

Scratching a Niche in Coastal Engineering

Coastal engineering is a niche field, sometimes jokingly referred to as a dark art. It is complex. Oceanographic and geomorphic conditions create innate variability. We have a multi-layered knowledge-base, blending first principle physics, empirical, analytic, and computational methods. However, many of the problems associated with coastal engineering are not technical in nature but are determined by how specialist input is obtained and integrated into a project.

Initial project framing is typically set through project identification and procurement, where aspects of budget and indemnity battle against project objectives and quality. Although rarely expressed directly, this is a critical risk management process. Setting a target budget has direct implications for scope and corresponding quality of outcomes. Where specialist skills are needed for a project, using the procurement process to resolve this balance requires that assessors understand if different proposed methods are fit for purpose. This is not always obvious, particularly if project investigations can influence the most appropriate approach.

Critical choices in the procurement stage relate to project split and scope rigidity. Dividing a project into bite-size components allows the most targeted approach, giving a wide choice of contractors and the greatest capacity to deal with a dynamic scope, but has potential to progress slowly, incrementally gaining knowledge. Packaging into larger parts pushes questions of interfacing and scope management into the domain of the contractor but reduces competitive pressure and can limit the principal's control over quality. Consideration of indemnity is factored into decisions about project split, but should be a secondary consideration, as returns from indemnity are always poor compared to financial and reputational impacts of project failure.

Regardless of project split, projects are comprised of multiple tasks, usually undertaken by a collection of teams or individuals, each with their own skill sets. Budget and information divisions at this level create tensions, prompting further separation. These divisions can require as much project management attention as the individual components, to ensure that there is suitable interfacing. This requires clear communication between different parties, ensuring each component meets the needs for subsequent users.

When dealing with specialist coastal engineering input, project managers and adjacent project members may have limited knowledge. Interfacing is often based on trust and effective communication, backed up by professional integrity, contractual obligations, and indemnity. Although all these tools are fundamental, communication issues are likely to create an adversarial setting. Options to improve this situation include enhanced training for procurement teams, project managers and adjacent staff, or to include meaningful peer involvement on behalf of the principal.

Words by Matthew Eliot