



Asset Ownership: Statistical Data on Rig Utilization



2019 Data Analytics

Presented By

Directorate of Planning, Research and Statistics (PRS)



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Introduction



The NCDMB Research and Statistics Framework has been developed, to provide clear procedure for data collection, compilation, analytics, dissemination, utilization and archiving. The framework provides that periodic data analytics will be presented for Assets utilised in the oil and gas industry with focus on Rigs and Marine Vessels. Pursuant to the approved framework, we hereby present data analytics on Rig utilization. The description of data is summarized below:

1. What to measure:
 - a. Rig utilization in the industry by types and terrain deployed
 - b. Cost of Rig acquisition
 - c. Potential income from Rig utilisation
 - d. spend distribution tied to deployment of Rigs and inherent supply chain opportunities
2. Data sources:
 - a. Department for Petroleum Resources (DPR) Annual Report 2017
 - b. Drilling Rig business fundamentals from selected drilling companies
 - c. Desk top research
 - d. Oral interviews with NAPIMS staff
3. Data covered :
 - a. Rig Count for the period 2015-2018
 - b. Projected Rig count for 2019
 - c. Rig day rates as @ 2018
 - d. Quantitative analysis of supply chain opportunities
 - e. Collation date- January 2019
4. Limitations of the research:
 - a. Data on actual number of days Rigs were deployed were not available from DPR annual report, as such data on industry spend represent potential spend and not actual spend. Potential spend is however credible for the purpose of this statistical analysis
 - b. 5 year Rig demand data has not yet been obtained. However data for 2019 forecast adequately described the supply chain opportunities inherent in deployment of Rigs

Research Methodology



Data Gathering

1. Rig utilization data gathered from DPR 2017 annual report
2. Rig day rates obtained from NAPIMS and Drilling contractors
3. Drilling Rig Business Considerations including cost of Rigs from ODENL
4. Desktop research on supply chain opportunities from deployment of Rigs



Analytics

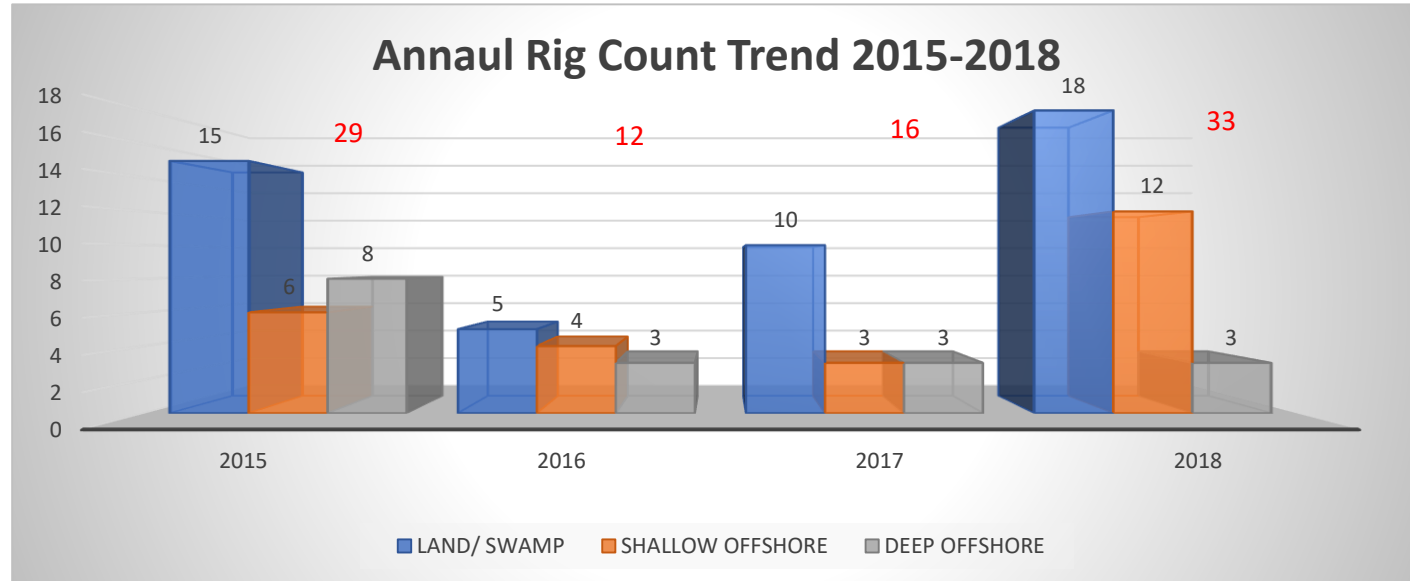
1. Descriptive analysis
2. Diagnostics analysis
3. Prescriptive analysis
4. Predictive analysis



