vidya

# Technology Portfolio

**APM** Asset Performance Management Applications Powered by **Artificial Intelligence**


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# INTRODUCTION

Industrial operations generate **extensive amounts of data**, requiring operators to have an overview of both real-time information, historical data, and planned work. With the information scattered across various applications, this can be hard to achieve.

Vidya transform industrial challenges into **Asset Performance Management applications** powered by **Artificial Intelligence** to deliver results that help industrial operators and managers worldwide in their daily routine of **operation, integrity management, and maintenance**, allowing them to:

- **Virtualize their jobs,**
- **Speed up their access to data and scenarios,**
- **Keep up with their business goals.**

## FIELDS OF ACTION

Oil and Gas

Mining

Steel Industries

Petrochemical

Manufacturing

Power and Utilities

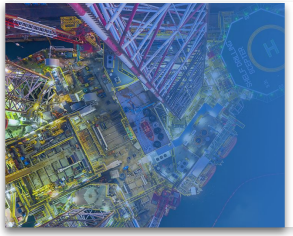
Pulp and Paper

Water Systems

# VIDYA APPLICATIONS

## DIGITAL FABRIC MAINTENANCE

For Oil and Gas platforms FPSO Topside



Solution for

- Corrosion
- Coating
- Temporary repairs
- Integrity maintenance
- Thermal insulation

## DIGITAL EQUIPMENT PERFORMANCE

For Critical equipments & Machines in general.

Solution for

- Predictive maintenance
- Log evaluation
- Equipment downtime
- Alarm management

## HULL INTEGRITY

Naval Digital Tracking | Digital Hull Tracking

Solution for

- Thickness loss
- Critical Areas
- Discontinuities
- Corrosion
- Pitting
- Welding

## DIGITAL STRUCTURAL INTEGRITY

For Mining Assets, Conveyor Belt, Shiploaders, and Wellhead platforms

Solution for

- Risk evaluation and Prioritization
- Integrity maintenance
- Asset downtime
- Corrosion
- Structural anomalies

# DIGITAL FABRIC MAINTENANCE

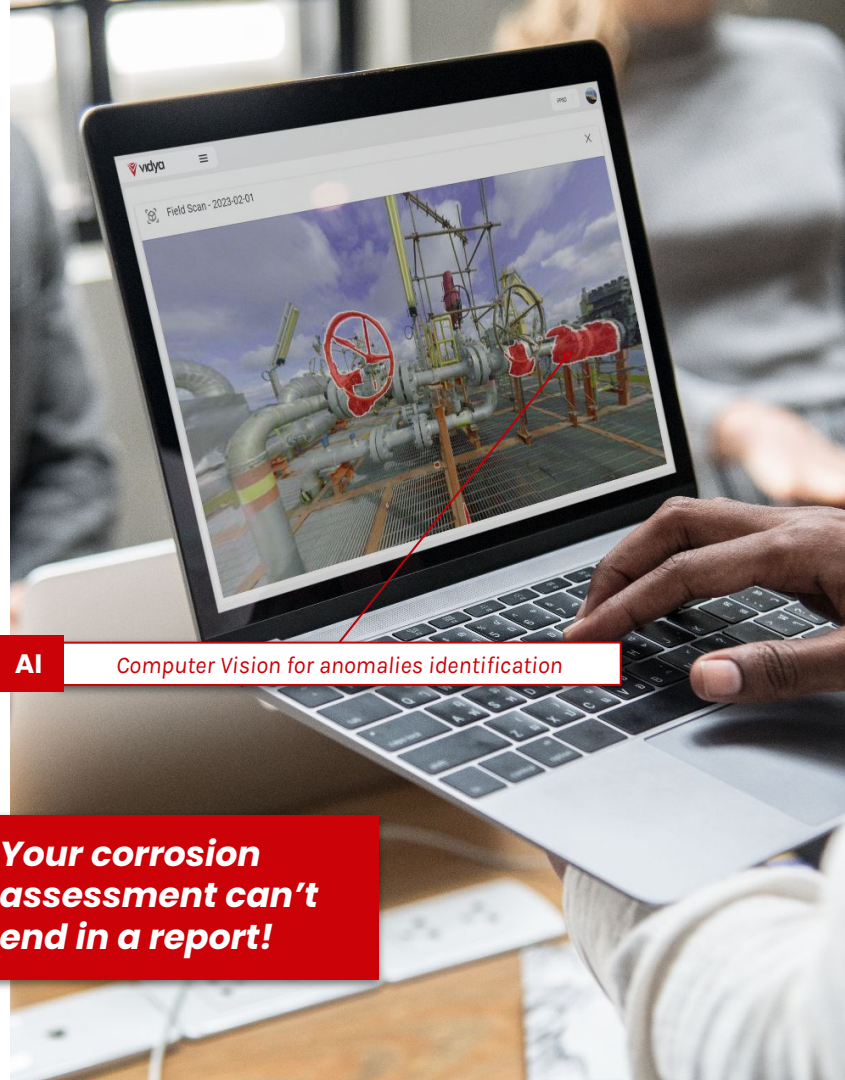
**Targeted Assets** Oil & Gas Platforms | FPSO Topside | Refineries

