Smart document management: Helping EPCs and Owner Operators anticipate project rework and delays

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Upfront effort is well worth the result

Working smarter and faster to complete projects on time and on budget under today's demanding project pressures requires continual investment in technology, processes and people. Engineering, Procurement and Construction firms (EPCs) naturally apply lessons learned to every new project to increase the opportunities for improved returns on their investments. To further capitalise, top EPCs are taking advantage of next generation project controls technology with the capacity to mitigate issues before they occur. Anticipating the unexpected will have a profound impact on delivery milestones, profitability and incentives, as well as commercial risk and penalty. When it comes to the successful delivery of a multi–million dollar capital project or plant turnaround, the ability to identify issues before they occur requires a little forethought and investment – an effort that will pay huge dividends throughout the project lifecycle.

Today's projects deploy a myriad of legacy system tools and work practices to support the management of project deliverables. While these controls are designed to enable collaborative practices, they are often disparate in nature, introducing the potential for oversight. More recently new technologies are emerging based upon predictive analytics and automated controls to help minimise the number of errors, time delays and additional expenses associated with complex project execution. While these safeguards are valuable in helping identify project bottlenecks when they occur, reactive problem solving is inherently expensive and carries a greater level of risk particularly when the issue is compliance or contractually related.

Managing project deliverables and RFIs

There are numerous milestones throughout the life of an engineered project, which must be carefully planned and monitored to ensure on time contractual deliveries are met. For example, if you are an EPC receiving designs from multiple suppliers and contractors, handling project logistics can be challenging, especially when it comes to managing deliverables. A good illustration of deliverables management logistics with your suppliers and contractors would be the control of document 'placeholders'. Projects routinely create document placeholders to support the deliverables planning and scheduling activities. Often, suppliers and contractors will provide 'Document Register' lists to "reserve" blocks of project document identifiers. These lists contain the set of contractual deliverables the supplier or contractor intends to issue throughout the project, including document metadata. Dashboard reports are generated throughout the project that provide insight which can identify overdue or missing content. These same lists can later be updated and used to automatically load the placeholders with content as the project advances.

Another area where dashboards can provide project insight is in the management of RFIs (requests for information). When contract documents, drawings or specifications are incomplete or ambiguous, then the RFI process is critical to quickly closing that gap. Since the RFI is a time critical process, tracking progress, highlighting overdue RFIs and allowing them to be closed out is key to ensuring project success.

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Trusted information enables confident decision-making

While engineering and contractor margins have dwindled, project complexity and execution expectations have intensified, requiring contributors to make smarter, better and faster decisions. Decision–making is highly dependent on having the right information, for the right people, at the right time and project collaboration platforms make this possible. Working smarter mandates a zero tolerance for rework and contributors need insight to avoid surprises during the performance of their daily work tasks.

The cornerstone of any project insight strategy is having confidence in the available information to make informed project execution decisions. Trusted information must be maintained under strict change control and the collaboration platform must provide a disciplined approach for managing all the relevant documents. Once a trusted information source is compromised, consumer confidence fades, reliance on costly field verification resurfaces and inefficiency creeps back into the project deliverable process. Most importantly, incremental information updates – including as–built field data and redline markups – must make their way back through the review and approval cycle before being committed to the trusted knowledge base.

"Working smarter mandates a zero tolerance for rework"

Know what you don't know

A continuing challenge in our industry today is project predictability, that is the ability to minimise or eliminate potential surprises revealed through project insight. In any large capital project, the management of incoming deliverables from contractors and suppliers represents a significant logistical challenge. Having insight into the current deliverables state can bring value and a new perspective to a problem, or help better understand a project situation.
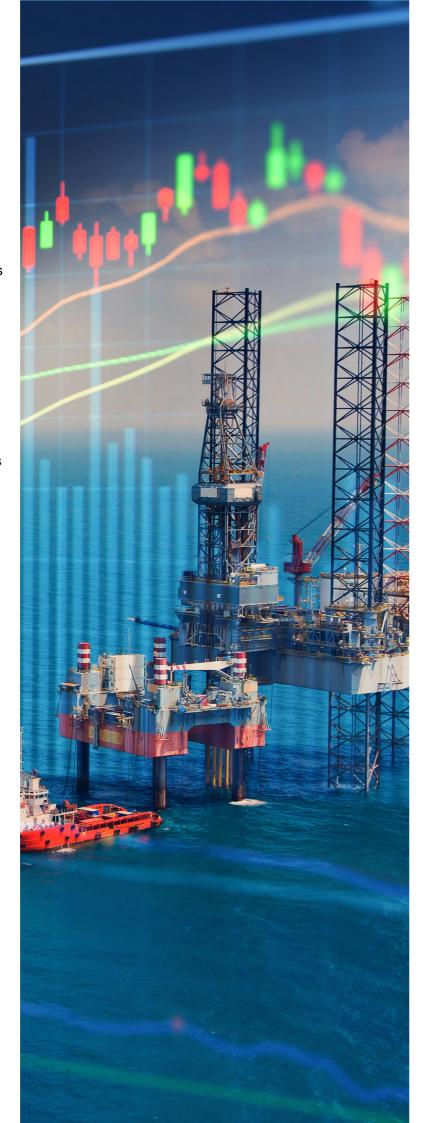
Project information continuously needs to be exchanged and gaining visibility of the progress of document deliverables as a measure of earned value has been a historical challenge on highly complex projects. Meeting contractual obligations – ensuring submission deadlines and turnaround periods in contract agreements are met reduces potential risk of litigation and increases the probability for performance incentives.

