thorough insight into the research topic, as it provides a solid foundation of the research in focus, whilst supporting the following case study interviews. The literature is examined and relevant points are noted and investigated for inclusion and consideration as a source of information for discussion during the interview process.

Case Study Interviews

A qualitative approach is applied in the form of case study interviews incorporating individual data collection. The identification and selection of case studies for inclusion in this paper is based on selective and convince sampling in order to ensure that the participants have the sufficient knowledge to discuss the research topic in question. However, it is envisaged that further study will incorporate a sequential selection strategy, using criterion selection such as quota and random sampling. Also, a much wider audience will be contacted during further research, until saturation of the data instrument has been achieved. Five interviews are undertaken to complement the literature review and also to verify the factors identified. The interviews will be unstructured and open ended, so that questions can lead from one to another quite easily, enabling the interviewee to provide as much information as possible.

Participants interviewed are two project managers, two site managers and one site / civil engineer. The case studies are identified and interviewees questioned with respect to their experiences and relevance to urban construction site environments. Taking ethical issues into consideration, each participant has been carefully selected and informed of the nature of the research, its purpose and what the resultant data is be used for. The identities of those involved remain anonymous and confidential information (such as company names, addresses, client details etc.) is not disclosed. The participating case studies relate to a road realignment scheme outside a small

urban town; a bridge construction over a river in a busy city centre; construction of a science building at a large university in a built up area; an expansion of a major technology and software suite at a very busy industrial park based on the outskirts of a city; and construction of a biomass plant at a dairy plant on the outskirts of a large town. These projects are located in various locations throughout Ireland.

QUALITATIVE ANALYSIS

The data gathered from the case studies is assessed qualitatively and cognitively summarised using mind mapping software. For this study, a mind mapping software application called Decision Explorer is used. Decision Explorer builds a visual representation of ideas which can provide a focus for debate, reflection and progression. It clarifies thinking and can be used to map thoughts and ideas gathered from interviews, acting as an effective stimulus to focus on paramount issues (Brightman 2002). Three forms of analysis which Decision Explorer can undertake are Central, Domain and Cluster Analysis, which logically expresses how each factor or 'concept' is linked and interpreted. Each concept was mentioned in some form by each of the interviewees. Central Analysis calculates a score to determine how central a concept is in the model, Domain Analysis shows concepts which have many links and Cluster Analysis finds groups of closely linked concepts and the results are then placed into sets. Combining the data from the five interviews all together, a total of twenty-six issues are identified which can have an impact on the external stakeholders involved, and how they affect proceedings on urban construction sites. Collectively, the most commonly occurring themes include environmental, traffic, legal, health and safety and communication issues. Due to the limitations on space, the concept analysis results have been omitted but the twenty six-issues are illustrated in Table 1.

DISCUSSION - EXTERNAL STAKEHOLDER THEMES AND ISSUES

Environmental

The need for a Missions Licence, Wildlife Issues and Pollution Control are the main environmental issues which appeared frequently, and scored quite highly in the cluster analysis along with General Environmental Issues. This reinforces the point made by Weng and Yang (2004), as they stated that a construction project in an urban area has a great impact on the environment, as it results in a major type of land cover change. Shen and Tam (2002) agree that construction is not by nature an environmentally friendly activity and it is a large contributor to environmental pollution. In the road alignment case study, the interviewee reiterated these points as the land cover of the project changed from an urban town to a rural countryside, where obvious changes to the environmental surroundings were witnessed during the construction phase.

Traffic

Traffic Management Issues including Road Closures and Temporary Access featured strongly in all five case studies, illustrating the magnitude of issues it can generate on confined urban construction sites. Kim and Kim (2010) compound these results as they believe that most urban settings are already faced with traffic disruptions, so traffic levels can greatly increase both on and off site with the introduction of a construction site. Furthermore, Pheng and Chaun (2001) state that due to delivery vehicles entering and exiting these areas, coupled with the general public and employees congesting the area by parking in the site vicinity (Spillane, et al. 2013), construction sites tend to encourage and attract increased traffic volumes.

