



Making the Invisible Visible – Delivering Clarity

(Cost Saving through Operational Optimisation)

Without exception every Operator has the potential to significantly reduce their operational costs. I don't think anyone would argue with this. But where do we start and how far should we go?

Most will pay invoices, incurring unnecessary expense without realising. Introducing optimisation methods will put potential savings into practice. A company's campaigns will become more streamlined, putting performance and cost efficiency firmly in the top quartile.

Invisible losses will become visible, creating the ability to significantly reduce unnecessary expenditure. Clarity is provided, making cost saving more achievable.

Streamlining processes, saving money on materials here, or a few hours of rig time there can lead to significant reduction in expenditure.

The following article will describe methods which have been used with great success, delivering savings of tens of millions of dollars.

The learnings below come from subsurface operations related to drilling wells, but these practices can be applied to just about every business.

Operational Optimisation

Team Architecture

Identifying which services are required in order to ensure an operation runs smoothly is a talent. However, it is not enough to simply tick a box by employing an individual with the right job title. It is essential to identify those capable of providing the required results. When expert opinion has been given it must be communicated to the wider team and – after discussion and agreement - implemented. Embracing new ideas is not something most personnel do easily. The benefits and rewards of the new input need to be made clear.

Real World Example

During a drilling campaign where the first wells in the region were suffering severe Well Bore Stability (WBS) problems, a small, known Geomechanics team was engaged. This team provided guidance which in theory would solve the initial wellbore problems. With time the relevant team members were convinced of the value of this guidance and it was put in to practice. Two to four days were saved on each of the following wells. Further time savings were made throughout the campaign via drilling practice monitoring and improvement.

In this case it was essential to commission the right team. Their experience, advice and work method proved valuable. The value created by far outweighed the additional cost to the project for this service.

Managing Service Company Inventory

Ensuring the system has no waste is an essential part of the optimisation process. Carefully examine the equipment and consumables required and create a dynamic inventory which caters for those needs.

Real World Example

A three-rig campaign where each rig had backup wireline equipment on site. By placing back-up equipment in a central operating base and only taking it to the rig during operational time, it was possible to considerably reduce the rental for back-up tools and release one full string for each tool type. Tool rental saving was considerable.

It is essential in this case to have the right project people to oversee the logistics and coordination of the service in question.

Utilising Company Scale

Benefiting from the stature of the demand you are creating is an often-overlooked bonus related to the size of your operation. Capitalise on this by looking for potential value associated with scale.

Real World Example

By taking an overview of regional operations rather than individual rig schedules, it is often possible to benefit from economies of scale. This can take the form of contract discounts or more practically it could mean requiring less charged-for back up equipment in the field.

Planning Advancements

A Fresh Set Of Eyes

Most Operators have planning systems which are tried and tested. There is however always a way in which these procedures can be adjusted to improve their effectiveness or to make them more streamlined. This can be as simple as removing unnecessary content or duplication, or completely restructuring planning documents.

Real World Example

During the planning of a multi-rig development campaign the Mudlogging, Wellsite Geology and DD/LWD services were redesigned in such a way that headcount will be reduced profoundly during the execution phase. By reducing the number of personnel performing geology related services at the rig, catering, security, logistics and HSE are also affected in a positive way. These redesigns will save the Operator millions of dollars through the Development drilling campaign.

Knowledge Capture & Dissemination

By taking an overview of projects and examining the whole picture it is possible to create efficiencies simply by being informed. In the drilling business this information can be captured and spread to the wider team through: Drilling Well On Paper (DWOP) and other 'WOP' exercises, Knowledge Capture / Lessons Learned sessions and workshops for individual disciplines. The value these exercises create should not be underestimated.

Real World Examples

In a project where one company works in many countries, organising regional workshops for to be attended by all teams to ensure good practices are adopted throughout the company. These sessions also communicate common and proficient practices and reinforced the bigger picture of the regional project.

Additionally, Knowledge Capture sessions for entire campaigns for all disciplines related to drilling create huge value to the Operator. In these two or three-day conferences gather personnel associated with: HSE, Drilling Practices, Data Acquisition, Logistics, Communication and Reporting, Contracts and Procurement, Cementing, and Drilling Fluids. The meetings take an informal look at Highlights and Lowlights of the entire process. The outputs are Lessons Learned documents for each discipline which are implemented before future drilling campaigns. These long-term efficiencies provide a safer cheaper result.

Similarly, the use of Drilling the Well On Paper (DWOP) and Logging the Well On Paper (LWOP) are invaluable tools which pay dividends, through the brainstorming of all salient individuals associated with the well or campaign. One observation from an unlikely direction can lead to significant clarity and efficiency.

Day to Day Operational Adjustments

The Right Person In The Right Place, Again

No matter how efficiently projects are planned, there are inevitably areas where the unforeseen or unpredictable happens. When these outliers show themselves, it is essential that there is an individual supervising the operation who have the experience, knowledge and gravitas to deal with the situation swiftly and without fuss.

