Top 3 Trends in Automating Oil & Gas Field Data Capture

By: Sean Johnson of Field Data Integrators

Getting Started

Despite the rapid technological advancements that we see across Oil & Gas operations, large amounts of operational data in the field is still captured on paper. Owners, operators, and service providers generate large amounts of paperwork ranging from inspections and asset integrity management to time sheets and work orders. While paper is a convenient medium for workers to capture data in the field, paper-based processes slow workflows, obscure operational visibility, and create issues.

For many teams, days can pass between the time at which data is captured on paper (and issues identified) and the time at which the data is entered into systems and available to be acted upon. During that time, operational issues remain unidentified and unaddressed, service providers don't get paid, and profitability suffers.

While smartphones have been around for a while, using them to automate field data capture has been difficult. The devices are fragile; they require expensive custom software development for use offline; and teams struggle to get IT bandwidth to implement and manage software.

Big IT trends like new mobile devices, the Cloud, and build-your-own app tools have created new opportunities for teams to improve how they gather and manage data.

Here are the 3 Key Data Management trends that operations teams need to be thinking about:

- Automating Data Capture with New Mobile Devices
- The Cloud
- Do-It-Yourself Mobile Form Building Tools

Automating **Data Capture** with **New Mobile** Devices

Operations teams have long used dedicated handheld devices in the field. Now, more and more general-purpose tablets are showing up at work sites. Tablets have the potential to transform many parts of the Oil & Gas data capture process. With tablets, teams are beginning to automate many of the structured data collection processes that had relied on paper forms. Even beyond structured data, the basic ability of tablets to capture signatures enables them to be used to automate a variety other paper-based processes that require approvals.

Of course, the harsh and variable field environments in which many teams operate can make it challenging, if not impossible, to use tablets. Many teams struggle with device limitations in battery life, visibility in sunlight or rain, weight, or durability. Many of these teams have been able to automate their data capture using digital pens with their standard paper forms.

Digital pens instantly record handwritten data on paper forms without teams having to worry about complex training or device fragility. Many commercial digital pens are durable and some have successfully passed non-incendiary testing.

Both tablets and digital pens offer these key benefits: faster data processing without the cost and delays of scanning or transcription, better operational visibility, and reduced risk of missing or inaccessible paperwork. Some vendors offer both digital pen and tablet-based solutions that use the same underlying software.

The **Cloud**

Many businesses look to the Cloud as a cost-effective way for IT to outsource servers and data centers. While many field teams may not directly feel the impact of the Cloud's outsourced data centers, the Cloud has spawned new data-related services which transform how field teams collaborate.

For example, Cloud-based mobile forms solutions enable teams in the field to capture data on a range of devices and have all the data aggregated in one place – in the Cloud. Operations teams can use these services to do their own data analysis, tracking, and sharing, without the cost or time required to deploy complex, IT-centric systems.

Most services still enable data to be sent back into an organization's existing ERP, pipeline turnover, or asset tracking systems through standard file formats (xls, csv), database queries, or web services. Operations teams can even access complete field operations or reservoir data management services in the Cloud without having to manage or install complex software.

One of the other key drivers of the Cloud is the ease with which owners, operators, and service providers can collaborate on projects. During pipeline construction, for example, it's common to see employees of a variety of companies sitting beside each other in trailers, logged-on to separate corporate networks entering data and tracking project status. This duplicate work on separate systems is obviously inefficient, but it also creates risk. Relying on different tracking systems prevents a common view of a project's status – leading to mistakes and incorrect assumptions.

