The Importance of MATERIAL VISIBILITY for Owners/Operators: A CASE STUDY

Canadian Oil Sands Refinery project owner gains unprecedented material visibility across multiple contractors
INTRODUCTION
ABOUT THE PROJECT

A refinery project in the Canadian Oil Sands is comprised of multiple EPC firms and includes an initiative to provide project-wide material visibility across multiple units and multiple contractors. The project owner selected the Jovix® solution to support that initiative, which provides unprecedented visibility across all EPC firms on the project and their respective units. The primary objective of this enhanced visibility was to provide the Owner/Operator with additional cost and schedule certainty. In addition to serving as the project visibility tool, the owner also funded the transactional use of Jovix and RFID tags for contractors in order to drive transactional efficiencies through digitization and automation.

This project has a complex supply chain that includes multiple fabricators, marshalling yards, laydown yards, and material warehouses, of which some are shared between EPCs.

Using Jovix project-wide ensures complete visibility throughout the entire material lifecycle, from fabrication to installation. Jovix serves as a comprehensive tool for the project owner, with robust functionality in reporting, trending, and predictive analytics that can easily be configured to see the entire project at once, or specific sets of information, down to the smallest individual material detail.

Pain Points

Jobsite challenges before the implementation of Jovix included the following:

- Lack of owner visibility into material readiness challenges across a multi-contractor project
- Reactive decision-making based on outdated data from static reports across multiple contractors
- Multiple units and multiple contractors, with different materials management systems and processes
- Inefficient and error-prone, paper-based materials management processes
- Inaccurate and outdated material data resulting from manual, error-prone data entry
- Inefficient and cumbersome cross-scope coordination involving multiple EPCMs, contractors, and suppliers
THE SOLUTION

A single solution for complete owner visibility of materials management planning, productivity and performance across multiple contractors

The Owner/Operator adopted the Jovix Modern Materials Management solution, which combines hardware, software, and professional services to address specific project challenges where traditional material management processes fall short. This complex, multi-contractor project with a global supply chain required more than a simple material track-and-trace solution—for them, location was just the beginning. Jovix is the cross-coordination tool that provides complete material visibility throughout the entire project lifecycle. Most importantly, Jovix digitizes material data and brings it into a single solution owned and operated by the project owner. When all material data across multiple contractors’ systems is accessible to the Owner/Operator through a graphical, user-friendly interface, true visibility is accomplished.

The Jovix implementation team worked closely with all project stakeholders to enable data exchange in the most efficient and seamless method possible, with all EPC firms providing data to Jovix on a recurring basis.

Because Jovix was designed to support complex multi-site, multi-contractor projects, the project owner is able to slice and dice the project’s material data with total transparency, accessing trending information on a large scale or focusing on a specific piece of material. The Jovix professional services team collaborated with key project stakeholders and the Owner/Operator to create additional functionality within the solution to enhance owner-focused visibility through a set of import templates. The project owner is now able to consume data from all EPC systems.

The following is an elaboration of functionality developed in partnership with the Owner/Operator that is now available to all Jovix users. Included in each section is the problem, solution, and results for each use case.
OWNER VISIBILITY ACROSS MULTIPLE EPCMS

Using Dashboard Reports and Predictive Analytics to Improve Access to Information

Pain Point

The project owner was receiving reports from contractors for key material milestones at various intervals across various activities such as inspections and preventative maintenance, heavy haul shipment management, work package build analysis, work package forecasting, and predictive analytics. However, they wanted quicker, near-real time access to this information to enable more informed decision-making.

Solution

The Jovix professional services team worked with the Owner/Operator to produce a user-friendly, configurable dashboard with widgets for these key material processes. Each user now has access to personalized dashboards with color-coded widgets detailing the information most important to that individual.

Results

Dashboards provide quick, exception-based actionable data in an easy-to-digest format, which allows Jovix users at all levels to track numerous aspects of the project. When EPC users are better able to see the data that is driving ROI, they understand why Jovix is a crucial component of their materials management system. When the owner is able to quickly analyze the progress indicators they value most, they are able to gain detailed visibility into contractor performance and preparedness. All users—EPC and Owner—are able to manage by exception, which is the ability to rapidly identify future material readiness issues so resources can be focused on proactively resolving those problems before they impact construction.