Policy Recommendation

1. Promote and sustain growth in indigenous ownership of Rigs
2. Enforce utilization of local content compliant Rigs by Operators
3. Develop capacity of local shipyards to build, service & maintain Rigs of various sizes
4. Develop and maintain a healthy pipeline of local service providers , to maximise local content value from supply chain opportunities connected to deployment of Rigs

Rig Utilization Analytics: Trend by Rig Count

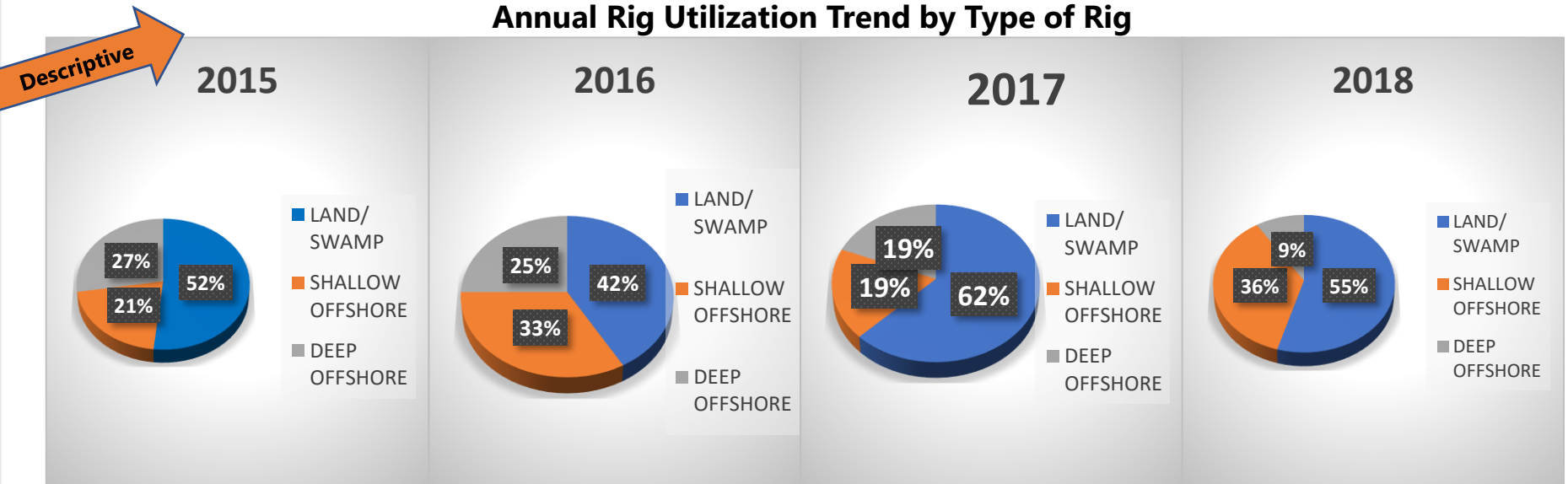


Source: 1) DPR 2017 Oil and Gas Annual Report
2) Drilling Rig Business Fundamentals

Diagnostics:

1. The Rig count of 29 in 2015 is the highest over the 4 year period 2015-2018 when compared to 12 Rigs in 2016, 16 Rigs in 2017 and 33 Rigs that operated in Nigeria in 2018
2. The over 50% drop in Rig count recorded in 2016 and 2017 when compared to 2015 Rig count was attributed to decline in global price of crude during the period, while the 100% increase in Rig count in 2018 when compared to 2017 Rig Count is due to rebound in the price of crude oil during the period.
3. **This trend has established a nexus between oil price and demand for Rigs for various operations in the oil and gas industry**

Rig Utilization Analytics: Trend by Rig Type



Diagnostics:

