Industry Response Panel
Automatic Response System – Results
1. What is your industry segment?

1) Operator 6.3%

2) Drilling Contractor 22%

3) Equipment Manufacturer 49.6%

4) Service Company 11%

5) Others 11%
2. What market segment accounts for the majority of your operations/business?

1) Onshore conventional  | 23.8%
2) Onshore unconventional (tight gas, shale, coalbed methane)  | 12.3%
3) Offshore, less than 500-ft water depths  | 9.2%
4) Offshore, 500-5,000-ft water depths  | 23.1%
5) Offshore, water depths beyond 5,000 ft  | 31.5%

IADC 75 years
3. How old are you?

1) Under 30 - 7.2%
2) 31 - 40 - 27.3%
3) 41 - 50 - 26.6%
4) 51 - 60 - 23%
5) Above 60 - 15.8%
4. Does a downturn market encourage or discourage implementation of automation?

1) Discourages: Can’t afford the investment 17%

2) Encourages: We must differentiate our selves and automation is a great differentiator 40%

3) Depends on customer support/requirements 38.5%

4) Don’t know 4.4%
5. What will accelerate the adoption from other industries of modern technology applications not used in drilling?

1) Skill sets of a new generation of drillers
   6.5%

2) Industry leaders to adopt and implement new technology
   43.9%

3) Oil company investment in more R&D
   10.8%

4) Need for improved efficiency
   36.7%

5) Not necessary: Drilling industry can implement its own solutions without input from outside
   2.2%
6. Of the following, which represents the most desirable deliverable from Drilling Automation?

1) Lower rig headcount 12.2%

2) Faster drilling time to TD 34.4%

3) Reduced NPT 35.9%

4) Higher producing wells 17.6%
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%
8. Hardware in the Loop (HIL) testing is a QA/QC method of validating software without necessarily having the ‘big iron’ immediately available. Where would you see its primary value as a testing method?

1) During the initial system development and engineering
   - 48.1%

2) During initial installation and commissioning of the system
   - 18.3%

3) Used as a method to validate modifications and/or software changes to a system in-service, prior to deploying the respective change
   - 20.6%

4) To troubleshoot unanticipated problems with software already in use and operation
   - 7.6%

5) Questionable value due to unsupported business case
   - 5.3%
9. What are the major barriers to uptake of automation in well construction?

1) Status quo - what we do today is fine?
   - 21.7%

2) Reliability is an issue?
   - 41.1%

3) Increase in operational efficiency has not been proven?
   - 37.2%
10. What percentage of rigs may in 20 years run autonomously?

1) None 6.8%

2) Below 5% 27.1%

3) Up to 30% 38.3%

4) Higher than 30% 27.8%
11. What system in the next five years will be fully automated on 30% of drilling rigs?

1) Tubular handling - 48.1%

2) Drilling and tripping - 26.3%

3) Directional steering downhole - 13.5%

4) Well Control - 3.8%

5) Fluid systems and solids control - 8.3%
12. In 10 years, what should be the tasks of the modern drilling crew?

1) Same as today  
   **6,2 %**

2) Supervisory with manual incident handling  
   **62,8 %**

3) Purely maintenance and logistics - rig processes otherwise controlled from off-site  
   **28,7 %**

4) No crew on rig. Task force sent to rig only for inspection and maintenance  
   **2,3 %**
13. What is the biggest obstacle to innovation in automated well control systems?

1) Safety risk - 22.1%
2) Contractual liability - 37.4%
3) Lack of enabling technology - 15.3%
4) Entrenched mentality (not on my rig) - 25.2%
14. What area of the BOP Control Systems needs the most attention or improvement?

1) HPU/hydraulic systems 18.5%
2) Cables (umbilicals and connectors) 10%
3) Control electronics and software 53.8%
4) Valves 17.7%