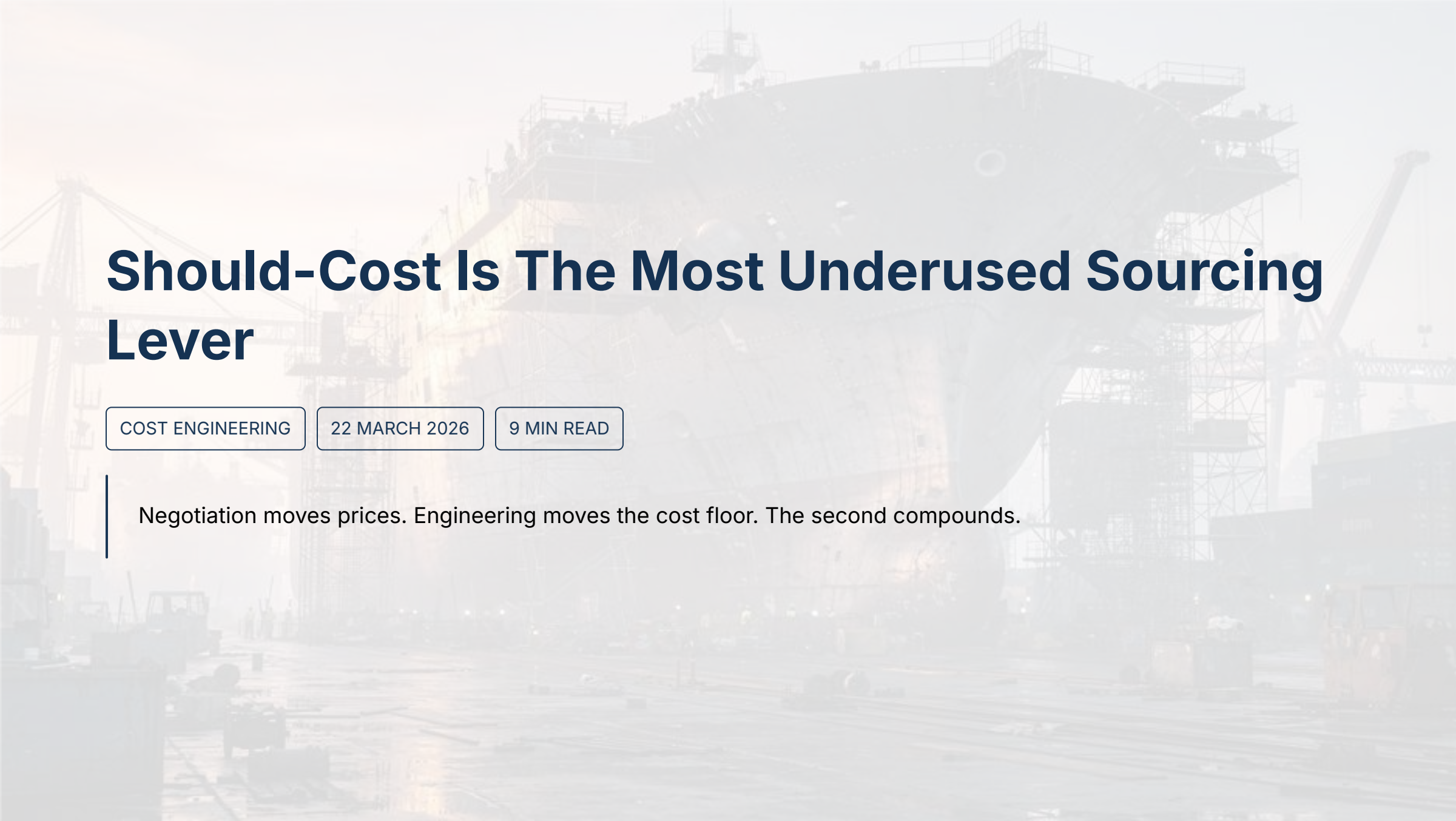




Should-Cost Is The Most Underused Sourcing Lever

COST ENGINEERING

22 MARCH 2026

9 MIN READ

Negotiation moves prices. Engineering moves the cost floor. The second compounds.



The Budget Problem Hidden Inside Most Shipyards

When shipyards miss budget, the explanation is often familiar.

Material Prices

Raw material costs increased beyond initial estimates.

Labour Overruns

Labour costs exceeded the original projections.

Supplier Pricing

Suppliers raised pricing mid-project.

Scope Expansion

Scope expanded beyond the contracted brief.

