Critical development and operational decisions in the oil and gas industry – including reservoir appraisal, development, and management – rely on a solid understanding of multi-phase flow in porous reservoir rocks. DigitalROCK offers the first cloud-based solution to accurately and reliably predict multi-phase flow properties of reservoir rocks, leveraging a proprietary, full-physics digital simulation technology to reduce the time and cost associated with testing core samples. Increasing the volume and speed of analyses that can be performed for a hydrocarbon field provides more and better data in support of key investment decisions, especially for oil and gas companies assessing enhanced oil recovery projects.
INDUSTRY CHALLENGES
- Oil and gas companies need reliable rock property information to make informed decisions about field development
- Enhanced oil recovery (EOR) for mature fields has huge potential but high cost and high risk, with success strongly dependent on the ability of the selected method to release and transport trapped oil (i.e., oil which remains trapped within the pore space of the rock fabric)
- Traditional methods to understand reservoir rock properties are costly and time-consuming
- Physical lab testing takes months per sample and requires suitable whole-core samples to be available
- Uncertain results, use of analogs, samples that are fragile or degraded, and long analysis times are all significant risks to maximizing productivity, effectively using resources, and realizing asset potential.

BENEFITS AND DIFFERENTIATORS
- Analyze more samples faster for better rock property data resulting in higher confidence
- Reuse digital samples for various scenarios
- Reduce uncertainty of reservoir modeling and EOR potential
- Experience streamlined automated workflow on SIMULIA Cloud
- Access permanent database of rock samples and results

DIGITALROCK WORKFLOW

1. 3D Scan of Rock Sample
2. Upload to SIMULIA Cloud
3. Pore Space Analysis
4. Residual oil recovery under various fluid conditions
5. Residual permeability with pressure data
6. EOR Simulation
7. Multi-Phase Flow
8. Single-Phase Flow

Our 3DEXPERIENCE® platform powers our brand applications, serving 11 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the 3DEXPERIENCE® Company, provides business and people with virtual universes to imagine sustainable innovations. Its world-leading solutions transform the way products are designed, produced, and supported. Dassault Systèmes’ collaborative solutions foster social innovation, expanding possibilities for the virtual world to improve the real world. The group brings value to over 250,000 customers of all sizes in all industries in more than 140 countries. For more information, visit www.3ds.com.

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