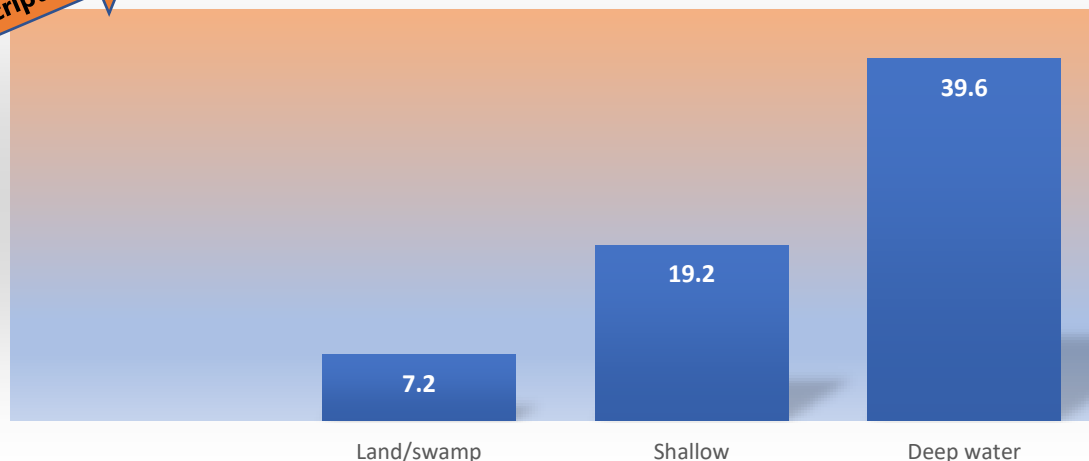
1. Over the 4 year period 2015-2018 Land & swamp Rigs accounted for 50.5% of the Rig Count
2. Shallow water Rigs accounted for 29% of Rigs utilized.
3. Deep offshore Rigs accounted for 20.5% of Rigs utilized.
4. **The trend shows that over the 4 year period 2015-2018 land & swamp operations accounted for the highest Rig count compared to other terrains, indicating higher demand for land and swamp Rigs for onshore operations compared to offshore operations. The trend is consistent in periods of high and low Rig counts,.**



Rig Utilization Analytics: Annual Income Potential

Annual Income Potential \$Million Per Rig

Descriptive



Assumptions:

1. Average day rates- Land/Swamp (\$30,000), Shallow offshore (\$80,000) and Deep offshore (\$165,000)
2. 20 days of operation per month to allow for routine checks and maintenance
3. 12 months operation per annum
4. 1\$:N360

Diagnostics

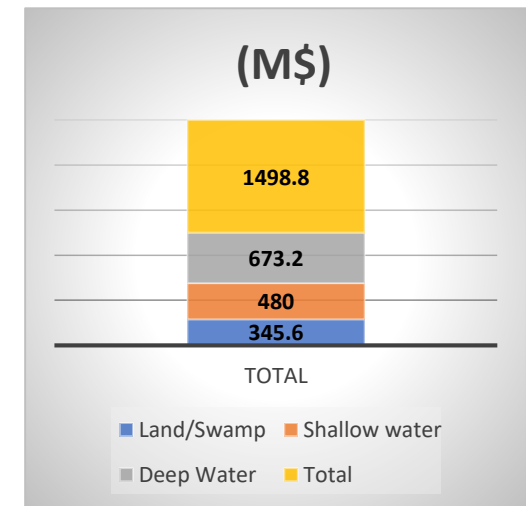
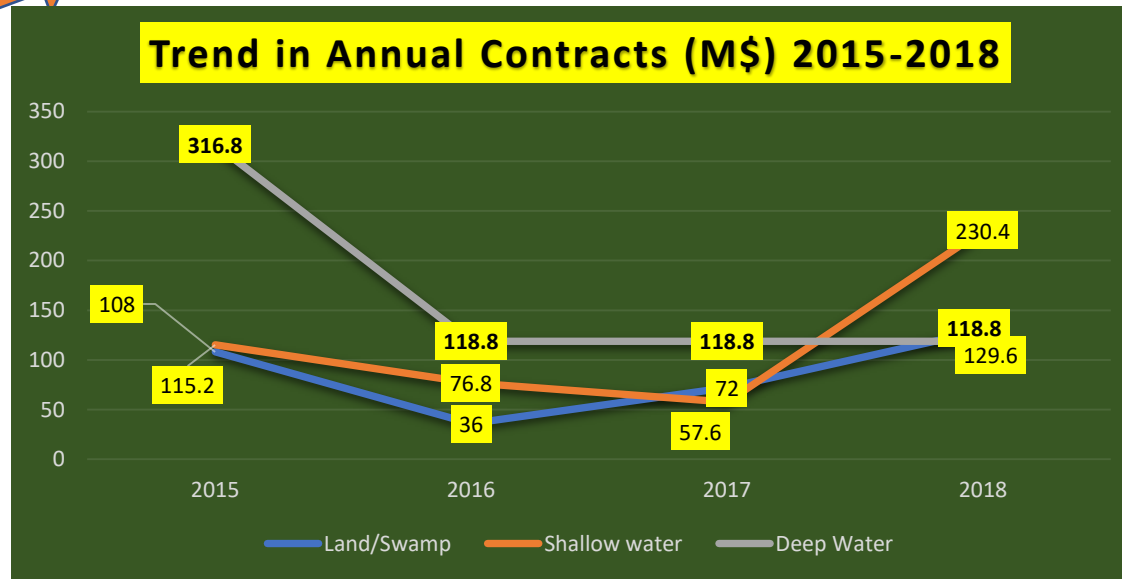
Based on the assumptions highlighted above a Rig has the potential to generate the following Gross income to its owners:

1. Drillship operating in deep waters could earn \$39.6 Million ie N14.256 Billion per annum
2. Jack up Rigs operating in shallow offshore waters could earn \$19.2 Million ie N6.912 Billion per annum
3. Land & Swamp Rigs operating in land and swamp terrain could earn \$7.2 Million ie N2.592 Billion per annum
- 4. Drillships operating in deep waters generate the highest income for its owners compared to other Rig types**

Rig Utilization Analytics: Annual Income Potential based on Rig Count



Descriptive



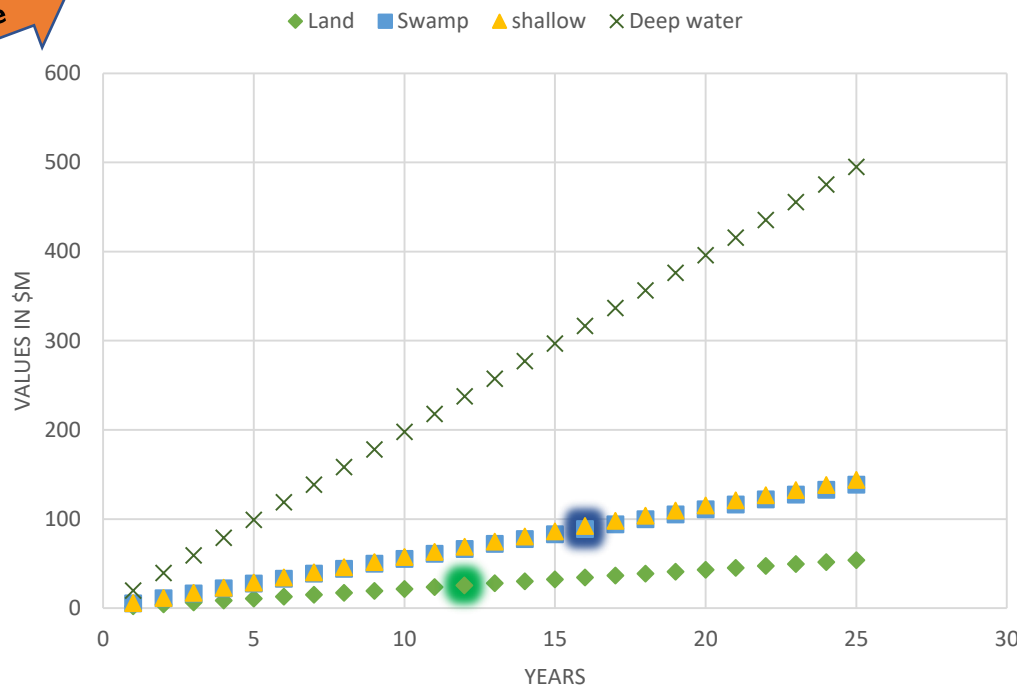
Diagnostics

1. The estimated value of contracts awarded for Rig Utilisation, measured by the factors of Rig count and average day rates for the periods 2015-2018 amounted to \$1.50 Billion (N540 Billion).
2. Deep-water Rig with the lowest Rig count during the period (20.5%) accounted for the highest spend at \$673.2 Million (N242.4 Billion) or 45% of spend on Rigs
3. Shallow water Rigs with Rig count of 29% during the period accounted for 32% of Rig spend ie \$480 Million (N172.80 Billion)
4. Land and swamp Rig recorded circa earnings of \$345.6 Million (N124.4 Billion) representing 23% of spend while it accounted for 50.5% of Rig count during the period
5. **The trend indicates that Rigs operating in shallow and deep waters create more income compared to land Rigs & swamp , even though land & swamp Rigs account for the highest Rig count**

Rig Acquisition Analytics: Comparing Acquisition cost and Rig Operating Margin over Rig Life



INCOME PROJECTION OVER RIG LIFE SPAN



Assumptions-

1. Acquisition cost:
 - a. Land Rig- \$8-25 Million
 - b. Swamp Rig -\$65-90 Million
 - c. Shallow water- \$100-200 Million
 - d. Deep offshore -\$400-750 Million
2. Benchmark life span of Rig @ 25 years
3. Operating margin @ 30% of ongoing Rig rates

