

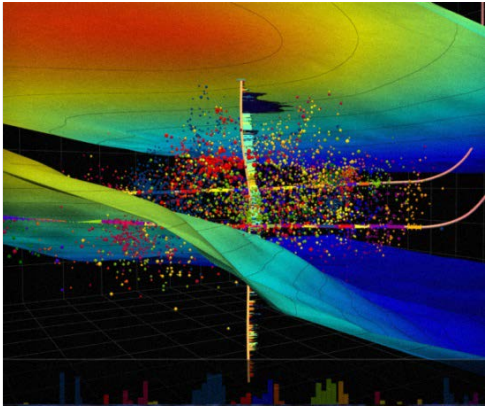


**HALLIBURTON**  
100 YEARS

## The (R)evolution of Technology in Halliburton

Greg Powers - Vice President, Global Innovation, Global R&D

# The New Paradigm: We Cannot Invent Everything



Partners necessary  
for breadth, depth,  
new fields

Source agnostic  
can bring value

Novel ideas exist  
inside and outside  
oil and gas

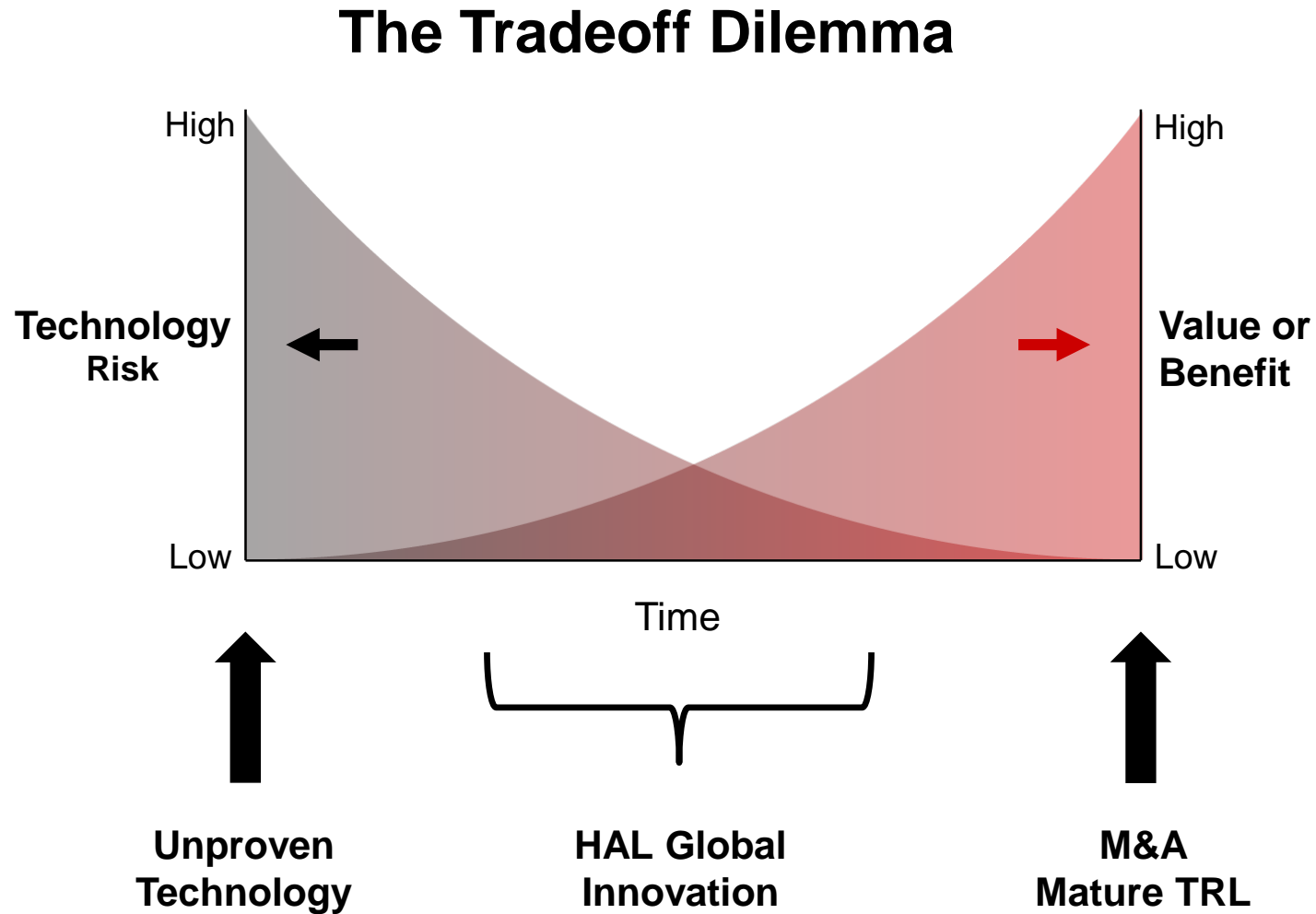
# The Second Paradigm

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**We're BIG**  
**We want to be FAST**

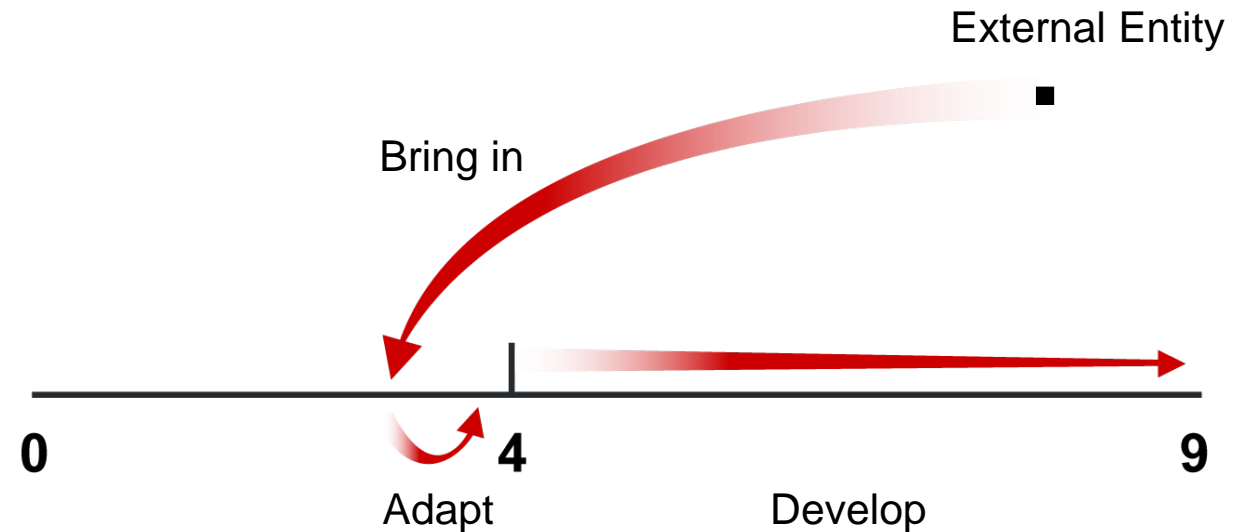
# The Price of Speed: Risk



# Historical Actions: Take Low Technology Risk

- Acquire functional business
- Cost: High
- The 'physics' works
- Risk of adaptation: low

