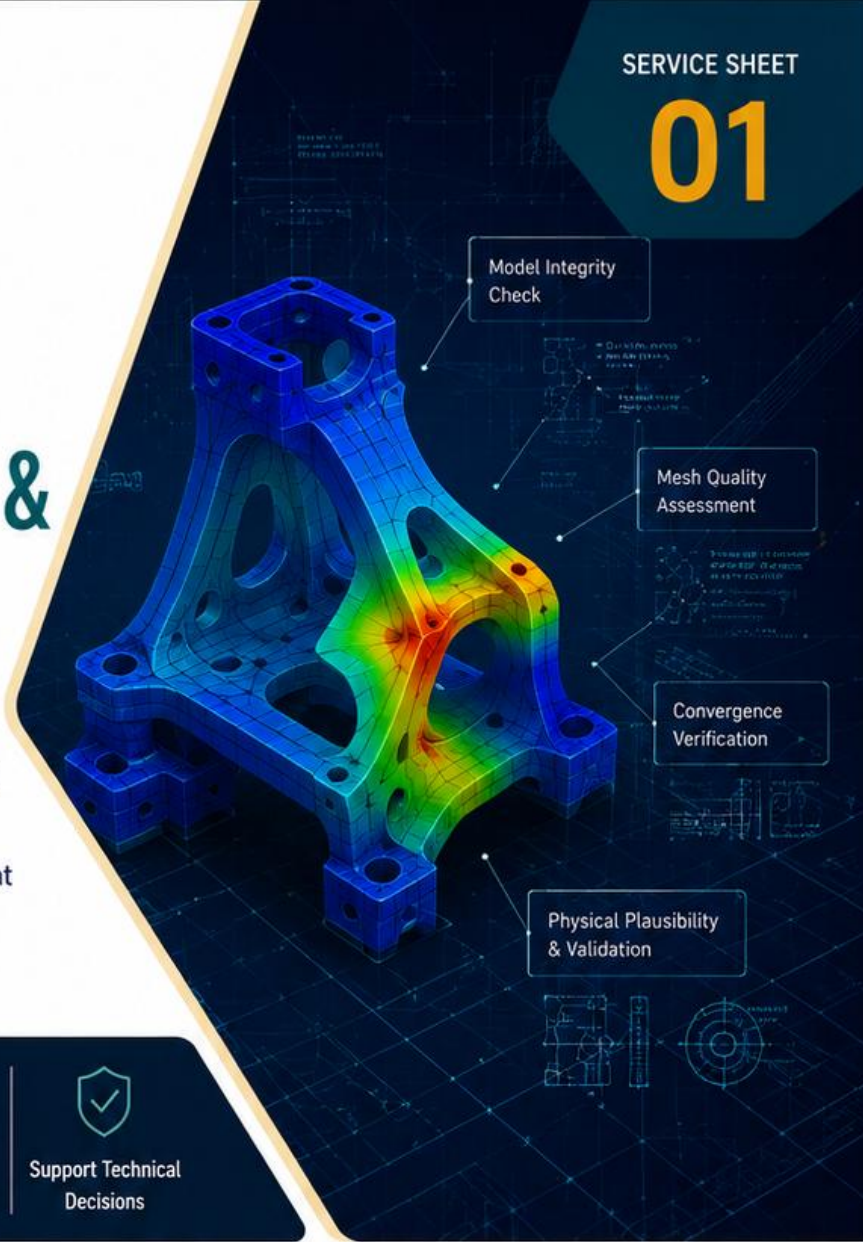




ENGINEERING SIMULATION AUDIT & MODEL REVIEW



Independent technical assessment of existing engineering models to identify physical, modelling, numerical and validation issues that may affect technical decisions.