Diagnostics

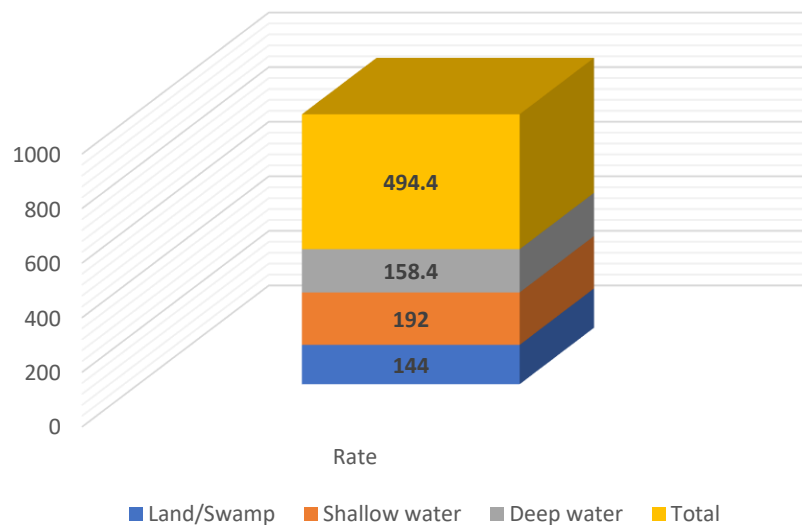
1. Break even point for Land rigs with acquisition cost of \$25 Million is 12 years, Swamp Rig with acquisition cost of \$90 Million is 16 years,
2. Break even point for Shallow water with acquisition cost of \$200 Million and Deepwater Rig with acquisition cost of \$750 Million is more than 25 years
3. The trend indicates that investment in Rig is a long term venture, requiring special financing model under the NCIF and other interventions

Predictive Analytics: Rig Utilization Opportunities in 2019



Predictive

Contract Opportunities in 2019(\$M)



Assumptions-

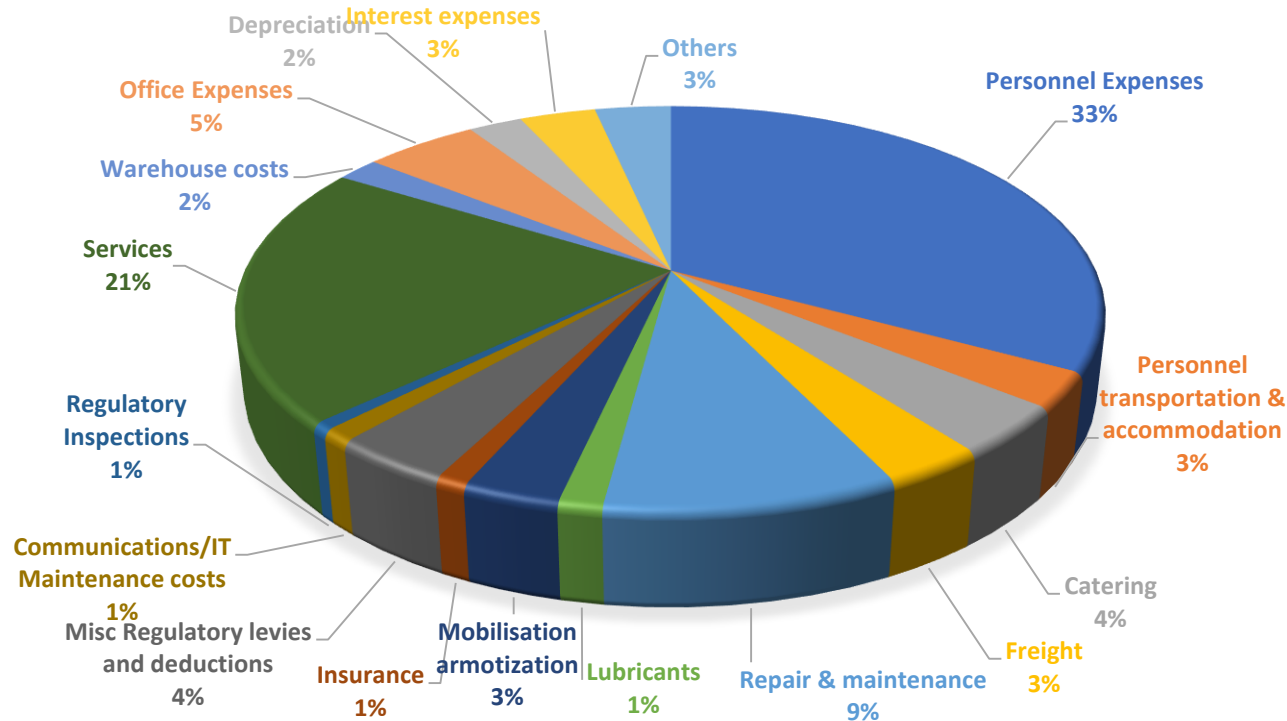
Rig utilization for 2019 based on current market information and ongoing tenders:

1. Land & swamp -18 Rigs
2. Shallow water- 10 Rigs
3. Deep offshore -4 Rigs
4. Total 34 Rigs

Diagnostics

1. Based on the assumption above the demand for Rigs in 2019 is valued at \$494M (N177.8 Billion)
2. Supply chain activities provide significant opportunity for local content development

Rig Deployment Analytics: Distribution of OPEX



Diagnostics

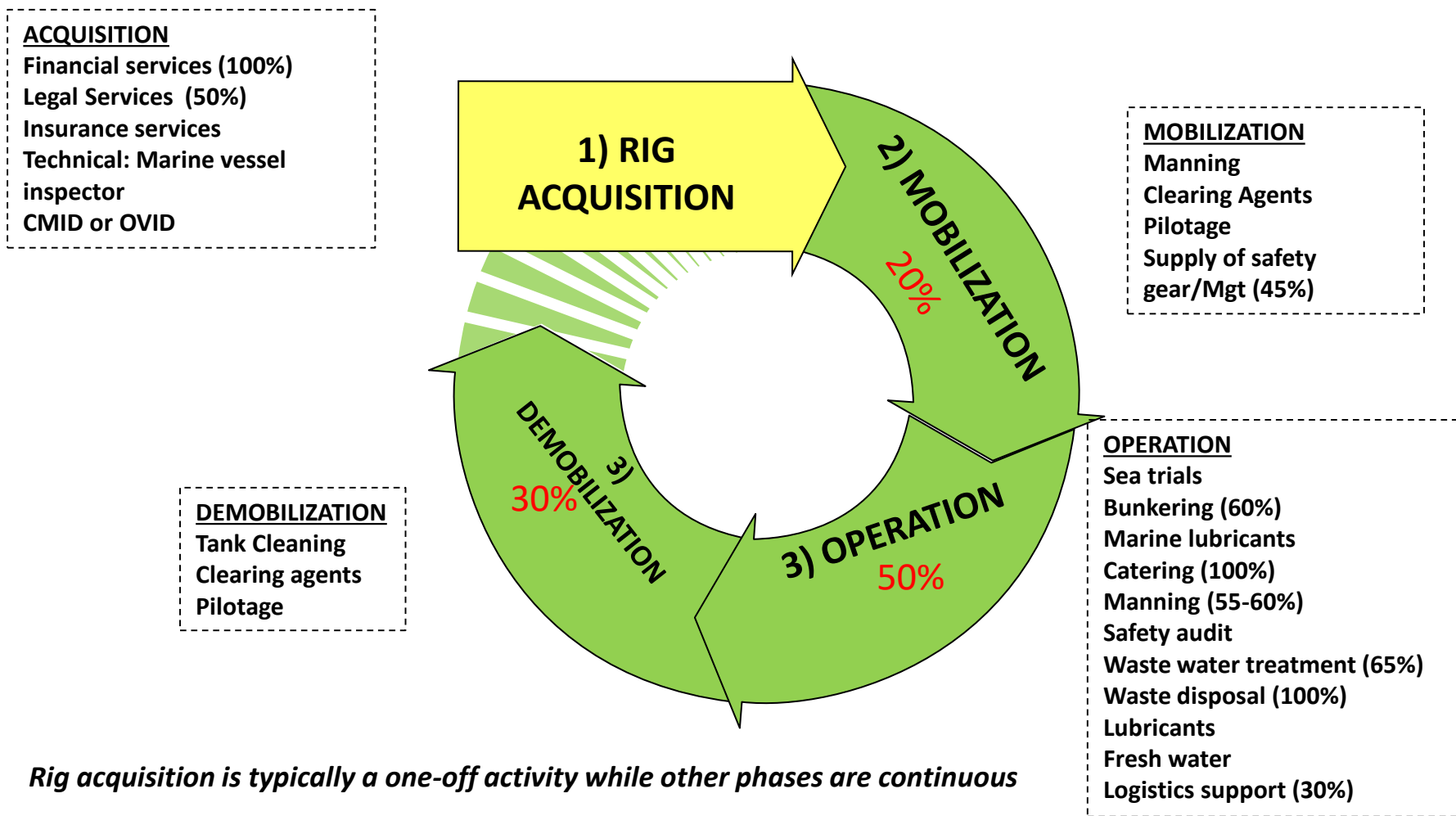
Analysis of Rig spend distribution reveal that about 60% of OPEX is attributed to 4 activities namely:

1. Personnel expenses account for highest spend @33% of total OPEX
2. Services which comprise vessel charter, JV expenditure account for 21% of OPEX
3. Repairs and maintenance account for 9% of OPEX
4. Catering services account for 4% of OPEX