Inspection and maintenance planning is a long process which requires POB (People on Board) for field assessments, in which they are subjected to risks and accidents. Our DFM application reduces POB and solve industrial challenges such as the management of:

- **Corrosion**
- **Coating**
- **Paint Defects**
- **Integrity**
- **Maintenance**
- **Thermal insulation**

We identify the corrosion through a virtual assessment and transform your integrity and coating plan into work orders in your ERP or CMMS, as SAP, in **30 days**.

More than a report, it provides you a **traceable and auditable coating management process**, guaranteeing the control of the work carried by third parties, and the coating warranty time.



# DIGITAL FABRIC MAINTENANCE

## How we deliver it?

### Dashboard & Reports for your company including:

- Critical corrosion points mapped and classified
- Coating plan with components, areas, locations and priorizations
- Integrity notes generation on SAP or other CMMS systems
- Outputs for the maintenance plan and work orders

## RESULTS

Context: **FPSO – Topside – 180,000m² – 10 years old**

**456% ROI**

Return on Investment in a 3-year campaign

**6 days**

Number of days to perform corrosion assessment on field

**254%**

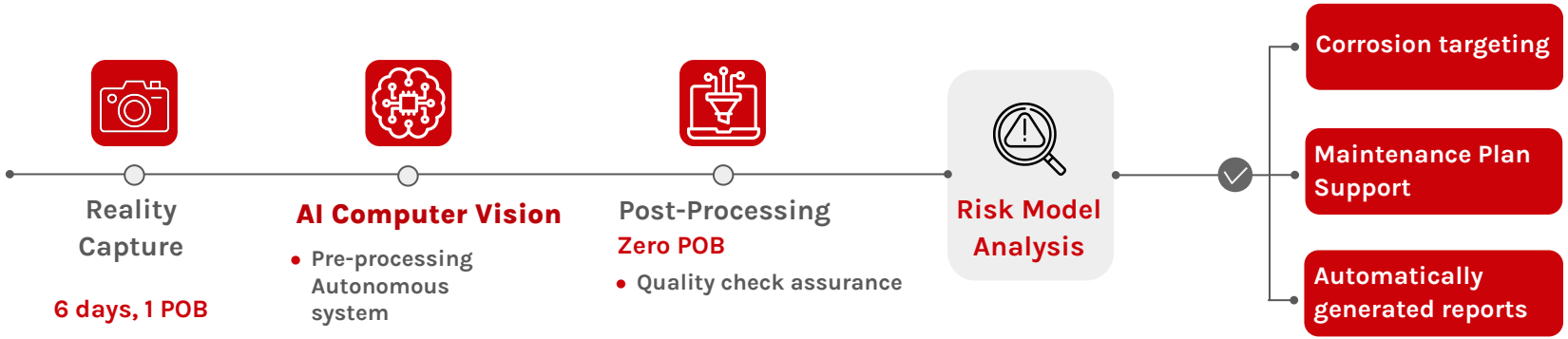
More corrosion and anomalies detected than the usual approach

**91 days**

Average of POB days saved per FPSO inspection integrity campaign

# DIGITAL FABRIC MAINTENANCE

## Application Workflow




**In just 6 days,** the Vidya team perform the reality capture, which is follow by processing the images using AI Computer Vision. This comprehensive process includes **corrosion assessment** and data processing, resulting in accurate information, interactive dashboards, and detailed integrity notes for **precise maintenance planning.**

