

# Doing more with drilling data

Early warning real-time systems and appropriate visualization of well data helps to reduce drilling risks and NPTs

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# Main topics

- Efficient use of real time data
  - How: Capture, streaming, processing, visualisation
- Ways to utilize drilling data
  - How: Visualisation, data integration, real-time processing
- Early warnigs
  - How: Process of realtime data to detect early signs of hole problems
- Managing the risk of data overload.
  - How: Real-time dt processing, visualisation, easy to use
- Visualization is the key for utilization of drilling data
  - How: enabling cross-disciplinary work, co-visualisation interactive decision making
- Real-time data influence on success of operation
  - How: Turning data into usable information for decision makers in order to reduce risks nd NPTs.

# Use of real time data - Early Warnings

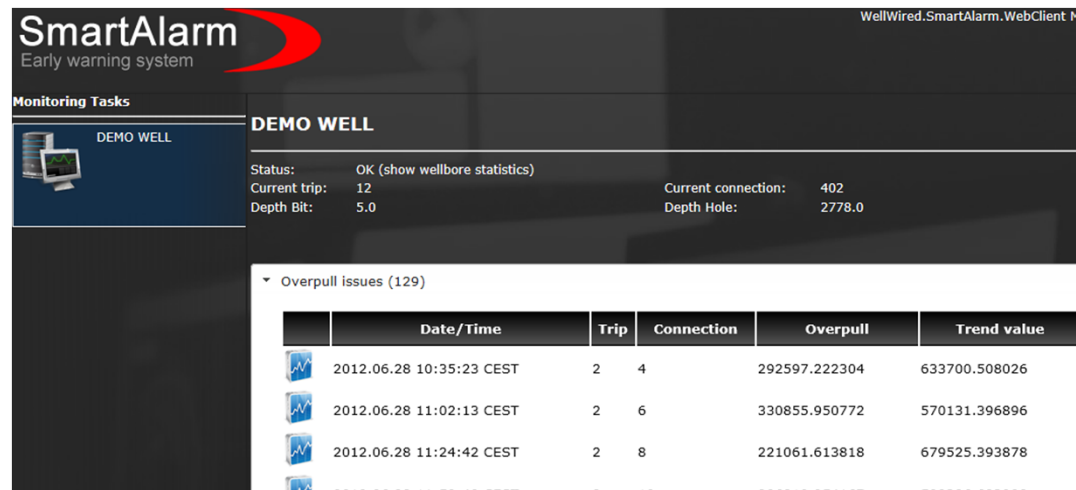
## WellWired.SmartAlarm

- Processing of real-time data can help the personnel in timely identification of possible hole problems in order to react, avoid escalation and cure them.
- Early identification of borehole problems can contribute to reduce NPTs.



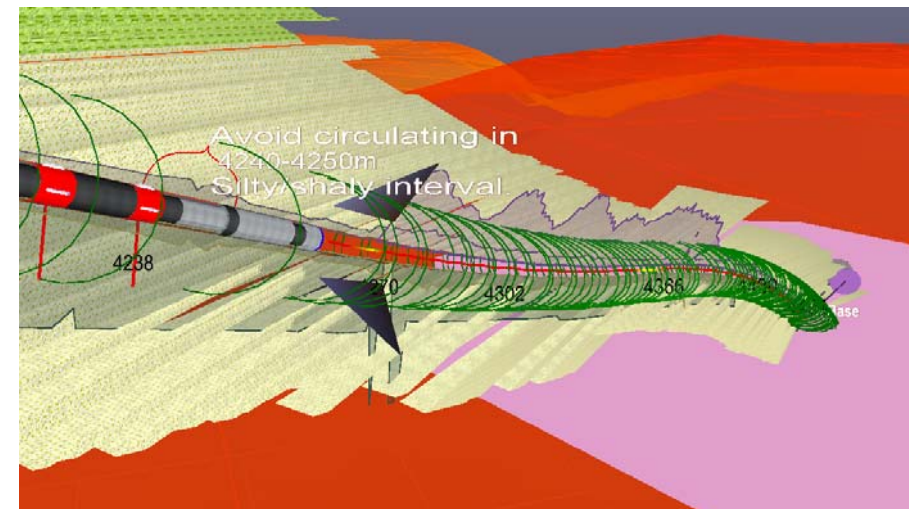
# Hole problems Symptoms

- In many cases no sufficient information is available to model in real-time the whole wellbore construction process, however we can indirectly detect some downhole events by monitoring their “symptoms” analyzing real-time data.



