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Would you like to reduce maintenance costs?

Main Topic

Achieving sustainable benefits with Predictive Maintenance

Predictive Maintenance:

- Maximises equipment uptime
- Reduces maintenance costs

Our advanced data analytics predicts when equipment failure is likely to occur before the event allowing you to perform maintenance before failure.

Rheinberry and Amgyda are experts spanning aerospace, transport, airports, technology and security and bring you a robust and powerful AI/ML (Artificial Intelligence/Machine Learning) platform.

AMYGDA

From requirements definition, technical assurance and service delivery to service design, platform customisation and technical support, you can rest assured we have it covered across the full life-cycle.

How can you avoid fear and uncertainty?

AI/ML based Predictive Maintenance is not intended to replace people.

Rather it focuses on providing the necessary information and intelligence you need to operate and allow your teams to become more effective.

- Maintain systems more efficiently
- Return financial benefits
- Improve customer experience and service.

Implementing AI/ML systems can be daunting if your organisation is unprepared.

This is where we can help you assure your teams are consulted and engaged, stakeholders informed and aligned, and benefits clearly described.

Your full organisation should have a stake in their subsequent success.

Our AI/ML Data Analytics and Predictive Maintenance solution:

- **Reduces** maintenance costs by **up to 30%**
- **Maximises** uptime
- **Improves** reliability, leading to improved safety

Contact us for a **free demonstration**, and ROI discussion - **info@rheinberry.com**

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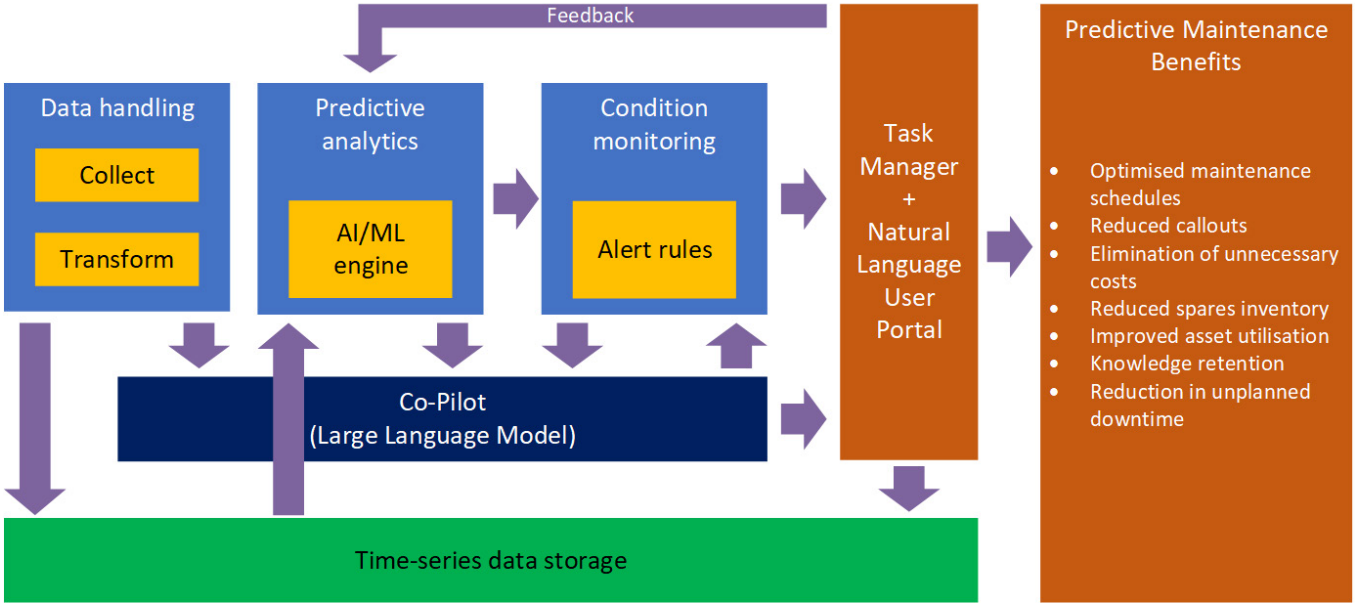
Data Analytics Leveraging AI, Machine Learning and Large Language Models

Artificial Intelligence and Machine Learning are core enablers for implementing effective predictive maintenance



Our Predictive Maintenance solution comprises two key components:

1) **The AI/ML engine** provides pattern recognition and anomaly detection together with continuous learning, consisting of:

- Data Handling schemes designed to collect, transform and store sensor data.
- Customised predictive analytics models to continuously assess and analyse the data in real-time.
- Business-rule based condition monitoring routines, trained to raise the right alerts at the right time.