While these factors certainly contribute, they rarely explain the full picture. In many cases, the real issue emerges much earlier. The budget itself was built **without understanding what the product should actually cost**.



As a result, management begins controlling costs only after the vessel enters production. By then, most of the financial outcome has already been determined.

What Is Should-Cost Engineering?

Should-cost engineering is the discipline of determining what a product should cost to manufacture based on its design, materials, labour content, production processes, and supply chain requirements.

Traditional Budgeting

Begins with supplier quotations. The question asked is:

"What does the supplier charge?"

Should-Cost Engineering

Begins with engineering reality. The question asked is:

"What should this component reasonably cost to produce?"

Unlike traditional budgeting, should-cost analysis does not begin with supplier quotations — it begins with engineering reality. That distinction changes the quality of every commercial decision that follows.

Why Shipyards Rarely Use It

The yacht and shipbuilding industries have historically relied on quotation-based estimating. The process appears logical — yet it contains a significant weakness.

01

Engineering Defines

Engineering defines the specification for the component or system.

02

Procurement Requests

Procurement sends the specification out and requests pricing from suppliers.

03

Suppliers Submit

Suppliers submit their quotations based on their own cost structures and margins.

04

Selection Made

The lowest acceptable offer is selected and accepted.

- ❌ The quotation becomes accepted as truth. Very few organisations possess an independent model capable of validating whether the quotation itself is reasonable. Without that benchmark, procurement negotiates from a position of limited visibility.



The Problem With Negotiation Alone

Many organisations celebrate procurement savings. But what does that saving actually represent?

\$100K

Supplier Quote

The original price submitted by the supplier.

\$92K

Negotiated Price

The price achieved after procurement negotiation.

\$75K

Should-Cost

What the component should actually cost to produce.

\$17K

Hidden Overpayment

The gap that negotiation alone never closes.

Price Management

Influences individual transactions. Reduces the degree of overpayment. Creates the appearance of savings without addressing the underlying cost structure.

Cost Engineering

Influences economics. Establishes what a component should cost before any negotiation begins. Creates genuine, structural value.

Where Shipyards Lose the Most Money — Composite Structures

Should-cost engineering becomes particularly valuable in custom yacht and shipbuilding environments because of the complexity involved. Several categories consistently present the greatest opportunities for cost recovery.

Composite Structures

Hulls, decks, hardtops, and structural modules often contain significant variation between estimated and actual production costs. The following factors all influence final cost — and all are measurable:

Material Utilisation Rates

The ratio of material consumed versus material wasted during lamination and infusion processes.

Labour Efficiency

Actual hours per square metre of laminate versus engineered standard times.

Vacuum Infusion Performance

Resin-to-fibre ratios and infusion cycle times directly impact both cost and structural quality.

Tooling Assumptions

Amortisation of mould costs across production volumes significantly affects per-unit cost.

Where Shipyards Lose the Most Money — Joinery & Interiors

Custom interiors frequently represent one of the largest budget categories in a superyacht or commercial vessel build. Yet many shipyards purchase interiors largely based on quotations rather than engineered cost models.



Material Selection

Material selection alone can create substantial cost variation without affecting perceived quality. Veneer species, substrate choices, and surface finishes all carry dramatically different cost profiles.



Labour Content

Joinery is highly labour-intensive. Understanding standard hours per cabinet, per linear metre of panelling, and per fitting is essential to validating supplier pricing.



Supply Chain Structure

Whether interiors are produced in-house, by a specialist subcontractor, or imported from a low-cost region has a profound impact on total cost and schedule risk.

-  Material selection alone can create substantial cost variation without affecting perceived quality — making this one of the highest-leverage areas for should-cost analysis.

Where Shipyards Lose the Most Money — Stainless Steel Fabrication

Railings, ladders, masts, and custom metal structures are often treated as specialist purchases — handed to a fabricator with a drawing and accepted at whatever price is returned. Yet these items are **highly measurable from a cost engineering perspective**.



Measure the Drawing

Calculate total linear metres of tube, sheet area, and weld length directly from engineering drawings.



Apply Material Rates

Apply current stainless steel market rates per kilogram to derive a material cost baseline.



Estimate Labour Hours

Apply standard fabrication and welding times per joint type and complexity level.



Benchmark the Quote

Compare the engineered cost model against the supplier quotation to identify variance and negotiate from evidence.

Where Shipyards Lose the Most Money — Mechanical & Electrical Systems

Many procurement teams focus heavily on equipment pricing while overlooking installation costs. This is one of the most common and costly blind spots in marine project budgeting.

