

Working document on Technique Validation and Qualification

1. Requirements for the Aerospace industry

- A robust method to demonstrate inspections are able to meet their objectives
- Allow for current practices (eg POD) and consider future methods (MAPOD)

2. Current documents

ENIQ (European Network for Inspection and Qualification)

European method for qualification of non-destructive testing

This document was developed by the nuclear industry specifically for in-service inspections.

However, it notes that it is applicable to other applications.

CEN European Committee for Standardisation

TR 14748 Non-destructive testing – Methodology for qualification of non-destructive tests

Developed from the ENIQ document for broader use.

3. Scope

ENIQ

- Where additional assurance of the NDT technique is required
- For novel NDT techniques

TR 14748

- Mostly follows ENIQ – use is described in both introduction and scope
- Should be used where a European Standard does not exist

Aero

- New technologies
- Existing methods applied to new applications or in a new environment.

4. Content of qualification method and evidence

- Technical Justification
- Practical trials (open and blind)
- A combination of the a technical justification and practical trials

A Pod study is a comprehensive blind trial. If this is achieved considering all essential parameters then only short technical justification is required.

5. Specific requirements for aero

- Multiple defect requirements for one method (ie composite inspection)
- Auto analysis
- Software

6. Implementation of TR 14748 for Aero

Requirement	Method of qualification
New technology	technical justification and blind trials
Applying an existing method to new application	combination of technical justification and practical trials
If human factors are need consideration	Blind trials should be used. However, in some circumstances HRA may be sufficient
Check NDT procedure sufficiently describes process	Blind trial
Check on influence of essential parameters	Open trial
POD study	Extended blind trial. Only minimal technical justification required.

See next page for a flow diagram showing qualification protocol.

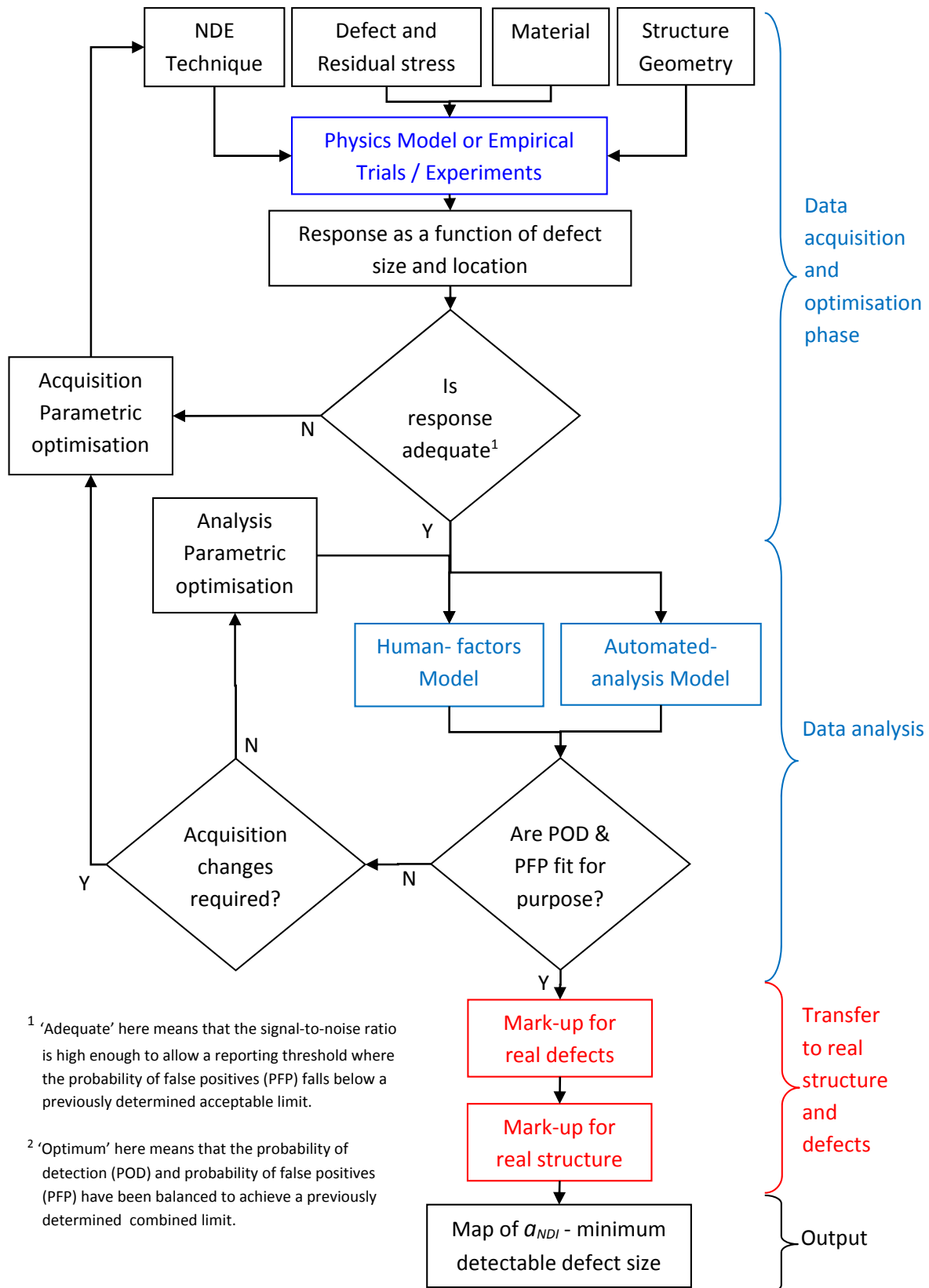


Figure 1- Proposed protocol for a model-based reliability study for a new NDT capability. This incorporates both the fully modelled approach (blue) and the transfer-function approach (red), which will have a different emphasis in each scenario.