

Defence Industry

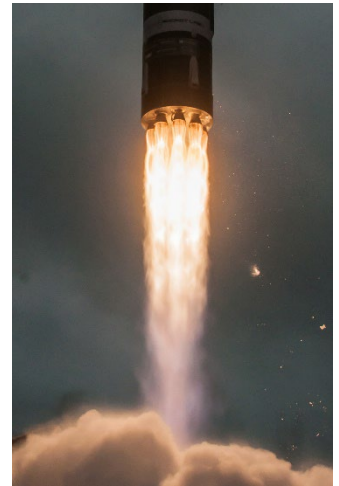
OUR SERVICE FOCUS

For firms supplying the defence industry who require specialist analysis services, Matrix has over 35 years niche experience and knowledge in this area. As New Zealand’s most experienced engineering analysis team, we offer an efficient and robust solution to model difficult physics ranging from highly non-linear FEA, rigid and flexible body dynamics, computational fluid dynamics (CFD), fluid structure interaction (FSI) and design optimisation.

SERVICE / SUMMARY

Advanced engineering simulation capability with proven experience in defence applications. Detailed structural analysis using FEA, including static strength, buckling, vibration and fatigue assessment. Non-linear capability to account for flexible structures where load redistribution is important. Advanced CFD including external aerodynamics (e.g. hulls, appendages and launch vehicles), turbomachinery and electronics cooling.

- Specialists in Finite Element Analysis (FEA) and Comp. Fluid Dynamics (CFD)
- Expertise in composite and metallic structures
- Fatigue assessment of metallic components
- Thermal analysis of electronic and avionics systems
- Advanced analysis problems, e.g. parts in contact, bolted and bonded connection, supersonic and hypersonic flow regimes, heat transfer
- Proven seamless collaboration with engineering consultancies and design teams over the years



PROBLEMS / SOLUTIONS

Matrix provides solutions for engineers in the defence industry needing robust and timely engineering analysis.

Problem	Solution
How do I demonstrate that my design will perform well in service?	Simulate your designs using FEA or CFD before commissioning to ensure it is fit for purpose.
How do I avoid paying for costly analysis software, staff training and retainment?	Matrix prides itself on offering value for money and its ability to partner with our customers to achieve results.
I need to solve a new type of problem and I’m worried it is going to be too challenging?	The matrix team has over 140 combined years of experience solving challenging simulation problems and can help guide you.
If a failure occurs in service, how do I identify the root cause and avoid further problems?	Significant expertise in fracture mechanics, fitness for service assessments (analysis of damaged parts) and fatigue assessment

CUSTOMERS / EXPERIENCE

- Have completed projects for the Defence Technology, Navy and Army in NZ
- Customisation of PLM software for defence projects in Australia
- Up to date with the latest analysis methodologies
- Completed 90% of shock and vibration analysis for the Amecon Frigates project

OUR TEAM

Meet our highly qualified and experienced engineering analysts:

Don Campbell, BSc, BE(Hons), PhD, CMEngNZ, CPEng (Mech), IntPE, NAFEMS Adv Reg Analyst, 45 yrs exp

James Hamilton, BE(Hons), PhD, CMEngNZ, CPEng (Mech), IntPE, composites & non-linear FEA, 20 yrs exp

Kava Crosson-Elturan, BE(Hons), (Mech, Purdue), numerical simulation FEA/CFD, physics-driven design, 18 yrs exp

Guido Quesada, MSME, ASME, FEA, advanced Abaqus instructor, pipe joints, product development, 23 yrs exp

James Cheng, BE(Mech), ME(Mech), fracture mech, press vessel design, plastic injection moulding, 18 yrs exp

Bill Macky, BE, CMEngNZ, piping, pressure vessels, tanks, general mechanical design and fabrication, 40 yrs exp

ABOUT MATRIX

Matrix provides solutions for engineering design and information management. New Zealand’s first and largest team dedicated to engineering computing, supporting the process of innovation for over 35 years. Visit www.matrix.co.nz.