- ⊗ A lower-cost component that requires significantly more installation effort may ultimately **increase** total project cost — not reduce it.

In reality, installation labour often exceeds equipment savings. The total cost of ownership must account for:

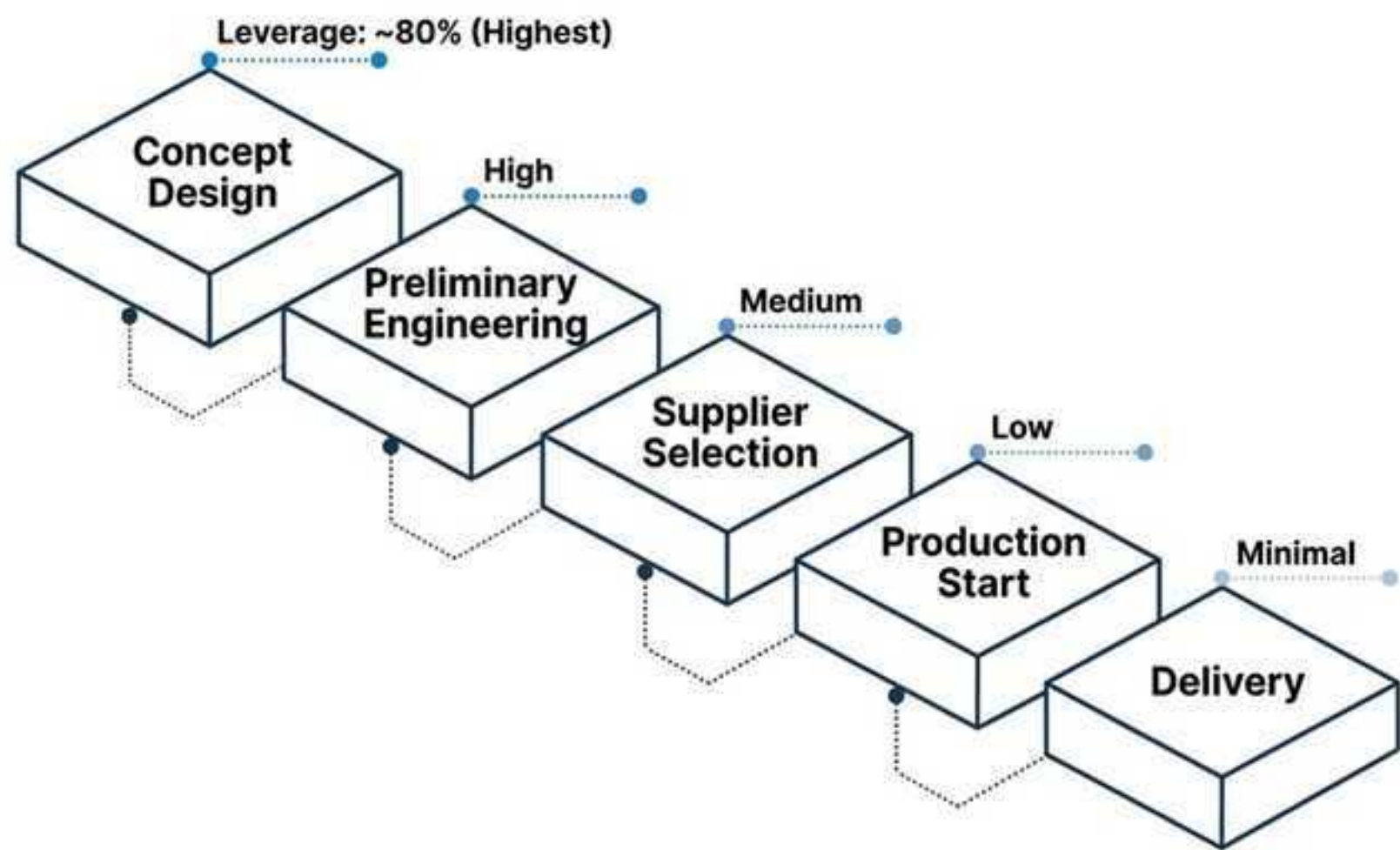
- Equipment purchase price
- Installation labour hours
- Cable and pipework runs
- Commissioning time
- Integration complexity with other systems
- Warranty and service access requirements



The 80% Rule

Approximately 80% of a product's final cost is determined before production begins.

Once materials are ordered and fabrication starts, financial flexibility decreases dramatically. At that stage, management can still influence outcomes — however, the most valuable decisions have already been made.



