Developing Mitigating Strategies for Causes of Delay in Oil and Gas Projects

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Abstract
The focus of this study is on developing mitigating strategies for delays and cost overruns in the oil and gas industry. This study is grounded in theoretical research such as the Social, Technical, Environmental, Economic, and Political (STEEP) model and the System Dynamic (SD) theory including the evaluation of complex operational and organizational systems. Collecting data from in-depth interviews from one of the UAE’s petroleum exploration project, the overall reflection reveals a confirmation of a complex system(s) relationship between project overruns and delays with influencing factors from STEEP model; therefore, creating viability for the use of STEEP and SD theories in future studies. In particular, it established that economic conditions cause both cost overruns and delays, while environmental changes led to cost overruns and technology changes lead to project delays respectively.

1.0 Introduction
This study focus is on delays and costs overruns in the oil and gas industry. In this case, the formulation of the study topic is based on a realization of the existing situation discussed below in the UAE oil and gas sector. In this regard, the UAE energy industry has increasingly adopted the use of projects, especially in managing research and exploration endeavors. However, as Ruqaishi
and Bashir (2013) illustrated, such investment projects by the industry are very expensive and sensitive. They are, in most instances, developed through strict budgetary allocations as organizations strive to work with declining profit margins. Also, they are rolled out with strict completion timelines as well as deliverable threshold limits.

Unfortunately, as several reviews such as the review by Bradshaw (2010) illustrated, the ability to successfully execute these projects is significantly low. In this regard, the reviews demonstrated that the UAE oil and gas projects often face cost overruns and delays in their execution. This has been a pertinent challenge to the industry in the sense that it reduces the ability to complete projects within budget and time allocations successfully.

The following questions should answer the challenges above:

- What are the actual factors that cause delays and overruns in oil and gas projects?
- How can organizations effectively manage their projects?

The specific objectives of the study were:

- To evaluate the existing factors that cause overruns in projects in UAE oil and gas projects
- To evaluate alternative approaches and best practices to mitigating the overrun factors on UAE oil and gas projects.

The above study findings would form a literary framework for implementing processes of adopting and mitigating overrun and delay cause factors by the UAE and beyond.

2.0 Literature Review

The literature review offers an overview of the existing literature on the delays of project management. Through a focus of key theories and models, the literature guides the research and
evaluation. Within this section, there will be explanation and discussion regarding theories and causes for delays and overruns.

2.1 Theories and Models Applied

STEEP Model

As Hill, Schilling and Jones (2017) noted, the STEEP model is an appreciation of the role and contributions of the external macro-economic variables in an economy. Essentially, the model is comprised of five main elements (i.e. Social, Technical, Economic Environmental, and Political). Theoretically, Sylvester, Rani and Shima (2010), through a focus of the Malaysian oil and gas industry, argued that, either collectively or individually, the above macro-economic factors influence projects’ execution process impacting on completion timelines and costs incurred. Although the theoretical and empirical literature has been developed extensively on aspects of economic conditions impacts (Van Thuyet, Ogunlana & Dey’s, 2007); Hooker 2002), environmental impacts, (Harsem, Eide, Heen, 2011)), there is still an impending gap in literature. As Ford, Steen and Verreyne (2014) recent study on changes in oil and gas industry legal systems demonstrated, the global market is evolving. In this regard, the evaluation showed that with an evolving macro-environment, there is need to constantly develop new literature on impacts of new technology, environmental sustainability variables, and changing economic conditions respectively.

System Dynamics Theory

Although having its origin from the mathematics and engineering disciplines, the SD theory is currently applied in management and supported by organizational behavior theory. The theory states that organizational interactions and system operations in an organization are non-linear. This implies that the aspects and systems correlation create a complex web of interactions (Sterman,