

## What is your industry segment?

A. Drilling Contractor	16.7%
B. Equipment Manufacturer	43.8%
C. Service Company	14.6%
D. Other	25.0%

## What market segment accounts for the majority of your operations/business?

A. Onshore conventional	17.2%
B. Onshore unconventional (tight gas, shale, coalbed methane)	34.3%
C. Offshore, less than 500-ft water depths	2.0%
D. Offshore, 500-5,000-ft water depths	15.2%
E. Offshore, water depths beyond 5,000 ft	31.3%

## How old are you?

A. Under 30	6.9%
B. 31-41	27.5%
C. 41-50	24.5%
D. 51-60	27.5%
E. 60 Above & Beyond!	13.7%

## Of the following, which represents the greatest immediate 'need' for the Drilling Industry?

- |   |       |
|---|-------|
| A. Human Resources (e.g. skilled manpower)        | 10.6% |
| B. Higher levels of drillfloor automation         | 28.7% |
| C. Improved downhole instrumentation and control  | 22.3% |
| D. Faster speed of data and communication         | 11.7% |
| E. Broader data collaboration ('Bigger' Big Data) | 26.6% |

7. Of the following, which represents the greatest immediate 'need' for the Drilling Industry?

1) Human Resources (e.g. skilled manpower)

26 %

2) Higher levels of drillfloor automation

44,3 %

3) Higher resolution of downhole instrumentation and control

18,3 %

4) Faster speed of data and communication

11,5 %



## What will accelerate the adoption of modern technologies commonly utilized in other industries, but not currently applied in drilling?

- |  |       |
|--|-------|
| A. Skill sets of a new generation of drillers  | 6.7%  |
| B. Industry leaders will adopt and implement new technology                                    | 27.9% |
| C. Oil company investment in more R&D  | 19.2% |
| D. Need for improved efficiency  | 27.9% |
| E. More collaboration between oil companies in joint industry projects                         | 17.3% |
| F. Not necessary: Drilling industry can implement its own solutions without input from outside | 1.0%  |

## Operators only, please: Does a downturn market encourage or discourage implementation of automation?

- |   |       |
|---|-------|
| A. Discourages: not a good time to spend the money      | 23.1% |
| B. Encourages: we need technology to improve efficiency | 76.9% |

## Contractors only, please: Does a downturn market encourage or discourage implementation of automation?

- |  |       |
|--|-------|
| A. Discourages: not a good time to spend the money   | 5.9%  |
| B. Encourages: We must differentiate ourselves and automation has the potential to be a great differentiator | 47.1% |
| C. Depends on customer support and demands   | 47.1% |



In addition to enhanced safety, which of the following represents the most desirable deliverable from Drilling Automation?

A. Lower rig headcount	7.8%
B. Faster drilling	11.1%
C. Reduced non-productive time	55.6%
D. Higher production from better quality wells	25.6%

## What are the major barriers to uptake of automation in well construction?

- |  |       |
|--|-------|
| A. Status quo – what we do today is fine                           | 18.1% |
| B. Reliability is an issue   | 25.5% |
| C. Increase in operational efficiency has not been proven          | 27.7% |
| D. Incompatible automated systems caused by industry fragmentation | 28.7% |

## What system in the next five years will be fully automated on 30% of drilling rigs?

A. Tubular handling and tripping pipe	55.4%
B. Drilling (making hole)	20.7%
C. Directional steering downhole	10.9%
D. Well Control	9.8%
E. Fluid systems and solids control	3.3%

## What percentage of rigs may in 20 years run autonomously?

A. None	14.7%
B. Below 5%	40.0%
C. Up to 30%	32.6%
D. Higher than 30%	12.6%

## In 10 years, what should be the tasks of the modern drilling crew?

- |   |       |
|---|-------|
| A. Same as today  | 10.4% |
| B. Supervisory with manual incident handling  | 66.7% |
| C. Purely maintenance and logistics: rig processes otherwise controlled from off-site | 20.8% |
| D. No crew on rig. Task force sent to rig only for inspection and maintenance         | 2.1%  |

Automated well control is possible with today's technology, but the technology has not been widely implemented. What is the biggest obstacle to its widespread use?

A. Health, Safety or Environmental risk	15.2%
B. Cybersecurity risk	1.1%
C. Contractual liability	22.8%
D. The technology is available but not proven	38.0%
E. Entrenched mentality (not on my rig)	22.8%

## What oil price will put the deepwater GOM back to work? (If they're working, everybody's working!)

A. \$50-\$59	2.1%
B. \$60-\$69	23.2%
C. \$70-\$79	35.8%
D. \$80-\$89	32.6%
E. \$90-\$99	3.2%
F. \$100 plus	3.2%