



Oil & Gas Authority

UKCS Technology Network meeting

Delivering More Value from Wells

Equinor Drilling & Well Initiatives

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Leader Drilling and Wells Operations

Digitalisation drives the next wave of improvements



1. 3% increase in production – 2020 to 2025. Equinor share pre-tax
2. Automated drilling compared to conventional
3. New facility concept compared to conventional

Digitalisation & innovation Potential

Value creation producing fields¹

Above 2 bn USD

Automated drilling - cost²

Around

-15%

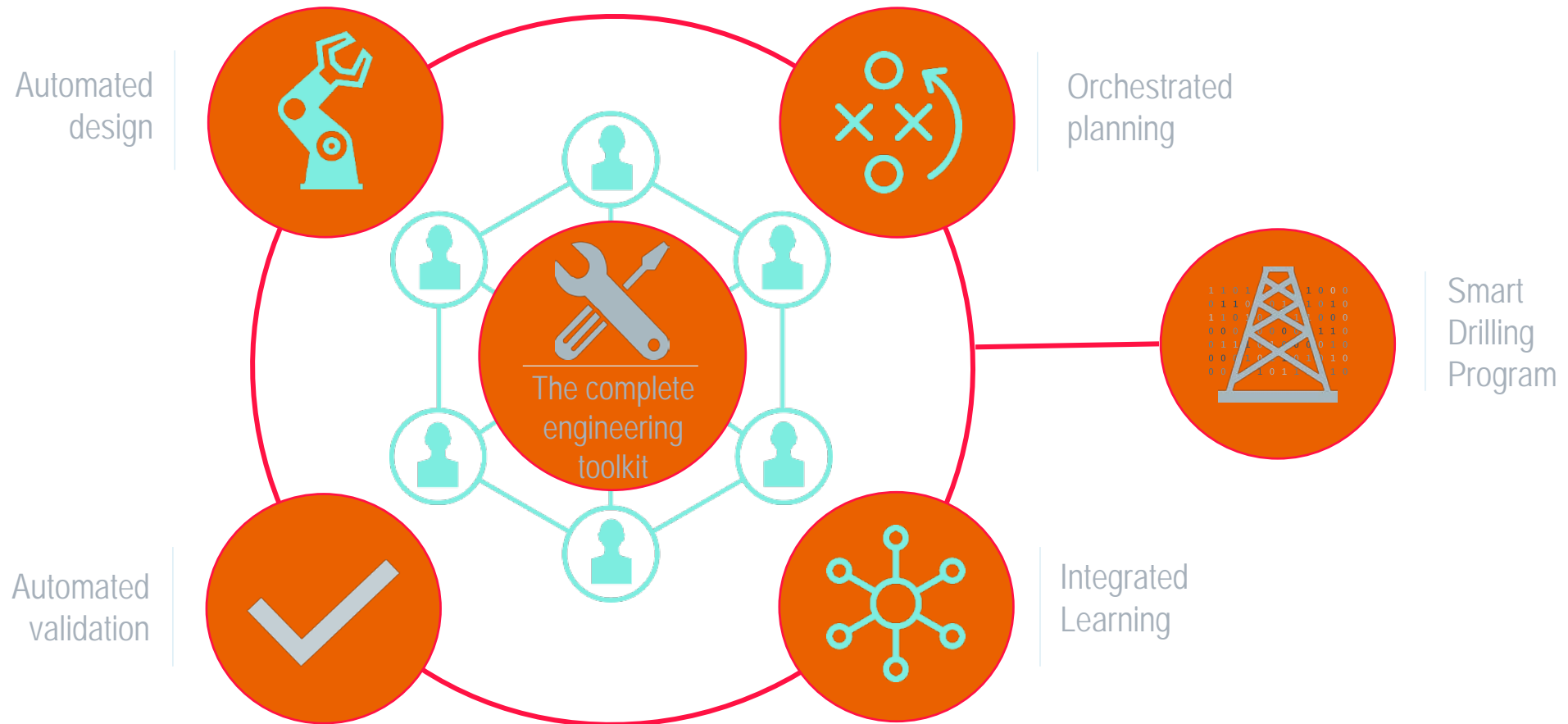
Field of the future - capex³

Around

-30%

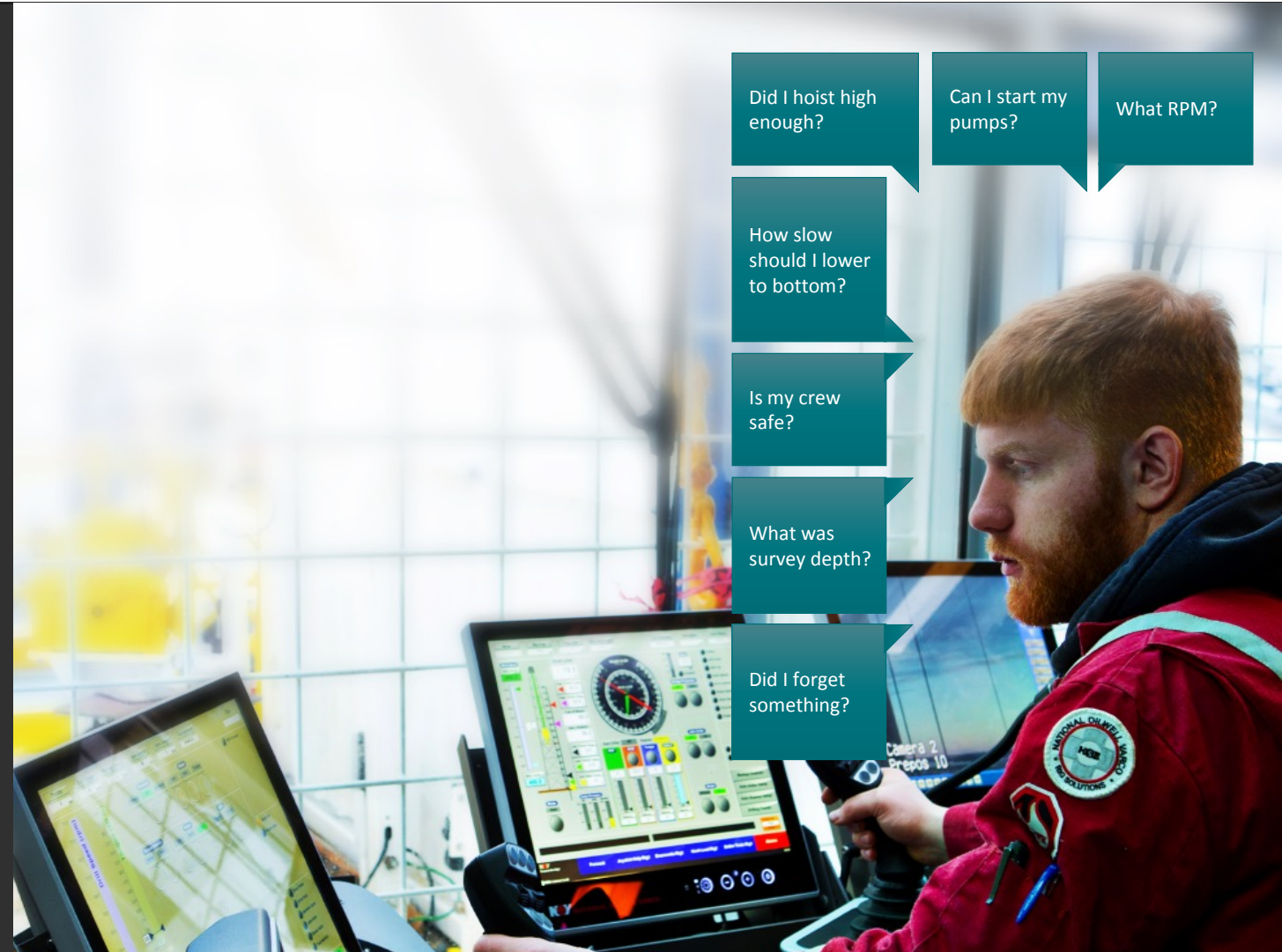
Industry Challenge: Learn fast and do more - How we work