Real World Examples

During the drilling of a well in the final section. All legal and data acquisition objectives may have been satisfied, but the programme states a Total Depth (TD) of another two hundred meters - a day's drilling - should be achieved. Here it is essential to have a professional in place with the ability to identify the potential saving communicate it to those in a position to approve the decision and to instruct the team there has been a change of plan. Too often, for varying reasons, programmes are followed blindly.

Another common consumer of rig time is formation pressure tests recorded via wireline logging. These data are essential and lead to a greater understanding of the nuances of reservoirs. However, it is important that all data acquisition is planned with an understanding of the end goal and with a sense of financial responsibility. Some subsurface teams can be a little overzealous with their data wish list. It is the job of a good coordinator to ask for justification for programmes to be reduced if the end goal can be achieved with less data. Pressure test plans have been reduced by half in the past with a more than satisfactory result.

Data Acquisition Rationalisation

I Want vs. I Need

Each Operator has a different approach to Data Acquisition. It is essential to engage the team and in particular the higher level Managers in order to ascertain the goals. Only when the company's philosophy is understood can the processes of capturing this data be optimised. Often this is through rationalisation of the programmes.

Real World Examples

Rotary Side Wall Cores are often included in a data acquisition programmes. The worth of the data these cores provide and their application to the project should be discussed with the Subsurface team involved. On numerous occasions it is decided these samples are a useful supplement, not a requirement. The runs can be removed from the logging, saving rig time and the service charge, with no adverse effect on the project.

Vertical Seismic Profiles (VSP) in certain situations are revelatory pieces of information which can shed a whole new light on basin analysis. On other occasions they are time consuming costly process which simply confirm what we already know. It is a very important and sometimes difficult process to ensure the team makes the right decision.

Process Improvement

We've Always Done It This Way

Often companies have guidelines and processes which are outdated or without reasonable justification. By looking at the required deliverables or end use of the data it is often possible to create efficiencies in the process without affecting the end result. Operator processes can be very emotive. There are often personnel still in place who were instrumental in the creation or moulding of a design process or documentation structure. To convince these individuals their pride and joy is inefficient or outdated is a very difficult, sometimes impossible task.

Real World Examples

A project where fluid sample clean up during wireline operations was stated as requiring the samples to be 95% clean. After some investigation it was determined that a much shorter clean-up time would suffice for the analysis required. Two hours of rig time per sample - 12 hours per well in a 35 well programme - were saved.

The reduction in number of cuttings samples collected and stored during a lengthy campaign was achieved through a simple five-minute discussion. The campaign saved a little on materials, logistical costs and storage. However, over the life of the field the small annual saving will become significant. Often processes are followed because they are unquestioned remnants of the past. Repeating the same process without question is a common cause of inefficiency.

Operator planning processes and documentation are the elephant in the room. Too often they are convoluted, cumbersome, repetitive or just plain wrong! Forward thinking companies will allow for these outdated monuments of inefficiency to be reduced without compromising results and streamlined without sacrificing the integrity of the end result.

Contract Optimisation

Contract Design

Contract design is an essential cost saving tool. Service companies tend to make significant profit by invoicing for non-contract items or non-standard contract items. By ensuring Invitations To Tender (ITT) are constructed in such a way that the Operator has as few unplanned items billed, is a simple yet frequently unobserved efficiency. It is not enough to ask the contracts team to create a streamlined contract. There must be input from a technical specialist who thoroughly understands the service.

Real World Examples

When engaging a service, look at who the end users of the product are. It is important to carry out complete engagement of all of those who may require output from each service and to ensure all potential requirements are catered for in the standard contract. This way off contract invoicing is much reduced.

A specific case involved ensuring advanced gas detection equipment which was required by the subsurface team, was provided as a standard deliverable in mudlogging contracts. This simple addition saved the Operator hundreds of thousands of dollars.

Additionally, do your homework and ensure that standard contracts include sufficient sensors for the rigs which are to be used. This sounds like – and is – a very straight forward step. But if a contract is not tailored to the precise scope of work, there is huge room for spending on contracts to grow out of control.

Thorough Tender Evaluation

Contract bids from service companies can often be vague, or even leave out important responses which could have financial or operational consequences. Ensuring a thorough evaluation is undertaken will create financial and operational efficiency (which reduces expenditure further).

Contract Monitoring

Very close monitoring of services and invoices associated with contracts is a quintessential feature of contract management. This scrutiny helps to ensure there is no 'creep' in contract spending. The task requires time and an in-depth knowledge of the contracts. It's possible to save hundreds of thousands of dollars through simple contract monitoring.

Real World Examples

A mudlogging contract in which the real-time data monitoring licenses up to five were included in the contract. Beyond five there was a large fee per additional license. It is therefore essential – through contract monitoring – to ensure the number of licenses does not exceed five. If there is a requirement for more, write it into the contract at the design phase.

Finally, check invoices carefully. Mistakes are made. It is therefore essential to ensure you are paying for what you request and no more. Remove all charges from invoices which are not as per contract or which have been included in error. This is an important final step of contract management.