

MAKING WAVES IN MARITIME DESIGN, ENGINEERING & CONSULTING



Capability in depth
**SYSTEMS
ENGINEERING**

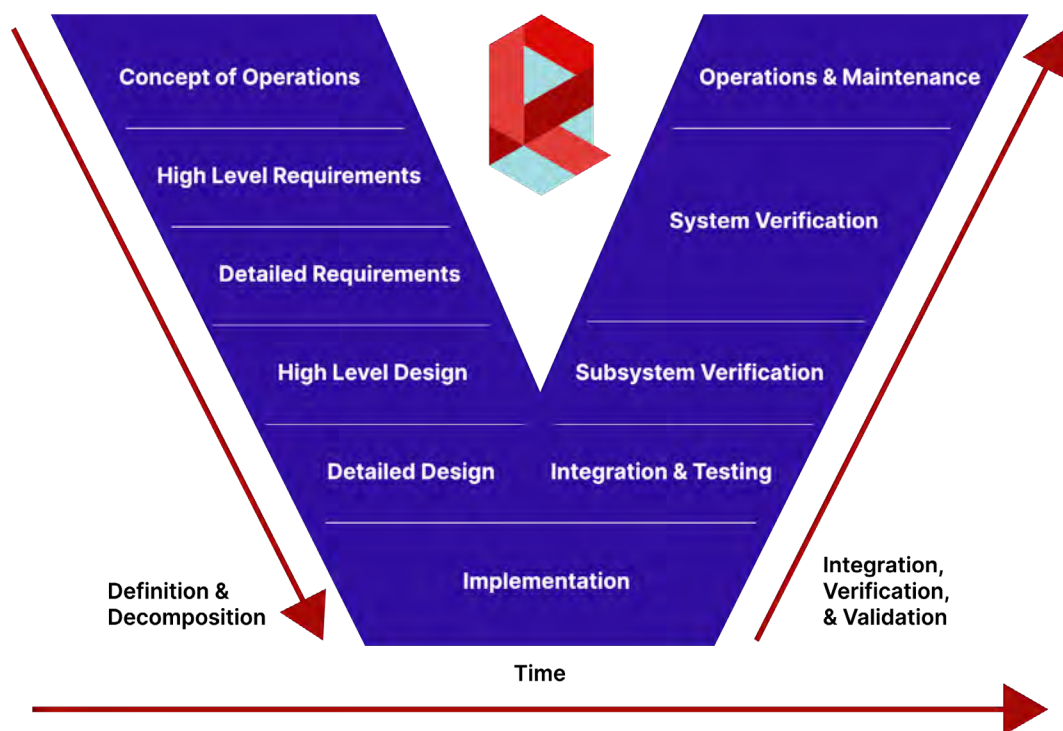
Systems engineering is a core capability of Rubicon Associates, underpinning our approach to technical problem-solving, risk management, and lifecycle integration across complex maritime programs.

We deliver structured systems engineering expertise from initial concept development through to operational support. Our approach ensures every engineering design and project phase is executed with precision, full traceability, and rigorous alignment to stakeholder requirements while addressing the unique challenges of maritime integration: space, weight, and power constraints, regulatory compliance, through-life supportability, and harsh operational environments.

Safety is embedded throughout our systems engineering process. We apply SFARP (So Far As Reasonably Practicable) principles to identify hazards, assess risks, and implement controls that reduce risk to tolerable

levels. From initial safety case development through verification and operational validation, we ensure maritime systems meet stringent safety requirements while maintaining operational effectiveness.

Our **Rubicon Matrix Methodology** enhances traditional systems engineering by systematically considering platform history, operational context, and future capability needs — delivering Integrated Intelligence that addresses both immediate requirements and broader lifecycle implications. By integrating systems thinking, safety analysis, and our Matrix Methodology throughout the engineering lifecycle, we deliver platforms that are operationally capable, safe, and mission-ready.



Systems engineering rigor across the full development lifecycle — from requirements definition through verification and operational validation, with safety analysis embedded at every phase.

