KPMG

Value creation for rapid response and long term resilience in Exploration & Production

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For the oil and gas sector, the operational and demand impacts of COVID-19 are further exacerbated by OPEC+ commitments to maintain high levels of output. As a result we believe PE and corporates can benefit from a more aggressive look at ways to manage and identify cost savings in a way that protects cashflow and maintains an eye on long term performance and resilience as markets bounce back

Market environment

The current environment has created uncertainties in demand, as well as supply excess and has rapidly exposed risks to the overall oil & gas value chain that has put certain companies in need of rapid turn-around or restructuring because of several concurring events:

Demand shocks: The current environment has adversely impacted oil & gas demand due to global slowdown across end-user segments—e.g. manufacturing, aviation, wider transportation , etc. This has impacted small to mid-size companies more acutely.

Supply shocks: Border closings and travel bans are causing significant disruptions, which are exacerbated by OPEC+ commitments to maintain high levels of output, resulting in precipitous drops in crude prices.

Reduced cash flow: In this environment operators face depressed crude prices and are delaying capital spending or payments for longer than usual, often because they are unsure of recovery. This causes a chain reaction of delayed payments from one vendor to another, which typically slows down all aspects of business.

Capex collapse: Central banks primed the economic pumps by cutting interest rates and adopting other stimulus measures as yet another indication that recession fears are growing – with the specter of prolonged low crude prices, depressed capital spending and D&C activity is almost certain.

Structured response elements

Active expense management

- Assess all expense categories and right-size to projected revenue
- Actively manage spend going forward

Field Performance

- Adopt risk / exception based well-visit programs to impact cost and volume
- Enhance KPIs / incentive programs to drive accountability and improve pumper performance

Cash / liquidity forecasting

- Improve CCC (DIO, DPO and DSO)
- Initiate analytics to identify liquidity concerns and improve forecast accuracy
- Measure and report key cash metrics

Working capital and supply chain

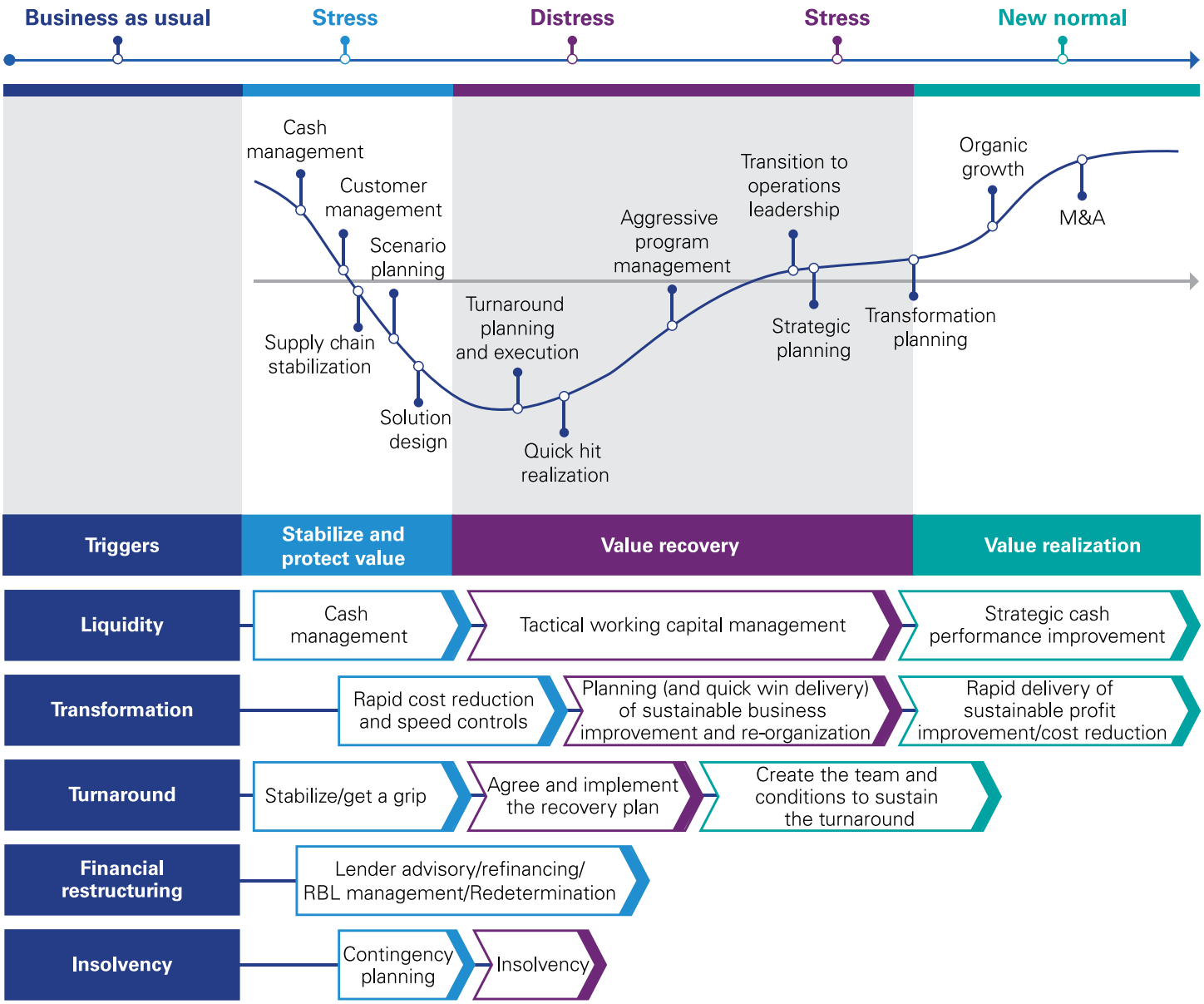
- Determine key risks (supplier risk, supply chain resilience etc.)
- Prepare responses (working capital inventory, alternate suppliers, capex etc.)