Supporting Factory mode planning by use of DrillPlan



Industry Challenge: improving safety and efficiency offshore

Implementing new technologies

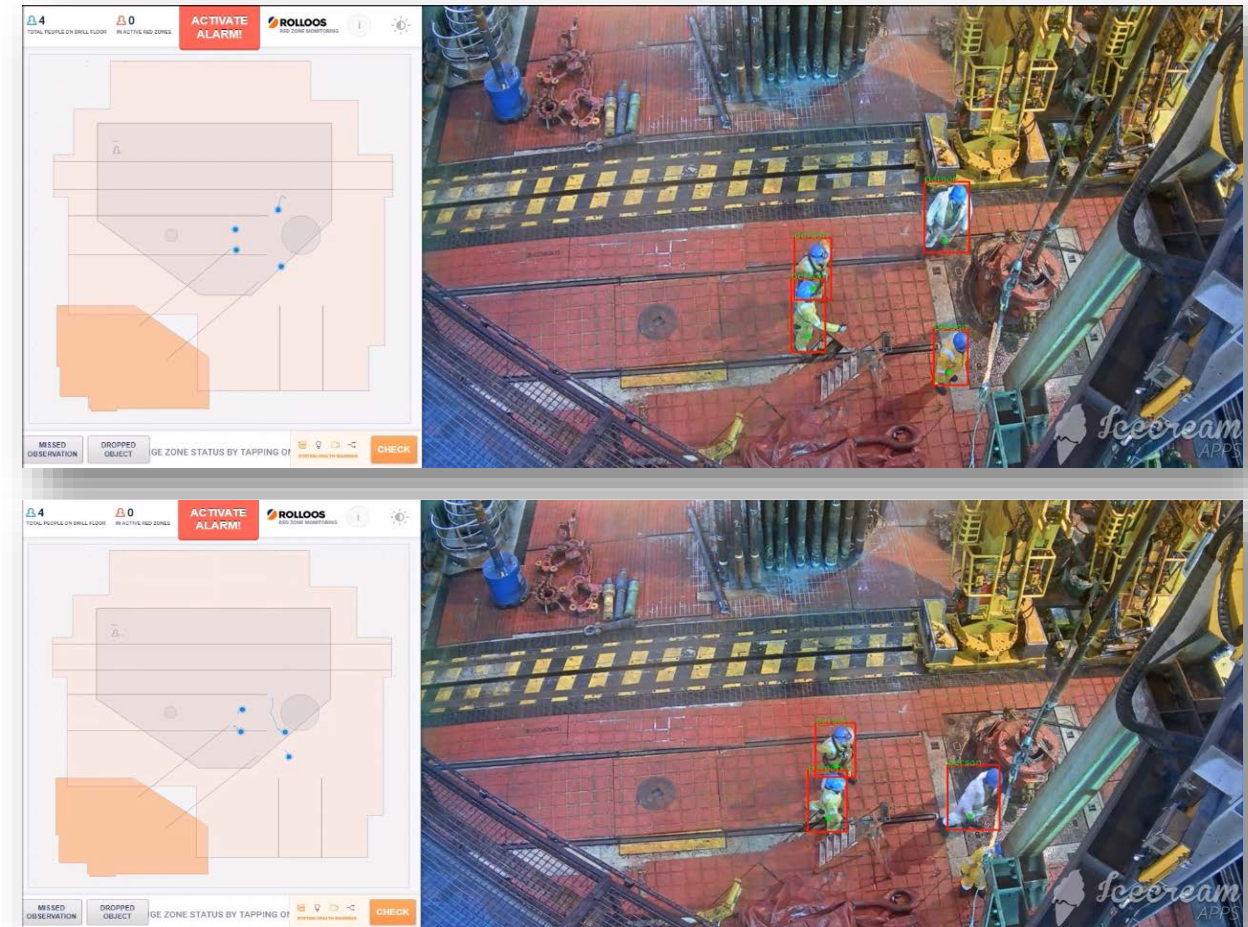


New Technologies

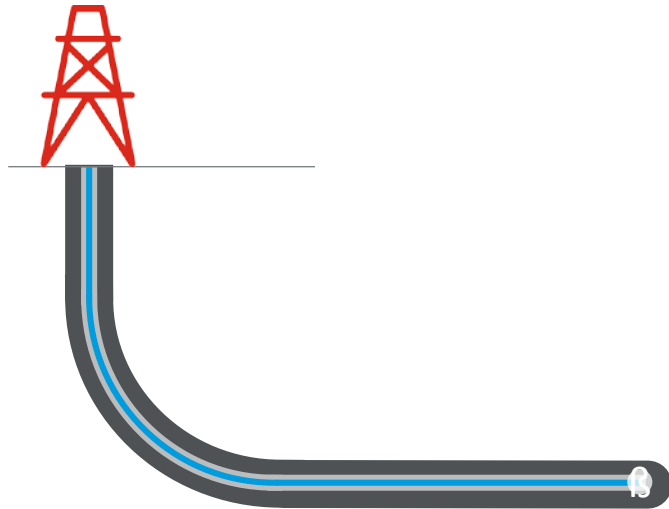
Automatic Red Zone Monitoring

Improved safety, reduced Carbon foot print and deck management

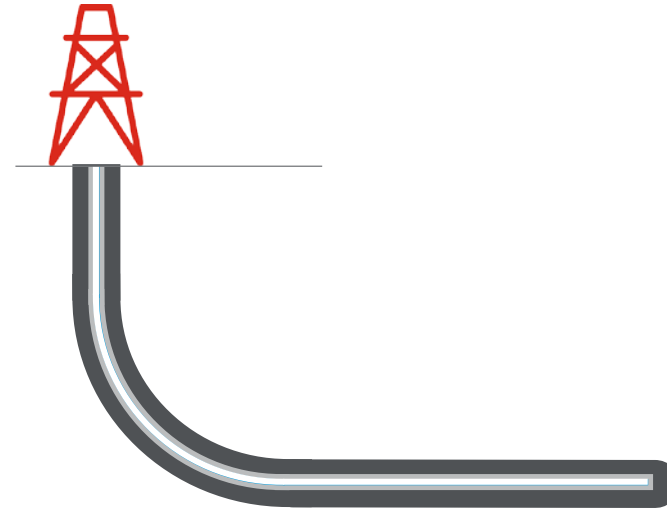
- Automatic Red Zone monitoring system.
- Live tracking of personnel inside red zone
 - Intuitive user interface informs the driller if people are entering the Red Zone.
- Future potential, inherently safer operations
 - Implement into equipment anti-collision system, i.e. stop equipment automatically if person enters Red Zone during operations.