## Acquire Existing Industrial Technology



Technology Readiness Level

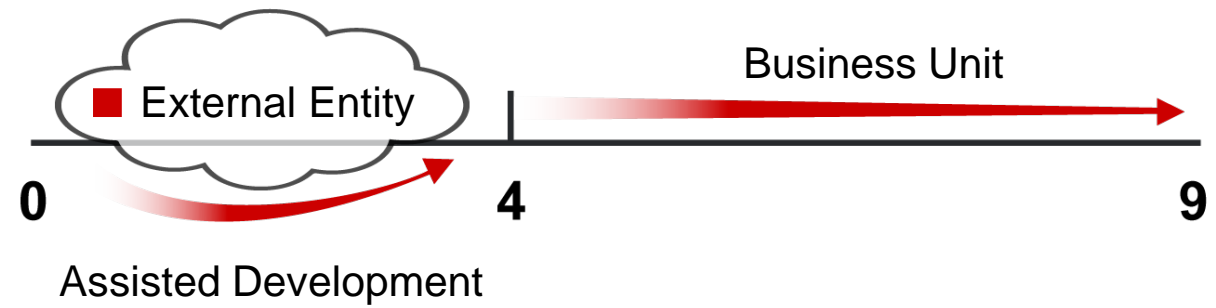
# Innovation Model: Brings New Risks

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- The 'physics' may not be clear
- Adaptation unknown to owners
- Cost: low to TRL 4

## Innovation Organization Partnering with Startups

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Technology Readiness Level





# The Hidden Risks

The image shows an industrial drilling rig at dusk. The rig is a tall, yellow and black structure with multiple levels and platforms. It is illuminated by several bright lights. In the foreground, there is a large, white, cylindrical silo with the word "HALLIBURTON" written on it in red. The silo has a conical bottom and is supported by a metal frame. The background shows a sky with soft, colorful clouds in shades of blue, purple, and orange. The overall scene is industrial and modern.