Scenario planning & management

- Develop / re-visit well-level profitability to determine negative contribution thresholds
- Build potential shut-in scenarios taking in to account volume commitments
- Model actions across production, working capital and cost containment

KPMG's framework for stabilization and value creation

At the heart of a turn-around is stabilization and value recovery. Our range of capabilities allows us to provide a comprehensive solution.



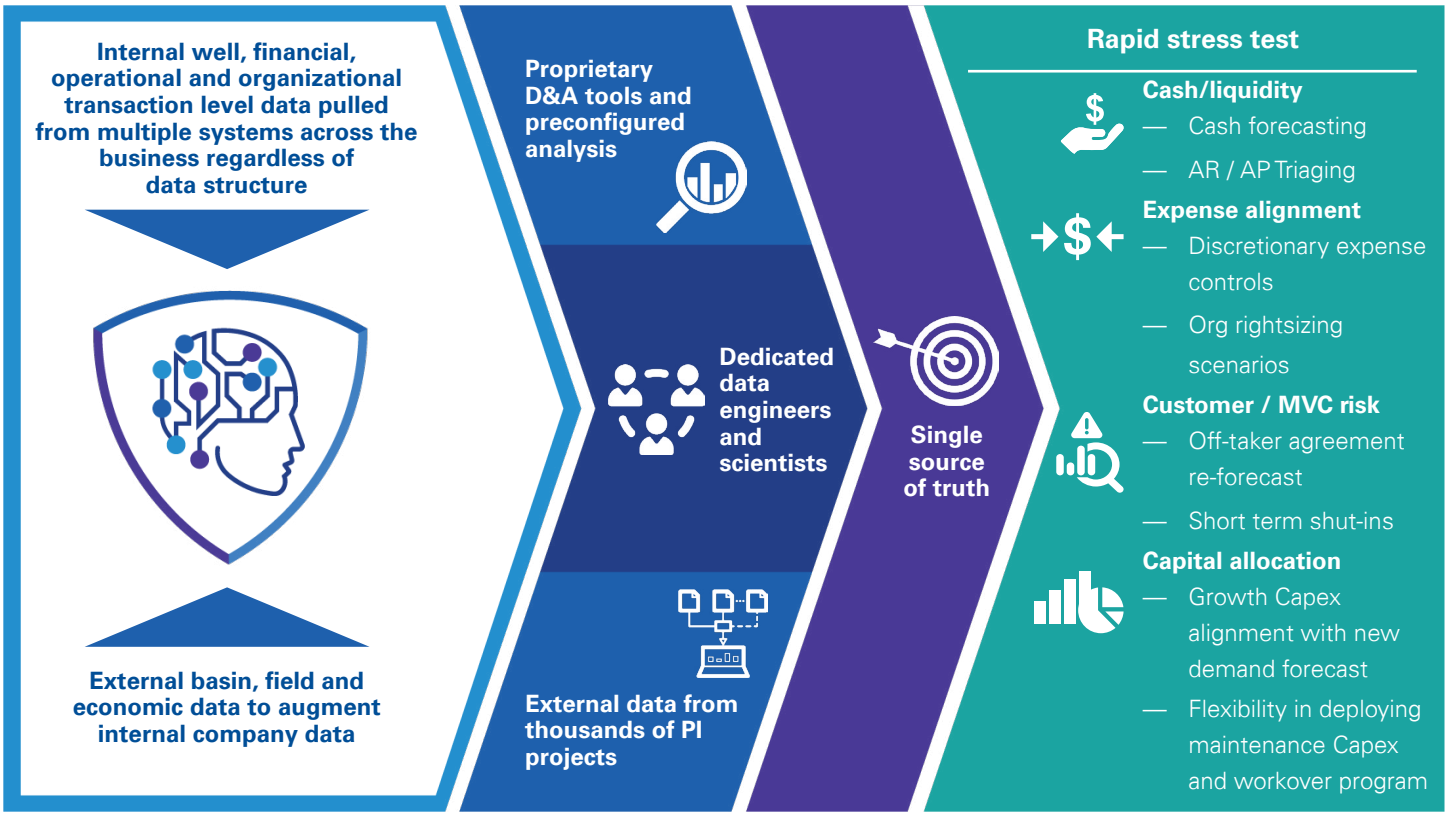
We believe we could add value across this cycle by bringing...

- Familiarity with, and knowledge of 'the levers that matter', having helped address cost and production optimization among numerous operators
- Tools and resources to take a data driven and granular approach to identifying and quantifying actionable opportunities using proven methods
- External perspectives on leading practice procedures to improve field efficiency and effectiveness
- A 'deal-pace' approach that works outside-in, with minimal disruption to management at the outset as we look to shine a light on where value may lie

In the current market conditions KPMG's proven data-driven approach to improving performance for our clients can be quickly deployed to look at the 4 stress areas and identify meaningful value levers for today and the long-term

Data & analytics driven approach to the "4C's"

KPMG's framework to assess business impact and drive cash and contain cost



Cutting across the 4C's - our Oil & Gas experience means we can bring in-going perspectives and an ability to prioritize 'the levers that matter' for rapid response; while keeping an eye on long term resilience and asset profitability through evaluation and implementation of long-term value creation levers