In the case of Cloud-based project management tools, different teams get a common view and tracking tool. There aren't data silos on different corporate networks. Different contractors and partners can access data securely through the internet with access controlled by a range of data-permission levels. In addition to getting a common view and only having data entered once – teams can also get data into their own internal systems through web services or a range of other data interchange methods.
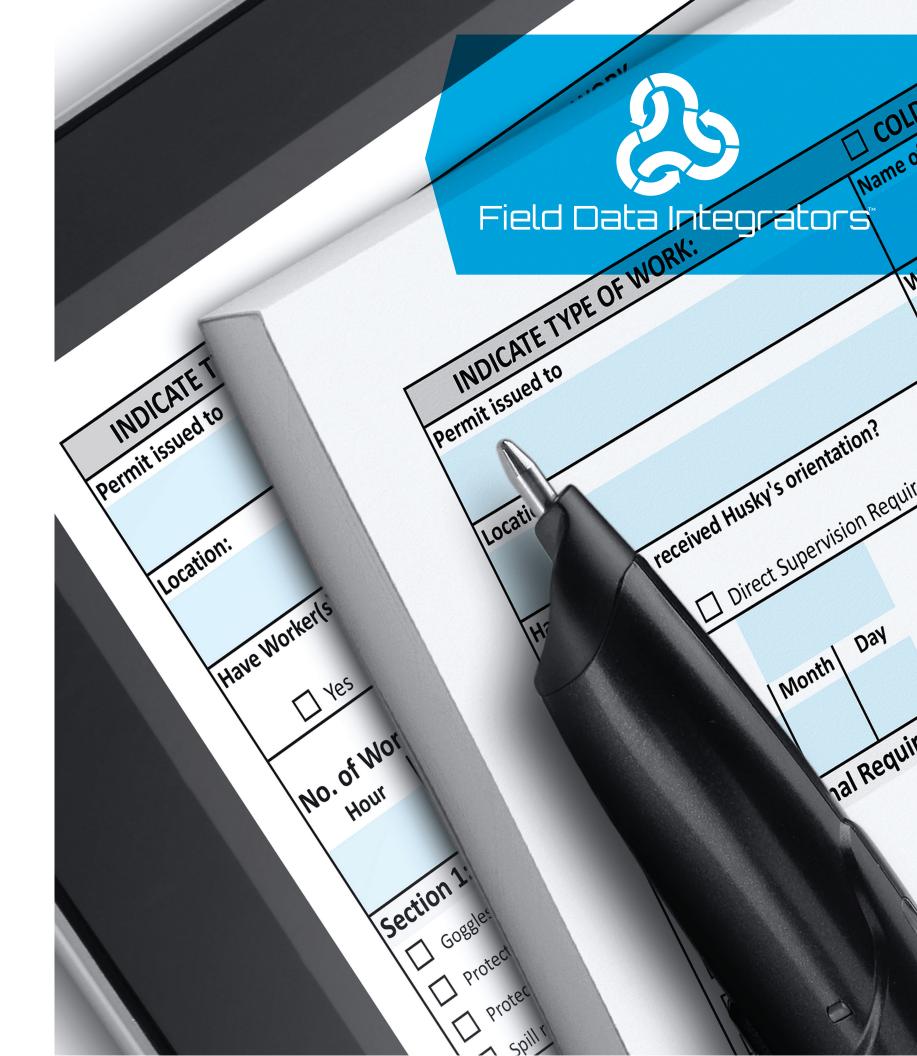
3 Do-It-Yourself Mobile Form Building Tools

While most Oil & Gas teams work on familiar sets of similar tasks, each team tends to have its own unique forms and process variations – whether it's for time sheets, inspection reports, well logs, pipeline integrity, or many other forms. For teams that log-on the servers to fill out these forms, creating and updating custom web forms is reasonably straightforward. IT makes a change, and the next time a worker logs in they see the updated form.

If teams have to capture data on devices while they are outside of network range, then they require mobile solutions that can be used while devices are online or offline. In the past, the only offline option for teams was to develop custom apps for tablets, laptops, or handhelds. These apps remain expensive to build, difficult to manage, and time-consuming to adapt as workflows and forms change.

Fortunately, there are a range of tools available today which enable even non-technical teams to turn their existing forms into mobile form templates. These new, do-it-yourself mobile form tools create forms that can be printed for use with digital pens or accessed through tablets.

In the case of tablets, form tools can be used online or offline in tablet browsers, without requiring new apps to be built for each form or form change. Anyone can now create and publish a mobile form, without having to pay an expensive vendor or wait for an over-burdened IT team.

FINAL THOUGHTS

Smart, upfront planning about new devices, the Cloud, and form-design tools can create opportunities to streamline and improve operations. I hope that you've found this eBook useful. While every operations team and workflow is different, these best practices and considerations will help you find the right solution for you and your team. Please reach out if you have any comments, questions, or would like to get some feedback on your workflow. I currently work at Field Data Integrators™ with a team of workflow specialists that are all about finding the right fit. We've fielded thousands of deployment questions and requests, some are perfect fits for the digital pen and tablet workflows that we support, others we have directed toward different vendor solutions based on their workflow needs.

Have a question? **Click here**
info@fielddataintegrators.com
to reach out and email us.

Sean Johnson **Field Data Integrators**

About the Author

For the last 20 years, I've been helping oil + gas, utilities, telecommunication, local and federal government field teams build field data capture solutions for GIS, GPS and digital paper field service, inspection and maintenance reporting across a range a devices including tablets, laptops, smartphones, and digital pens.