5. Deliberate capacity building interventions is compelling, to build requisite capabilities and retain spend associated with these transactions



Rig Ownership Analytics: Rig Deployment Cycle









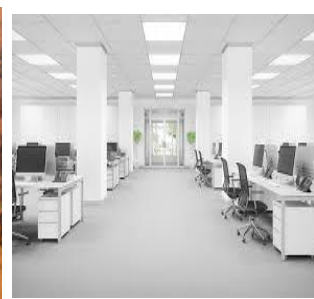

Rig Utilization Analytics: Value Chain Opportunities for 2019

Assume 70% of \$494.4 Million is for OPEX ie \$346 Million or N124.5 Billion

					
Revenue	Maintenance, repair & overhaul	IT & Telephony	Jobs	Lubricants	Offshore catering
<ul style="list-style-type: none"> Capital retention in financial institutions Paid up insurance premium and Tax revenue to Govt. 	<ul style="list-style-type: none"> Rig construction Rig maintenance & overhaul Rig Repairs Rig inspection & certification 	<ul style="list-style-type: none"> Computer hardware Software Systems - Power system, Hoisting system etc 	Job types include: <ul style="list-style-type: none"> Roustabout Roughnecks and other personnel Salaries and wages 	Category of lubricants include: <ul style="list-style-type: none"> Gear Oil Engine oil Hydraulic oil 	Opportunities include: <ul style="list-style-type: none"> Catering Services Raw food supply Quality control
\$494.4	\$32.2M	\$3.5	\$113.9M	>\$4.8M	\$13.5

Rig Utilization Analytics: Value Chain Opportunities



					
Services	Logistics	Security & others	Misc Regulatory levies and deductions	Office Expenses	Warehouse cost
<ul style="list-style-type: none"> • 3rd Party services • Support vessels • Tubular services • JV expenses 	<ul style="list-style-type: none"> • Equipment • Personnel • Accommodation • And \$11M/annum for freight 	opportunities <ul style="list-style-type: none"> • Potent asset in times of global crisis 	capital which includes: <ul style="list-style-type: none"> • \$11.8M for interest • \$8.3M for Depreciation and • \$13.1M Misc Regulatory levies 	<ul style="list-style-type: none"> • Rents • Consumables • Papers • Office gadgets 	Buying houses for materials
>\$72M	\$10M	\$11.8M	>\$33.2M	\$17.7M	\$6.6M

Prescriptive Analytics



Prescriptive analytics will apply the statistical data in recommending policy actions that will assist the Board in meeting its aspirations for Rig acquisition and Rig utilization, namely:

1. Promote and sustain growth in indigenous ownership of Rigs
2. Enforce utilization of local content compliant Rigs by Operators
3. Develop capacity of local shipyards to build, service & maintain Rigs of various sizes
4. Develop and maintain a healthy pipeline of local service providers , to maximise local content value from supply chain opportunities connected to deployment of Rigs

Prescriptive Analytics: Promote and Sustain Growth in Indigenous Ownership of Rigs



S/no	Policy action	Responsibility	Date
1	Asset financing: <ul style="list-style-type: none"> a. Rig count diagnostics reveals that land & swamp Rigs account for 50.5% , shallow water Rigs 29% while 20.5% of Rig count were Deep water Rigs. b. Acquisition of Rigs followed the trend of land \$25 Million, swamp Rig \$90 Million jack up Rigs \$200 Million and Drillships \$750 Million c. Investment in acquisition of land and swamp Rigs can be recouped in year 12 and 16 respectively while jack up and Drillships breakeven point is over 25 years <p>In order to promote ownership of Rigs, Rig financing products under the NCIF should be structured as follows:</p> <ul style="list-style-type: none"> a. Land Rigs should be structured with a tenor of 10 years b. Other types of Rigs should be structured with longer tenors above 10 years and through syndicated financing with other development finance institutions and the capital market 	NCDMB (DFPM) BOI	Q2 2019
2	Contract tenor: <p>Given the high acquisition cost for Rigs, it is important to have contract arrangements that will provide comfort to financiers of Rigs. However the practice today is that most Rig contracts are 2years + 1 year option. In some cases contracts are 1 year + multiple 1 year options. The seemingly short term nature of contracts makes access to finance for Rig acquisition very difficult, thereby limiting indigenous ownership of Rigs</p> <p>NCDMB and NAPIMS may consider a review of contract tenors for Nigerian content compliant Rigs along the following considerations:</p> <ul style="list-style-type: none"> a. Land and swamp-2 years + multiple of 1 year contracts b. Shallow waters (Jackup)- 3 years + multiple of 1 year c. Deep water (Drillship) - 5 years+ multiple of 2 year 	GM PCAD NAPIMS	Continuous
3	Dissemination of Rig demand data <p>The data on Rig demand and supply chain opportunities being generated by PRS on an ongoing basis should form part of data that will be shared to the industry under the NOGOF platform, to facilitate informed investment decision making</p>	DPRS	Q1 2019