New Technologies
High speed telemetry
Going from dial-up to broadband



Mud pulse communication
Data rate 12 – 24 bps (bits per second)

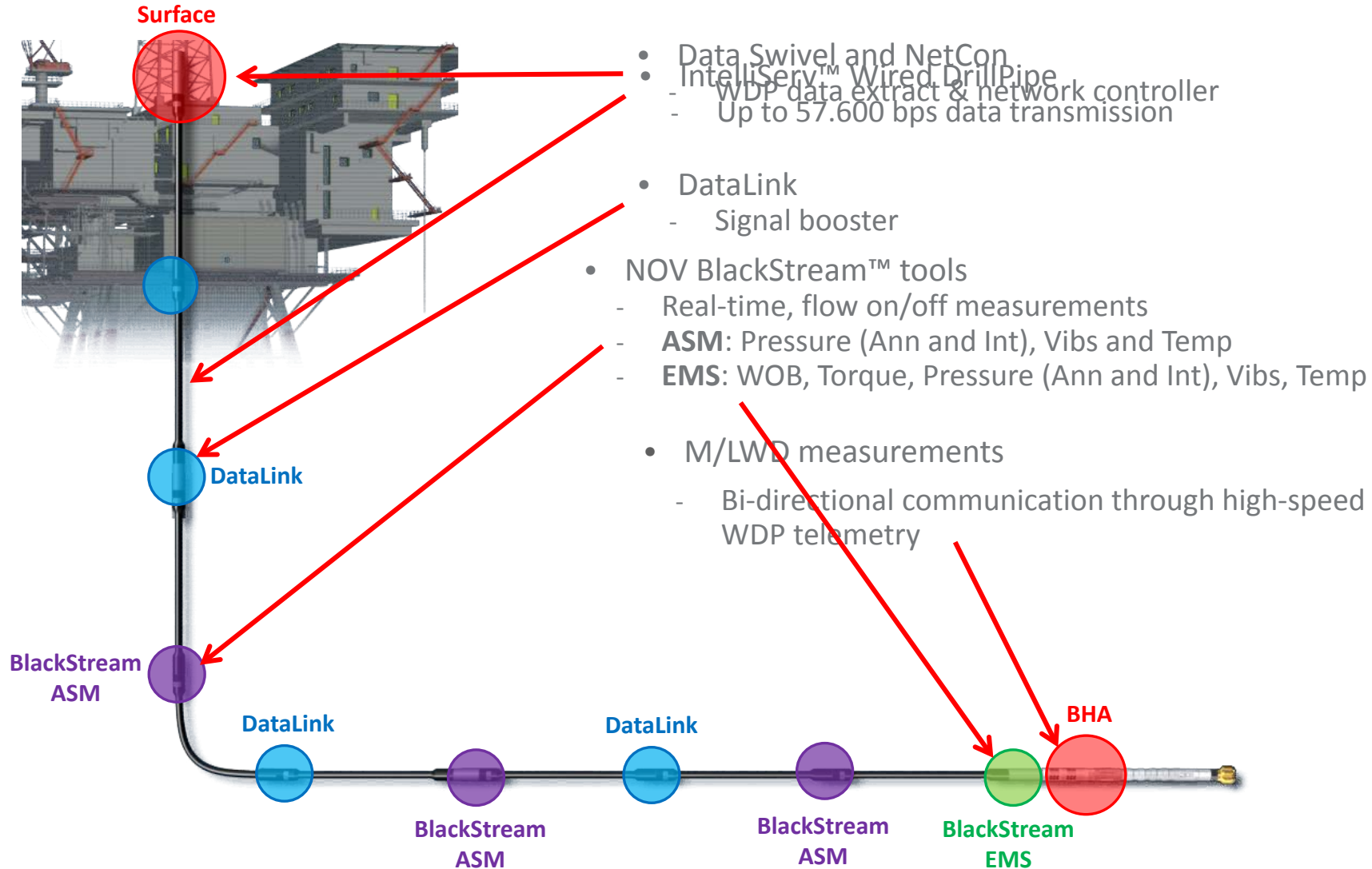


Wired drill pipe
Coaxial cable enables 57,600 bps

New Technologies

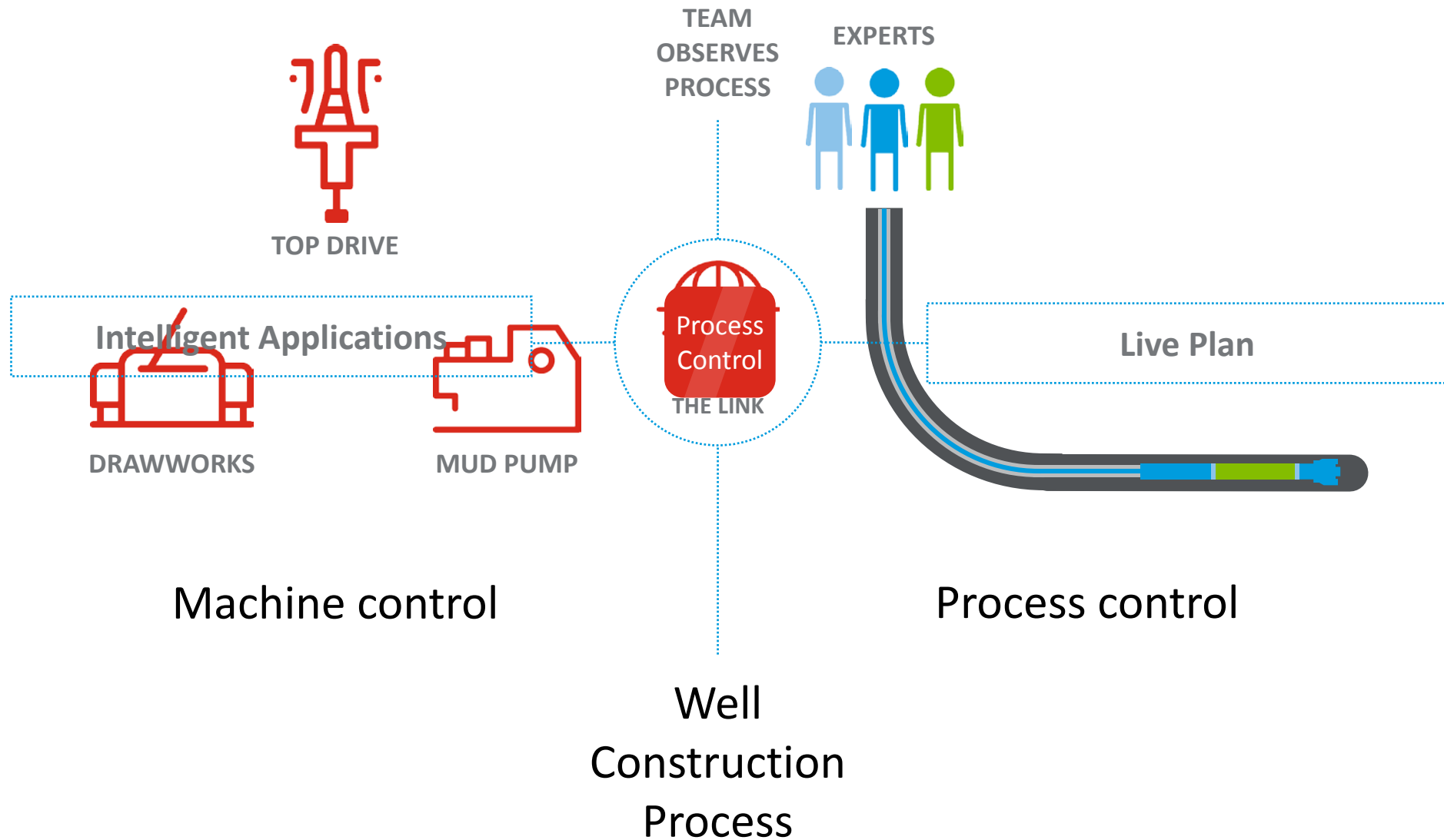
Along string measurement

Going from one data point to several along string measurements



Automatic drilling control

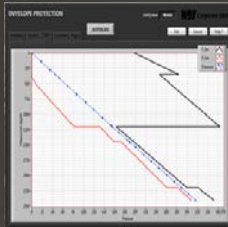
Going from driller as an operator to managing the operations



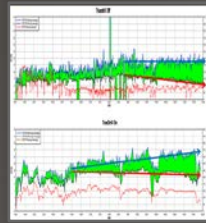
New Technologies

Introduction of “APPS” on the drillers control system NOVOS

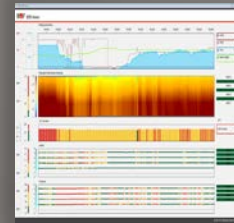
Going from Nokia to iPhone type interface



