

Impact of Covid-19 on Construction Projects

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Abstract: This article presents a discussion of the impact of the pandemic on construction projects. While the studies consulted were conducted in different contexts, they report relatively similar impacts of the pandemic on the construction sector as public health guidelines that interrupted operations were similar. Lockdowns restricted movement of people from specified regions to reduce the risk of transmission. They disrupted operations due to delays in the delivery of materials as well as access to workplaces. The cost of promoting safety in the workplace increased significantly. Consequently, some projects were halted while others suspended as contractors and their clients considered their options. The consequences of the pandemic have managerial and legal implications as stakeholders must conduct regular risk assessments and renegotiate the terms of their contracts for project continuity. Regular risk assessments are necessary and crucial to understanding priorities and implementing risk-specific solutions. Effective communication among stakeholders is crucial to the maintenance of a harmonious relationship among stakeholders and will ensure project continuity.

Keywords: continuity, contractual obligations, compliance, legal ramifications, compromise.

I. INTRODUCTION

Many industries have experienced significant interruptions to processes and financial loss due to COVID-19 disease. The construction sector is one of those sectors whose operations have been disrupted significantly due to the nature of the virus causing COVID-19. Multiple stakeholders have been affected by the disruptions as players in the construction sector are diverse. The affected stakeholders include consultants, contractors, and clients [1]. These stakeholders have suffered economic impact due to suspension of projects, time overruns, and cost overrun as developers reduced the number of workers on-site and encouraged those whose responsibilities could be completed off-site to work from home [1]. These responses were necessary and crucial to reducing the spread of the virus in workplaces and communities in which the stakeholders operate [1]. The current paper is based on extant literature on the impact of the pandemic on construction projects to identify and explain the responses of the different stakeholders in the sector. It contributes to information on the identifiable and unidentifiable impacts and how various stakeholders have responded to survive the prevailing situation. The paper provides insight on the experiences of various players in the construction sector during the pandemic.

II. IMPACT OF THE PANDEMIC

The pandemic resulted in delays in the completion of construction projects as contractors responded to public health directives by reducing their on-site employees. Alenezi [2] contributes to literature in this area by revealing that the pandemic caused delays in the completion of construction projects and identifying the specific causes of the pandemic-related delays. The author used the questionnaire approach to gather information from a variety of stakeholders including engineers, architects, surveyors, construction managers, and coordinators operating in KUWAIT to identify the specific causes of delays associated with the pandemic. Escalation and inflation of the price of materials, delays from consultants in providing instructions, delays in approval of completed work, poor scheduling and planning of work, and low productivity of workers were the major causes of delays in Kuwait [2]. The findings of this study indicate that the pandemic caused delays directly by disrupting the supply chain and deployment of onsite workers or indirectly by exacerbating weaknesses in scheduling and planning of work in the construction sector.

Another study investigating the impact of the pandemic on the construction sector identifies impact on contract implementation as the greatest devastating effect of the pandemic. Contractors face the challenge of working with reduced number of onsite workers and coordination of operations [3]. In this case, lockdowns in the cities of origin for workers and inaccessibility of workplaces affect project performance negatively [3]. The study shows that the implementation of

public health protocols in the construction sector has a negative impact on the performance of construction projects as workforces must be reduced for compliance purposes. Moreover, some workers cannot access the construction site due to restriction of movement between cities. While construction projects can continue under the current restrictions, contractors must consider renegotiating the terms of their contracts as they are unlikely to complete projects under the pre-pandemic terms. The time to complete projects must be extended due to reduced contractor capacity and disruption of supply chains.

While most of the effects of the pandemic on the construction sector are negative, there are positive consequences to identify and discuss. Ogunnusi et al. [4] indicate that the pandemic accelerated the implementation of technology in the sector. Stakeholders in the sector were forced to implement technologies to address operational needs that were previously addressed in face-to-face meetings [4]. They deploy technologies that facilitate the reorganization of work plans and conduct off-site construction or use of precast elements [4]. Stakeholders used technologies to facilitate virtual working for operational continuity and efficiency [4]. These findings suggest that the pandemic has been an eye opener as stakeholders recognized opportunities for the deployment of technologies or enhance the use technologies for better results under the tough conditions.

The impact of the pandemic on operations in the construction sector calls for the reconsideration of contractual obligations to protect project continuity. The disruption of operations emphasizes the need for the reconsideration of project deadlines and delivery dates. Companies whose on-site operations have been affected by the pandemic cannot deliver projects within the timelines established prior to the pandemic. The amount of time required to complete a project has been increased significantly as workers must sanitize effectively and observe social distancing rules to reduce the risk of infection. The challenges associated with the implementation of public health directives in workplaces must be considered carefully and contracts renegotiated to meet the needs of all stakeholders. Negotiating for longer timelines should be considered as one of the ideal solutions to the challenges associated with the pandemic.

