

THE ROADMAP TO MOBILE OPERATIONS

EXECUTIVE SUMMARY

Many commentators see the downturn in barrel prices as an opportunity to address the long standing problems of high costs and inefficiency in the oilfield industry.

It is therefore remarkable that efforts to implement productivity gains are being impeded by a dependence on paper, a 2,000 year old technology. Replacing paper in oilfield operations increases liquidity and reduces operating expenditure (OPEX), Days Sales Outstanding (DSO) and revenue leakage.

Mobile technology eliminates the errors, delays and costs incurred by using paper job tickets. This slashes back-office administration time and delivers fast, accurate billing.

This e-book provides a roadmap to replace paper with mobile apps. It outlines the business case and addresses many of the perceived obstacles along the route.

You will discover:

The challenges facing oilfield and shale service operations:

What are typical industry pain points? Do you recognise them? Why do they happen and what can you do?

The business case for mobile oilfield operations:

Using example figures, we demonstrate the ways in which the switch from paper to mobile apps can slash OPEX, DSO and revenue leakage.

Implementation risks and practical tips for introducing mobile apps

We assess the most commonly held concerns about making the switch to mobile apps including project cost, staff uptake and technical integration to existing systems. We assess each concern and provide practical advice to help make the road to mobile operations as smooth as possible.

We hope by the end of this e-book that the action will be clear: in a competitive industry, where efficiency is paramount, it's a question not of if, but of when and how, leading companies fully embrace mobile operations to keep ahead of the pack.

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THE ROADMAP TO MOBILE OPERATIONS CHALLENGES FACING OILFIELD AND SHALE SERVICE OPERATIONS

The use of paper in areas as complex and multi-faceted as shale and oilfield services has always been problematic.

While most in the industry recognize paper's inefficiency, it is often erroneously dismissed as little more than an inconvenience. Meanwhile the notion of going mobile is deemed as a "nice-to-have" as opposed to "must-have", or even an unachievable goal at the end of a difficult road.

The truth is that reliance on paper is the root cause of many of the inefficiencies in oilfield operations. The error, delay and cost that paper generates for oilfield and shale service providers is strangling cash flow and profitability. Paperwork is contributing directly to the concerns of senior management.

While we look in detail later in this paper at what the road to mobile operations entails, let's start by firstly assessing why businesses should recognize the switch as a cost effective and rapid solution to free up cash.

Unacceptable DSO

Improving DSO is a high priority for oilfield and shale services CEOs. Some shale service companies are seeing DSO levels of 80 days, made up of 35 days for payment terms, 25 to consolidate and process paper job tickets, 10 days to prepare from field technicians, and 10 days to prepare invoice submission and await payment.

Delays and errors in processing paper job tickets are a major cause of DSO. From our experience, replacing paper altogether with mobile apps will cut DSO significantly.

Operational leakage

Operational leakage is a major obstacle to improving profitability. You know you bought 10 tonnes of a material last quarter, but have only billed 8. What happened to the other 2 tonnes?

Running operations using paper job tickets that are open to error or loss severely hinders the ability to capture and review accurate crew hours, equipment rental hours and inventory consumption – all fundamental to accurate billing. We have seen leakage of billable hours and equipment frequently in excess of 1.5% of total annual revenue.

Using paperless apps, revenue leakage decreases by eliminating the majority of job ticket errors and tracking the actual Vs expected utilisation of resources.

High back-office administration costs

Operating costs are driven up unnecessarily by high back-office administration costs.

Our experience is that every 20 field service crews should require no more than one full-time equivalent employee in the back-office to administer and process paper job tickets. This back office ratio will improve as the number of field crews increase.

Replacing paper with electronic dispatch, mobile data capture and automated invoicing will frequently increase back-office productivity by up to 50%. We have seen this figure as high as 90%.

Pressure on liquidity and cash

As a culmination of the above points, many aspirational oilfield and shale service businesses find their ability to fund operations and growth hindered by a reliance on antiquated processes.

Customer frustration

The ongoing 'paper chase' between the Company man, Shale Service Provider and the customer procurement team wastes time, generates frustration and tarnishes reputations.



"PAPERWORK IS CONTRIBUTING DIRECTLY TO THE CONCERNS OF COMPANY CEOs"



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THE BUSINESS CASE FOR MOBILE OPERATIONS

To demonstrate the business impact of replacing paper job tickets with mobile apps, we will profile the operations of a fictional Shale Service provider called ACME.