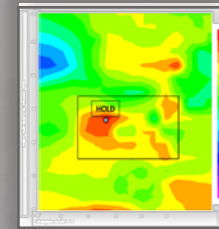
Envelope Protection



TrueDrill



EFD Viewer



Efficiency Viewer

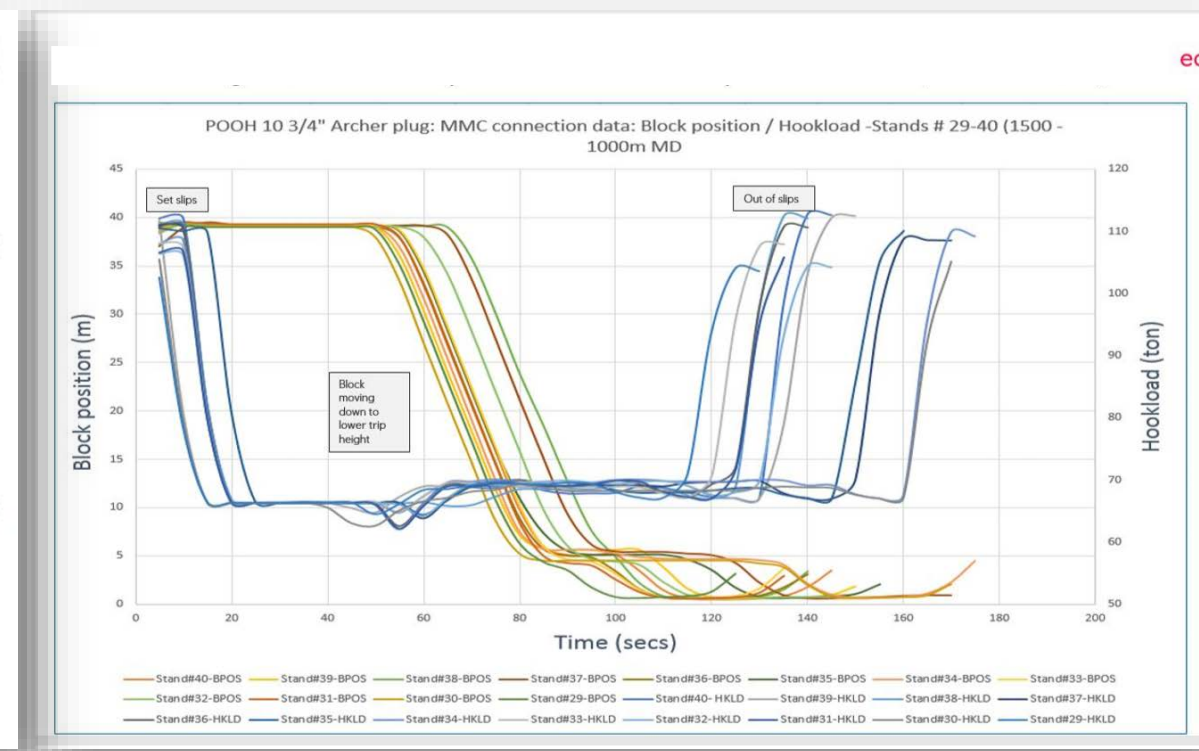
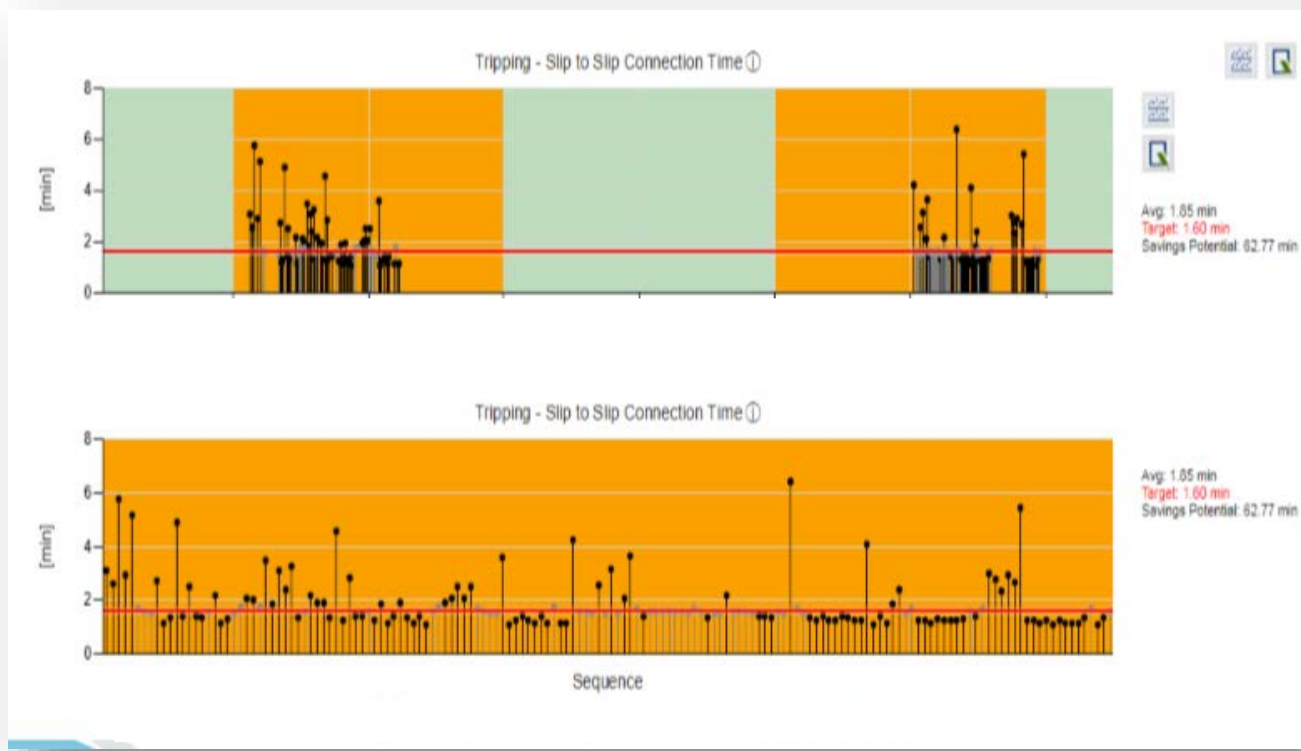


