

AFRY RAMS - Advanced lifecycle services (Reliability, Availability, Maintainability, and Safety)

**AVOID UNPLANNED DOWNTIME AND
UNEXPECTED PERFORMANCE COSTS
IN LOST REVENUE AND PROFIT**

- How to secure optimal life cycle cost of an investment
- Be prepared and manage sudden failures and related consequences
- Ensure collection of accurate data to enable efficient continuous improvement

CHALLENGES FOR THE INDUSTRY TODAY

The feasibility of investments and operations are ultimately based on the incoming cash flows. However, current investment approaches tend to minimise outgoing cash flows, but leave uncertainty to incoming flows.

Operators need to provide assurance that the installed equipment is reliable, safe and easy to maintain.

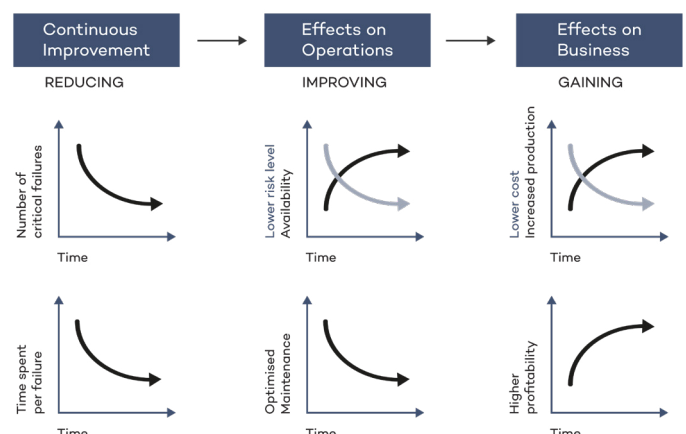
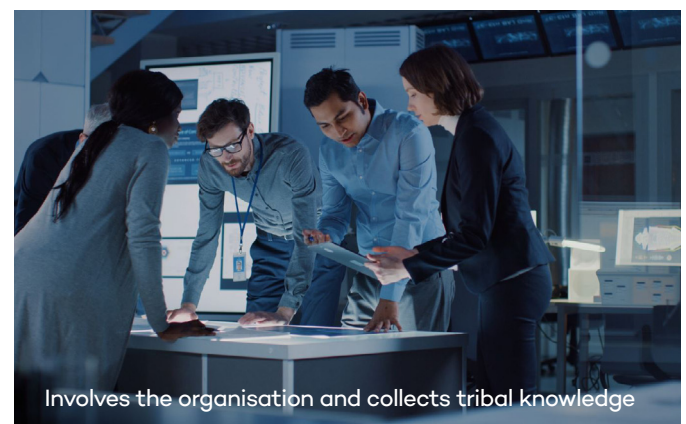
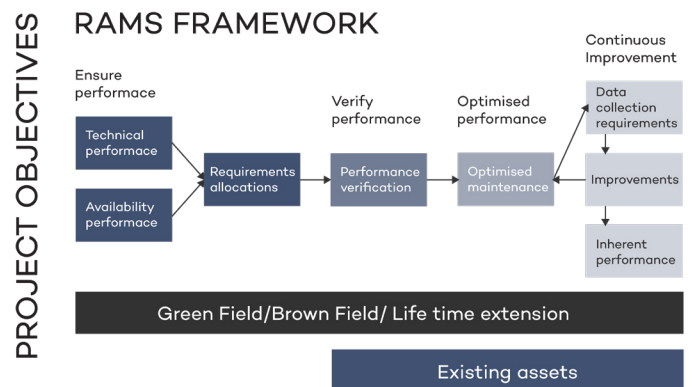
Suppliers need to prove that their products meet the required quality criteria, such as reliability and availability.