Independent
Assessment



Identify Issues
& Risks



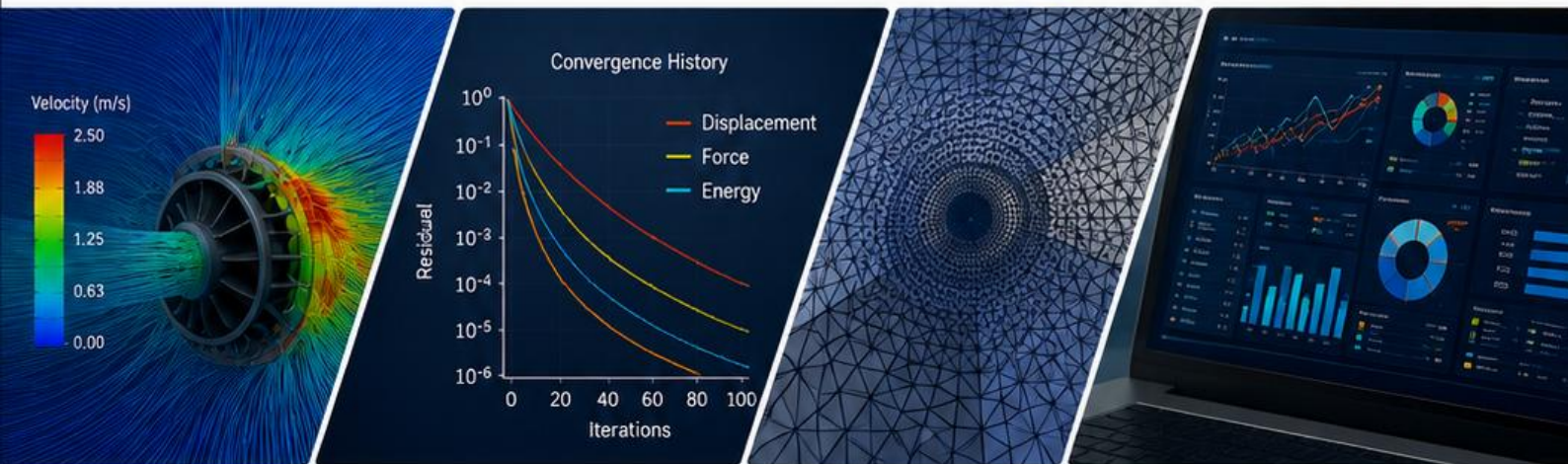
Corrective
Recommendations



Strengthen
Confidence



Support Technical
Decisions



TECHNICAL RIGOR

Engineering-first review focused on physical behaviour and numerical reliability.



PROPORTIONATE CHECKS

Quality controls scaled to project risk, complexity and intended use.



ACTIONABLE INSIGHTS

Clear findings and prioritized recommendations to address issues.



DECISION SUPPORT

Deliver confidence in your model before critical technical decisions.



CONFIDENTIAL & SECURE

Client data and models handled with strict confidentiality.



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Independent technical assessment of existing engineering models to identify physical, modelling, numerical and validation issues that may affect technical decisions.



WHEN THIS SERVICE IS NEEDED



Simulation results are unstable, inconsistent or difficult to explain.



Convergence, stability or solver behaviour raises technical concern.



Boundary conditions, loading, material definitions or modelling assumptions are uncertain.



Mesh/discretization choices or local refinement require independent assessment.

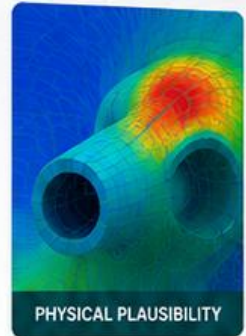
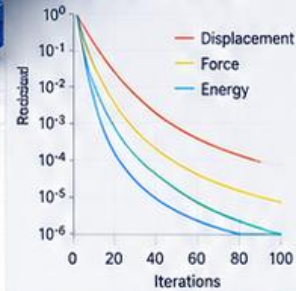


Verification, validation or sensitivity evidence is weak, incomplete or unavailable.



An existing model needs troubleshooting, correction planning or an independent second opinion.