- Integrated view of multiple datasources

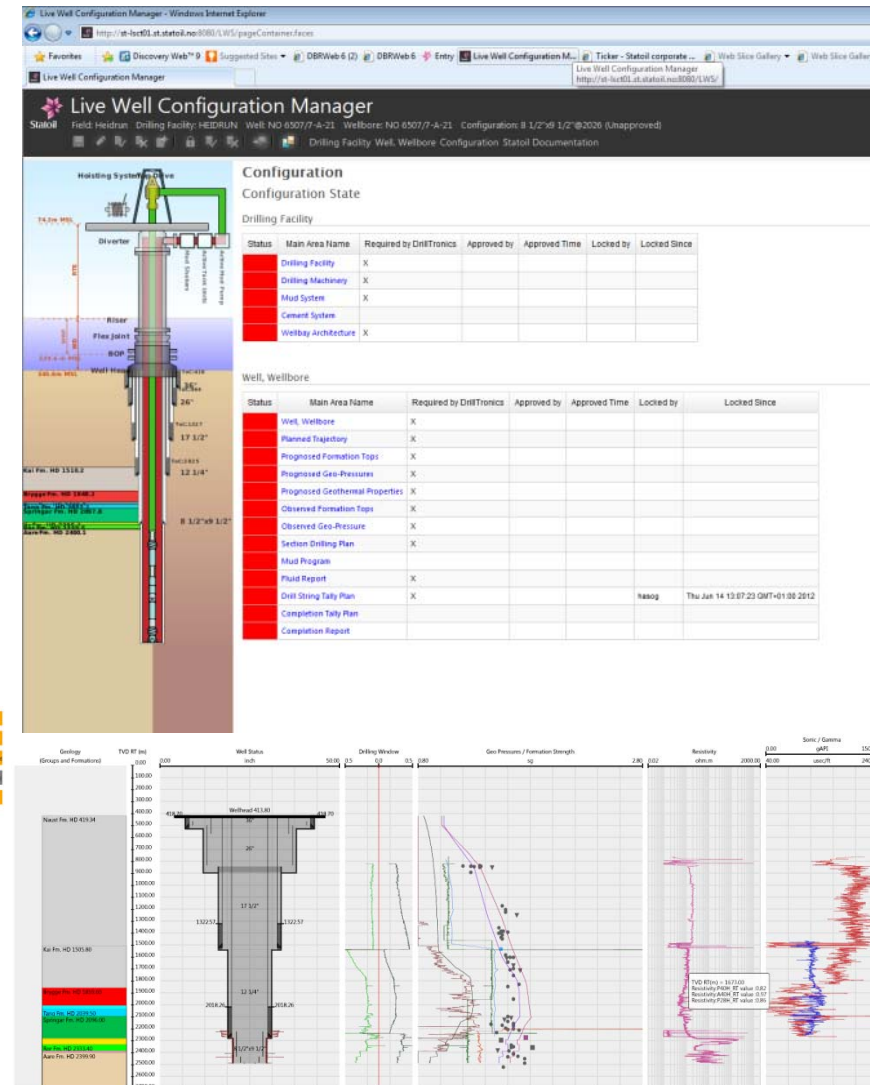
- integrated co-visualisation during drilling / operations for a cross-disciplinary team of engineers and experts