On the next page is a list of the dashboard widgets developed with key stakeholders and the project owner. Specific use cases for these widgets and how they add value to the Owner/Operator can be found throughout the rest of this case study.
STREAMLINING INSPECTIONS & PREVENTATIVE MAINTENANCE PROCESSES

Pain Point
The project owner is ultimately the most interested in driving inspection and preventative maintenance compliance and documentation. With a traditional turnover approach, material preservation data is transferred in a manual, inefficient process. This leads to limited owner visibility into and influence over compliance. This challenge is increased in the case of this project in which there are materials being managed across multiple contractors.

Solution
The Jovix solution includes functionality for inspections and preventative maintenance that is tightly coupled with the core materials management functionality, which drives efficiency by enabling activities such as a receipt to automatically trigger an inspection task, for example. Further, if a material fails inspection, Jovix can automatically place that material into quarantine status to remove it from the available materials and update workforce planning data. This functionality is valuable for contractors and owners who are using Jovix to perform inspections and maintenance activities.

Jovix can also be used as an inspection and maintenance compliance tool. Jovix consumes raw data from the contractors’ systems and then presents this data to the Owner/Operator in a graphical dashboard format. This visibility enables owners to detect and correct inspection compliance issues before they impact material availability and, ultimately, construction productivity.

Results
Maintaining the quality of critical materials is paramount to ensure the safety and performance of a specific item. It is also important to collect and access historical preservation information on an item from the time it is accepted on site then through construction and into operations. With the Jovix Preventative Maintenance functionality, users are able to:

- Build inspection templates
- Upload requirements from suppliers
- Create recurring inspections
- Assign inspections to users
- Locate equipment requiring maintenance using GPS and RFID
- Collect pictures and digital signatures
- Edit images within the transaction such as cropping, brightening, circling problem areas, and making notes

In addition to the ability for contractors to perform these transactions in Jovix, the owner now also has complete visibility into inspection and preventative maintenance compliance project-wide. This level of visibility and quick access through the dashboard widget is unprecedented.
Supporting Workface Planning with Modern Materials Management

Pain Point
According to Construction Owners Association of America (COAA), Workface Planning with integrated materials management has shown to increase craft productivity by 25%. With traditional progress reporting from contractors, it is not possible to assess the level of workface planning preparedness. This issue is exacerbated in the case of this project, where there was a lack of visibility into workface planning across multiple contractors and units, each using their own work planning process pertaining to their purchased materials.

Solution
The Jovix solution includes a forecasting feature to predict future material readiness issues by comparing supply data from purchase orders and shipments with demand data from work packages. This work planning functionality provides complete visibility into current and projected material availability, providing the Owner/Operator with visibility into the contractors’ plans. For EPCs, the automated material allocation combined with forecasting and predictive analytics provides materials management with the ability to quickly identify future material readiness issues before they impact each contractor’s plan.

It is increasingly important for large-scale projects to have strong collaborative tools for coordination across multiple contractors and units. Integrated solutions are key to effective collaboration, and the burden sits with project owners to drive data requirements. Forward-thinking contractors have also embraced integrated solutions that provide increased accuracy and productivity for the entire project, not just their own part of it. These EPCs will be well positioned when Owner/Operators begin to mandate enhanced data requirements as this technology becomes mainstream.

Results
• Project owner gained a more accurate and timely view of project productivity, performance, and preparedness
• Project owner achieved visibility into contractors’ use of workface planning and integrated materials management
• Contractors eliminated paper-based processes and replaced them with real-time material data collection at the point of transaction through auto-ID technology, such as active and passive RFID tags, GPS tags, and barcodes, which ultimately enables superior planning function.
IMPROVING HEAVY HAUL SHIPMENT COORDINATION THROUGH COMMUNICATION

Pain Point
When any load exceeds a certain dimension—length, width, height, or weight—or presents an irregular loading pattern that requires a specialized trailer, it becomes a Heavy Haul item. Heavy haul items are important because they require advanced planning for shipment, offloading and handling. The Heavy Lift Coordinator for this project is an employee of the project owner, and is responsible for time and assets required to escort and lift the load from the trailer into place on-site. According to the Owner/Operator, there are an estimated 1,500 heavy lifts throughout the lifecycle of this project. The most complex aspect of this coordinator’s role is cross-scope coordination across all EPC firms across all units.