CONVERGENCE CHECK



PHYSICAL PLAUSIBILITY



PHYSICAL
PLAUSIBILITY



NUMERICAL
ADEQUACY



VERIFICATION &
VALIDATION



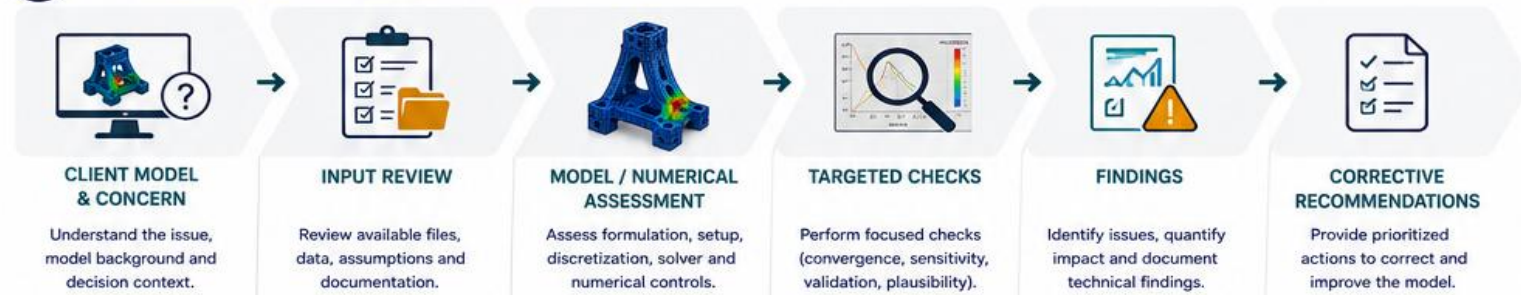
ACTIONABLE
INSIGHTS



WHAT WE ASSESS

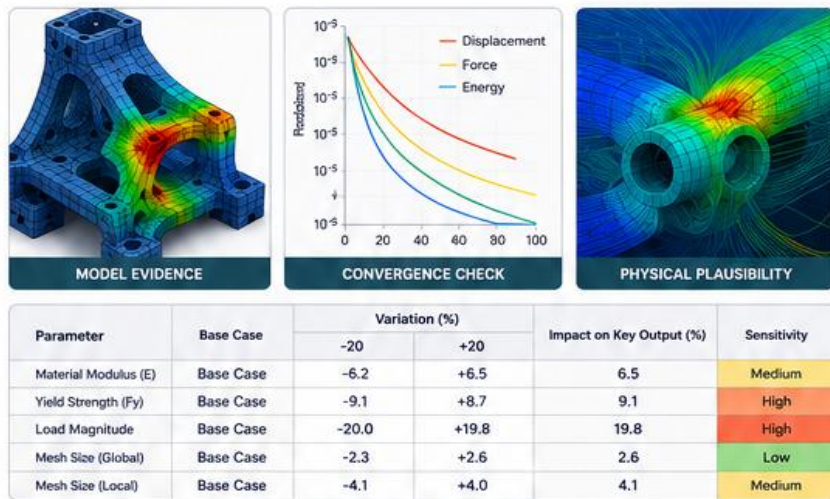
Review area	Technical focus
 Model formulation	Problem definition, dimensionality, assumptions, idealizations, governing formulation and consistency with the engineering question.
 Geometry & discretization	Geometry representation, mesh/discretization strategy, element or numerical resolution, and local refinement where applicable.
 Materials, loads & boundaries	Material and constitutive definitions, loading, constraints, interfaces, and initial/boundary conditions.
 Solver & numerical controls	Solver selection/settings, nonlinear controls, convergence behaviour, stabilization and overall numerical suitability.
 Results & interpretation	Physical plausibility, numerical artefacts, singularities, sensitivity, consistency with expected engineering behaviour and decision-relevant interpretation.
 Verification & validation	Available verification, convergence, benchmark, sensitivity and validation evidence where applicable and supported by the available data.

TYPICAL TECHNICAL WORKFLOW



TYPICAL DELIVERABLES

- Structured technical findings identifying relevant physical, modelling, numerical and validation issues.
- Prioritized corrective-action recommendations.
- Selected plots, tables or annotated model evidence supporting key findings.
- Concise technical audit report aligned with the agreed review scope.
- Limited rerun, correction or validation evidence only when explicitly included in scope.



SENSITIVITY / PARAMETRIC CHECK (EXAMPLE)

TECHNICAL QUALITY FOCUS

Control	What it means
Physical plausibility	Results are assessed against expected engineering behaviour, not accepted solely because a solver converged.
Numerical adequacy	Mesh/discretization, stability and convergence are reviewed at a level appropriate to the assignment.
Traceable assumptions	Key assumptions, limitations and evidence are made explicit.
Independent interpretation	Findings distinguish modelling weaknesses, numerical effects and engineering implications.

BEST SUITED FOR

Engineering companies, technical teams, consultants, research organizations and technical professionals with an existing FEA, CFD or other numerical model requiring troubleshooting, independent review or greater confidence before further analysis or engineering use.

TYPICAL CLIENT INPUTS

- Model/input files
- Geometry or CAD where relevant
- Material and constitutive data
- Loads and boundary conditions
- Solver settings
- Existing outputs
- Available benchmark/validation evidence
- Relevant technical documentation
- Specific concern or decision the review must support

SCOPE BOUNDARIES

- A standard audit focuses on independent assessment, technical findings and corrective recommendations; it does not automatically include full model redevelopment or extensive reruns.
- Additional cases, new validation work, model redevelopment or delivery of a revised final production model are separately scoped unless explicitly included.
- AriyaTech provides technical engineering review; regulated certification or licensed sign-off is outside scope unless separately and legally established.

RELEVANT TECHNICAL FOUNDATION

- Finite-element modelling (Linear / Nonlinear)
- Nonlinear structural response
- Fracture & fatigue assessment
- CFD & multiphysics analysis
- Model verification & validation
- Computational engineering review

AriyaTech draws on multidisciplinary experience in these areas. Selected technical evidence and case studies are presented separately where confidentiality and usage permissions allow.

START A TECHNICAL CONVERSATION

Share your model files, available results and the specific technical concern you want independently reviewed.

AriyaTech can assess the information and, where suitable, provide a clearly scoped technical proposal.

ENGINEERING-FIRST Focused on solving real engineering problems.	TECHNICALLY RIGOROUS Quality controls aligned with problem risk and complexity.	REPRODUCIBLE Transparent workflow and traceable technical evidence.	DECISION-RELEVANT Deliver insights that support confident technical decisions.
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