Baker Hughes

Improve well placement accuracy and boost recovery with precise, automated geosteering

i-Trak automated reservoir navigation services

The i-Trak™ automated reservoir navigation service (RNS) automatically navigates your well to the reservoir's most productive zone and keeps it there. It makes use of cutting-edge pre-well reservoir models, real-time logging-while-drilling (LWD) data, proprietary algorithms and an advanced bottom hole assembly equipped with continuous proportional steering. In consultation with all stakeholders, the i-Trak automated RNS system can be set up to operate with tailored approvals at critical points in the workflow or to run in a fully automated mode as desired.

CONSISTENTLY IDENTIFY THE MOST PRODUCTIVE WELLPATH

In the early pre-well planning stage, the service makes use of all available data to build a map of the reservoir target that includes an optimal wellpath designed to maximize recovery while operating within all the desired drilling parameters, and an algorithm for drilling the actual well with an automated process.

Once drilling begins, the subsurface model is constantly updated with a variety of real-time data from both surface systems, directional MWD sensors, and deep-reading, azimuthal LWD tools. Then the i-Trak automated RNS uses resistivity inversion to confirm the reservoir's most productive zones and its proprietary algorithm determines the optimal wellpath to access them.

Pre-programmed drilling parameters such as maximum allowable dogleg severity are taken into account prior to calculating any wellbore deviation changes. This means that steering recommendations can be approved and implemented using an agreed-upon workflow or in a closely monitored, fully automated mode.

STREAMLINE STEERING DECISIONS

The i-Trak automated RNS significantly reduces invisible lost time (ILT) by automating real-time data management and interpretation to streamline the decision-making process. With traditional reservoir navigation methods, it often takes as much as 15 minutes to review data and agree on a steering path adjustment. During that time, the well is potentially drilling at reduced speed or with sub-optimal placement in the reservoir. In comparison, the i-Trak service can typically reduce the time needed to make these decisions by 10 minutes—improving both well placement and efficiency.

APPLICATIONS
- Horizontal drilling
- Thin reservoir targets
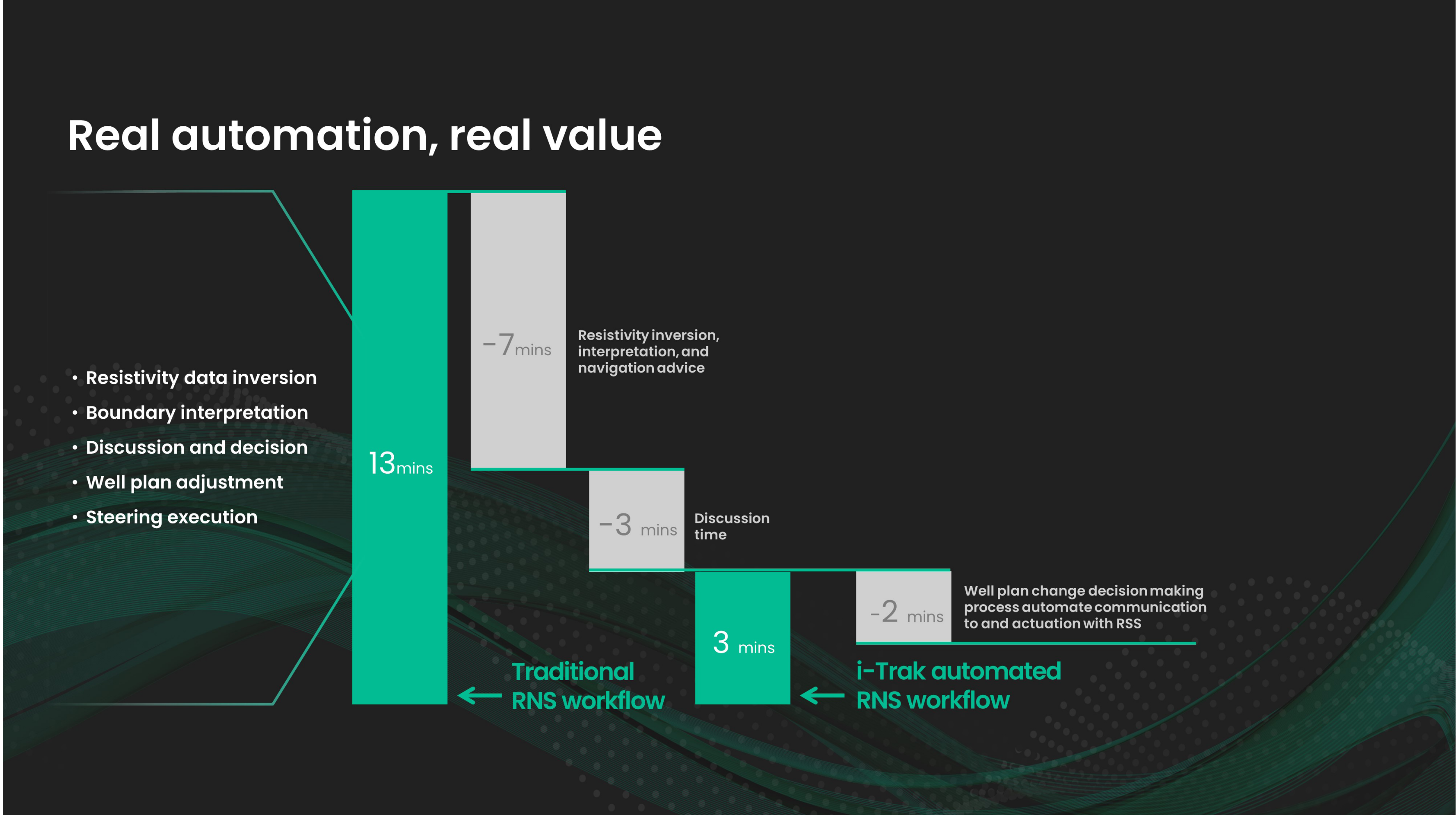- Onshore and offshore wells