Prescriptive Analytics: Enforce Utilization of Local Content Compliant Rigs by Operators



S/no	Policy action	Responsibility	Date
1	<p>Categorization of Rig owners</p> <p>Typical Contracting Process for Rigs takes an average of 18 months – 36 months. This impacts steady cash flow and discourage investments.</p> <p>From the analytics on Rig acquisition cost vs Return on Investment, it has been established that acquisition of high end Rigs require special intervention. Accordingly we recommend a scheme for categorization of Rigs based on several criteria including ownership profile, maintenance history, sources of support services etc.</p> <p>In this regard, ownership profile should be main criteria for land & swamp Rigs while maintenance history and source of services should be the main criteria for categorizing Jack up Rig and Drillship</p> <p>A data base of pre-qualified Nigerian content compliant Rigs that can be referenced by all operators will shorten the contracting cycle, accelerate contract opportunities and stimulate new investments.</p>	NCDMB-CB, PCAD	Q3 2019
2	<p>Rig sharing policy:</p> <p>Rig count analytics had established a nexus between oil price and demand for Rigs for various operations in the oil and gas industry. In periods of low crude price, high cost of hiring Rig and Rig scarcity, some Operators are unable to hire Rigs. Rig sharing concept has evolved as a veritable model for hiring Rigs under the scenarios highlighted above . Rig sharing model will require establishment of Rig club by Operators with membership drawn from Nigerian content complaint Rig owners. The proposed model seeks to confer the following advantages- optimized Rig schedule/utilization, shared services, cost reduction and improved production efficiency</p> <p>We recommend that the Rig sharing model be discussed with Operators and Rig owners as one of the strategies to deepen all time Rig utilization in the oil and gas industry</p>	NCDMB-CB & PCAD OPTS NAPIMS	Continuous

November 23, 2019

Prescriptive Analytics: Develop and Maintain a Healthy Pipeline of Local Service Providers, to Maximise Local Content Value from Supply Chain Opportunities Connected to Deployment of Rigs



S/no	Policy action	Responsibility	Date
1	Personnel 33% of Rig OPEX is on personnel expenses. Nigerian manning of Rigs is therefore an avenue to retain significant industry spend estimated at \$114M in 2019 Manpower Development programs and establishment of Training Centres of Excellence under the industry skills development programs should include training & certification for the various job categories, namely Ratings, Roustabout/roughnecks, welders/mechanics, rig operators/ Drillers, Engineers, safety and medical personnel	NCDMB- CB OGTAN	Continuous
2	Catering Catering services account for 4% of OPEX ie \$14 Million opportunity in 2019. The following actions are required to retain spend in this sector: 1. Carry out enumeration of catering companies and level of participation of Nigerian companies 2. Develop supplier development program for raw food production, storage, processing and supply to catering companies in the oil and gas industry. This intervention should focus on community contractors	NCDMB CB	Continuous
3	Services Services account for 21% of OPEX ie \$73 Million opportunity in 2019 . It includes provision of support vessels, equipment, JV services etc. The following actions are required to retain spend in this sector 1. Ownership of drilling units and tools by Nigerian companies 2. Attract and protect local manufacturing or assembly of drilling equipment and tools 3. Enforce utilization of Nigerian owned support vessels	NCDMB CB	Continuous



Description of Rigs

Jack-ups



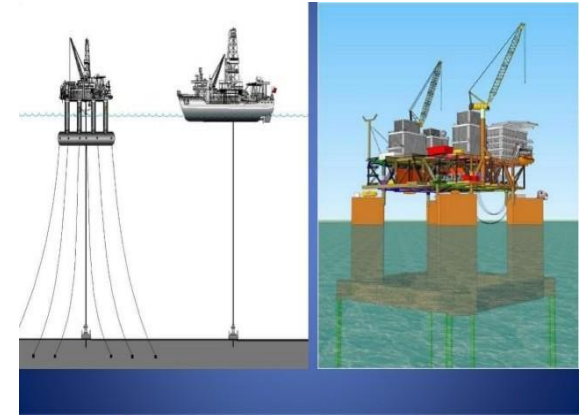
Operate at water depth 500ft

Drilling Barge



Operate in Shallow water

Submersible Rig



Operate at water depth 10,000ft

DrillShips



Operate at water depth 12,000ft



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