# DIGITAL EQUIPMENT PERFORMANCE

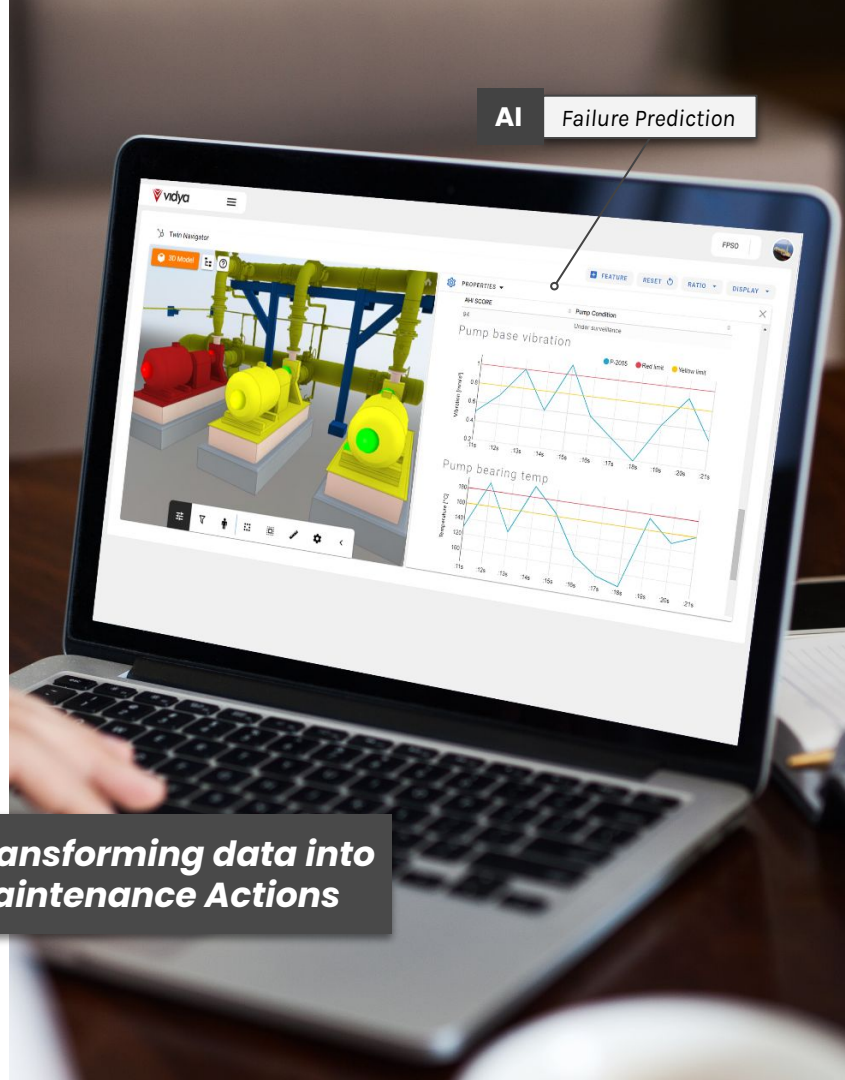
**Targeted Assets** › Critical Equipments & Machines

Extensive technical data is generated from industrial equipments. However, it can be hard to cross them to have a predictive maintenance, often requiring human interventions to complete the data cycle. The solution address to this challenge and others, as well as to:

- **Equipment Downtime**
- **Diffused Data**
- **Unexpected failures**
- **Maintenance**

Vidya technology maps, analyzes, treats and correlates the data you already have through Artificial Intelligence, with no additional hardware to create failure prediction alerts.

The solution **reduces the maintenance window,** and creates Work Orders directly to the company's ERP, delivering an end-to-end solution that is updated as soon as the maintenance is complete.



