DATA	SE	TS	&
PROC	ES	SIN	NG

MODELS

COMPUTATIONAL EFFICIENCY

RESEARCH THEME

SUPPORTING THE MAINTAINER

RESEARCH THEME 2

SUPPORT THE ENGINEER -MANAGING UNCERTAINTY

RESEARCH THEME 3

SUPPORT THE MANAGER -MAKING DECISIONS Company provided
e.g. work orders, inspection
and condition analysis
reports, operational and
safety data

representation
Natural language
processing
Image processing

Knowledge

Artificial intelligence

Reasoning rules
Ontology framework
Adaption and checking

Company provided e.g. sensor and operational data, physical models Expert elicitation
Distribution fitting
Parameter estimation
Bayesian modelling

Machine learning
GPUs
Statistical algorithms

Company provided e.g. cost, operational data, planning schedules, schematics Agent-based models

Dynamic simulation

Optimisation and scheduling

Resilience and risk models

Evolutionary algorithms

Parallel computing

Mathematical

programming

TRANSLATION THEMES

SOLUTIONS TO INCREASE MODEL USE BY DECISION MAKERS

GENERIC SOFTWARE ARCHITECTURE

TRAINING FOR INDUSTRY

PRODUCTS & SERVICES