2) **The "Co-Pilot" Large Language Model (LLM)** – a Generative AI tool built to:

- Ingest large volumes of textual data such as implementation, user and maintenance manuals, reports, and unformatted data from other systems and sources.
- A natural language user interface allowing access to all aspects of the service.

Example natural language conversation

Alert Generated

Alert: Lo ing oil pressure for Lubricating Oil system on car 200759
Description: The measured engine oil pressure is approaching the prescribed limit

User question

when is the maintenance due for this asset? Can I wait till then?

AI answer

The next maintenance is due in 21 days. Based on 6 previous S3 shutdowns, the RUL is 14 days.

You cannot wait until the next maintenance

User question

What are the potential causes for this

AI answer

The likely causes for this based on the spec are:

Low oil level
Clogged oil filter
Leaking oil pipes/connections
Oil contaminated with fuel
Sensor defect

Additional causes have also been recognised in the field as follows:

User question

what is the maintenance action for Oil Contaminated with Fuel

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Data Analytics and Predictive Maintenance

Use your data to deliver benefits to your organisation and customers

- Predictive maintenance encompasses the following:

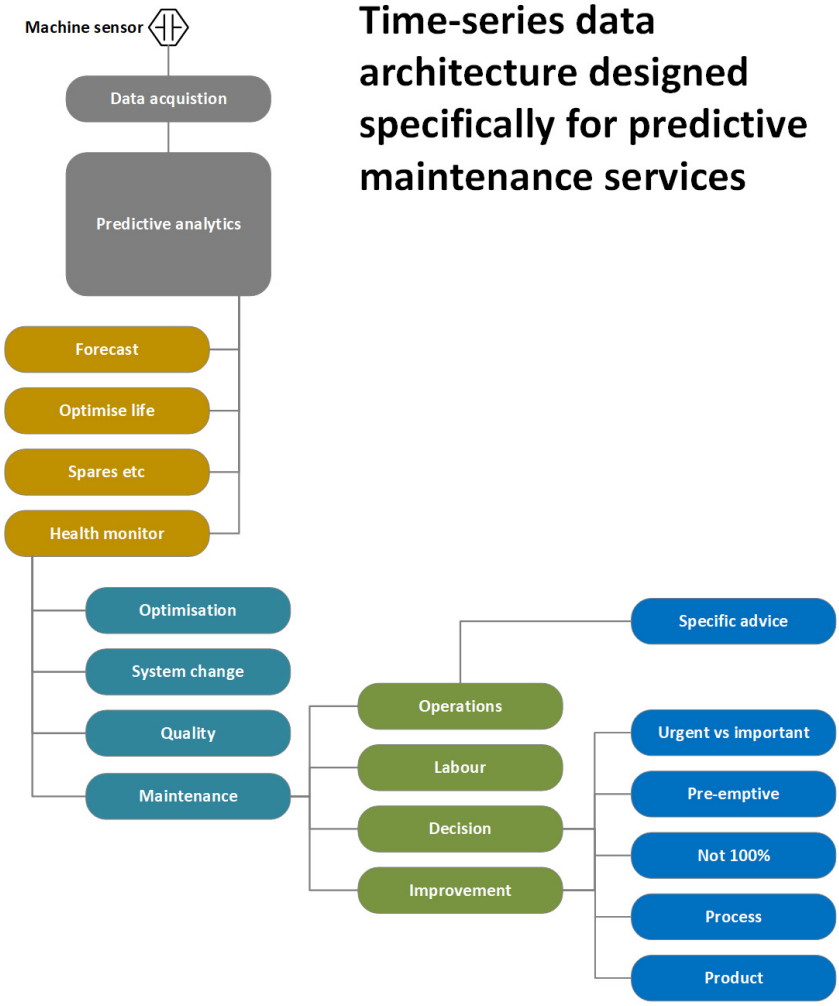
- **Data Acquisition and Analysis**:
  - Use data from multiple sources, such as sensors, to collect information about the condition of equipment. These sensors monitor parameters like temperature, vibration, pressure, and more.
  - The collected data is then analysed using techniques such as machine learning algorithms, statistical analysis, etc. These identify patterns or indicators that can predict when maintenance will be required.