# DIGITAL EQUIPMENT PERFORMANCE

## How we deliver it?

### Visual dashboard for your company including:

- Alert Management system
- Operation Analytics
- Graphs with failure prediction
- Work orders generated on the ERP

## RESULTS

Context: **Drillship - Subsea Blowout Preventer**

**75%**

Less time to find information on the equipment

**4 systems in 1**

Visual integration of alerts, maintenance, documents and material management

**In-Between Wells**

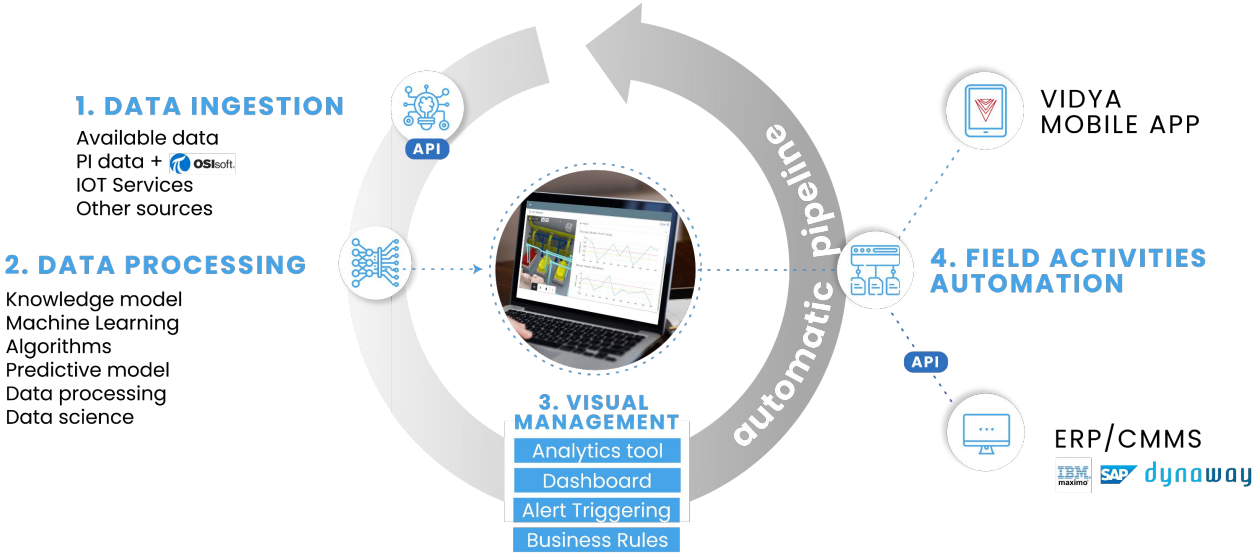
Application done on the in-between wells

# DIGITAL EQUIPMENT PERFORMANCE

## Application Workflow

The application contextualizes the equipment's data on the platform (such as PI data, historical data, maintenance notes and other parameters). It uses **machine learning** and other predictive models to predict failures, **identify malfunctions, and improve equipment performance.**

The result is a **customizable visual management system** with dashboards, alerts, and analytics. It integrates with the company's ERP/CMMS and have mobile support for field activities. This framework acts as an **automated pipeline,** continuously incorporating new data to reduce downtime and improve equipment efficiency.