Example areas	Potential analysis based on past experience
Working Capital	— AP / AR triage including supplier payment terms and contract management — Rationalization of inventory levels / review of min-stock to identify spend deferral opportunities while meeting operational needs — Recalculating working capital needs to identify release potential
Third party spend	— Identify opportunities for rapid renegotiation of rates through a one-time category cost-down exercise — Undertake contract reviews for midstream, compression assets etc. — Analyze spend profile for options to consolidate spend among suppliers to increase leverage and reduce higher cost maverick or off-contract spend
Field OPEX	— Maximizing value capture by developing a "fully costed" view of the field to optimize profitability given constraints — Implementing fit-for-purpose maintenance and equipment strategies — Improving field workforce effectiveness (e.g., utilization, time on tools)
Operator performance	— Adopt risk / exception based well-visit programs to impact cost and volume — Enhance KPIs / incentive programs to drive accountability, enabling pumpers to do more with less roust-about crews, manage their route like a P&L etc. — Deploy standard operating procedures and reference guides to manage activity
Support costs	— Right-size support organizations through benchmarking, operational analysis, and zero based budgeting (ZBB) approaches — Challenge central and allocated costs, identify / eliminate shadow activity, review regional and field offices and spans of control
Volume delivery	— Apply data-driven empirical approached such as best demonstrated rate (BDR) to highlight production potential, identify underperforming wells / assets, and facilitate prioritization of intervention activities — Establish systematic process to identify and prioritize de-bottlenecking and interventions to maximize volumes / ROI
Portfolio management	— Consider short term (and long term) shut-in strategies and on-going field evaluation for negative contribution volumes, enabled by integrated portfolio and asset planning systems creating performance transparency — For PE sponsors, portfolio rationalization, including consolidation of distressed assets in healthy umbrellas and driving mgt. overhead reductions
Field development	— Maximize performance across the D&C cycle, by decomposing key activities into cost, time and quality metrics that are true value drivers to establish the critical KPIs — Utilize benchmarks to help guide focus areas with lean and CI techniques deployed to drive out value

Indicative immediacy of impact

The combination of our data & analytics driven approach and our sector knowledge means our assessment typically takes the form of a 2-stage approach over approximately 3 to 5 weeks with minimal disruption to business as usual

How our approach works from data aggregation to insight generation

BREAKDOWN OF OUR APPROACH

1 BASELINE DATA COMPILATION

PROJECT SCOPING AND KICK-OFF
- *Identify listing of wells/assets to be included in analysis*
- *Prepare data requests and identify major gaps in required data and possible solutions*
- *Mobilize team and begin data aggregation*

BUILD FULLY-COSTED WELL DATABASE
- *Obtain well level data including, but not limited to:*
  - *Monthly LOS*
  - *Daily production*
  - *Downtime logs*
- *Align LOS accounts to the structure utilized in the Reserve Report assumptions*
- *Reconcile well data to agreed in scope assets*

TAG WELL ATTRIBUTES
- *Identify individual well attributes to be utilized in hypothesis development*
- *Obtain specific well attributes including, but not limited to:*
  - *Completion date*
  - *Lift type*
  - *Pumper route*
- *Update well database with individual well attributes*

2 HYPOTHESIS DEVELOPMENT

REVIEW BASELINES VS. TYPICAL LEVERS
- *Using the fully-costed well baselines and broader business baselines, undertake a high-level scan of typical value levers using our existing workflows, to include observations on:*
  - *Production*
  - *Cost*
  - *Working Capital*
  - *Field ops*
  - *Portfolio / tail mgt. and overall profitability*
  - *Drilling & completions (data permitting)*

CRYSTALIZE HYPOTHESES AND POTENTIAL VALUE RANGES
- *Using baselines developed and typical value levers – combined with external perspectives – coalesce around potential high value focus areas*
- *For these focus areas – develop high-level quantification; to be expressed as a range of potential value given the outside-in nature of work at this stage*

SHARE FINDINGS AND AGREE WHETHER TO PROCEED
- *Communicate findings from Define phase*
- *Agree on relevance and validity of findings / broad value ranges*
- *Determine whether to proceed with more detailed analysis and (potentially) down-select focus areas*

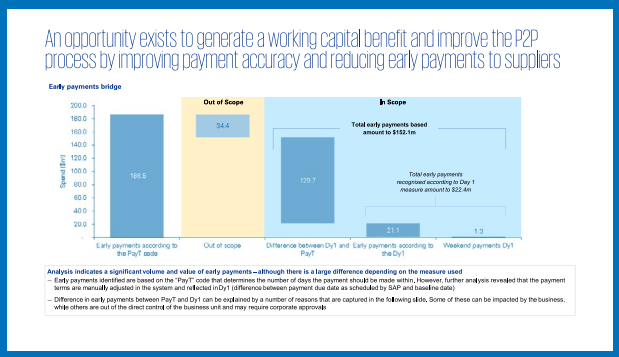
Decision point: do we see the value case and are we ready to commit to further investigation of the opportunity

What we need to get started

Request	Description	Typical provider
Monthly well level LOS	Detailed database of well level lease operating statements by month for 2017-2019	Accounting
Daily production volumes and downtime logs	Daily production volumes by well for the period 2017-2019 Downtime logs (if not included in the production information) for wells/fields as available	Accounting or Operations
Detailed well listing	Complete well listing which can agree to the monthly LOS financials and include well information / attributes	Accounting or Operations
Lease operator route	Mapping wells to lease operator route and production foreman/ superintendent area	Operations
Monthly internal & allocated financials	Financial statements that can be agreed to the LOS statements and detail of cost allocations from corporate/other groups	Accounting
Third party spend data	Detailed (e.g. invoice level if possible) data extract/cube providing purchasing spend data by supplier, category, material etc.	Accounting
Working capital	AP / AR / Inventory data for past 24months ($, terms, count etc.)	Accounting
Employee listing / census	Listing of employees and contractors (field level and G&A) by department/location, level, role, PT/FT etc.	HR
G&A / field office / facilities detail	Provide listing of all other G&A costs, field offices/locations, addresses, and primary function	Operations