New Technologies

Multi-machine control

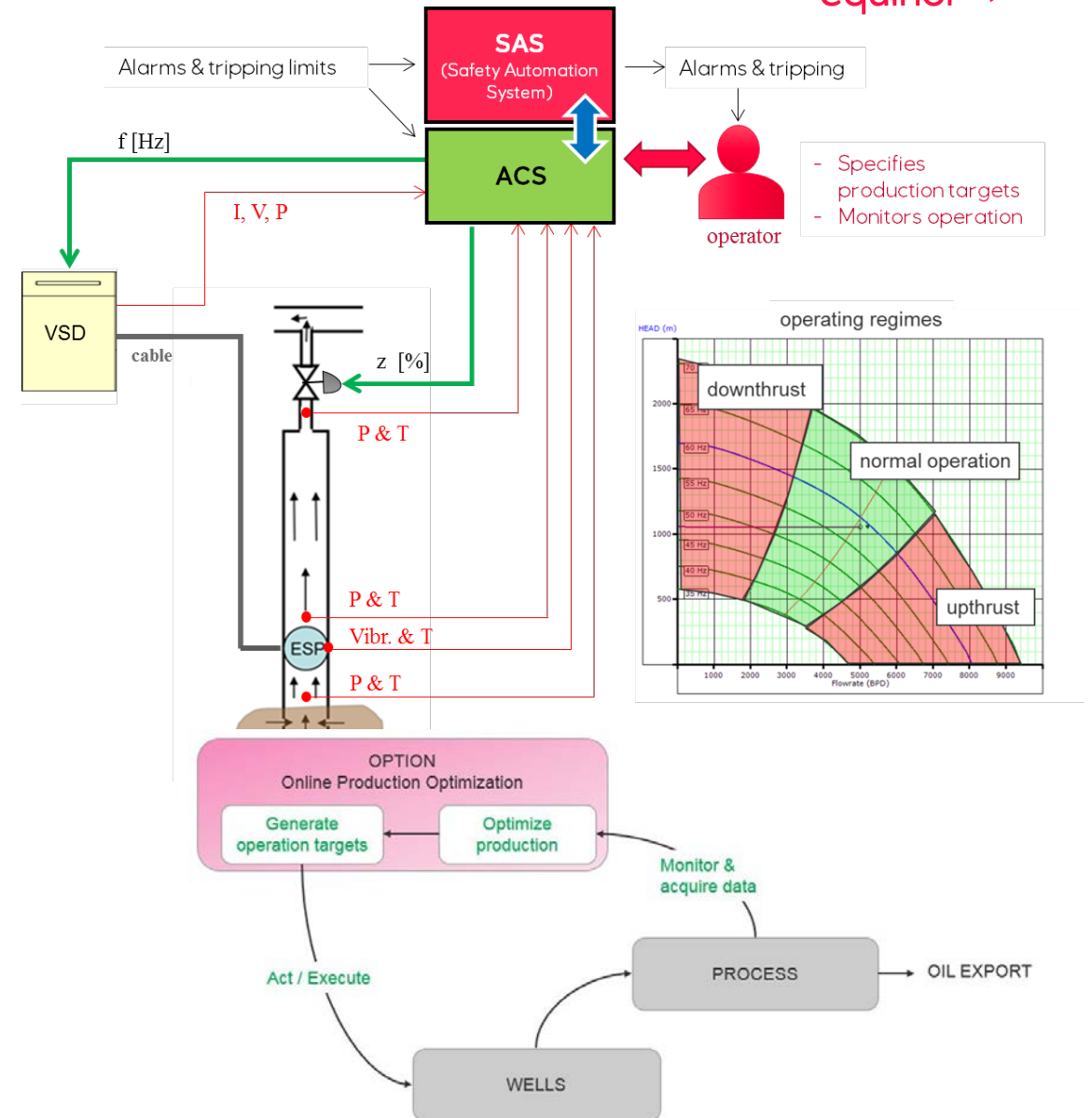
Automatic machine controlled connections and pipe handling