AFRY RAMS ENGINEERING ENHANCES AVAILABILITY AND SAFETY IN A COST-EFFECTIVE WAY

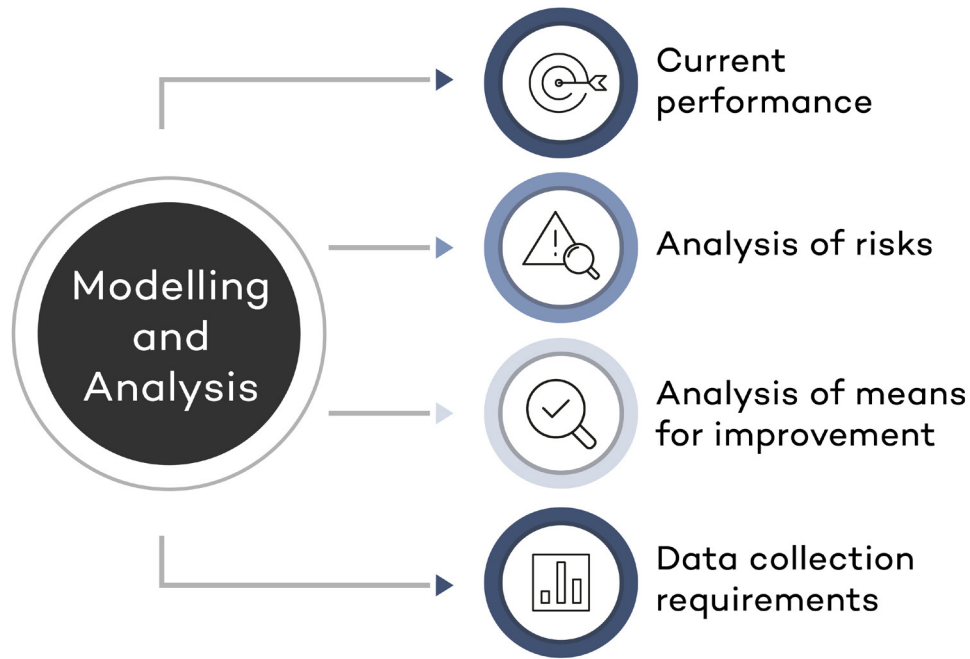
Availability matters – a major key element to operational excellence is availability. AFRY RAMS engineering combines reliability with maintainability to achieve optimal availability in order to maximise life and daily output.

Through AFRY RAMS analysis one can understand the risks related to operation through availability and safety, it reveals critical assets and enables an optimized maintenance service.

AFRY RAMS analysis focusses on the maintenance and design actions for the system improvement, and continuously improves the performance.



AFRY RAMS



RELIABILITY, AVAILABILITY, MAINTAINABILITY AND SAFETY (RAMS)

AFRY RAMS engineering enables informed decision making by providing explicit analysis of the impact of different design solutions and investment as a function of the following aspects:

- System price and life cycle costs;
- System RAMS performance and maintenance costs;
- System warranty period, terms, costs and risks

AFRY RAMS engineering improves safety and reduces Life Cycle Costs (LCC) of production and systems by increasing availability.

FEATURES AND BENEFITS

- Cause-consequence modelling
- Focusses on the critical assets, improvements and actions
- Analyses historical data with tribal knowledge
- Scenario analysis
- Transfers risks and improvements into money
- TOP-10 listings for most feasible improvements
- Better informed decisions
- Improved risk awareness
- Cost savings
- Improved customer satisfaction, sales and profit

WHY AFRY RAMS?

Did you know that more than 80% of a system's life cycle costs are determined before its commissioning?

Estimated profits form the basis for the whole investment and its viability. The following aspects are very often undervalued once the investment decision has been made:

- Project focuses on finding the solution to achieve the technical performance and there is no systematic approach to achieve the required availability of performance
- When doing investments, the link between CAPEX and OPEX is often weak

AFRY RAMS gives a holistically optimized solution combining all the above aspects.

The AFRY RAMS approach achieves cost-effective solutions over the life cycle of a production plant by optimizing production capacity at an acceptable risk level.

"The AFRY RAMS analysis saved us over EUR 1 million in backup power supply investment costs and EUR 200,000 in O&M costs."

- AFRY energy sector client, Scandinavia

We concentrate where it matters most. **The ultimate goal is to secure optimal production capacity with a minimum cost with an acceptable risk level in a cost efficient way.**

With RAMS engineering, it is a question of appreciation and willingness: do we want to assess risks related to the system availability, safety and life cycle costs and mitigate them to an acceptable level in advance, or do we react to them after they have happened?