Value lever details

Working Capital: Unlocking trapped cash and immediate, tactical steps can be applied to release working capital while revising long term practices



Sample from a recent project:

Early payment and renegotiation of terms

- Analysis of ~1,000 suppliers and ~200k invoices highlighted that over $150m of spend was paid before agreed terms / due date due to a variety of manual interventions
- In addition it was identified that there are 11 active payment terms employed by the business ranging from 0 to 45 days; with ~90% of terms being 30 days or less
- The combination of improved payment accuracy i.e. adherence to existing terms and an increase in select transactional supplier payment terms resulted in a cash/WC impact of $5m to $30m

Wider examples of the types of levers we have investigated with others

Creating value by improving capital efficiency and freeing up the working capital trapped by operational inefficiencies

Working Capital and Cash Flow

Accounts Payable	Inventory	Accounts Receivable
Procure to Pay	Forecast to Fulfill	Quote to Cash
Payment Terms Optimization	Inventory Management	Collections Effectiveness
Payment Clock & Schedule	Forecasting & Planning	Dispute Management
P-Card Strategy	Replenishment	Billing timeliness and accuracy
Supply Chain Finance	Materials Flow	Customer Terms Optimization
Procurement & Spend Optimization	Network Optimization	Credit & Risk Management
Days Payable Outstanding (DPO) & out flows of cash	Days Inventory Outstanding (DIO) & materials flow	Days Sales Outstanding (DSO) & in flows of cash

Representative Outputs

- **How much working capital should the business have?**
  - definition of performance baselines through data analysis and benchmarking
- **How much is excess/shortfall?**
  - fact based understanding through data and analytics, opportunity quantification leveraging proprietary tools
- **What practices are causing performance gap?**
  - evaluation of process maturity and identify gaps and performance drivers
- **What actions will free up the capital and improve cash flows?**
  - identification of key activities and implementation requirements for benefit realization
- **What metrics and targets will facilitate continuous improvement?**

Performance Levers

Customers
- Billing processes
- Credit & terms
- Collection effectiveness
- Dispute Management

Suppliers
- Supplier traded terms
- Procurement practices
- Payment Triggers
- Disbursement timing

Operations
- Differentiated segments
- Process drivers
- Inventory/Asset management

Governance
- Policies & SLAs
- Metrics & Reporting
- Organization
- Communication

Systems
- Parameters
- Functionality
- Data

Working capital analysis presents the opportunity to determine the level of liquidity and cash needs, as well as tactical working capital actions (AR, AP, inventory) that will quickly optimize cash flow for the business

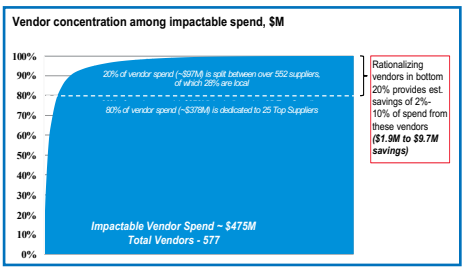
Third party spend: Proliferation of suppliers, off-contract spend and variable labor rates present opportunity to increase leverage and reduce spend

Sample from a recent project:

Off-contract spend on critical MRO material and long supplier tail

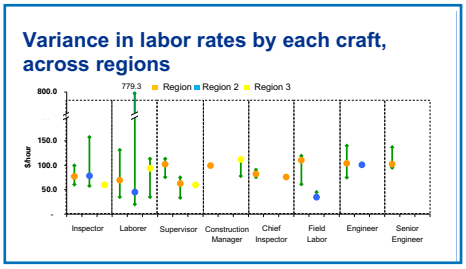
- 50% to 80% of MRO materials are purchased "off contract", with the average off-contract price being 3.4x on-contract unit prices
- In addition to higher costs, the level of supplier proliferation and off-contract purchasing drives variability in quality and lead times
- By shifting more materials on-contract alone, in line with company own best practices, annual spend could be reduced by ~$4million
- Additional benefits were identified through a focused effort to rationalize vendors in the bottom 20% of spend to drive cost savings of approximately $2m to $9m

Wider examples of the types of levers we have investigated with others



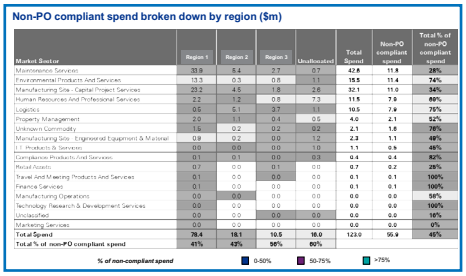
Vendor proliferation and tail analysis to increase spend leverage

- Third party vendor spend can often exhibit a long supplier tail with consolidation opportunities to funnel and avoid maverick spend in order to generate savings



Contingent labor /contractor rate analysis and harmonization

- Analyzing the costs of the suppliers in categories such as Field Maintenance & Construction Management can identify significant variance in hourly rates indicating there may be an opportunity to reduce overall contingent labor costs by shifting usage to the lowest cost providers



Non-PO compliant spend broken down by region ($m)