Let's say ACME is responsible for the maintenance of multiple shale leases, distributed over a wide geography and its revenue stream is a combination of billable hours, equipment rental and materials used.

Every ACME shale service crew has a Pusher (or team leader) responsible for managing the safe operation of his team on the customer lease. At the end of a shift the Pusher must complete a Job Ticket and present it to the Company Man for verification and sign-off. The customer will not accept any invoice that contains an unapproved Job Ticket. In this case, paperwork generates the following problems when planning and executing shale service operations:

- Significant delays in generating accurate invoices due to late, missing or unauthorized paper job tickets.
- Under reporting of crew hours, equipment rental and materials used due to bad practice, poor handwriting and transcription errors in the back-office.
- Unnecessary back-office costs required to process the growing pile of paper job tickets (including chasing down ticket errors and dealing with frustrated customers).

Increased Liquidity and Job Profitability

What if logistics planners could create a new Shale Service job on an easy to use web portal, view availability of all Pushers, crews and equipment, and assign electronically?

And what if Pushers could record crew hours, equipment and inventory used on a Job on their Smartphone? If the Company Man is available on-site he can electronically sign the ticket, if not he will automatically receive a 'chaser' email with a simple accept or reject (with reason) button.

And what if the back-office team could group tickets to generate cost reports and invoices on the same day the job is complete?

Our experience in shale service indicates that:

- The average Days Sales Outstanding can reach 80 days. This accounts for the standard payment terms, the time needed to consolidate and process paper tickets and the time it taken to prepare invoice submission and await payment.
- Every 20 field service crews can require one full time equivalent employee in the back-office to administer and process job tickets.

When using the PHALANX Paperless shale operation mobile apps, running on a smartphone or industrial handheld, we have calculated that for ACME:

- Days Sales Outstanding will reduce significantly. This is because mobile apps improve visibility of completed and unauthorized job tickets (often on the same day the job was completed). Combined with an automated 'chaser' email to the company man, the turnaround time for generating accurate invoices will often reduce by up to half.
- A significant amount of working capital will be freed up every year, while additional revenue will be generated annually through better management of working capital.
- Revenue leakage will fall by eliminating the majority of job ticket leakage and tracking actual Vs expected utilisation of crew, equipment and materials.
- Significant reduction, typically up to 50%, in back-office administration costs by removing paper processing and increasing productivity.



“WHAT IF LOGISTICS PLANNERS COULD CREATE A NEW SHALE SERVICE JOB ON AN EASY TO USE WEB PORTAL, VIEW AVAILABILITY OF ALL PUSHERS, CREWS AND EQUIPMENT AND ASSIGN ELECTRONICALLY?”

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THE INTANGIBLE BENEFITS

There are many benefits of replacing paper with mobile apps, including:

Manage costs with consistent, repeatable and scalable working practices

Paper processes are difficult to control and modify.

Separate depots, warehouses and field service teams in the same organization often implement subtly different paperwork and processes for (what should be) identical working practices.

This makes it challenging for businesses to control costs. Defining best working practice, in an easy to use mobile app, enforces a standard approach across all parts of the operation.

Users cannot mutate a mobile app to their own ends (unlike pen, paper or spreadsheets). Enforcing best practice is particularly important for companies with an ageing workforce with significant skills gap.

Electronic auditability: The 'Black Box' for your Operations

Information stored on paper in filing cabinets is difficult to search and organise.

In the modern era of web search, e-books and app stores, the next generation of industrial workers will find manila folders and index cards a completely alien concept. Mobile apps will store the Who, What, Where, When and Why of every significant operational transaction, much like an aircraft black box flight recorder.

The information in the black box can be digitally archived and searched to graphically display operational information. For example, damaged equipment return rates by customer or geography.

Safer Working and stronger compliance to Health and Safety regulations

Protecting the health and safety of workers and the general environment are the primary goals in equipment operations.

Replacing paper with mobile apps supports these objectives in a number of ways. Mobile apps capture and enforce best practice. For example, the equipment inspection checklist for ACME would be an electronic representation of the experience of senior technicians, combined with best practice from recognized international standards (e.g. Criticality Analysis from the PAS 55 guidelines).

Mobile apps can warn users if equipment is out of certification, either before or during projected use. By knowing who is doing what, apps can also determine if operators have the necessary skills and qualifications to use the equipment for the designated tasks.

Informed and happy customers

Deliver on-time and measurable results. Removing the delays and errors associated with paper processing of customer orders, delivers an immediate improvement in customer service.