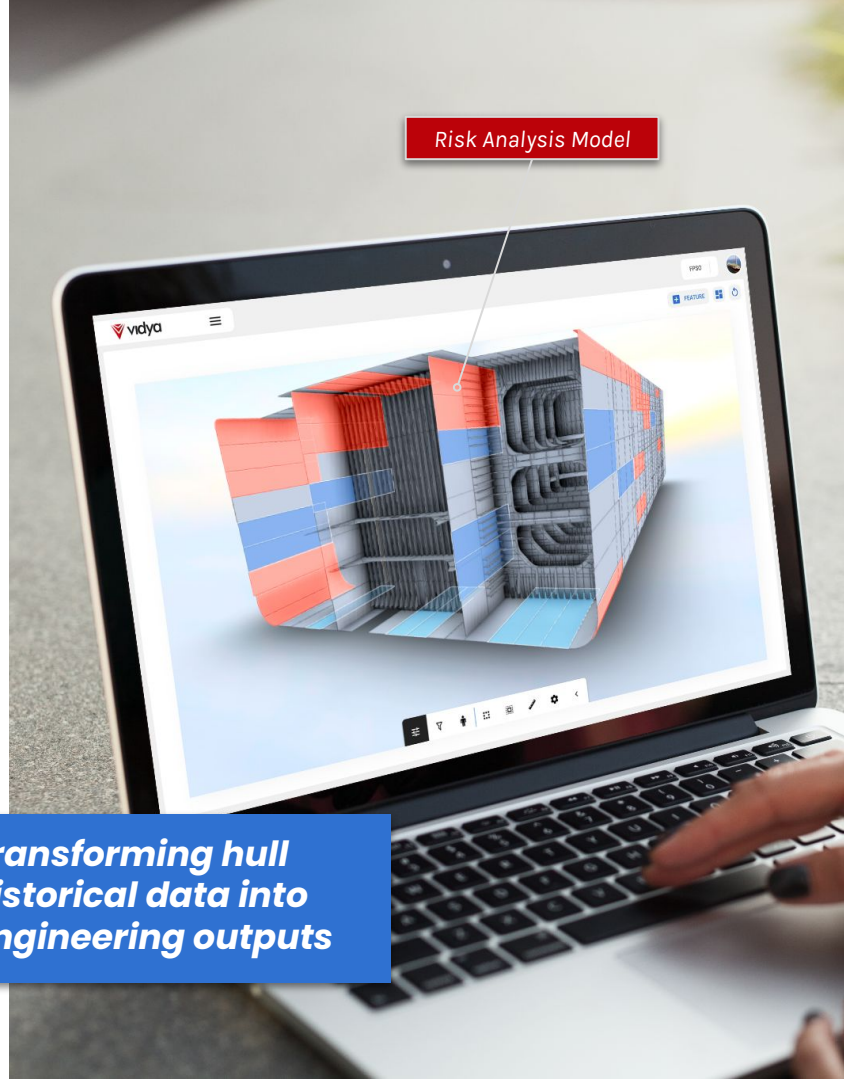
# NAVAL DIGITAL TRACKING

**Targeted Assets** FPSO - Tanks

Inadequate hull or tank integrity management can result in unplanned vessel repairs, oil leaks, penalties, and in the worst cases, major accidents due to structural failures. In this context the application addresses:

- Thickness Loss
- Structural Evaluation
- Temporary repairs
- HSE risks
- Critical areas

The solution offers a more accurate activity planning to ensure the structural integrity of the internal hull by contextualizing historical integrity data on measurement points, delivering the necessary results for the engineer analysis, inspection plans, and support for both maintenance actions and for the class society evaluation.




***Transforming hull historical data into engineering outputs***

# NAVAL DIGITAL TRACKING

## How we deliver it?

### Visual dashboard for your company including:

- Visual models for identifying critical areas for integrity
- Mobile App for field inspections
- Analysis model for thickness loss and/or corrosion
- Inspection plans
- Support for the engineering and the structural integrity team

## RESULTS

Context: **FPSO – Tank – 46 years old**

**5,500**

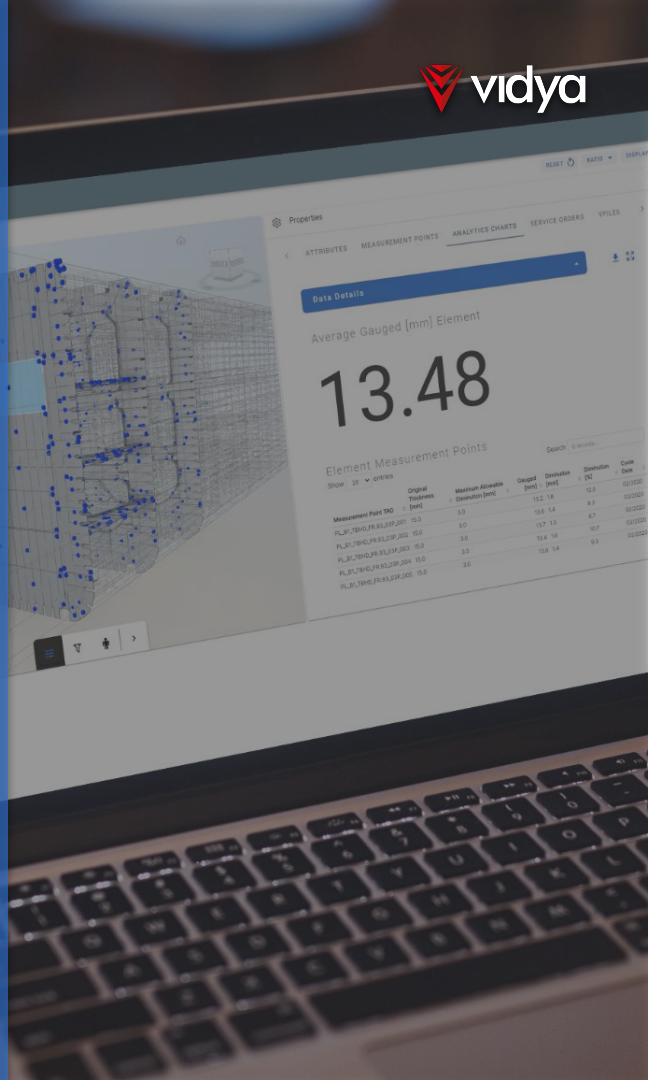
Pages processed with OCR (Optical Character Recognition)