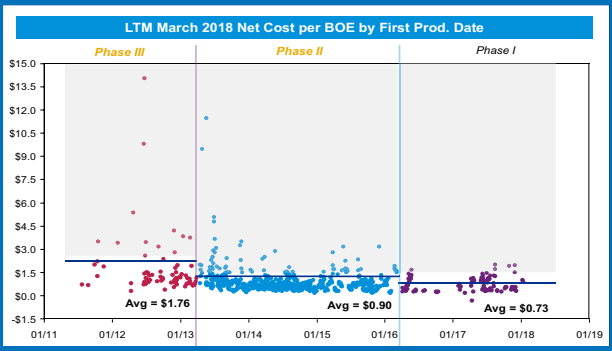
Market Sector	Region 1	Region 2	Region 3	Unallocated	Total Spend	Non-PO compliant spend	Total % of non-PO compliant spend
Maintenance Services	33.9	5.4	2.7	0.7	42.8	11.8	28%
Environmental Products And Services	13.3	0.3	0.8	1.1	15.5	11.4	74%
Manufacturing Site - Capital Project Services	23.2	4.5	1.8	2.8	32.1	11.0	34%
Human Resources And Professional Services	2.2	1.2	0.8	7.3	11.5	7.9	69%
Logistics	0.5	5.1	3.7	1.1	10.5	7.9	75%
Property Management	2.9	1.1	0.4	0.5	4.0	2.1	52%
Unknown Commodity	1.6	0.2	0.2	0.2	2.1	1.6	76%
Manufacturing Site - Engineered Equipment & Material	0.9	0.2	0.0	1.2	2.3	1.1	49%
I.T. Products & Services	0.0	0.0	0.0	1.0	1.1	0.5	46%
Compliance Products And Services	0.1	0.1	0.0	0.3	0.4	0.4	92%
Retail Assets	0.7	0.0	0.1	0.0	0.7	0.2	28%
Travel And Meeting Products And Services	0.1	0.0	0.0	0.0	0.1	0.1	100%
Finance Services	0.1	0.0	0.0	0.0	0.1	0.1	100%
Manufacturing Operations	0.0	0.0	0.0	0.0	0.0	0.0	58%
Technology Research & Development Services	0.0	0.0	0.0	0.0	0.0	0.0	100%
Unclassified	0.0	0.0	0.0	0.0	0.0	0.0	18%
Marketing Services	0.0	0.0	0.0	0.0	0.0	0.0	0%
Total Spend	**78.4**	**18.1**	**10.5**	**16.0**	**123.0**	**55.9**	**45%**
Total % of non-PO compliant spend	**41%**	**42%**	**50%**	**50%**			

% of non-compliant spend 0-50% 50-75% >75%

PO compliance process and preferred supplier list usage

- Despite focus on procurement across most entities, newer stand-ups and carve outs from major operators often lack stringent processes resulting in low levels of compliance in some areas
- In our experience, addressing this and targeting increased PO compliance including leveraging / focusing on use of preferred supplier lists (PSL) typically drives savings of 2.5% – 5.0%

Field OPEX: Across the wells, there is a large spread in opex/boe in some fields, which could suggest re-visiting work practices may drive down costs



Sample from a recent project:

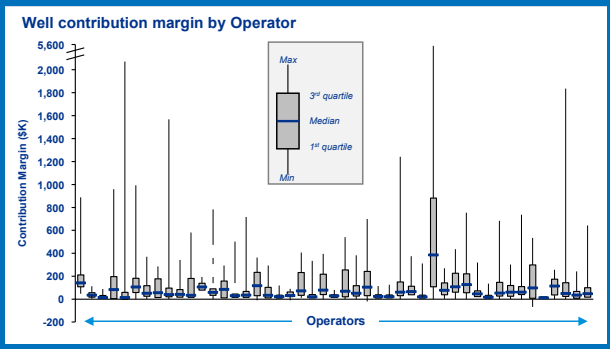
Identifying field OPEX savings across ageing field

- The spread in cost per BOE begins to widen for wells in both Phase II and Phase III indicating there may be opportunities to consider more differentiated approaches to serving older / low rate wells
- Investigation by pumper route, further suggests the extent to which remote and exception based monitoring can be applied (especially in late life wells) should be considered

Wider examples of the types of levers we have investigated with others

Focus areas	Process	People	Data	Technology
Production & Well Management	— Short interval controls — Route rationalization — Checklists, guides and troubleshooting, site interventions — Variance tracking	— Multi skilled operator — Training and development — Roles & Resp. across functions — Operator empowerment	— Well targets — Accuracy of surveillance data — Variance tracking codes	— Data collection systems (e.g. v cone, guided radar, wireless POC, automated fluid shots) — Use of SCADA
Maintenance & Reliability	— Work order management — Planning and scheduling — Autonomous maintenance — PM development	— Clarify, document, coach roles — Resource leveling — CMMS training	— Work order data requirements — Equipment history — Downtime tracking — Failure codes	— CMMS usage
Alarms and Controls	— Minimize frequent, repetitive alarms — Set point management process	— Alarm system awareness — Response behaviors	— Alarm review and rationalization — Frequency of data acquisition	— Improve use of SCADA and identify next wave digital (measurement, automated well test controls, etc.
Management & Information Systems	— KPIs, visibility and incentive programs for field operators — Continuous improvement program	— Multi-functional decision making — Empowerment to drive and enact change i.e. manage own route like P&L	— Streamlined reports — Management by exception	— Automated report rationalization and updates — Collaboration technology

Operator Performance: Operator / route analysis can show opportunities to improve well profitability e.g. through risk based well visit approaches

