

DIGITISING MAINTENANCE INSPECTIONS **AT TECK RESOURCES**

Learnings from the digitisation of structural inspections at one of Canada's largest mining operations

Teck

In 2021, mining giant, Teck Resources in Canada commenced a rollout of COSOL OnPlan and a journey from paper to 100% digital PM work management across three sites.

Today, Teck digital inspections are used in-field and on the shop floor. Reliability Specialist, Scott Moore share key tips from this experience.

GETTING STARTED: TIPS

Start Strategically

To ensure fast results, start by reviewing project objectives and the capabilities of your digitisation platform.

Spend time on functional flows as much as possible in the initial phases, before you start building documents" said Moore.

"Assess what you want to record, monitor or access at the asset and work back to the document. You need to pay consideration to how specific trades or individuals are going to work through the function and the associated instruction," he said.

He recommends that instructions are reviewed and streamlined where necessary before they're transformed into digital.



GETTING STARTED: TIPS - CONTINUED

Select the most common equipment first

While tools like OnPlan can import and convert PDF, Excel, or Word documents into digital format, Scott suggests this may not be the wisest approach.

“We started with welding inspections on haul trucks at Fording River because we anticipated the largest returns here. The opportunity to reduce unknowns by improving visibility and accountability for the welding group was of value due to the sheer risk and cost of catastrophic failure.”

Don't just import documents

Moore recommends digitising one model of equipment at a time, and selecting the most important function on that equipment first. This boosts scale and return on investment by laying a foundational digital document for similar models.

“As we came to realise that we weren't physically restricted to the one-line instruction anymore in the digital format, we designed a new, standard document structure for all digital inspections built in OnPlan.”



"This improved the scale of our transformation to digital and meanwhile, improved the user experience for trades," he said.

Standardise document format

“We've re-structured all digital documents so we could enrich instructions with detail, but still keep it quick and easy to get to work,” said Moore.

“Now we have a short description at the top of the instruction, with all pass/fails in the next section. We have instructions on what to do if you find a fail, and further detail on each job step available by scrolling further down the screen, in case it's needed by the user, depending on their experience,” he said.

These templates improve the scale of the digitisation and meanwhile, improve ease of use and adoption for execution teams.

“We continue to enrich instructions with feedback, additional hyperlinked documents and have plans for further interactions, once we have more data captured via OnPlan,” explains Moore.



GETTING STARTED: TIPS - CONTINUED

Keep paper copies, too

Teck continues to output instructions to paper and digital via the OnPlan mobile app.

Moore explains: “We have 350 maintenance personnel per hour on site, 20% of that workforce are on PMs. So, there’s still a chance that shifts will change, introducing someone that’s never seen OnPlan to complete a task.”



I can’t wait to be 100% digital, but we can’t yet risk the load upon our Supervisors. If someone who hasn’t yet seen our digital forms via the Mobile App turns up for a job, the Supervisor would have all the old problems with paper: finding the right document and coordinating a print.” explains Moore.

A DIGITAL TRANSFORMATION JOURNEY

Digitising maintenance inspections at Teck Resources with COSOL OnPlan

"NOT"	"GOING"	"GREAT"
Loss paperwork & inspections data	Standardisation of document format & data capture	Additional manufacturer document hyperlinks
Sign-offs without checks	Assessment of workflows & documentation	Review individualised data to improve PM schedules, training, procurement
Low accountability for work & control over processes	Feedback captured on instructions or continuous improvement	Dual pre-failure/failure instructions sets for each inspection
Guesswork regarding some processes. No feedback captured on vague instructions	Output instructions to digital & paper	100% digital (no more paper output) all PMs
Skipped steps in process contributing to unplanned failures & downtime	Instructions enhanced with triggers, limits and details, improving productivity & performance	Rich data supports execution and analysis
Inconsistent standards in execution	Rich data elements like photos, geo and timestamps verify work execution & standards	



GETTING GOING: TIPS

User training & support

Teck coordinated classroom training, but focused on check-ins with users while in-field when introducing OnPlan to its Technicians.

Surprisingly, when presented with digital instructions via the OnPlan app, several users initially mistook the new digital format for brand-new process, rather than one they were already familiar with.

"I think the new format was enough of a change for the users to take instructions as new, too. We had to ask a few users to think about how they used to approach the task when it was paper-based for them to realise it's just the same as before - it just looks different," said Moore.

"The questions that arose when introducing the digital process demonstrated some fairly significant information gaps and variance in how inspections were being completed. We've addressed this with more diagrams and detail in our digital instructions."

There's a light at the end of the tunnel - the most important thing is to just get started.

The impacts can initially be tricky to measure, but just like moving from paper to Excel or PDFs; the next step is digital, which lays a foundation for a lot of other improvement programs."

Scott Moore
Reliability Specialist, Teck Resources

Get going, then go for great

By starting with the most common document first, Teck's team transforming maintenance content could be confident when they'd developed a good quality digital instruction. This also gave them a larger group of users to give feedback and refine the first cut of digital materials.

"We got our first set of instructions to 90%, with aim to apply this standard to further documents before we refine our content to 100% perfect," said Moore. This includes a commitment to reviewing inspections data captured via OnPlan to identify redundant checks. "The plan is to identify where we're capturing the same data every time, to assess the need for that check and remove it from particular routines," said Moore.

Teck has found the rich historical record and visuals on crack growth at the asset via OnPlan has reduced the instance of unnecessary PMOs.

"Our welding team has been able to monitor cracks more confidently at the asset so that work can be delayed until the next PMOs cycle, or for a shutdown," said Moore.

"In some cases, this saves us significant downtime and work by multiple trades if that crack is in the engine bay, for instance."



GET GREAT: TIPS

Enhancing digital instructions

Teck has already started to enhance digital inspections and instructions with hyperlinks to manufacturer's documents.

This has significantly reduced load upon Supervisors, who have previously had to be ready to respond with what to do upon identifying a failure on a variety of equipment.

Teck also plans build in dual criteria for what is a 'pre-failure/failure' mode, so instructions guide the user what to do when an inspection finds what can wait for the next PM cycle, or if it needs to be raised as break-in work.

Enhanced analytics

The generic logins used during the early stage of the process have been replaced by individualised logins. This provides Teck the opportunity to improve analytics across sites, groups, individuals and equipment.

"For instance, we hope to use the data captured by OnPlan to potentially justify investments in new processes or equipment. We'll also use historical data to input into schedules," explains Moore.

Improved control

Even before individualised logins were rolled out to the OnPlan users, Teck Trades immediately became more accountable for their work in the digital format. In part, this is because Teck is asking for confirmation, or a 'yes/'no', 'accept/reject', 'pass/fail' for components of a process.

There's also a lot less signing off on work if it wasn't completed by the signatory," says Moore. "Previously, we'd experience a lot of okays on work, which was assumed to be completed. That doesn't happen anymore with the digital format," he said.

The additional data, digitally captured at a user level will help Teck to optimise processes even further.

"We'll aggregate more user-level information like time on jobs, pass/fail ratios, the rates of identifying cracks to inform scheduling, procurement and training requirements," he said.

WANT TO LEARN MORE?

Contact COSOL's team for a personalised OnPlan demo or consultation.

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COSOL: When Reliability Matters

COSOL is built on one belief: in asset-intensive industries, reliability is everything. We are a trusted, Intelligent Asset Operations partner - known for our deep expertise, dependable delivery, and ability to keep critical assets performing at their best