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A New Era: Digitalized Field Reporting Rules the Day

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Introduction

Conducting effective and accurate inspections of plant assets is a crucial task for inspectors and inspection management, but issues with traditional inspection execution and reporting processes can add to the challenges these personnel face. Relying on paper-based scheduling and inspection reporting can result in inefficient nondestructive testing (NDT) inspection work processes, miscommunication with related trade support (such as scaffolding, insulation, and surface preparation), project delays, and inconsistent quality of mechanical integrity (MI) data.

Solutions now exist to shift MI programs away from traditional inspection and reporting methods to digital, paper-free techniques. Solutions like field service management (FSM) platforms give inspection professionals the opportunity to transform their inspection processes and enhance the quality and effectiveness of plant operations.

In 2021, as industries and companies across the world are searching for opportunities to digitally transform their operations to increase their efficiency and productivity, facilities can utilize a forward-thinking, modern solution to unlock their plant's highest potential.

Common Traditional Inspection Process Pain Points

Traditional, paper-based inspection programs have a slew of pain points that make the entire process a challenge. Planning and scheduling work while balancing compliance due dates with the location of assets in relation to each other can be difficult and often overlooked. Dispatching work to inspectors already in the field can be challenging and inefficient as work requests and supporting documentation must either be hand-delivered to the field or the inspector must return to the office to retrieve work packages.

Following field execution, data, reports, and isometric drawing redlines can take significant time to be delivered and reviewed, and field data verification efforts can further delay project deliverables. Inspection results are typically hand-written on paper in the field with varying form templates and terminology, which introduces inconsistencies and inaccuracies that may lead to data and report quality issues. There is also a resounding lack of visibility while working remotely, which can make it difficult for inspection managers to gain the insights needed to drive important business decisions.

How Digitalized Field Reporting Works

Digital reporting streamlines the process of coordinating field execution processes, as well as collecting and inputting inspection data into the system of record.



Figure 1. Digitalized FSM platforms allow data to be reported faster and more accurately compared to traditional, paper-based reporting.

Through a digital reporting platform, inspectors in the field capture all relevant NDT data through cloud-connected mobile devices, rather than paper-based reports, as is commonly found in the downstream refining industry. Inspectors have access to all relevant data on their mobile devices (e.g., isometric drawings, weld maps, piping & instrumentation diagrams (P&IDs), UIs, pipe schedules, inspection histories, etc.), providing them essential contextual information on the assets they're inspecting.

All data, photos, and document annotations that are collected in the field are dynamically sent to the plant's inspection database management system (IDMS) removing the need and hassles associated with manual data entry. This greatly increases transparency of important data points for inspection managers, and enables them to review inspection results in real-time, rather than days or potentially weeks later, even if they are off-site.

Benefits of Digitalized Field Reporting: Consistency, Visibility, Timeliness

Mobile, cloud-based FSM-reporting platforms enhance inspection processes and offer benefits beyond streamlined field execution. Digitalized operations enhance a team's overall performance, from daily tasks to plant-wide oversight, positively impacting not just inspectors and inspection managers, but also maintenance and reliability personnel, engineers, and plant management.

Having access to a real-time key performance indicator (KPI) dashboard is a key benefit of receiving data immediately as inspections occur in the field. Because this KPI dashboard is accessible from the web, management personnel can access data in real-time no matter their physical location.

Having immediate access to relevant documentation, drawings, and diagrams is a huge benefit of a digitalized system. With traditional reporting, documentation can be scattered and



Figure 2. Through digital FSM platforms, inspectors can have access to all relevant data on their mobile devices.