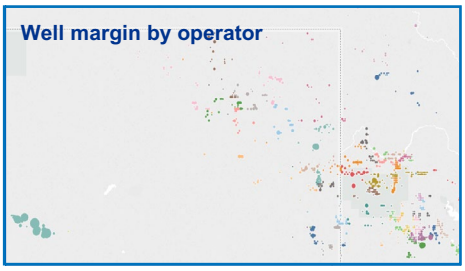


Sample from a recent project:

Operator performance and risk based well visit protocols

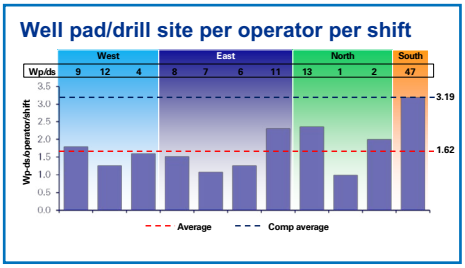
- Well profitability is differentiated between operator / route; additional variation in performance for each operator's wells
- Operator routes appear defined by geography currently, with each managing 29 wells on average (+/- 5 wells); although each has significant variability in well level profitability suggesting opportunities to stratify wells and explore new routes / exception based monitoring
- If the wells per operator ratio could be increased in line with observed ratios at other fields, (50-60 wells per operator), this could yield up to a ~$2M opportunity

Wider examples of the types of levers we have investigated with others



Route Optimization

- Shifting from a geo model to layering-in performance and exception based models by leveraging analytics, can help identify and reduce waste in operator routes to reduce FTE requirements
- Moreover, beyond cost, this type of approach can help drive focus and improve response towards specific high value wells or areas



Operator Rationalization

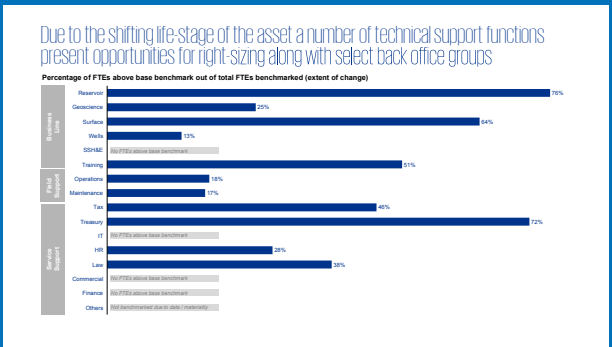
- Though dependent on each geo, experience shows that each operator can / should be responsible for 50-60 wells, especially in late life-stage fields
- Evaluation of 'spans' – in conjunction with routing and well classification, can create scalable benefits via reduction in management and other expenses

Opportunities may exist to stratify or rank wells based on certain metrics (e.g., profitability, performance, reliability, etc.) and redesign the operator program accordingly

The same stratification may also provide a framework for investment decisions on digital technologies to facilitate exception based care

Each of these potential solution areas can support a more targeted and 'fit-for-purpose' program to maintain and enhance well level performance

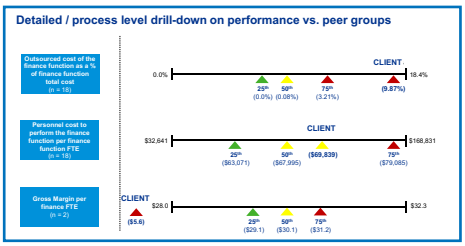
Support Costs: Benchmarking of support labor (back office and technical functions) highlights potential to right-size functional support



Sample from a recent project:
Functional benchmark to identify gaps and opportunity

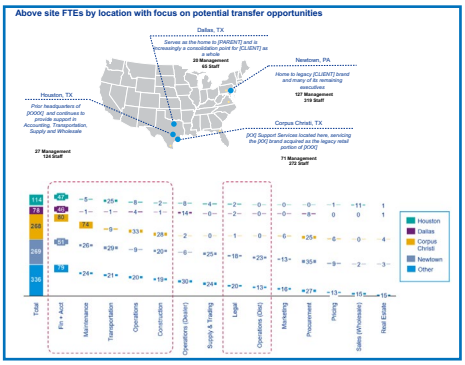
- Benchmarking across all functions highlighted that a number of technical functions in particular were above benchmark targets as the asset had moved beyond the initial development phase and heavy focus on drilling, new facility construction etc.
- In addition, the overlay of corporate support on to the local business units own support, drove duplication and high costs relative to the true needs of the asset
- Across an in-scope population of ~2k employees/contractors, total savings identified were 12% to 20%

Wider examples of the types of levers we have investigated with others



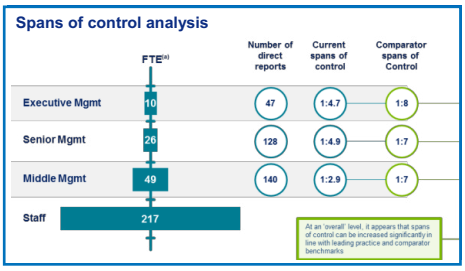
Sub-function and process level comparisons

- Using sub-function or process level benchmarks can help understand granular differences and where to focus on a tangible level beyond typical top-down measures
- This can also set the stage for zero-basing costs to remove activity



Field office / location consolidation

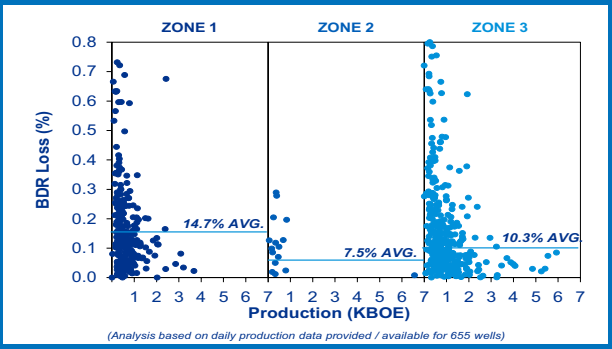
- Assets that have developed / grown through acquisition may be holding on to multiple office locations with functions delivered across multiple of these, resulting in an opportunity to potentially consolidate real estate and office
- In practice, field offices in remote locations typically cannot be consolidated however corporate and support service locations can be more readily impacted