# Digitization: Starts with Hardware



# Digitization is a Cycle, Not an Event

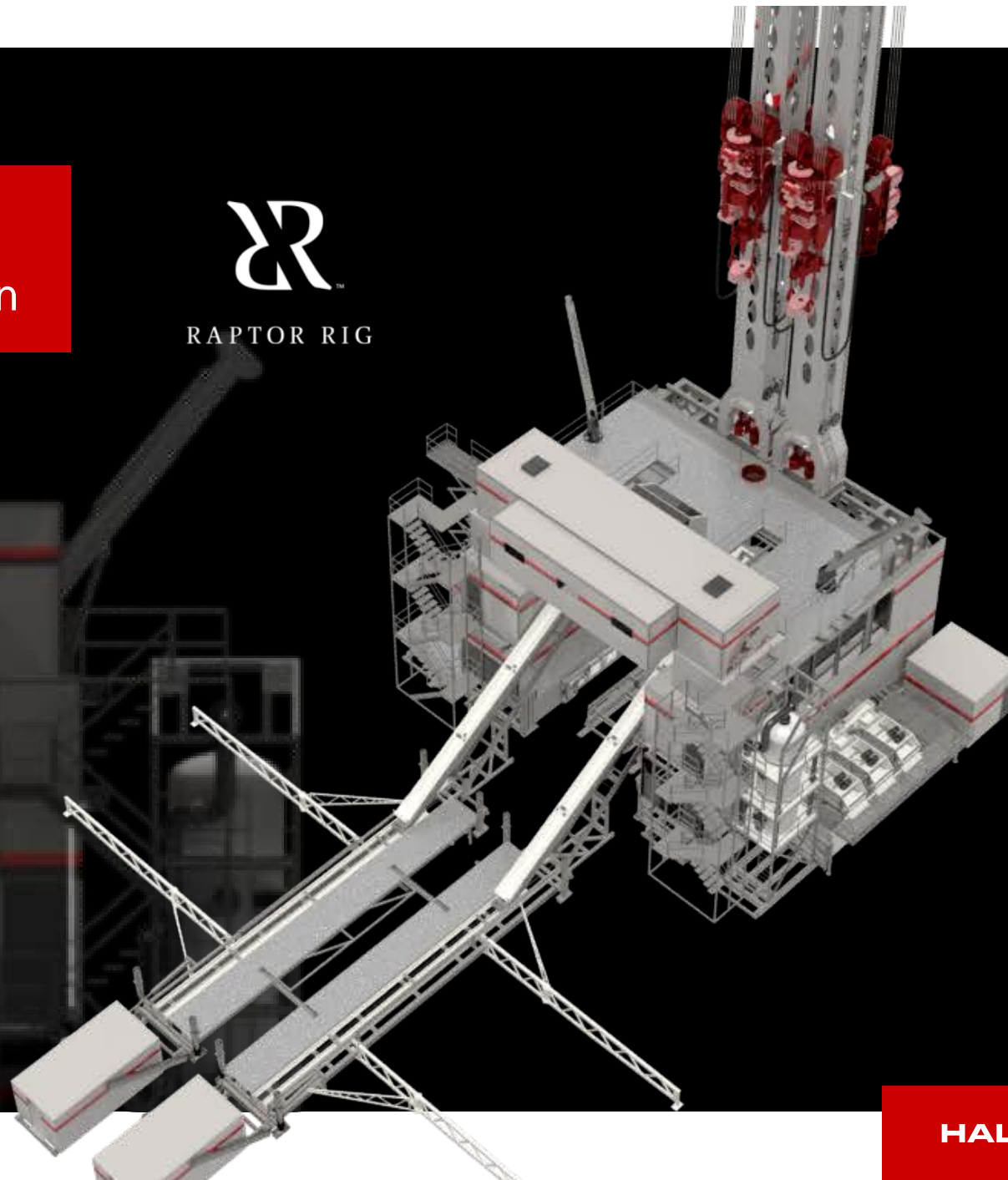


# VELOCIRAPTOR

The Next Generation of Rig Design