- Currently in fine tuning phase
- Expect significantly more consistent operations once fully fine tuned

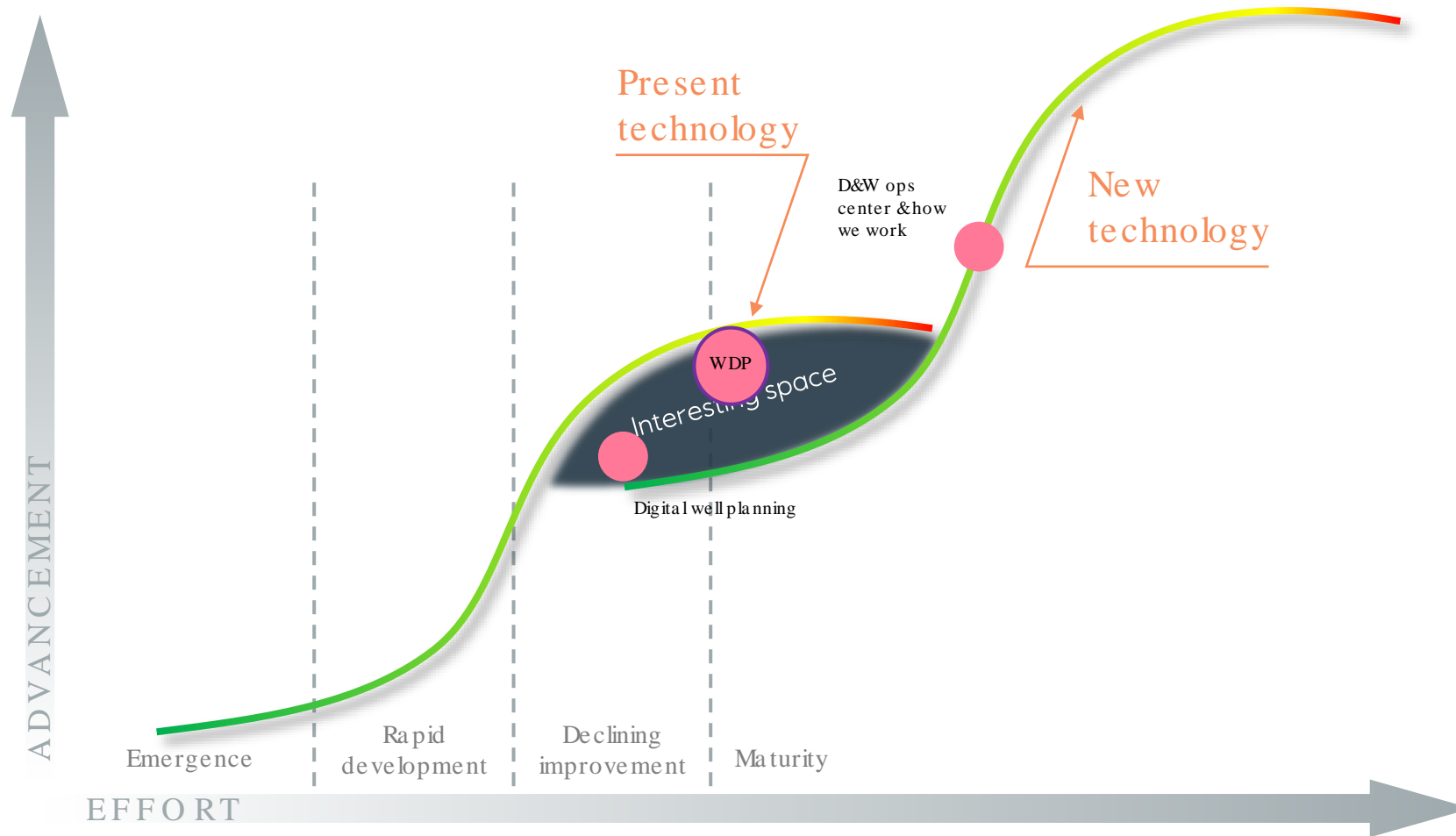


Digitilisation IACS & OPTION

- Automatic Control System (ACS)
 - Maintains ESPs within operational constraints (set target intake pressure)
 - Operates wellhead choke and ESP frequency for optimal operation, prolonging ESP life, maximising production and energy management
 - Proven technology within Equinor
 - Plan to operate in 'advisory mode' for circa .6 months prior to switching to automatic
- OPTION
 - Enables cost and energy optimisation by coordinating well operations and process conditions
 - Value based optimisation of production wrt. gas, water, power consumption
 - Raises awareness on:
 - Well process capacities
 - Dominating constraints & bottlenecks



‘S’-curve for Technology Adaption



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