

Risk Management Strategies in the Engineering Design of Megaprojects

Nosipho L. Malope, Hannelie Nel
Department of Engineering Management
University of Johannesburg
37 Bunting road, 2093, Johannesburg, South Africa
malandelaomuhle@gmail.com; hannelien@uj.ac.za

Abstract

Engineering megaprojects are multifaceted and dynamic in nature and thus the project management aspects of them tend to be more complex than with smaller engineering projects. Large engineering megaprojects are more susceptible to risk and this can be mostly attributed to the complexity of their nature as well as the many interfaces present in the project. The research was set out to determine the types of negative risks that can be faced by engineering companies when undertaking on mega engineering design projects as well as to determine the different risk management techniques used by engineering companies in order to reduce the probability of project failure. From the research it was seen that all engineering design megaprojects experience risks. Most engineering companies do have standardized procedures available for risk management and that the most frequently used risk management techniques are brainstorming, root cause analysis and expert judgment. Not all engineering companies keep a risk register or produce risk reports for their projects. After risks are identified, the majority of engineering companies assign risk owners to their identified project risks. Risk mitigation is the most used negative risk response strategy adopted by engineering organizations in their design megaprojects.

Keywords

Project management, Risk management, Megaprojects, Strategies and Engineering design.