Customer contact teams and operations staff will have much more confidence in stock information, leading to firmer commitments on delivery times.

We have also recently added customer satisfaction surveys in our customer facing mobile apps to record direct customer feedback at the moment of customer sign-off.

Because you are capturing the workflow from point of order to customer sign-off, and storing results in the electronic black box, you can analyse and report against expected customer service levels.

Win More Business: Demonstrate total control of your operation

Competition is fierce and competitors are rightly looking for ways to differentiate their products and services.

Demonstrating control and reliability is a competitive advantage and by replacing paper with mobile apps, businesses can provide tight control of the operation (and remove unnecessary cost).

An operations 'Black Box' also provides a rich source of information to demonstrate your understanding of your customer environment.



“MOBILE APPS STORE THE WHO, WHAT, WHERE, WHEN AND WHY OF EVERY SIGNIFICANT TRANSACTION, MUCH LIKE AN AIRCRAFT BLACK BOX FLIGHT RECORDER.”

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IMPLEMENTATION RISKS AND PRACTICAL TIPS TO ADDRESS THEM

A common concern when considering the implementation of mobile operations is the belief that back-office administrators and field technicians will be unable or unwilling to adopt the new methods.

There is also considerable worry that switching over is risky, and that there are dangers in terms of smooth adoption, cost and the efficiency of ongoing processes.

It is natural to be concerned about potential problems. However, the good news is that there are ways to deal with each concern. In this chapter, we consider each risk and provide advice based on practical experience of introducing mobile technology to the oilfield.

Implementation: Will It Take Too Long?

Implementation time is much shorter than you might think. Spartan can typically deliver a working solution in less than 40 working days. The key points to consider are:

- Integration to Enterprise Resource Planning (ERP) and other back-office and IT systems

Systems integration typically absorbs more time and cost than people plan for. One way to reduce this concern is take a phased implementation approach. Phase 1 could, for example, implement a stand-alone mobile field service solution with minimal back-office integration.

We have worked with customers where the bare minimum read-only data (e.g. employees, equipment, inventory, price lists etc) was imported into PHALANX, Spartan's app store for operations, in the early phases to ensure project deadlines were met.

If tight two-way integration is required, then it can be deferred to a future phase. The phased approach will deliver the greatest return on investment in the shortest timeframe.

- Manage 'Scope Creep'

Functional 'scope creep' is another common cause for IT project delay and increased costs.

Having tight deadlines in a phased delivery plan is a great way to control scope creep. It is difficult to over-engineer a solution to accommodate 'nice to have' user requirements if you are working to a 40 working day deadline!

Cost: Will mobile be too expensive?

As described in previous sections, mobile apps can be extremely cost-effective, leading to increased profitability. Spartan can help reduce up-front costs by leveraging cloud-based software hosting platforms and consumer smartphone devices.

Spartan also has an oilfield services Return On Investment (ROI) calculator to quantify cost Vs benefit and calculate the breakeven point.

You can speak with any of our customers to validate savings they have made through replacing paper with mobile apps.

"IMPLEMENTATION TIME IS MUCH SHORTER THAN YOU MIGHT THINK."



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User Adoption: My staff will never go for this

It is easy to underestimate the fear of change (any change) and if not managed well, it can undermine the implementation of any project. If your staff have been in the industry for a long time, it is understandable that they may be a little reluctant to switch from their old system.

However, the reality is that the new system offers not only a better business solution, but a better user experience. There are simple techniques for significantly reducing the fear factor.



The obvious one is to make the solution easy to understand and simple to use. The Spartan team has over 12 years' experience of implementing mobile apps in industry and we put ease-of-use and simplicity of operation (especially for field technicians) at the heart of everything we do.

PHALANX also makes it quick and easy to create, update and authorize tickets, so there is no need to spend hours completing paperwork.

We can also deploy our PHALANX smartphones (e.g. iPhone, Android and Windows) and the increasing comfort the general population has with smartphones further reduces the fear factor.

Training will fill in any gaps in knowledge that are left over and the training period is fairly brief (typically less than 2 hours) because the PHALANX apps are very intuitive. It won't take long for your employees to adjust to (and appreciate) paperless working.

A final observation is that every company introducing new technology should assign someone to own the transition plan and co-ordinate activities and communication between senior management, HR, marketing, finance and operations teams.

We don't have the resources to deliver another IT project

You don't need to dedicate a large IT and business implementation team to introduce mobile apps to the oilfield.

