WHERE MAINTENANCE GOES WRONG & HOW OPERATORS ARE FIXING IT

Ahead of speaking at StocExpo, the experts at Samp explore why preparation, not execution, is driving cost, risk, and rework in tank terminals

> IN THE tank storage industry, maintenance failures rarely happen because someone used the wrong tool or ignored a procedure. Far more often, they happen because the work was poorly prepared. By the time technicians arrive on site, key decisions are already fixed: access routes are defined, equipment is ordered, contractors are mobilised, and safety assumptions are locked in. When something goes wrong at that stage, it is usually too late to fix cheaply or safely.

As many operators now recognise, maintenance problems are created in the preparation, not execution. This shift in thinking is driving a new approach to maintenance planning, one that focuses on removing uncertainty long before work begins.

At this year's StocExpo, Samp and Smart Asset Integrity Solutions (Smart AIS) are showcasing how Shared Reality, a data-driven approach shaped by oil and gas industry experience, is transforming maintenance workflows.

THE REAL COST OF POOR PREPARATION

Ask any maintenance or site manager where time and money are lost, and the answers are remarkably consistent:
- Too many site visits just to take measurements or photos
- Contractors arriving without a clear understanding of the site
- Late discovery of access or clearance constraints
- HSE reviews triggering last-minute changes
- Rework caused by assumptions that did not hold up in the field

Individually, these issues seem manageable. Collectively, they add up to a significant cost. Many operators estimate that preparation-related inefficiencies account for around 15 % of maintenance spend, driven by extra contractor time,

repeated visits, and poorly scoped work. The root cause is not lack of effort. It is lack of shared context.

FROM DOCUMENTS TO REALITY

Most maintenance preparation still relies on drawings, P&IDs, inspection reports, and emails. Each source has value, but none shows how everything fits together on the actual site. More importantly, none reflects the facility as it truly exists today.

Samp's Shared Reality changes this equation by starting with reality capture. Using 3D scanning technologies such as SLAM, combined with drone photogrammetry for tank roofs and hard-to-reach areas, terminals are captured as they really are. Smartphone photogrammetry enables targeted updates after inspections or modifications. The result is not a heavy CAD model, but a practical, 3D visual representation of the site, accessible through a web browser and easy to share.

MAKING INFORMATION USABLE

A 3D scan alone is not enough. What matters is how information is connected to it. Shared Reality applies AI-assisted
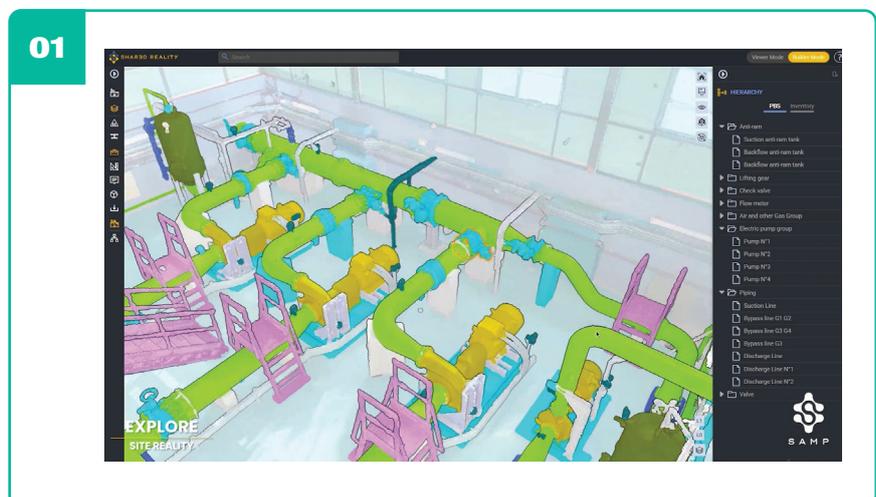
recognition to identify and structure assets such as pipelines, valves, pumps, and equipment. These assets can then be linked by users to existing data sources, including P&IDs and asset management systems, through AI-guided workflows.

