# RoKDoc

RokDoc is your answer to Quantitative Exploration and Development. Predicting and understanding the rocks, pressures and fluids of your reservoir is the key to a successful exploration and production project.

*RokDoc is the rock physics package of choice used on every continent worldwide by all the Super Majors, most of the Majors, National Oil Companies, Independents and a host of smaller companies. It is the fastest, easiest to use and most integrated package to help interpreters understand rocks, predict pressures and optimize reservoirs. RokDoc delivers real value to the bottom line and company share price.*

## Wow the judges and win the IBA award with RokDoc!

If you haven't already applied, please visit **ikonscience.com/iba** to apply for RokDoc.

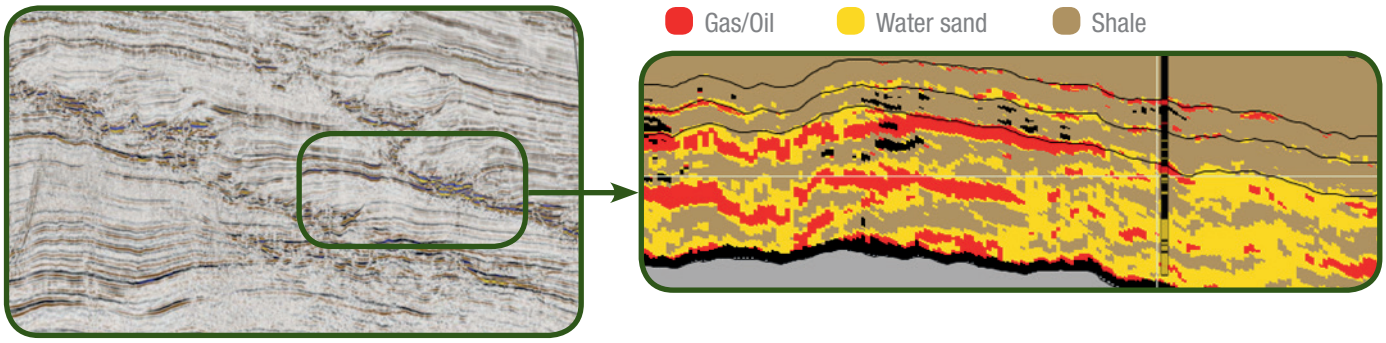
# What?


from **qualitative** to a **quantitative** approach to interpretation

Conventional -qualitative- interpretation is about geological structures and stratigraphy (horizons and faults)

Quantitative interpretation quantifies the properties of the subsurface (lithology, type of fluid, porosity, pressure, fractures…).

**Seismic**




> Rock Physics is the science of understanding a rock's elastic property variation under the influence of physical changes (rock type, fluid, depth, temperature and pressure)
>
> *Ikon Science*

> The science of rock physics addresses the relationships between geophysical observation and the underlying physical properties of rocks, such as composition, porosity, and pore fluid content.
>
> *Rock Physics Handbook*

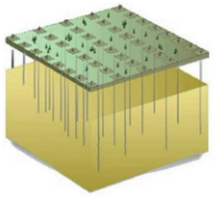
Full software support is available throughout your project from support@ikonscience.com

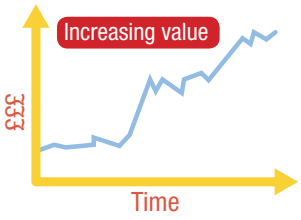
# Why?

## The answer is Time & Money.

In order to save time and money we need to optimize the drilling process and this means:

- More production with fewer wells (sweet spot identification and reservoir quality assessment)
- Risks reduction (avoiding drilling hazards)
- Cost savings (optimize natural fracture and hydraulic fracture productivity)
- Less environmental impact

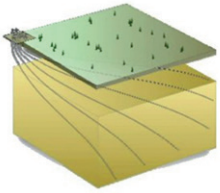



(Phillip, 2010)

Same development would require 48 vertical wells each on a separate 100m x 100m pad

**Manufactoring model:**

- Reservoir is assumed uniform
- Uses pattern drilling & "simulation factory"
- Each well and each perforation is identical
- Large well count and surface impact
- US$ 20-25M/well



Six horizontal wells (8 fracs/well) = 48 total fracs per section

**Optimization model:**

- Reservoir are laterally heterogeneous
- Natural fractures can be leveraged
- Each optimal perforation counts!
- Optimal location and minimal footprint
- US$ 8-12M/well

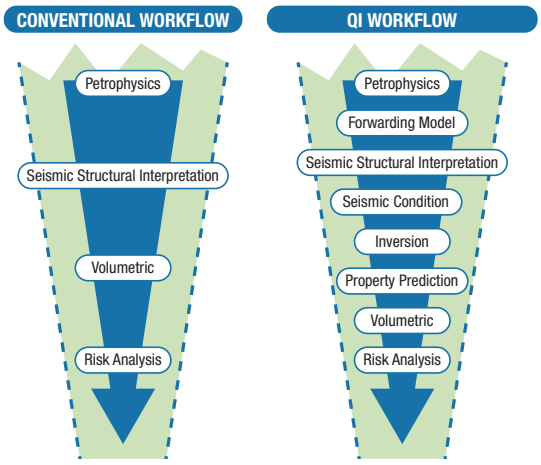
# How?

## The end goal of QI is to predict rock properties, lithologies and pore fluids away from the wells.

How can we do this? Feasibility study tells us what we can do with our seismic and what we can predict from it, i.e. what elastic parameters -that we can also invert the seismic data to- will give us the best separation between the different lithologies and fluids.

This achieved by integrating techniques such as:

- Rock Physics
- AVO Modeling
- Well Ties
- Wedge Modeling
- Pre-stack Conditioning
- Seismic Inversion
- Statistical Characterization
- Facies Classification




> "Rock physics is "a highly interdisciplinary field involving geology, geophysics, geochemistry, physics, acoustics, well logging, core analysis and petroleum, chemical and mechanical engineering"
>
> *Yale, 1985*

> "Rock physics is integrated into the general techniques, strategies, algorithms, and the complete process of exploration, and simultaneously is an integrating part of this process, because rock physics couples and connects the different disciplines.
>
> *Schön, J.H., 1996*

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