PHALANX can be deployed 'off the shelf' into a cloud hosted platform (either internal or external to your IT network) in less than one hour.

If you decide to implement minimal back-office integration (at least in the short term) then all we require is the basic data required to 'seed' PHALANX (e.g. employees, project codes, inventory, price lists, customer identifiers etc.).

Once you have selected the target mobile device (e.g. iPhone, Android) then we will work with your IT team to install the PHALANX apps and your job administrators and field technicians can start user testing within a few days of a project go decision.

Will mobile apps integrate directly with other back-office systems and ERP?

Yes. PHALANX is designed to integrate with back-office applications and ERP systems (including Oracle, SAP, Microsoft Dynamics and Infor M3).

Mobile Apps? I can't even use my mobile phone to make a call in the oilfield!

There is a misconception that apps which receive and transmit data need to be wirelessly connected at all times. Some companies use mobile devices with a browser connected to an ERP system, which works as long as they have a solid, always-on connection.

However, the moment a crew moves out of mobile range and into a more remote area, these tools become useless.

The truth is that a permanent mobile connection is unnecessary if you are using the right tools. PHALANX apps locally store information such as job ticket data, photographs and signatures so they can be sent when connection is re-established. Field technicians can even create new tickets within the app if the work is unscheduled.

Work in progress is always cached on the device, meaning that even if the signal drops out suddenly, the job does not have to be interrupted. When the connection is re-established, all work is seamlessly synchronized between the handheld and the back-office systems.

In areas with little or no connectivity, PHALANX automatically switches to "airplane mode" to allow users to continue working as normal.

"YOU DON'T NEED TO DEDICATE A LARGE I.T & BUSINESS IMPLEMENTATION TEAM TO INTRODUCE MOBILE APPS TO THE OILFIELD."



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CONCLUSION

Taking a step-by-step approach to the implementation of PHALANX is the best way to appreciate how much Spartan Solutions can do for your company.

Our approach to mobile operations can:

- Address significant company pain points like leakage and DSO
- Reduce costs across the board without affecting your operation
- Present solutions to employee and management objections
- Offer strategies for handling issues and conflicts surrounding implementation as they arise.

To learn more about Spartan Solutions and PHALANX, explore our website and blog. To find out more about what we can do for your business, download a case study or white paper today.

CASE STUDIES (CLICK TO ACCESS)

Balfour Beatty

aggreko

AkerSolutions™

ABOUT SPARTAN SOLUTIONS

SPARTAN SOLUTIONS SPECIALISES IN MOBILE APPLICATIONS FOR INDUSTRIAL COMPANIES. WE HAVE DEVELOPED THE PHALANX APP STORE FOR OPERATIONS WITH THE AIM OF HELPING OIL AND GAS, EQUIPMENT RENTAL AND UTILITY CONTRACTOR SERVICE (UCS) COMPANIES RUN MORE EFFECTIVELY.

PAPER-BASED OPERATIONS ADVERSELY IMPACT EFFICIENCY, SAFETY, AND REVENUE. CHANGING TO A PAPERLESS PLANNING, ADMINISTRATION AND DATA CAPTURE SOLUTION INCREASES PROFIT, REDUCES LEAKAGE, AND MAKES PROCESSES RUN SMOOTHER THAN BEFORE.

THE PHALANX MOBILE APP SUITE ERADICATES THE RISK OF PAPERWORK ERRORS, ALLOWS MANAGERS TO SIGN OFF ON DECISIONS INSTANTLY, AND DOESN'T REQUIRED CONSTANT CONNECTIVITY. IT USES BARCODE AND RADIO FREQUENCY IDENTIFICATION (RFID) TECHNOLOGY FOR RAPID IDENTIFICATION OF EQUIPMENT AND PARTS, MAKING THE OPERATIONAL ENVIRONMENT SAFER AND MORE EFFICIENT.

FROM A BACK-OFFICE PERSPECTIVE, PAPERLESS APPS ARE ESSENTIAL. USING REAL-TIME DATA CAPTURE AND INSTANT INVOICE GENERATION, YOU CAN RADICALLY REDUCE DAY SALES OUTSTANDING (DSO) AND COMMUNICATE EASILY WITH CUSTOMERS. GOING PAPERLESS ALSO MEANS LESS REVENUE LEAKAGE, BETTER REPORTING, AND MORE EFFICIENT USAGE OF PERSONNEL.