Instead of searching through documents, teams click directly on the asset and see relevant information in context. The site itself becomes the interface. This shift removes much of the interpretation work that typically leads to errors and misalignment.
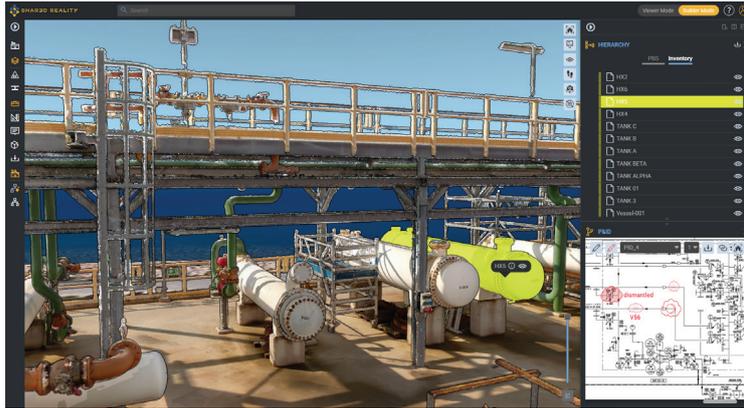
INSPECTION 2.0: DATA THAT DRIVES DECISIONS

Inspection results traditionally arrive as reports that require careful reading and debate. Context is missing, severity is discussed, and access constraints are often overlooked. With Shared Reality, inspection findings from Smart AIS are integrated directly into the digital environment.

Using a digital inspection application, inspectors record findings that are associated with the correct physical assets. Issues are reviewed where they

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begins. By grounding preparation in a shared, visual reality, operators are fixing maintenance where it really goes wrong, long before anyone steps on site.

For more information:
Join Samp and Smart AIS at StocExpo on 10 & 11 March (Stand N13) at the Rotterdam Ahoy to see how Shared Reality can redefine your maintenance excellence.

Scan the QR code for more information

samp.ai   **smart-ais.eu**

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01 Shared Reality digital twin interface

02 Shared Reality, Use-case illustration visualisation

03 Shared Reality digital twin interface, work preparation

occur, not on paper. Maintenance teams immediately see location, accessibility, and potential impact, making it easier to prioritise actions and plan work effectively. This is not about automating decisions, but about providing teams with the tools to make better ones, earlier.

PREPARING WORK WITHOUT STEPPING ON SITE
The biggest change comes when preparing interventions. A common task like replacing a pump traditionally requires multiple site visits to confirm dimensions, access routes, lifting options, and safety constraints. Each visit adds cost, time, and exposure.

With Shared Reality, much of this preparation happens remotely. Contractors and internal teams access the same visual environment, supporting the goal of zero surprises on site. Replacement equipment can be positioned virtually to check fit and clearance. ATEX zones, buried networks, and exclusion areas are visible in context. HSE reviews happen earlier, with fewer last-minute changes.

FIXING MAINTENANCE WHERE IT STARTS
Maintenance excellence does not come from working harder on site. It comes from removing uncertainty before work

REAL-WORLD SUCCESS: WHAT OPERATORS ARE SEEING

Across tank terminals and similar facilities, operators report consistent outcomes:
- Fewer preparatory site visits, often eliminating one or more visits per job
- Better scoped work packages with fewer late changes
- Faster alignment between maintenance, HSE, and contractors
- Reduced rework and more predictable execution

A compelling example comes from Elengy, an LNG terminal operator in Montoir-de-Bretagne, France. Facing the complexity of major modernisation and decarbonisation projects, Elengy implemented Shared Reality to bridge the gap between legacy assets and digital information. In less than six months, the entire site was scanned, and thousands of assets were linked to technical information. The reliability team used the platform to correct thousands of P&ID inconsistencies, eliminating uncertainty during technical discussions. Tasks like venting or purging gas circuits, previously managed on paper, are now coordinated directly in the platform, enhancing site safety. This success has led Elengy to extend the rollout to its Fos Cavaou terminal. Similarly, at a treatment plant in the Rotterdam industrial area, Smart AIS enabled the early detection of incipient corrosion

in a hard-to-reach spot. Because the anomaly was instantly visible in the digital twin and linked to the maintenance history, the team acted swiftly to prevent a costly breakdown. Other industry leaders report similar gains. Trapil, an oil pipelines & tank farms operator achieved a 20% reduction in staff travel, and natural gas storage operator, Storengy, reported engineering studies becoming 15% faster.

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