The greatest leverage exists during concept design, preliminary engineering, supplier selection, material specification, and production planning. This is where should-cost thinking creates **exponential returns** — and where most shipyards are currently absent.

Concept Design Maximum influence over material choices, structural approach, and system architecture.	Preliminary Engineering Specification decisions lock in the majority of downstream cost commitments.	Supplier Selection The moment at which cost benchmarks must be applied to validate commercial terms.
Material Specification Grade, form, and source decisions that directly determine material cost per unit.		Production Planning Labour routing, sequence, and tooling decisions that set the efficiency baseline.

The Shift From Procurement to Cost Leadership

Leading shipyards are beginning to redefine the role of procurement. Historically, procurement focused on obtaining competitive quotations. Tomorrow's procurement organisations will increasingly focus on **understanding cost structures**.

Yesterday's Procurement

- Obtain competitive quotations
- Select the lowest acceptable offer
- Negotiate price reductions
- Report savings against budget
- Manage supplier relationships transactionally

Tomorrow's Cost Leadership

- Understand material costs and conversion costs
- Model labour content and factory overheads
- Assess tooling requirements and logistics impacts
- Engage suppliers collaboratively on value engineering
- Shift conversations from price reduction to shared efficiency

The objective is not merely to buy. The objective is to **understand**. When teams understand material costs, conversion costs, labour content, factory overheads, tooling requirements, and logistics impacts — supplier discussions become collaborative rather than adversarial.

- ✓ The conversation shifts from price reduction toward value engineering — a fundamentally more productive and profitable dynamic for both parties.

Why Investors Care

Should-cost engineering is not simply an operational tool. It is a **strategic capability** — and one that sophisticated investors are beginning to recognise as a differentiator.



Revenue Forecasts

Shipyards frequently report order books and revenue projections — but these indicators mean little without confidence in margin performance.



Delivery Schedules

On-time delivery is a key metric, but schedule adherence without cost control does not protect profitability.



Order Books

A full order book is a positive signal — but only if each project is priced and engineered to deliver the expected margin.

A yard capable of accurately engineering cost is significantly more predictable than one dependent upon quotation-based budgeting. Predictability creates confidence. Confidence attracts investment.

For investors, private equity firms, and shareholders, the ability to predict project profitability is a major competitive advantage. Should-cost capability transforms a shipyard from a revenue story into a **margin story** — and margin stories command premium valuations.

The Emerging Competitive Advantage

The future leaders of marine manufacturing will not necessarily be the shipyards with the largest facilities. Nor will they be the shipyards with the largest workforces.

Understand Every Component

Deep knowledge of what each part should cost to produce, regardless of what suppliers charge.

Gain Control

Once cost is understood at its source, the organisation gains something far more valuable than negotiation power.



Engineer Every Process

Standard times, efficiency benchmarks, and labour models that make cost visible before commitment.

Optimise Every Decision

Design, specification, and sourcing decisions made with full awareness of their cost consequences.

- ✓ Because once a company understands cost at its source, it gains something far more valuable than negotiation power. **It gains control.**

Final Thought

Most Shipyards

Attempt to improve profitability through procurement negotiations.

Negotiation

Can influence a single transaction. Creates temporary savings. Reduces the degree of overpayment without addressing the underlying cost structure.

In an industry where margins are increasingly challenged by labour shortages, supply chain volatility, and growing product complexity — understanding what something *should* cost may be more valuable than knowing what it *currently* costs.

One creates temporary savings. The other creates **permanent competitive advantage**.

The Strongest Shipyards

Improve profitability through engineering.

Should-Cost Engineering

Influences an entire operating model. Creates permanent competitive advantage. Builds a capability that compounds over every project.

About the Author

Costas Eliopoulos

Founder, IONAIRE

Costas Eliopoulos is Founder of IONAIRE, a boutique consultancy specialising in operational excellence, cost engineering, manufacturing transformation, and strategic sourcing.

Having led large-scale yacht production programmes, factory expansions, ERP implementations, and supply chain optimisation initiatives across the marine and industrial sectors, he advises organisations on converting complexity into measurable operational and financial performance.

COST ENGINEERING

OPERATIONAL EXCELLENCE

STRATEGIC SOURCING

MARINE INDUSTRY



Manufacturing Transformation

Large-scale production programme leadership across marine and industrial sectors.



Supply Chain Optimisation

End-to-end sourcing strategy and supplier development for complex build programmes.



Financial Performance

Converting operational complexity into measurable and sustainable financial outcomes.