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# Engineering Management

Technically Knowledgeable  
Management

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# What is Engineering Management?

Engineering Management stitches together the gap between all project stakeholders with a technical interest including designers, contractors, owners and operators. As a collective, Engineering Management contains the knowledge, ability and experience to shape the way we deliver our projects, using the required processes, tools, guidance and governance to ensure all engineering functions are performed in a safe, efficient and cost effective manner.

The Engineering Management function is critical to the commercial outcome of all projects – starting from concept design development through to the procurement phases and continuing to project completion across both upstream and downstream contractual arrangements. Engineering Management controls technical and handover risk from all perspectives other than those inherently construction related.

# What is the role of an Engineering Manager?

The role of the Engineering Manager drives technical alignment and outcomes across internal and external stakeholders by delivering to the requirements whilst overlaying the critical consideration of safety for the environment and communities where we work. Project requirements cannot be looked at in isolation; great engineering solutions contemplate construction, commercial, risk, planning, completion and handover, temporary works, staging and operator / maintainer needs.

# What defines Engineering Management?

## Technically Knowledgeable Management

Engineering Managers have to understand scope and technical requirements – they are fundamentally driven by applying in-depth technical expertise in the broader context. The addition of Technically Knowledgeable Management is a fundamental differentiator to pure Project Management.

## Value is Integral

Great Engineering Management challenges the status quo whilst understanding the constraints. “How does the design more broadly impact the project, project and asset owners, operators and maintainers, and what are their drivers?” It balances value, technical constraints and compliance always with a critical lens on Engineering’s impact on the commercial outcome through the lifecycle of the project. In the context of securing project wins – the right Engineering Management can be the difference between winning and losing.

## Dynamic Problem Solving

Engineering Management thrives in navigating the grey between project parties and bridging the gap. Design cannot be driven by compliance, cost, or construction independently. Whilst an Engineering Manager always acts in the best interest of their parent organisation or client, this often requires carefully balancing critical issues and needs of all stakeholders with the acceptable completion and handover always front of mind. The ability to positively react to changing circumstances and make decisions in this dynamic environment is critical.

## Integration and Critical Assessment of Engineering Viewpoints

Engineering Management can be viewed as “technical translation” to truly unlock the value of a project. Experience shows that different functional groups speak different languages. The role of an Engineering Manager should drive to reach technical alignment with stakeholders who often hold their own fixed (and different) perspectives on value, risks, drivers and success. An Engineering Manager should be able to communicate what is required for technical alignment and advise on how it can be simply achieved to all levels of the project.

## Stitching from top to bottom

Engineering Management has to function in the micro and macro of the project world – understanding minute technical details through to political drivers to get the best outcome for the project.

### The Macro

Project and Stakeholder  
Objectives, Political and Owner  
Drivers, Budgets, Industry Issues



**The Meso**  
Engineering  
Management



### The Micro

Project and Stakeholder Scope  
and Requirements, Technical and  
Constructability Challenges

## **People + Systems = Engineering**

Engineers know how important Systems are (Ediom has launched a whole new offering based on it!) but a great Engineering Manager knows that people get outcomes and not systems. Everything can be solved with the right conversations, and good engineering!

# So what are key Engineering Management Competencies?



**01 —**

## Technical

Robust understanding of technical design elements eg Rail, Roads, Structures, Rail Systems, Stations, Tunnels, Depots. Temporary works.

**02 —**

## Critical Review & Challenge

Challenging Design, Optioneering, Design Optimisation.

**03 —**

## Commercial & Legal Acumen

Balancing Requirements with Value, Value for Money Assessments.

**04 —**

## Risk

Risk Management approach driving decision making, proactive implementation of Risk Mitigation measures.

**05 —**

## **Interface & Integration**

Interface Management, Technical Stakeholder Management, Construction Integration, Safety & Environmental issues within the overall project environment.

**06 —**

## **Systems Engineering & Safety Assurance**

Ensuring SESA and Engineering Management progress in a united approach, Requirements Management.

**07 —**

## Asset Integration

Management of integration of new assets, Operation & Maintenance drivers for completed assets considered throughout all stages of design, Completions Handover.

**08 —**

## Digital

Digital solutions that drive efficiency, communication and value (as opposed to an add-on), critical assessment on best for project digital approach.

# Engineering Management at Ediom



## DESIGN

**A robust design solution that facilitates efficient construction and optimises value for money**

More specifically we will do this by driving processes which focus on:

- Ensuring a balance between project stakeholder requirements and approvals whilst ensuring the scope is contained
- The design solution is challenged against best practice design, leveraging lessons learnt and innovations
- Supports efficient construction whilst minimising disruption during delivery / input from construction



## OPTIONEERING

**Impactful innovations and constructive challenge that optimise the projects value for money**

More specifically we will do this by driving processes which focus on:

- Navigating design and constructability reviews to include meaningful challenges and capture of innovations and value-add items across all project stakeholders
- Ensuring a clear decision-making process (eg MCA) to ensure design and constructability decisions are considered against cost, program, technical and risk
- Ensure appropriate level of engagement and approval with project stakeholders on options and close out



## INTERFACE MANAGEMENT

### Unpacking complex interfaces

Adopting a logical and pragmatic approach to remove the contractual risk associated without excessive cost and time implications



## COMPLETIONS & HANDOVER

### Plan for completion and handover at the start

- Understanding the handover obligation from the start of the project and embedding them in the engineering delivery
- Ensuring that completions requirements are understood, and resources planned for the delivery of the activities



## COMMERCIAL

### Understanding that Engineering Management function is critical to the commercial outcome of all projects

- Navigating the upstream and downstream contractual arrangements and translating them through the Engineering requirements for the project life
- Ensure that engineering decisions are developed with an understanding of commercial impacts upstream and downstream as well as for the asset Operator and Maintainer



## RISK

### De-risking the solution and ensuring all project stakeholders are accountable for, and manage their risk

More specifically we will do this by driving processes which focus on:

- Ensuring effective process/ mechanisms in place for risk capture management of risks during TOC phase which captures risks and opportunities across project lifecycle (design to completion)
- Ensuring process enables adequate identification and review of risks to all project stakeholders

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# Want to know more?

Get in touch! Visit our website, send us an email, or reach out via LinkedIn.

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