While contractors may have had the capacity to complete certain projects in the pre-pandemic era, their ability to complete projects has been dented due to the financial implications of compliance with public health guidelines. Assessment of contractor capability to complete a project is an area of priority for management. Pamidimukkala and Kermanshachi [5] anticipate that change orders and allegations will arise following the failure to deliver on projects. Even though contractors may fail to deliver on their contractual obligation due to financial challenges, the onus is on those managing construction projects to assess their contractors for increased project productivity. In this case, managers and contractors should consider the legal issues associated with non-completion of projects and take proactive steps to mitigate against identified risks. Continuous contractor assessment is one of the ways stakeholders can reduce the legal risks associated with failure to complete projects. The assessment should focus on such factors as contractor's cash flow throughout the stages of project implementation, potential contractor claims, and disruptions on operations [5]. Therefore, performing contractor assessment has become crucial to ensuring and increasing project productivity.

The pandemic has heightened the value of risk assessment throughout the stages of design and implementation. Disruptions to operations must be documented and assessed continuously. Continuous assessment of threats facing a project is crucial to identifying priority areas and appropriate interventions. Regular risk assessment enables project managers to anticipate challenges and identify priorities based on the likelihood and severity of the risks associated with project closures and delays [5]. Project managers must embrace a culture of identification and review of risks to enhance their readiness to respond to unexpected outcomes throughout the lifecycle of a project. The approach facilitates updates to the risk register and determine risk-specific mitigation strategies to increase the chances for successful completion of projects. It also facilitates the identification of the responsible party for decisive and timely interventions. Therefore, the pandemic has increased the risks associated with construction projects as the cost of labor is unstable, availability of raw materials, limited productivity, and the need for additional personal protective equipment. These risks must be identified and relevant action taken to enhance the likelihood of product continuity.

The impact on suppliers' ability to ensure availability of raw materials to contractors indicates a need for an end-to-end supply chain awareness. Project developers and suppliers must share information to reduce the risk for interruptions in the implementation of projects [5]. An end-to-end supply chain awareness is crucial to responding to incidents where a supplier cannot deliver materials within the required timelines [5]. It facilitates the identification and utilization of alternative vendors to supply the required materials [5]. The disruption of supply chains as authorities restrict non-essential movement calls for flexibility for ongoing projects to be completed. Project developers cannot afford to rely on specific suppliers as it heightens the risk for project completion delays and compromises a contractor's ability to deliver a project within the required timelines.

The legal ramifications of delays in the completion of projects remains an evolving issue due to the unpredictability of the situation. The factors that can cause legal issues include late payment, and project cost increase [1]. Gamil [1] indicates that contractors are likely to face legal issues associated with non-conformity to contractual obligations. Zamani et al. [6] indicates that the pandemic has caused operational and financial problems for clients and contractors. The operational challenges include the extended project timelines, reduced labour, and logistical challenges. Financial problems include late payment, increased project cost, and reduced number of projects [6]. While contractors are likely to understand delays in payments, one cannot predict the extent to which contractors can persevere the situation. The uncertainties associated with contractors' response to delayed payments indicates that the situation remains unpredictable. It emphasizes the need for renegotiation of contracts for clients and contractors to operate in harmony. Adjustments to contractual terms are necessary as clients may not be in a position to pay based on the pre-pandemic contracts. On the other hand, contractual considerations could help contractors and clients perform their obligations with relative ease despite the constraints imposed by the pandemic.

While the onsite workers face the greatest risks as the safety of the working environment has been affected significantly by the pandemic, the office workforce are vulnerable to other pandemic-related issues. Pamidimukkala and Kermanshachi [5] acknowledge that office workers face unique challenges that should be addressed to ensure their wellbeing. They are at risk of developing mental health issues due to social isolation following the transition from workplace to working from home [5]. The risks for mental ill-health that office workers face include increased workloads, social isolation, stress and burnout, and perception that they fall short of organization's expected performance levels [5]. These challenges indicate that the pandemic has heightened the vulnerability of office workers to mental illnesses. It is a threat to their productivity or commitment in the industry.

III. CONCLUSION

The present research paper provides insight into the challenges that stakeholders in the construction sector experience during the pandemic. It emphasises the need for a strategy that ensures project continuity and employee safety throughout the implementation of projects. An effective communication plan or strategy is crucial to maintaining a harmonious working relationship among all stakeholders. Effective communication is necessary as the pandemic has had significant operational and financial impacts on clients and contractors. It aids the assessment of contractor's and client's capability to meet their contractual obligations. The extent to which contractors who remain operational will persist under the present conditions remains unknown. While timelines can be rescheduled and costs re-evaluated to ensure project continuity, it is difficult to predict the sustainability of the approach. The findings of this study demonstrate the need for contractual considerations for the continuity of projects to be guaranteed. The recovery roadmap should be based on rigorous risk assessment as targeted interventions are crucial to addressing the issues caused by the pandemic.

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