

Success of engineering projects shaped with risk resolution in mind

By Alvin Dye

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Managing risk and promoting safety is paramount in engineering practice. Successful projects are not selected but shaped with risk resolution in mind.



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Risks are multidimensional and thus need to be unbundled for clear understanding of causes, outcomes, and drivers. Large engineering projects are characterised by substantial irreversible commitments, skewed reward structures in case of success, and high probabilities of failure. Nevertheless, since their impacts depend on how they combine and interact, reductionism must be avoided.

In outlining the types of risks associated with large engineering projects, initially the contract is the starting point and contains the contractual responsibility as well as details of any proposed insurance programme. Details of these are bespoke to the contract, and rarely is there an off-the-shelf insurance solution to complex engineering projects.

These projects are often firmly in the public view, especially high-profile projects, and therefore face scrutiny on many levels. It is pivotal that each project undergoes a risk analysis and insurance advisors in conjunction with the contracting parties will determine the level of coverage suitable to a specific contract.

Risks differ according to types of projects

The risks involved differ according to the different types of projects. For instance, oil platforms are technically difficult, but they typically face few institutional risks because they are often built far from public attention and are socially desired because of the high revenues they bring to communities and countries. Further, hydroelectric-power projects tend to be moderately difficult insofar as engineering is concerned, but very difficult in terms of social acceptability. Another consideration is nuclear power projects which pose high technical risks but still higher social and institutional risks. Lastly, road and tunnel systems present very high levels of risk as rock formations usually hide surprises.

These projects and the insurance risk run parallel to each other and a failure to address these can have far-reaching consequences for the project. An enterprise risk management (ERM) framework is often developed by the contracting

parties for the particular project with major risks being highlighted and where applicable, managed through the framework which might entail the use of an insurance mechanism to manage that risk.

Technical risks

Coupled with the fact that market risks faced by roads, bridges, and tunnels are very high when they are built by private sponsors under concessionary schemes, urban transport projects that meet real needs pose average market, social, and institutional risks. However, they still pose technical risks, as they regularly involve underground geological work. Research and development projects present scientific challenges but face fewer social acceptability and market difficulties as they can be broken into smaller testable investments.

Construction teams, made up of professional engineers, programming experts, certified public accountants and project managers with extensive construction experience of working with clients across all industries, manage insurance portfolios ranging from both the contractor to tailor-made insurance solutions for specific projects. Firms, such as Marsh Africa, offer the full service offering from advice on the project risk through to placement and claims management.

The key to success, however, lies in supporting projects with dispute avoidance or resolution, risk management consultancy and auditing services throughout various stages of the construction project lifecycle. Using the contract as the basis on which the parties enter into an agreement, once this document is signed the mechanism for addressing the risks and responsibilities is formalised.

ABOUT THE AUTHOR

Alvin Dye is the regional construction head at Marsh Africa's Construction Division.

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