To take an example from the Oil & Gas industry, a typical project could involve:

- Tens to hundreds of suppliers and vendors from multiple countries
- Hundreds to thousands of work packages
- Billions of dollars' worth of investment in equipment and materials
- Thousands of documents being submitted every month

Project owners must ensure that documents are reviewed and turned around within contractually agreed upon time periods. Documents must be accurate, complete, of known quality and reliability during the continual handover process of a project.

When it comes to project handover what you don't know could surprise you when you least expect it. If you're an Owner Operator you will be receiving lots of contractual deliverables at handover that need to be verified to ensure you have received what you have paid for. As part of the handover process you will also need to verify that the submitted content is complete.

Having a project epiphany

Preventing project slippages and delays are inherently dependent on keen insight. "If I had only known" or "I never saw that coming" are two of the most dreaded phrases that no manager wants to hear on any project.

The key challenge to overcoming project surprises is the ability to provide an auditable end–to–end deliverables management process. A comprehensive project insight solution will allow project managers to:

- Reduce litigation risk by capturing audit trails
- Avoid costly use of out of date information issued to suppliers and contractors
- Maintain an accurate record of information exchange with third parties
- Identify potential issues before they become real problems.

A considerable amount of data is collated during the Deliverables Management process. Reports can be configured based on this data to enable Project Managers to become more proactive, optimise processes, prevent project slippage and assess supplier and contractor performance.

Dashboards are routinely utilised for earned value insights, making them ideal for identifying potential issues before they become real problems. Dashboards also provide insight to key performance indicators, relevant to a deliverable or process workflow.

Below are some examples of the 'business questions' that a project insight solution can help answer:

What is the status of contracts, subcontracts and purchase orders?

- Which are not on track or at risk?
- Where there are bottlenecks?
- What is the forecasted workload?
- How is my team performing?
- How quickly are we turning around submittals?
- How is work distributed across the team?
- What is the earned value based on deliverable weightings?

Are we contractually compliant?

- Are we reviewing documents within the agreed turnaround periods?

How are suppliers performing?

- How many suppliers are missing the submission dates for documents?
- How many are missing the return date for transmittals?
- What milestones are we missing, or endangering because suppliers are not submitting information in time?

The project insight solution from Idox helps supervisors and project managers illuminate the pending reality of a project delivery event, which many times is something simple, yet striking, when a resolution to a problem presents itself suddenly, revealing a clear vision for discovering problems before they occur.

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Go from problem-solving to problem-seeking

Projects deploy many traditional methods to help problem-solve complex challenges using a combination of automation and manual work processes as they arise during the lifecycle. The issue resolution process prompts a reactive response by one or more project participants. The inherent inefficiency with this approach is that those involved with researching and resolving the issue are distracted from their normally scheduled tasks and in many cases work load priorities must be re-examined. While we obviously cannot ignore this type of ad-hoc activity we can certainly work smarter to avoid these inefficiencies in the first place.

In most cases project related problems are relatively quick to be resolved once the required data and documents have been identified, the effort in researching and collecting the information to support the resolution is what can be so overwhelming – and could represent the most significant area for efficiency gains if predicted in advance. The paradigm shift from problem-solving to problem-seeking does not require a change in your current work processes, it simply requires that you change the way you think about issue resolution.

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Insight to prevent problems

As the fab shop prepares to weld one of many very expensive chrome-moly pipe spools for the project, the project manager receives an automated email notification alert that the stress analysis approval by the engineering mechanics group is overdue. The analysis approval cycle has taken longer than expected due to a code change and the updated analysis requires a spool configuration change due to higher thermal stresses being placed on the piping system. Fabrication is suspended, expensive rework is averted, the project manager breathes a sigh of relief and the project saves significant time and money.

Identifying potential issues before they become problems results in a substantial gain in project efficiency. The capacity to gain an accurate and intuitive understanding of project performance on demand can turn problem-solving into problem-seeking. Problem seeking allows project managers to take preemptive steps to avoid production distractions and schedule delays. The use of technology such as dashboards to present the information in context is simply the graphical communication method, the project insight analysis is what provides the vigorous approach to deliverables management and control that reveal key predictive insights.

The addition of a little information can bring a whole new perspective to forecasting potential issues before they happen avoiding the element of surprise. Automated reports must present information in a simple way for managers to consume. The project insight solution from Idox helps project and line managers anticipate what is not evident, preventing problems before they occur, making everyone more efficient in their jobs so they spend less time reacting to problems or fixing them.

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Planning for the future

EPCs and their contractors participating in both brown and greenfield projects have increasingly become more intentional about cross discipline deliverables control and knowledge sharing. Innovative project insight technologies are being implemented more frequently across highly regulated industries where errors carry significant contractual and financial risks. An intentional approach to project delivery insight throughout the facility lifecycle can help keep firms competitive.

The frequency of change will always persist and the impact of change will always be a variable – the challenge therefore is to guard against unwelcome surprises along the way. Automation and productivity expectations will continue to rise along with higher demands for quality and speed even while changes are occurring to work scopes, project requirements and software applications – schedules get compressed and margins go down. Having insight into the health of your project can mitigate rework and is the best way to assure project success.

Ultimately, anticipating problems is going to require some cultural adjustments and predictive technology to make you better at planning for the future instead of reacting to issues as they arise. The project insight solution from Idox will help you make more thoughtful decisions and help prevent common project problems by addressing underlying symptoms before they appear.

A reputation for consistent project success and a strong portfolio of referenceable projects are essential to preserving customer loyalty and securing new business. The level of investment at the beginning of the project implementing capabilities that provide insight, will be proportionate to the ability to anticipate potential problems in advance during the project lifecycle. Shrewd investment during project preparation will pay enormous dividends throughout the asset lifecycle – and will keep your firm consistently at the top of the bidders list time and time again.

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