RAPTOR RIG







LOCATION

ROCK MEASUREMENT

CUTTING

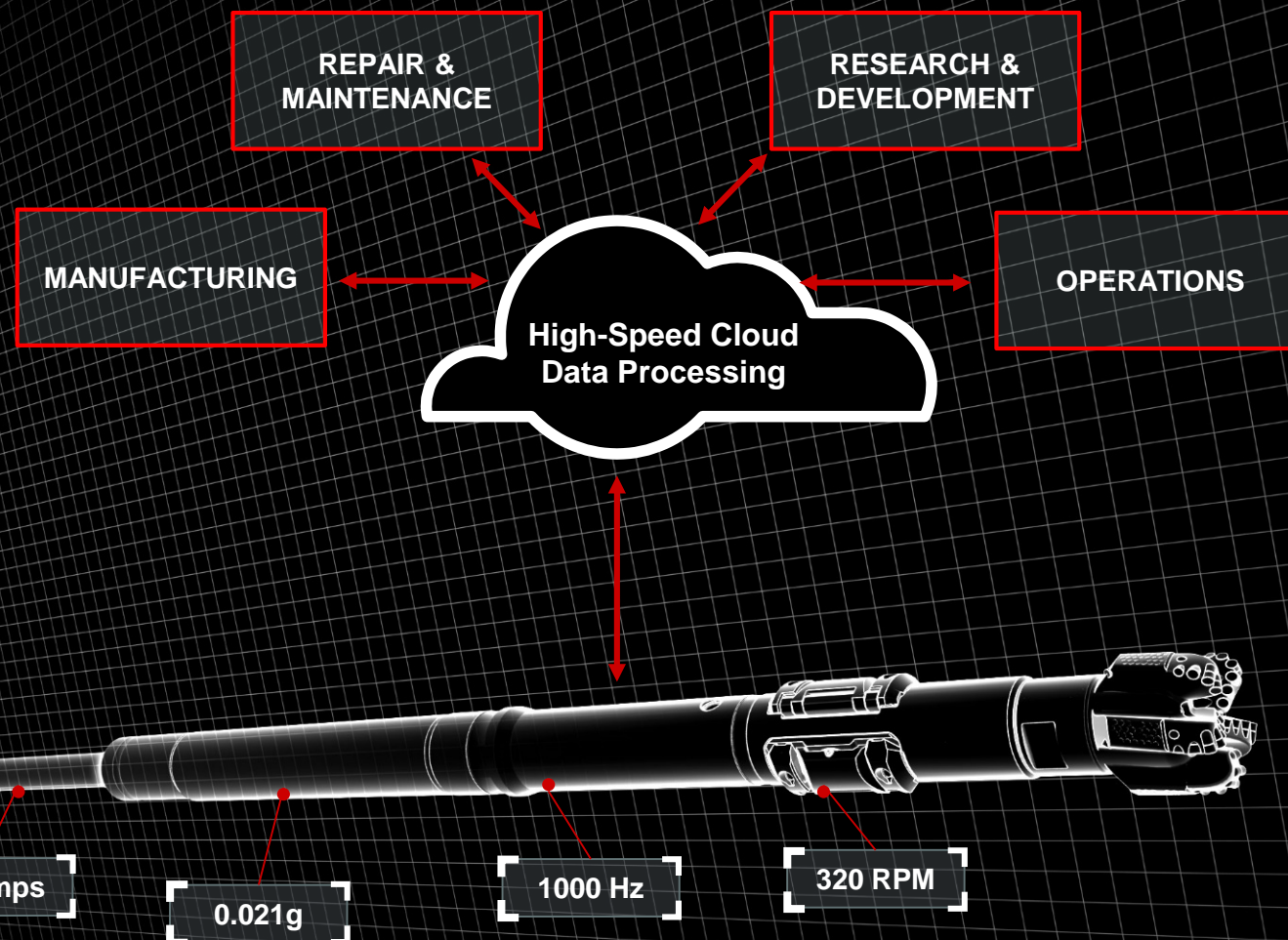
STEERING

# iCruise<sup>TM</sup>

## Intelligent Rotary Steerable System