# web applications - delivering integrated data

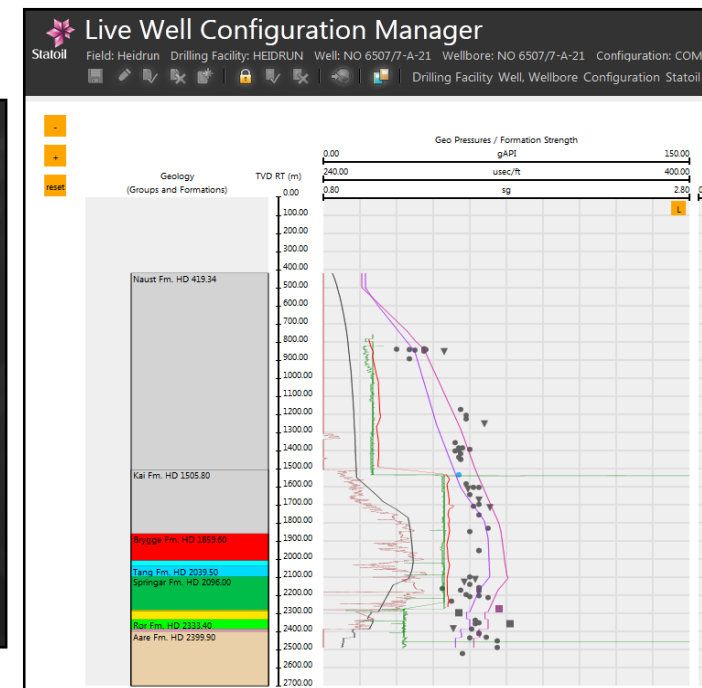
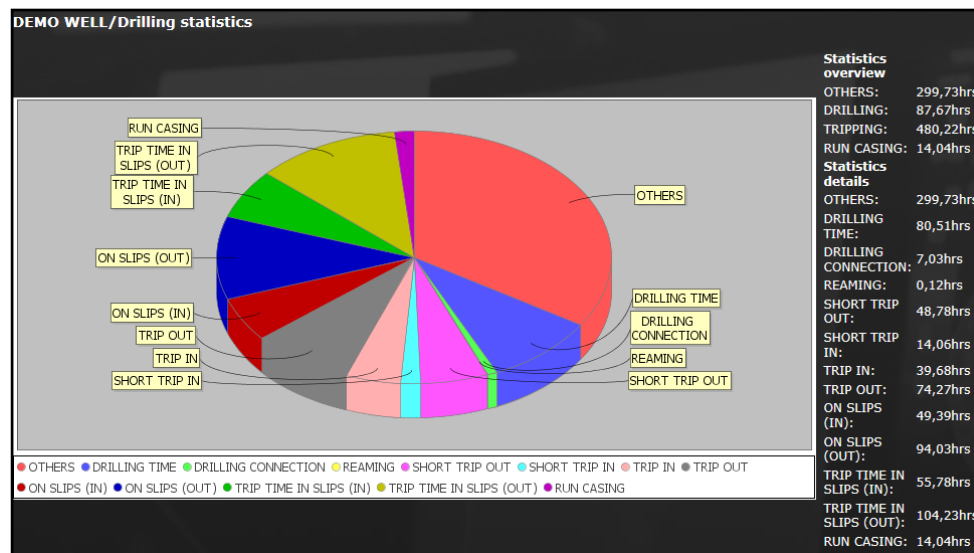
## Live Well Configuration Manager

- Automated dataflow from planning to operational systems
- Dynamic updates based on revised plans
- Reduced staffing for data-entry
- Increased data quality for operative crew
- Increased collaboration between onshore and offshore personnel



# Key data can be reported in real-time

- Real-time data to become usable information should be processed and presented visually in order to be immediately evaluated for operative decision.

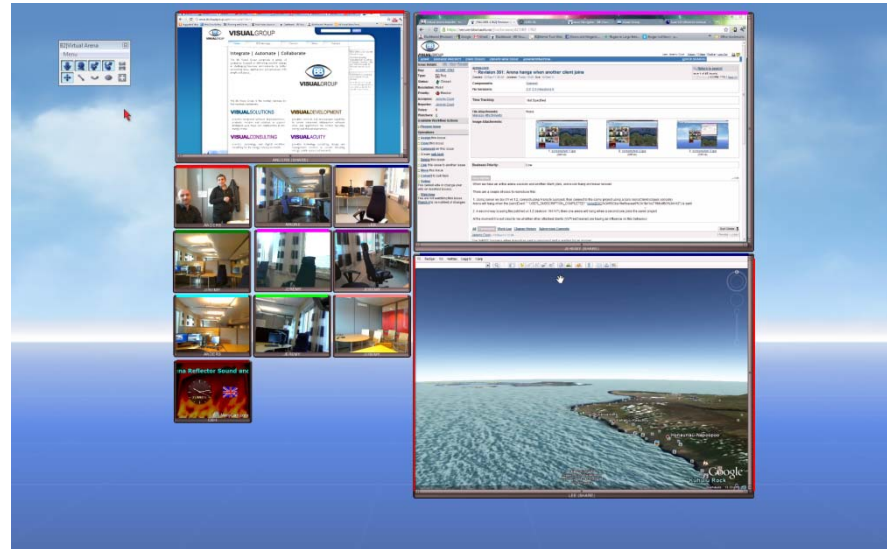
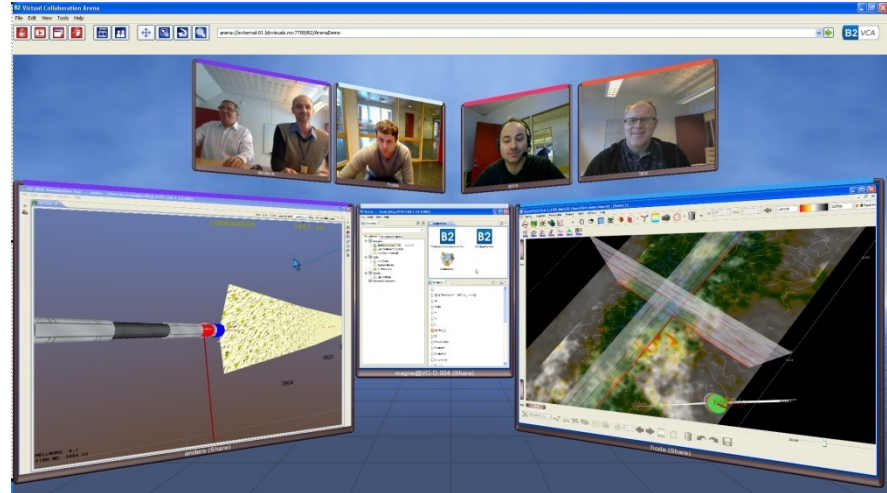