MARITIME DOMAIN EXPERTISE



OUR SYSTEMS ENGINEERING TEAM MANAGES THE UNIQUE CHALLENGES OF COMPLEX PLATFORM INTEGRATION:

- **Design constraints** - Space, weight, power, and resource limitations requiring optimisation and trade-off analysis.
- **Regulatory compliance** - Ensuring systems meet applicable safety, structural, and operational requirements.
- **Through-life supportability** - Designing for maintainability, obsolescence management, and upgrade pathways over multi-decade service lives.
- **Operating environment** - Accounting for environmental stresses, reliability requirements, and operational conditions.
- **Standards & frameworks** - Navigating industry-specific regulations and compliance.



SYSTEMS ENGINEERING SERVICES INCLUDE:

- Requirements Analysis
- Requirements Traceability Management
- Systems Analysis
- System Design and Development
- Trade Studies / Analysis of Alternatives
- Modelling & Simulation
- Test & Evaluation
- Verification & Validation
- Systems Safety & Safety Case Development
- Technical Risk Management
- Configuration Management
- Engineering Change Management

Our systems engineering capability combines structured methodology with deep maritime platform knowledge. We have supported systems engineering across multiple vessel types — from patrol vessels to amphibious platforms to commercial maritime assets — managing complex multi-disciplinary integration where mechanical, electrical, structural, and operational requirements intersect. This experience enables us to identify integration challenges early, conduct effective trade studies, and ensure solutions are robust, compliant, and operationally ready.

“Traditional systems engineering asks ‘does it meet the requirement?’ Our Integrated Intelligence approach asks, ‘does it meet the requirement, integrate with existing systems, support future capability, and remain maintainable for decades?’ That’s the difference between a solution and a sustainable solution.”

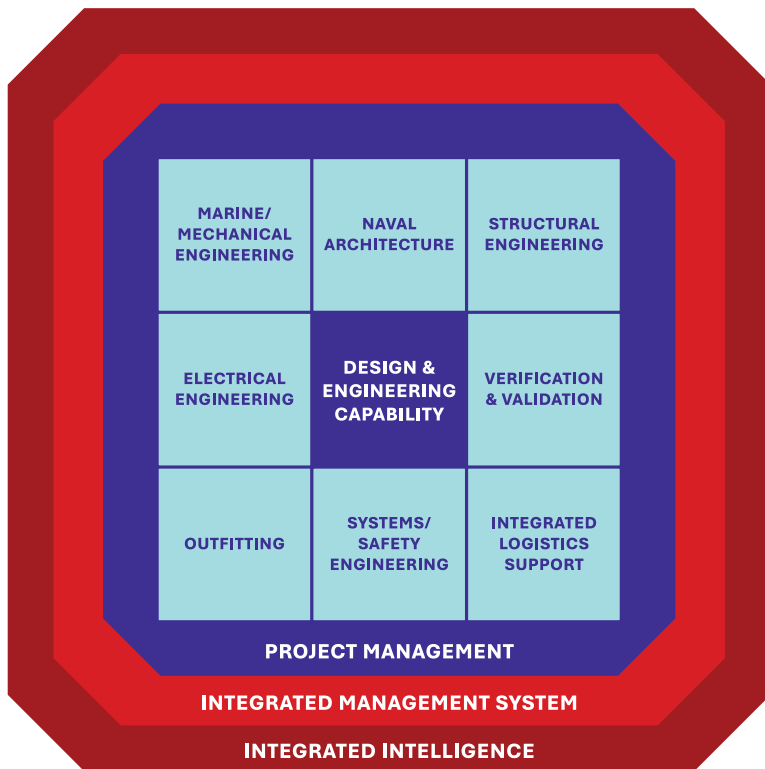
— GORAN DUBLJEVIC, DIRECTOR



Defence Industry
Security Program



INTEGRATED SOLUTIONS TO COMPLEX MARITIME CHALLENGES



RUBICON CAPABILITIES MATRIX

RUBICON MATRIX METHODOLOGY

Pan-dimensional, systematic approach to optimally integrated engineering solutions.

MULTI-PLATFORM EXCELLENCE

RAN patrol vessels and surface combatants to offshore support vessels, research ships and amphibious craft.

TRUSTED PARTNERS

Proud to serve the Commonwealth of Australia, Defence Primes and others that own, build and maintain maritime assets.

10 YEARS OF EXCELLENCE

as Rubicon, decades as senior industry experts.

100% AUSTRALIAN OWNED

Committed to Australia's sovereign capability.

GET THE RUBICON ADVANTAGE

Contact Rubicon Associates today to discuss how Integrated Intelligence can deliver exceptional outcomes for your next maritime project.

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Capability Document