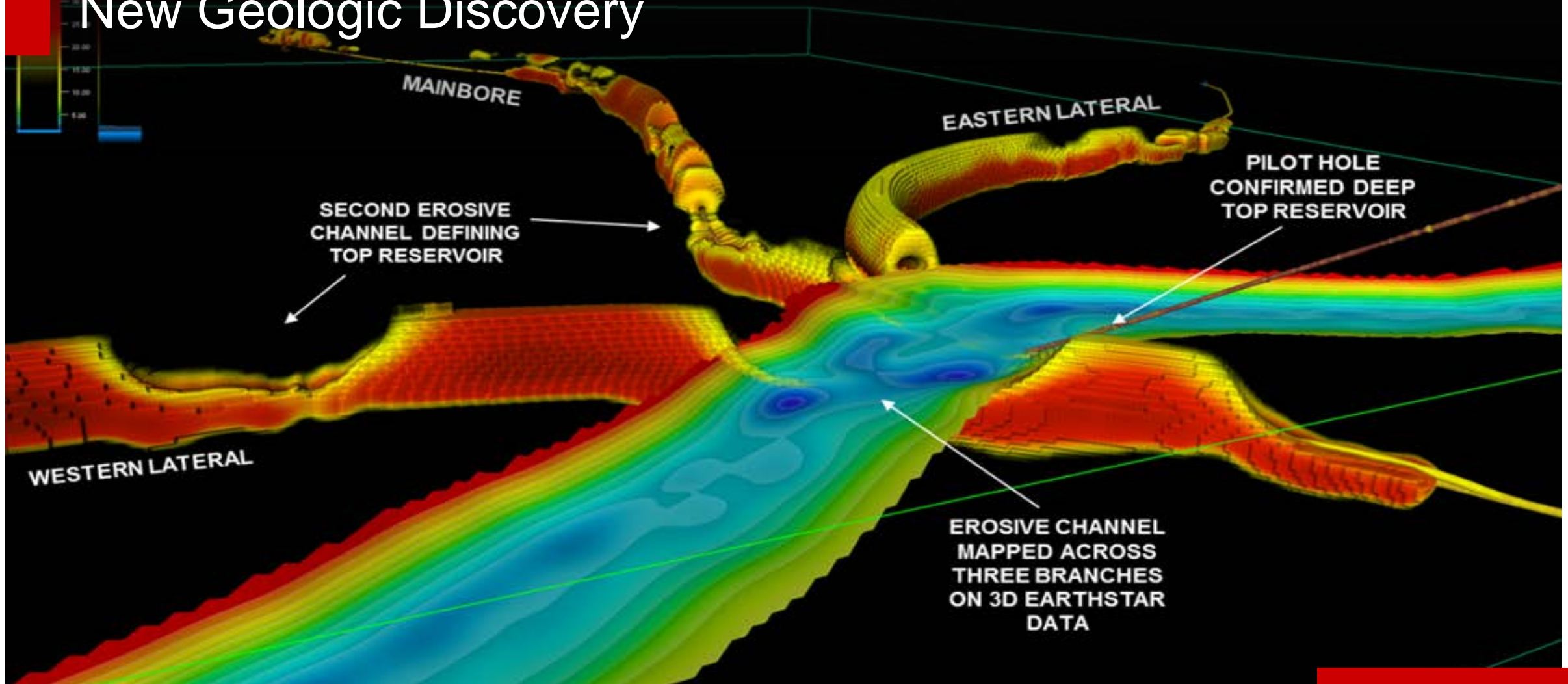


# Data Rich, Edge Compute, Cloud Enabled

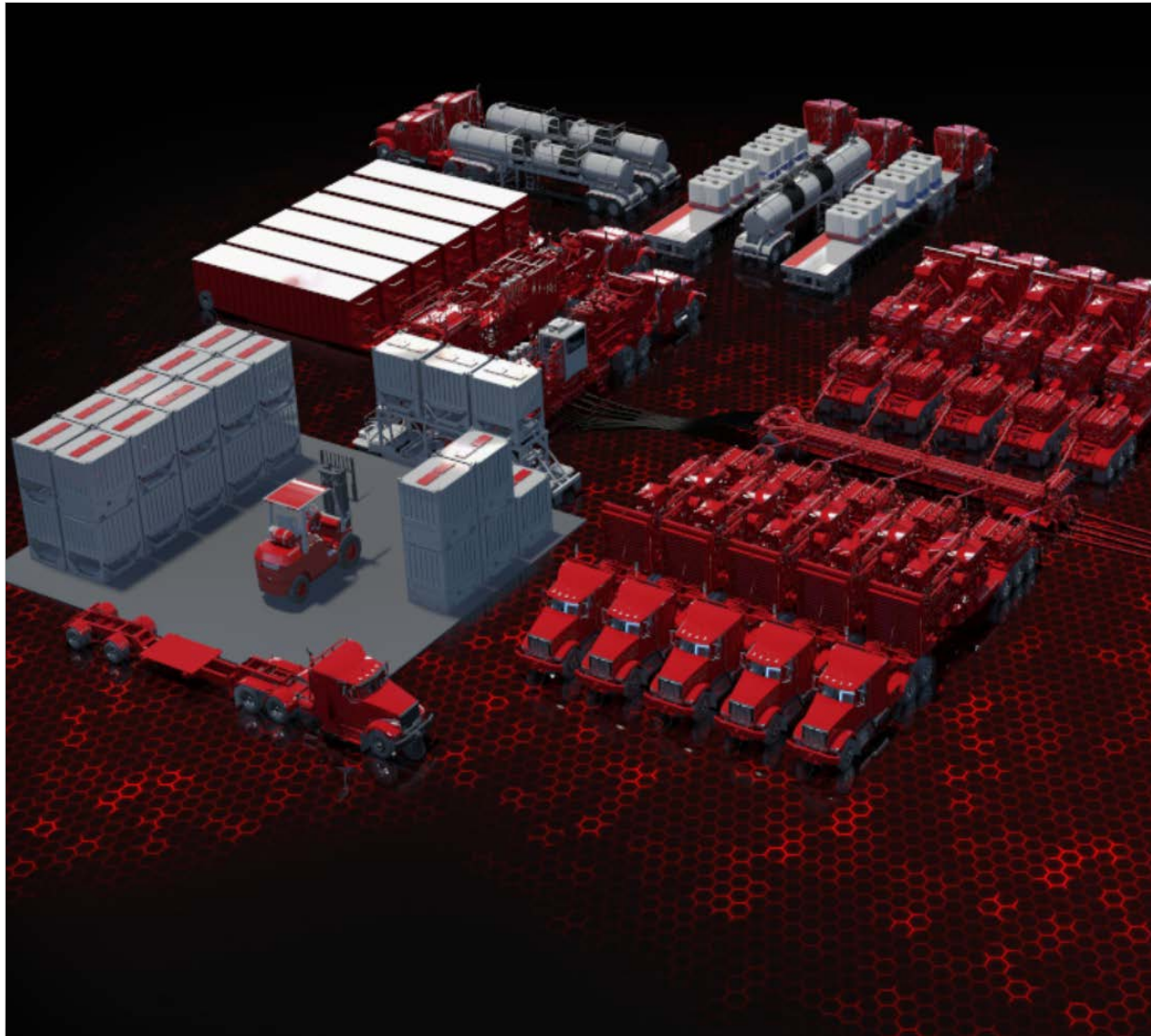




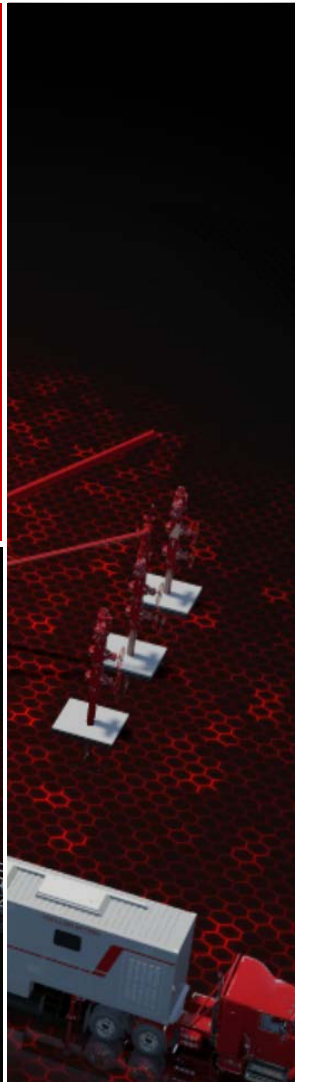
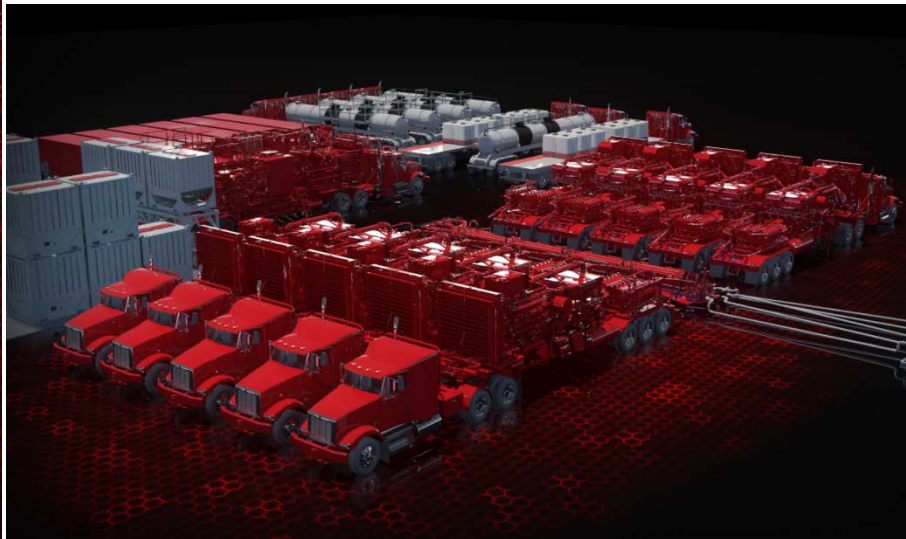
# On Board Measurement and Analysis: New Geologic Discovery



# Smart Machines Coming of Age



- Speed
- Minimize Variation
- New Learnings





**THANK YOU**