**66,400**

Measurement points mapped

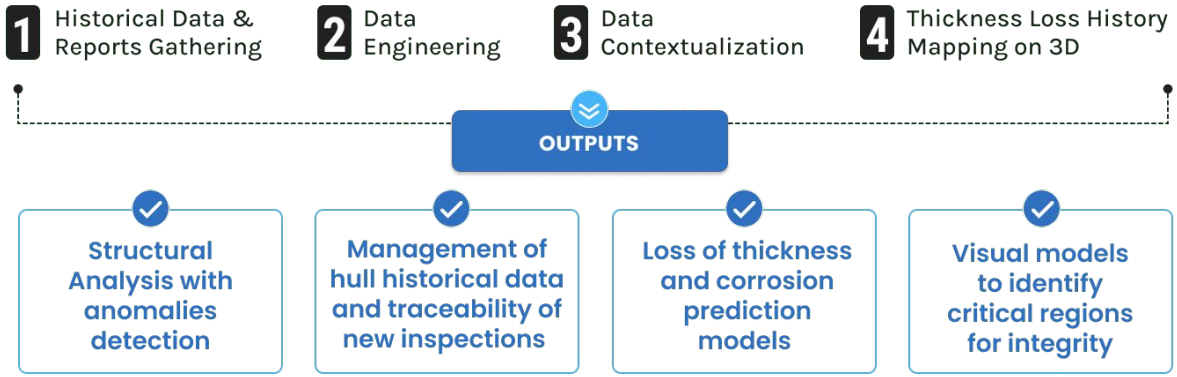
**60 PDFs**

Documents processed



# NAVAL DIGITAL TRACKING

## Application Workflow




The application **contextualizes historical integrity data** (such as thickness measurement, temporary repair history, measurements in critical areas, among others) **in a 3D environment.**
In this way, the solution enables the **optimization and/or automation of integrity inspections** and maintenance plans, supporting engineers in their role of interacting with the Classification Society of the unit, and delivering it in **60 days or less.**