BENEFITS
- Automates RNS analysis and control to:
  - Boost operational efficiency and ROP
  - Reduce the risk of human errors
  - Improve hydrocarbon recovery
- Ensures consistent, optimized wellbore placement for increased net-to-gross
- Streamlines steering decisions to reduce workflow-related ILT
- Supports remote operations and minimizes POB requirements

This automated approach is especially valuable in long horizontal sections that may require as many as 80 individual reservoir navigation decisions prior to reaching total depth (TD). So instead of wasting time manually processing data and debating decisions, drilling teams receive specific steering recommendations that can be implemented quickly via a downlink to a Baker Hughes rotary steerable system.

BOOST RECOVERY WITH PRECISE WELL PLACEMENT

In addition to improving operational efficiency, the service has delivered documented value with its ability to steer wells to the most productive target zone and keep it there. On one of its initial deployments, a customer ran i-Trak automated RNS in shadow mode to validate the wellpath it recommended. It quickly demonstrated that it was able to adapt to real-time changes in the formation dip much faster than the geosteering team that was overseeing the operation. After the section was completed, the team determined that had the well been geosteered automatically using the i-Trak service's automated recommendations, the operator would have increased hydrocarbon recovery by an estimated 100,000 bbls.

Contact your Baker Hughes representative to learn how the i-Trak automated RNS can help your geosteering teams consistently reach the reservoir's sweet spot faster and keep it there to maximize both your drilling efficiency and ultimate recovery.

Real automation, real value

- **Resistivity data inversion**
- **Boundary interpretation**
- **Discussion and decision**
- **Well plan adjustment**
- **Steering execution**

13mins

−7mins — Resistivity inversion, interpretation, and navigation advice

−3 mins — Discussion time

−2 mins — Well plan change decision making process automate communication to and actuation with RSS

3 mins

← **Traditional RNS workflow**

← **i-Trak automated RNS workflow**

By automating a variety of steps from log inversion and analysis to target calculations and anti-collision scans, the i-Trak automated RNS can significantly reduce the time required to determine and implement a change in the steering parameters.

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