- **Predictive Analytics**: Applying predictive analytics to the data analysis results enables forecasting, maintenance schedules and usage to be optimised.

- **Condition Monitoring**: Regular monitoring of equipment condition helps tracking its performance over time. This enables the identification of deviations from normal operating conditions, allowing for timely intervention before any major breakdowns or failures occur.

- **Reduced Downtime and Costs**: Identifying potential issues in advance, and schedule maintenance during planned downtime, reducing the impact on your operation, reduce costs associated with reactive maintenance and unplanned downtime.

Time-series data architecture designed specifically for predictive maintenance services



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Our low risk approach providing high returns

Our solution delivers real benefits

- Cost reductions
- Regain control of maintenance
- Reduced likelihood of faults and failure

Why Choose us?

Rheinberry's expertise spans both technical and business capabilities, enabling us to partner with you from inception through to delivery and continuous improvement.

Our partner for Data Analytics and Predictive Maintenance is Amygda.

Formed by ex-Rolls Royce engineers, Amygda's platform uses advanced AI/ML to identify trends in equipment behaviour and highlight when and what maintenance is required. Furthermore, the platform leverages a LLM to link near-real time engineering data with manuals, log files and other textual information to give your organisation deep insights into the health of your systems.

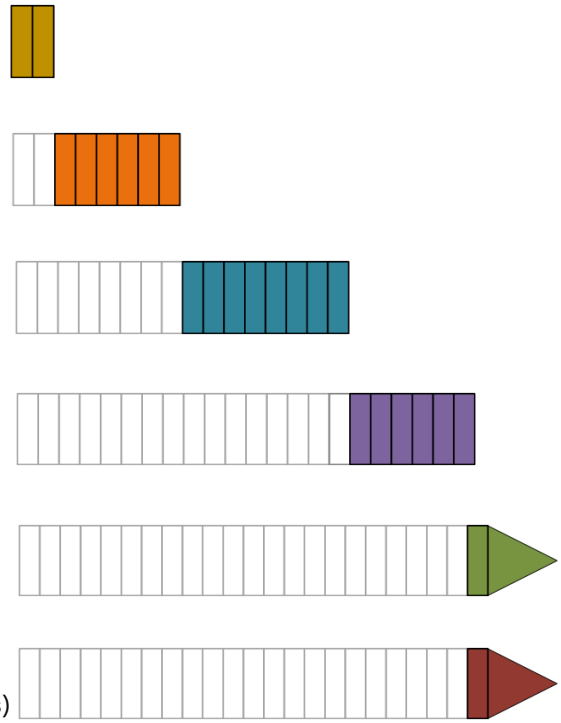
Our solution is already serving customers in the aerospace, rail and airport sectors.

Visit Rheinberry's website:
https://www.rheinberry.com/

Contact us for more information or to discuss a specific problem, request a free demo or book a deep dive session to investigate your ROI

Our implementation roadmap consists of 6 steps each of which provide you with an option to pause or opt-out at any stage:

1. Discovery/technology demonstrator (2 weeks)
2. Service Design (6 weeks)
3. Service Development (8 weeks)
4. Pilot/Test (6 weeks)
5. Rollout and continuous improvement (ongoing)
6. Ongoing AI governance and benefits tracking (Sustained process)



Predictive Maintenance can save up to 30% across a range of maintenance cost elements.

Contact us to learn more **info@rheinberry.com**