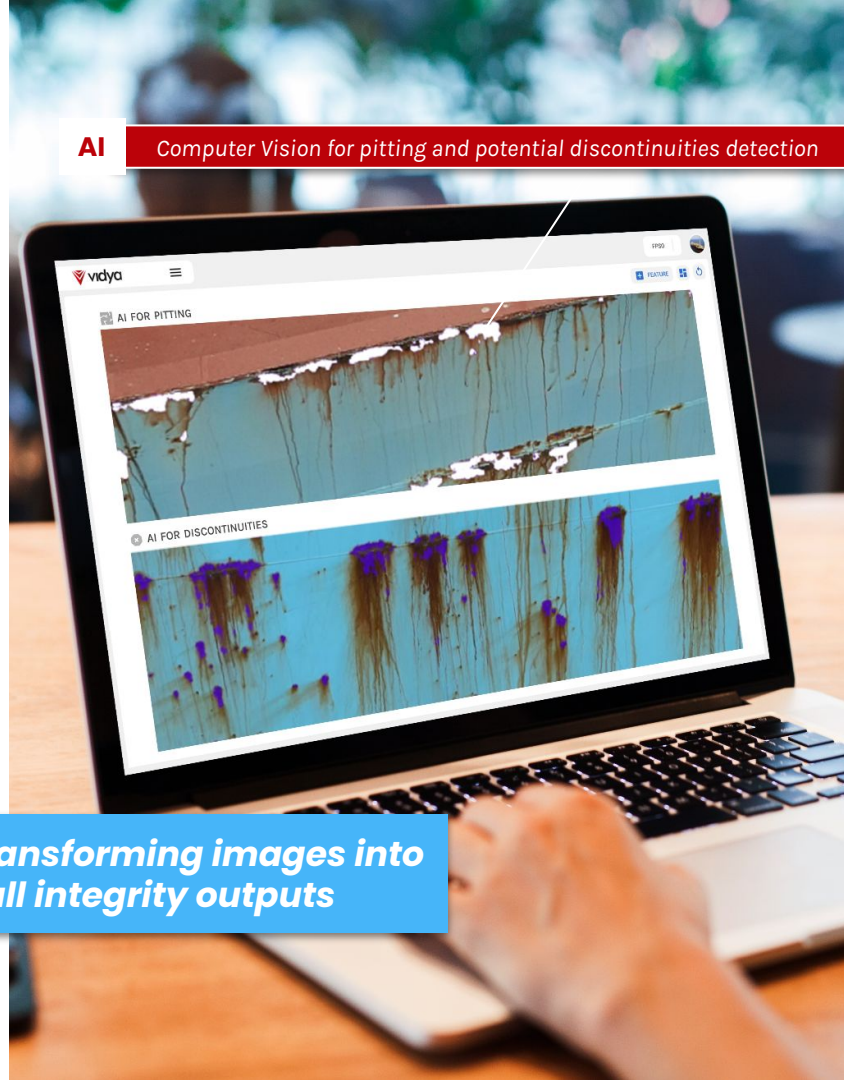
# DIGITAL HULL TRACKING

**Targeted Assets** FPSO - External Hull

FPSOs are constantly exposed to harsh environmental conditions, where mechanical stress, impacts, or structural fatigue increase the susceptibility to corrosion, as well as heighten its vulnerability to deterioration over time. Some of the challenges to guaranteeing their structural integrity are:

- Discontinuities
- Pitting
- Corrosion
- Welding
- Coating

More than just mapping anomalies, the solution reduces POB in inspection phase, enhance control over temporary repairs, and monitor the evolution of structural degradation over time.



# DIGITAL HULL TRACKING

## How we deliver it?

### Visual dashboard & Reports for your company addressing:

- Potential discontinuities, pitting and critical corrosion points mapped and classified
- Integrity notes generation on SAP or other CMMS systems
- Results based on inspection standards, such as the *Hull Inspection Grading Manual*

ABS

## RESULTS

Context: **FPSO – External Hull – 30,000m² – 15 years old**

**90%**

Less rope access for integrity assessment

**90%**

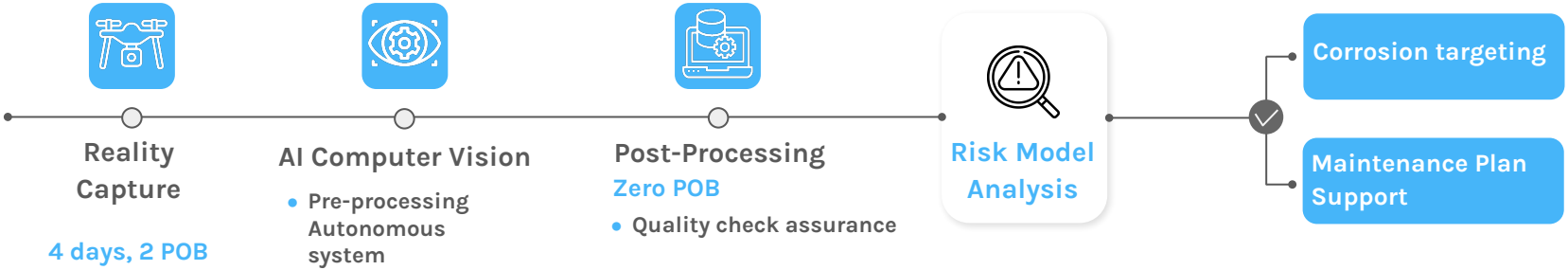
Precision of AI for Hull Anomaly Detection

**HSE+**

Positive impact on Health, Safety and Environment

# DIGITAL HULL TRACKING

## Application Workflow




The solution combines reality capture via drone images in a 3D environment with Artificial Intelligence to **view, locate, classify and quantify potential discontinuities, pitting and critical corrosion points.**

As a result, the application provides a digital and visual management system for hull inspection, with anomalies mapped and classified with maintenance action support and generating integrity notations **in 20 days.**

# DIGITAL STRUCTURAL INTEGRITY

**Targeted Assets** Mining assets, Conveyor Belt, Shiploaders, and Wellhead platforms

Industrial managers need to deal with complex, intensive and risk-prone operations with many issues including continuous machine repair, aging equipment, safety and environment concerns. The challenges include:

- **Corrosion**
- **Integrity**
- **Coating**
- **Maintenance**

By leveraging risk assessment, prioritization, and degradation acceptance, the solution employs **Machine Vision** to convert images into vital structural outputs. This reduces downtime and maintenance costs, while enhances HSE (Health, Safety and Environment).