# Allow cross-discipline teams to make decisions

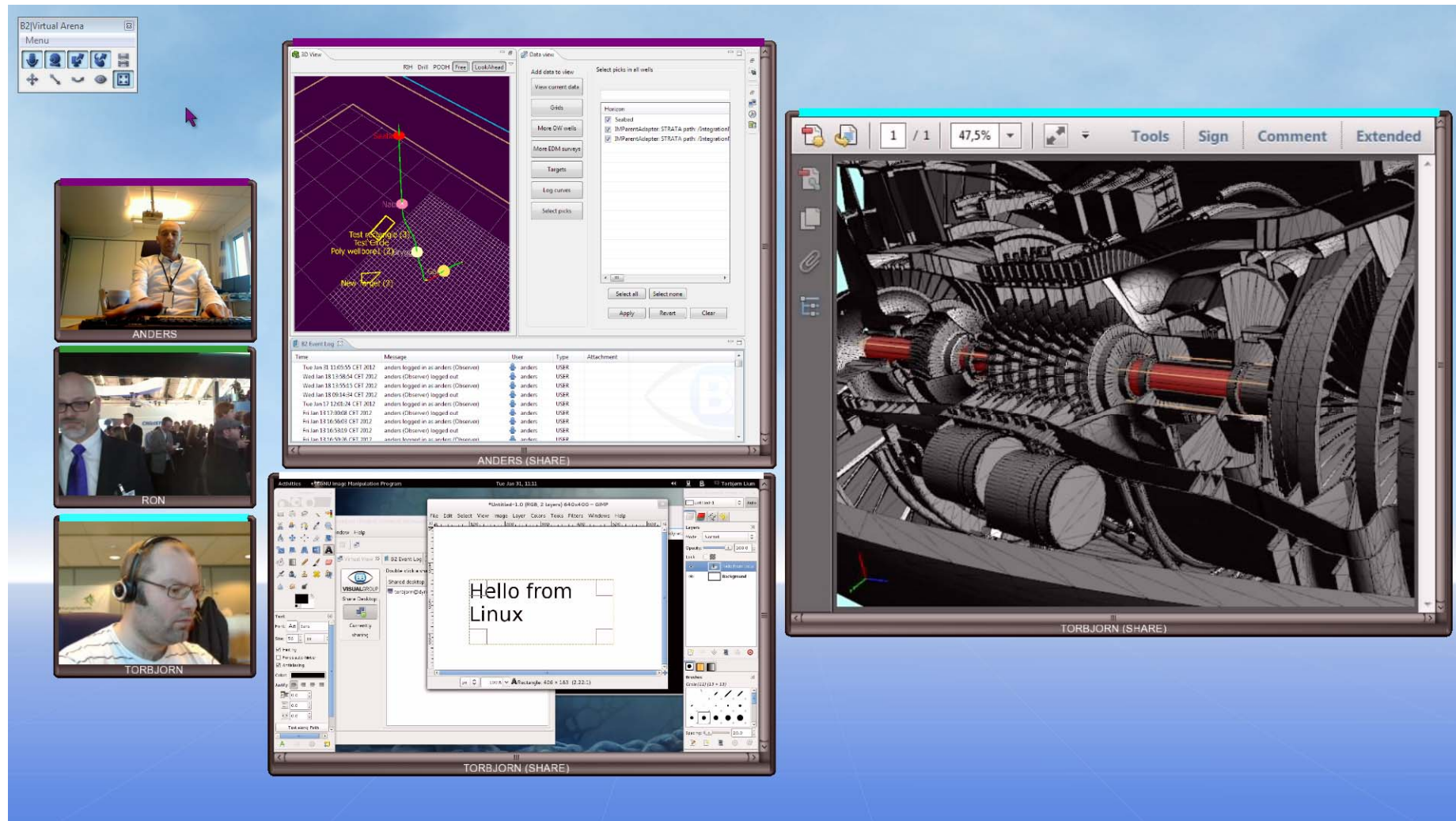
## B2 | Virtual Arena

- Application to support efficient virtual interactive meetings and work-sessions with video, audio and sharing of multiple technical applications within an integrated 3D scene





# Collaborative work environments examples





Can be used from your regular work place

# Real-time data influence to success of operations

Use of real-time data can contribute to success of operations by:

- Reducing risks
- Optimize the drilling process
- Allowing timely and effective decisions
- Enabling interdisciplinary and remote collaboration