Health and Safety

Health and Safety issues are another occurring theme with particular emphasis on Traffic Management and Noise / Dust / Vibrations from Site Works. These issues cause great risk to a project, and two of the interviewees continuously stressed the importance of their role as project managers to find solutions in mitigating these risks effectively whilst on site. These findings reiterate the work of Chapman and Ward (2004) who state that a great amount of risk and uncertainty are involved in construction activities. Cooke and Williams (2004) also support this argument by stating that construction is undeniably a risky business and Maytorena, et al. (2007) believe managing risk is central to preventing unwanted consequences on site.

Legal

Other types of issues which were distinguished in the cluster analysis are contractual issues, such as Issues with Planning Legislation, Legal Aspects in Contract Administration and Excess Documentation at the Preparation Stage. The interviewee for the bridge construction noted that these types of issues tend to cause havoc in project schedules before any construction work has even started on site. However, it was stressed that in the majority of cases the project manager has little or no power over such factors. As these issues have brought about some limitations of current practices, Alshawi and Ingirige (2003) support the findings by identifying key factors which challenge and highlight the issues which new requirements need to address, such as increases in project complexity and new procurement practices. Egan's (1998) seminal report indicated the urgency for managers to integrate all phases of a project, as this would lead to an improved performance and also, for designers to contribute more in order to develop their own understanding of the project in question.

Communication

General Communication Issues are another important factor to consider including the Response Rate of other Stakeholders. Alshawi and Ingirige (2003) also identified a number of limitations that current project management practices have, including a lack of adequate communication, proper decision making tools for project planning and standard processes for project management. Furthermore, Deng, et al. (2001) demonstrate in their work how electrical communication in the construction industry is complicated by its structural problems. Communication issues were strongly highlighted by all interviewees based on their own personal experiences, reaffirming the need for effective communication amongst all stakeholders in urban projects.

CONCLUSION

Fundamentally, this study focuses on urban construction sites and issues considering external stakeholders. Urban areas are difficult to function in due to their dynamic complexity, and with the addition of a construction site the risks increase greatly. Therefore, it is paramount that a project manager ensures that all practices required to combat these issues are carried out accordingly, and through appropriate implementation stakeholder management can become a key aspect to project management within the construction industry. From the results of the cluster analysis and information gained from the literature review and case studies, twenty-six issues are identified which can have an impact on the external stakeholders involved on urban construction sites. Collectively five main themes can be generated; environmental, traffic, legal, health and safety and communication issues, ranging from road closures and traffic disruption to noise, dust and vibrations from site works.

Table 1: External Stakeholder Issues on Urban Construction Sites

	Case 1	Case 2	Case 3	Case 4	Case 5
Road Closures	x	x	x		x
Traffic Management Issues	x	x	x	x	x
Noise from Site Works	x	x	x	x	
Water Mains Turned Off	x			x	
Electricity Turned Off	x			x	
Excess Documentation and Paperwork	x	x		x	x
Wildlife – Fisheries – Pollution Controls	x	x		x	x
Criticism of the Project Necessity		x			
Timely Notice of On-site Issues	x	x			x
Tram Issues Adjacent to Site Works		x			
Obstruction of Water Traffic		x			
Pavements - Pedestrian Access Closed		x	x		
Public Condemnation	x	x			
Angry Letters from Public in Newspapers		x			
General Disruption	x	x	x	x	x
Temporary Access - Pedestrian Routes Set Up		x	x	x	x
Temporary Road Closures	x	x	x	x	x
Dust and Vibrations		x	x	x	
Live Classrooms Nearby			x		
Disruption of Lectures and Classes			x		
Time Surveying Site before Project Starts				x	x
Problems with Planning Permission				x	x
Legal Issues		x		x	x
Missions License Needed					x
Project Support		x			x
Slow Response Rate	x				x

The relevant issues identified from the interviewees are case study specific, and only a succinct, core view of the topic is generated, not a generalised view. However, this study provides a platform to develop more detailed research, and a strong basis to continue research on a largely neglected area. Further case studies can be qualitatively analysed, and developed to introduce a quantitative aspect to the research topic. Also, there is scope to identify and document possible response strategies to the issues that arise, which can culminate into an important and informative study for project managers in dealing with external stakeholders. This research illustrates and reinforces to project managers, that early identification of issues, with the possible combination of effective response strategies and contingency plans, can be used to manage, mitigate and eliminate the occurrence of the issues documented considering external stakeholders on urban construction projects.

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