# DIGITAL STRUCTURAL INTEGRITY

## How we deliver it?

### Visual dashboard & Reports for your company including:

- Risk evaluation and prioritization on structural integrity
- Risk matrix information, information regarding risk levels, costs, and maintenance executing planning.
- Budget forecasting based on the degradation level of acceptance
- Heatmaps

## RESULTS

Context: **Mining - Conveyor Belt**

**42%**

Reduction on the time and resources to plan maintenance actions

**US$1,000,000**

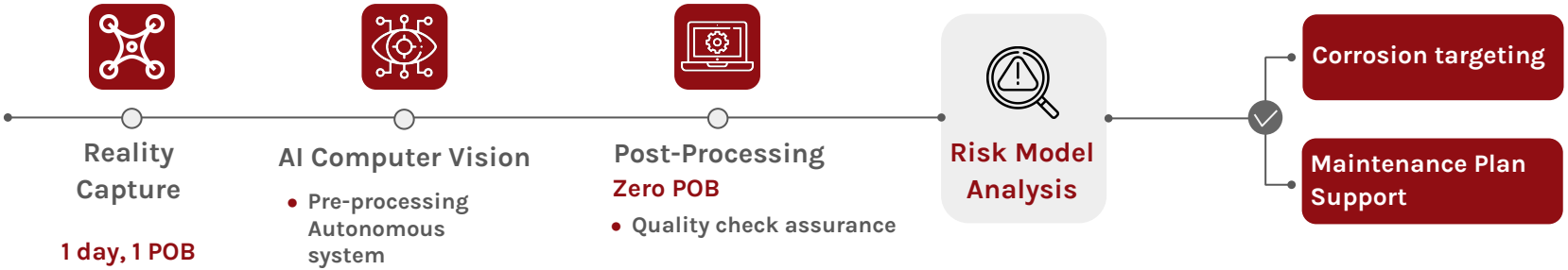
Saved by reducing planned and unplanned downtime

**86%**

Reduction of People on FIeld for inspection activities

# DIGITAL STRUCTURAL INTEGRITY

## Application Workflow




**In just 1 day on field for mining assets,** the Vidya team perform the reality capture, which is follow by processing the images using Computer Vision, which analyzes, marks, and identifies structural anomalies and corrosion while strictly **adhering to the company's visual inspection standards**, such as ISO 4628-3.

Thus, the application reduce up to **86% the number of people on field for inspection activities**, and provide more control over the structural integrity management, reducing unplanned downtime, and **improving the HSE** of the company **in only 30 days.**

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# Who we are

*Beyond Digital Solutions, delivering Performance Results*

# ABOUT VIDYA

Vidya was created in 2013 on the COPPE/UFRJ incubator, with the goal to **make industrial operations more safe, efficient, clean, and sustainable.** For this purpose, we've developed **AI-Driven Asset Performance Management solutions** in order to make the work of managers and operators as remotely, interoperable, and data-driven as possible.

## Internationally Awarded

> Vidya Technology is a **reference regarding on corrosion management.** They have been providing some technical solutions including management softwares and devices development. Their expertise in corrosion solutions for oil and gas industry is perfectly proved.
>
> PETROBRAS

> The opportunities and potential offered by the Management System from Vidya **stand out for presenting a market differential** where management gains significant added value through the provided tools, which are **seamlessly integrated with the planning process.**
>
> MODEC

Trusted by

# Schedule a Demo

Thank you for taking the time to learn more about us. We would now like to reciprocate and learn more about you.

In a meeting we would like to:

- **Acknowledge your prime concerns** and the initiatives your doing to solve them;
- Present the application of your interest and **show the results achieved in other cases;**
- Identify how we can **help you solve your challenges.**

**Click here to schedule a meeting**

## Other contents you might like:



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