The project goal is to have a three-week heavy haul look-ahead capability to allow time to coordinate all facets of heavy haul shipments. Each heavy haul shipment lift requires special coordination and permitting actions both on-site and throughout the shipping process. The shipping carrier—whether road, rail, or ship—must adhere to the regulations of any port of call, municipality, and transit authority involved in the transportation of the item. The coordinator is responsible for coordinating these regulations within the shipping company and any special rigging, lifting, staging, permitting, and personnel requirements once the item reaches the site.

In addition to the regulations, the owner’s Heavy Lift Coordinator is also ultimately responsible for maintaining positive community relations as the materials move through these various ports and municipalities, no matter which EPC owns that particular shipment. From small towns closing off their main street for a large delivery to pass through, to temporary road and bridge closures through Calgary and Edmonton, careful coordination and good working relationships are imperative to minimize the impact these large loads have as they pass through.

All the EPCs working on the project have heavy haul shipments. It is the project owner’s responsibility to coordinate the heavy haul traffic across their multiple scopes.

Previously, all coordination of heavy haul shipments across contractors and units was performed manually through phone calls, emails, spreadsheets, and PDFs. This manual process introduced lags in decision-making plus errors from manual data entry and exchange.
Results
- Unprecedented owner visibility into heavy haul shipment data across multiple contractors
- Reduction of one full-time equivalent (FTE) worker, who would traditionally be required in order to handle all of this heavy haul information
- Total heavy lift material visibility for owner’s representative across all contractors
- Graphical interface with user-friendly, configurable dashboard widget that enables management by exception
- Reporting features that enable proactive decision-making to solve issues before they impact construction

Solution
The Owner/Operator and the Jovix professional services team worked together to configure a three-week look-ahead Heavy Haul Report with a corresponding dashboard widget.

With the Heavy Haul report, the Heavy Lift Coordinator logs into Jovix and can generate a three-week look-ahead report from a dashboard widget. The report encompasses all heavy haul information project-wide, providing cross-scope coordination and complete owner visibility in real-time. The report leverages material Purchase Order information, Expediting information, and the updates provided when a material moves through the supply chain pulled from the contractors’ systems into a single system, Jovix, which is managed by the project owner.

With this reporting capability, the coordinator is able to easily manage by exception by configuring the report to show only certain information needed to highlight issues and allow for better decision-making. With access to this data project-wide, owner management can be alerted to nonconforming material data. For example, if a bridge closure will delay all major shipments for two weeks, but a particular heavy haul item has not been updated with that delay, the coordinator is alerted that the material is not being properly expedited.

The information in the Heavy Haul Report is accurate, timely, easily configurable, and available with one click on the dashboard widget. Through an import template, all EPCs are able to easily import and export material data from their systems in and out of Jovix in order to comply with owner requirements. The Jovix implementation team worked closely with all project stakeholders to enable imports in the most efficient and seamless method possible.

The Heavy Lift Coordinator’s work processes have been drastically changed, and this Heavy Haul functionality has taught everyone involved in this process that this role is undervalued and is often reduced to playing “traffic cop” across EPC firms and units. With automation and site-wide compliance, the coordinator’s daily responsibilities have shifted from comparing dozens of printed spreadsheets and making dozens of phone calls each day to an efficient and proactive approach to true coordination.
CONCLUSION

This project owner is a leader in the Owner/Operator market, and is setting the example of what is possible when adopting an enterprise solution that enhances complete visibility into today’s complex global project landscapes. Jovix and this project owner continue to work together to develop new functionality that responds directly to the needs of today’s large capital assets in the construction and operational phases, which benefits the entire industry from owners to EPC firms, contractors, fabricators, and suppliers. Collaborative tools are a key component to greater efficiency and productivity in this industry.