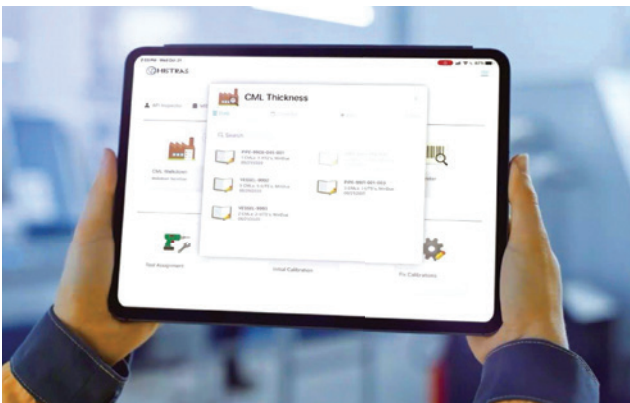


Figure 3. Digitalized platforms streamline pre- and post-inspection work processes.

spread across different locations. Digital platforms centralize and organize all files, decreasing stress and time spent searching for documents.

Digital reporting reduces or eliminates paper from inspection processes in plants. This greatly increases the quality of reports, eliminates the need for handwriting in the field, and prevents the loss of reports by making them accessible via a web portal. By eliminating the physical, paper element of reporting, data is free to appear on the web portal instantly, rather than days or weeks later when an inspector finds time to input the data manually. Because information is more readily available to the owner-operator, any necessary field validation work can be dispatched for execution more quickly, reducing the overall report cycle time.

Digital operations also streamline the pre- and post-inspection work processes of third-party blasters, insulators, painters, and scaffolders with digital planning, automatic handoffs, and task status tracking. Digitalizing trade support coordination helps to avoid a domino effect of project delays and miscommunications. The centralized web portal offers full insight into trade support activities, inspection accessibility requirements, and project statuses.

When performing inspection work, safety is the most important aspect to consider. Digitalized FSM reporting enhances plant

safety by ensuring inspectors do not begin work until all necessary certifications, permits, and approvals are submitted and checked. In an industry where safety is of the utmost importance, this aspect of digitalized FSM is essential for accountability.

The ability to operate remotely is a huge factor, not only for COVID-19 working restrictions, but also for any other times that operators or management may find themselves away from the plant. Having the ability to maintain oversight and track the progress of on-site teams from anywhere offers an advantage as management personnel continue to work remotely more frequently.

Optimized Inspection Scheduling to Drive Efficiencies

As a supplemental solution available through some digital reporting platforms, scheduling programs also have the ability to streamline inspection processes.

Semi-automated scheduling tools aim to reduce inefficiencies that currently exist when scheduling inspections according to IDMS due dates alone. Designed to be used by in-house scheduling personnel, such solutions help identify opportunities for schedulers to bundle inspection tasks, which might otherwise be overlooked through manual processes.

Through automation, quantitative data (including inspection due dates, in-plant zones, and the proximity of assets to one another) is utilized to identify the most efficient framework to schedule inspections.

Being proactive and smart about when and how inspections are conducted ultimately helps plants stay on top of compliance concerns. Deadline alerts and asset prioritization aim to also consider asset strategies, giving more consideration to assets that may be in more need of immediate inspection.

By optimizing the scheduling of inspections and related trade support, field execution can be performed more efficiently, and the cost of the overall inspection program should decrease. Defects might also be identified earlier, which can reduce the cost of maintenance and repairs.

The Future of Data Reporting

Utilizing a digital field service management platform for inspection and related trade support is the answer to many of the difficulties experienced in mechanical integrity programs today. With project performance tracking, quality review, automation, reduced delays, and other benefits, such software platforms can greatly contribute to bringing plant operations into today's digital world.

As the world and process industries continue to change and evolve, it is clear that updating processes to be more inclusive of our technological world and interconnected systems is something that won't be changing anytime soon. With digitalized reporting, inspection work processes can become increasingly effective with time, enabling a plant to be a true industry leader. ■

For more information on this subject or the author, please email us at inquiries@inspectioneering.com.



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Ryan joined the oil and gas industry in 2008 and now acts as the Divisional Vice President of Digital Operations for MISTRAS Group, responsible for driving the development and adoption of digital technology throughout the MISTRAS organization and for its customers. During his past 12 years in the oil and gas industry, as well as his prior 8 years in healthcare, Ryan has subscribed to a customer-centric mentality, bridging the gap between the business and IT, seeking opportunities to streamline and digitalize manual/paper-based work processes, and collaborating with customers to leverage existing IDMS and CMMS systems or develop new systems where appropriate.