Spans / layers and grade inflation analysis

- Over time as assets have evolved, spans and reporting structures can become mis-aligned or no longer fit for purpose – either through excessive spans / reduced oversight or very narrow leadership roles
- Grade inflation can often also occur resulting in a potentially right-sized organization, but one which is operates at a higher cost

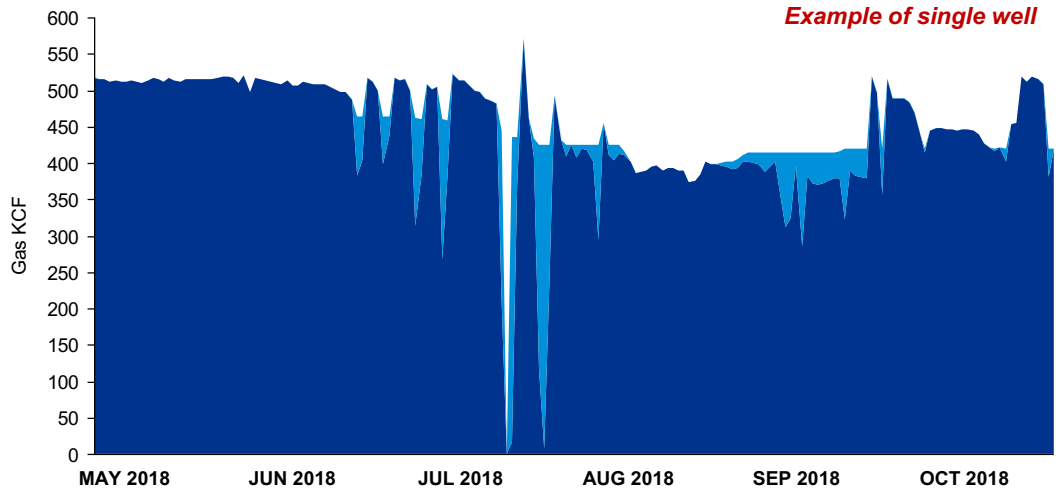
Volume Delivery: Analysis of daily production data can help highlight volatility that may indicate upside potential from stabilizing production rates



Sample from a recent project:
Best Demonstrated Rate (BDR)

- Using Best Demonstrated Rate (BDR), we assessed 655 wells (38% of total production on a BOE basis) across zones 1, 2, 3 for Dec 2018 through Jan 2019:
  - BDR suggested an overall "loss" of 63 KBOE or 11.7%; representing an equivalent revenue value of ~$1.8M
  - Despite the winter period in the data and a limited sample the analysis suggests possible challenges to explore further

Wider examples of the types of levers we have investigated with others



BDR Loss
Gas Production

Gas Production (KCF)	78,911
BDR Loss (KCF)	3,863
Uplift Potential	5%

Illustrative for the example well above only

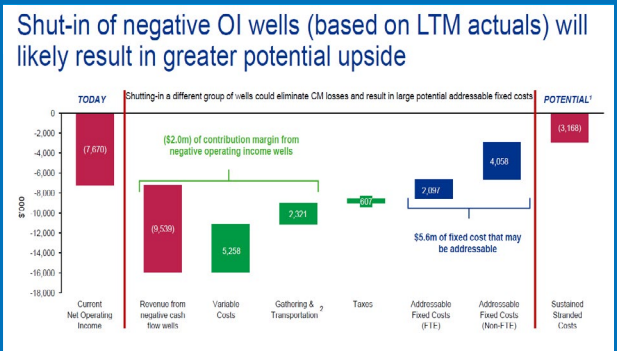
Focus on actual production and downtime / reliability in order to maximize volumes and/ or minimize losses through downtime

BDR is a measure of what production "should have been", assuming the asset was able to maintain stable volumes at best demonstrated levels

In our experience with other clients (independents and IOCs) we have found that an empirical measure / view like this can focus efforts and drive short-interval control decisions

We have found that managing on a "BDR" basis can often result in ~ 5% to 8% improvements

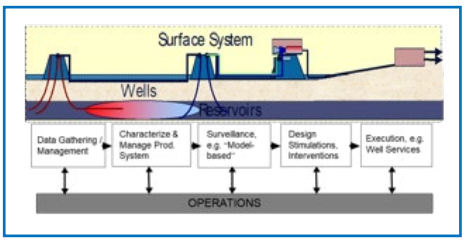
Portfolio Management: Some wells, experiencing negative margin, could be focus areas for cost reduction or short term shut-in based on scenarios



Sample from a recent project:
Negative margin well analysis

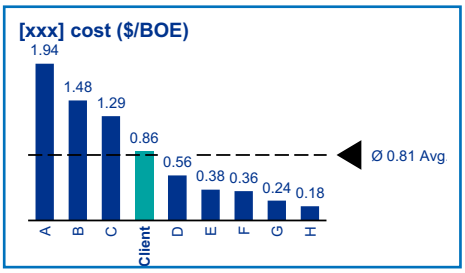
- Across all zones, wells with negative margins should be evaluated for cost rationalization or possible abandonment if target returns cannot be met
- Existing plan: ~2,000 wells noted to be "switched off" yet the contribution margin weighed against the likely stranded costs results in providing little net value
- Proposed alternative: a smaller group of ~480 wells delivered consistent negative contribution margin, representing a ~$4.5M opportunity if fixed costs and overhead could be effectively reduced (i.e. not stranded)

