

. B Q Q J O H B O E 4 J N Q M J G Z J O H \$ P O T U S V D U J P O 1

Edward Godfrey Ochieng ^{1*}, Lauren Hughes ², Ximing Ruan ³, Andrew David Freeman Price ⁴ and Charles Egbu ⁵





Keywords: Project complexity; Construction; Uncertainty; Organisational complexity; Technological complexity

Introduction

Numerous studies have attempted to explain project complexity by exploring the various approaches adopted by researchers [1,2]. The theoretical perspective of project complexity; and the “actuality” of complexity within construction projects has been investigated in the literature reviewed, highlighting the lack of consensus on the subject matter [3]. According to Baccharini [4] complexity is one of the critical project characteristics that determine appropriate actions to result in successful project outcomes, with construction projects continuously displaying higher levels of complexity since the mid-1940's. Many other researchers supported Baccharini's [4] view that project success is dependent on the complexity of a project, having a direct effect on the overall project performance [5,6,1]. Evidently, much of the research produced to date by the construction community has failed to consider the application of lean construction as a way to improve project performance by managing project complexity, ensuring the successful delivery of construction projects. Research undertaken by Smith et al. [7] and Bhasin [8] supported this view, noting that the application of lean is what needs to happen for successful project delivery.

In recent years, an increasing amount of research has been undertaken in relation to the subject of project complexity [3]. When evaluating the issue of project complexity, researchers predominately focused on the core platforms of simple project complexity classification and complex systems theory [9]. Azim et al. [3] recognised a lack of agreement among researchers in relation to the definition of complexity. This observation was supported by Xia and Chan [2] who writes that project complexity has not been clearly defined. The only definition of complexity utmost acknowledged by researchers was that of the Oxford English Dictionary, which defined complexity as “consisting of many different and connected parts” and “not easy to understand, complicated or intricate” [3]. As a multi-dimensional concept, defining construction project complexity is incomprehensible. A recent study by Azim et al. [3] obtained several varying definitions of project complexity, with participant responses ranging from; a variety of people in terms of skills and experience, to a multidisciplinary, multi-national, multi-site and a lot of stakeholders. In review of the findings, Azim et al. [3] identified a direct link between project complexity and ‘people, products and

*Corresponding author:   



Received  Accepted  Published

Citation:         20

Copyright:  







number of studies have suggested that traditional project management is based on a hard system model, where planning and control of the project is the central focus [3,10]. A study by Crawford and Pollack [20] however; addressed the relationship between human factors



2