Wider examples of the types of levers we have investigated with others



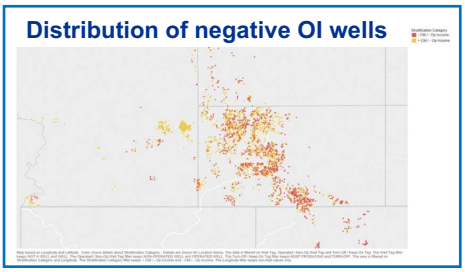
Workover Program

- Generating additional potential life from each well may be achieved through a workover program to restore / enhance production
- A systematic and disciplined approach to evaluating workover opportunities can drive targeted investments in the highest impact areas



Fixed Costs / Overhead

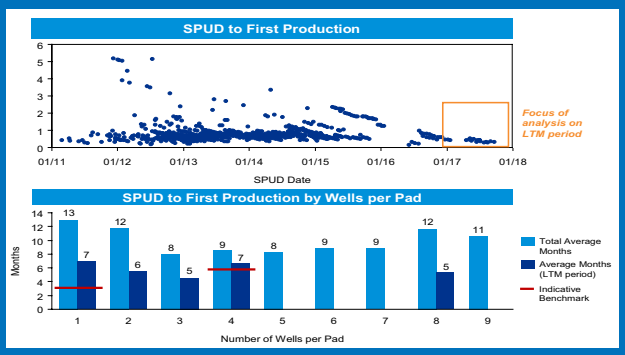
- Benchmarks can help shine a light on potential cost reduction opportunities that may help extend the economic life of each well
- Moreover, experience with other operators, as well as 3rd party data sets can provide perspective on the highest value areas to address



Shut-in strategy / Portfolio Rationalization

- For wells where expense reduction is not sufficient to enable return to profitability, a proactive shut-in strategy may be appropriate
- P&A of negative wells may improve long term profitability and allow for investment in high ROI opportunities (though costs to P&A can be high)
- Opportunities may also exist (where reasonable groupings of assets can be ring-fenced) to consider divestment to smaller operators

Field development: Analysis of the "SPUD to Sales" cycle time and lost time / D&C inefficiencies can identify and unlock significant long-term value



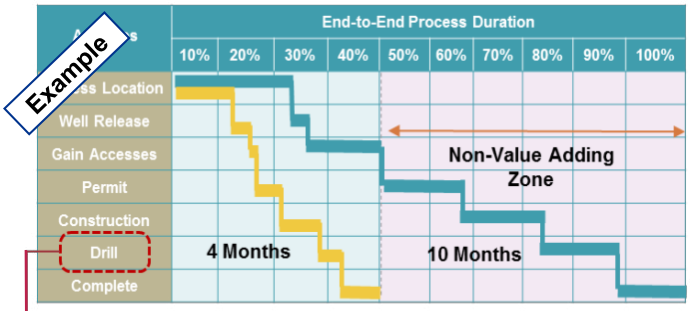
Sample from a recent project:

Drilling and Completion analysis for SPUD to first production

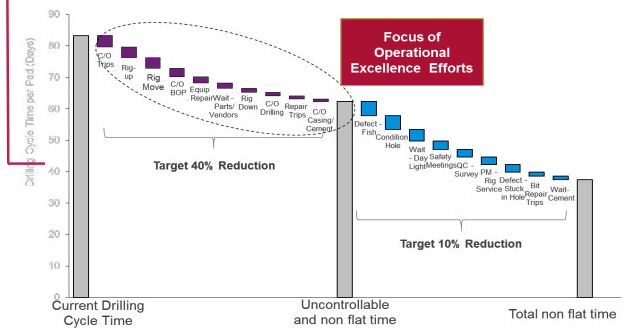
- Average cycle time over the period is about 10 months, however this has fallen to about 6 months over the past year
- When controlling for number of wells per pad, cycle appears to remain above indicative industry cycle times (3 months for a single well pad and 6 months for a 4 well pad)
- The positive trend may warrant further investigation of actions taken / ability to sustain the trajectory

Wider examples of the types of levers we have investigated with others

Operational Assessment



Sources of Drilling Inefficiencies



Application of Operational Best Practices

Effective Field Level Planning

- Rig move optimization: Created detailed execution level plan for pad rig moves
- **35% reduction in pad moves (72hr/pad, 18hr/well)**

Increased Integration with Contractors

- Drilling pipe connection optimization: Worked with contractor to design streamline process making connection
- **50% reduction in connection time (13hr per well)**

Streamlined & Standardized Processes

- Rig down process standardization: Developed standard process and rig hand standard work during rig down
- **44% reduction in rig down (18hr per well)**

Performance Management

- Rig level performance management and incentive program
- **5% increase in ft/day (18hr per well)**

Total Realized Efficiency Savings

- **Reduced drilling cycle time by 70 hours**
- **Reduced drilling cost by $300K per well**

Maximizing performance across the D&C cycle, we typically start by decomposing key activities into cost, time and quality metrics that are true value drivers to establish the critical KPIs

External benchmarks can help guide focus areas with lean and CI techniques used to drive out value

Contact us for more information on how KPMG can help accelerate rapid organizational and financial assessments and develop cost containment plans

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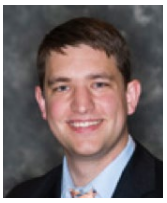

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