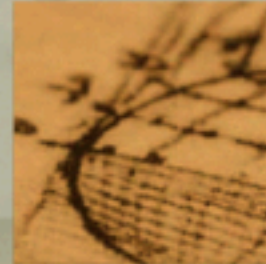
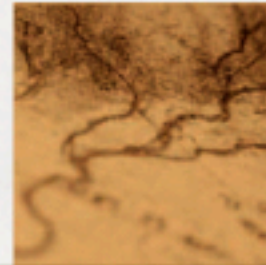




knowledge reservoir
a ZIEBEL company



better
smarter
faster

**better
smarter
faster...**

better Smarter faster...

the Knowledge Reservoir advantage.

better decisions

- Seasoned professionals with a wealth of technical, implementation and project management experience
- Geoscience interpretation and modeling expertise using fit-for-purpose tools and techniques
- Capture, development and documentation of best practices and lessons learned
- Exceptional simulation and modeling expertise

smarter risk management

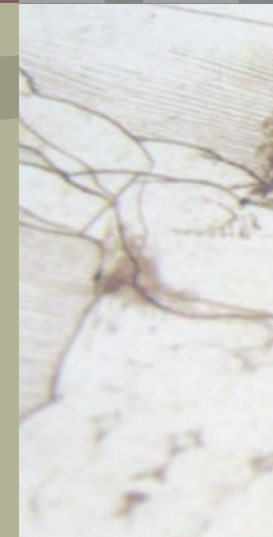
- Comprehensive analyses of technical and financial risks
- Unmatched deepwater consulting expertise
- Extensive operational experience in major onshore and offshore projects

faster return

- Technical and production expertise helps clients get into key plays more quickly
- Production solutions to maximize the value of producing assets
- Defined, repeatable processes that help our teams work quickly and efficiently

Knowledge Reservoir is *the* upstream resource for the exploration and production industry. We support major, independent and national oil companies worldwide to produce hydrocarbons in a smart, sustainable and profitable manner.

We feature a staff of seasoned, veteran engineers and geoscientists—many having more than 25 years of upstream industry experience working for the very energy companies they are now supporting. **So we understand how you operate.**



For all business areas, we provide complete turn-key solutions as well as consultants to supplement and complement our clients' project teams.



Your **complete** upstream resource



Working Globally

Knowledge Reservoir provides comprehensive upstream support meeting client needs through three specialized divisions.



Subsurface Asset Consulting

Using the most advanced mapping, modeling and simulation techniques and technology, the Subsurface Asset Consulting team helps clients develop a richer, more accurate understanding of their reservoirs, thereby providing a foundation for better decisions. The ultimate results are greater confidence, reduced risks and increased reserves.



Production Solutions

With a focus on existing data and recognition that indecision regarding production strategies is itself detrimental to project economics, the Production Solutions team helps clients understand their existing production performance while developing strategies that deliver hydrocarbons at the lowest unit cost. The end game is to maximize production and deliver the optimum return.



Knowledge Management

Project teams collect data used in developing information, and ultimately knowledge, to drive critical decisions. The Knowledge Management team helps clients capture valuable data and more importantly, best practices and turn these into information, knowledge and lessons learned providing value well into the future.

Knowledge Reservoir has developed a web-based product, **Reservoir KB**, which is the definitive knowledge base for deepwater Gulf of Mexico.



analysis

Subsurface Asset Consulting

What drives most upstream investment decisions?

Often it's the quality of the reservoir and the level of confidence in your reservoir model. **We can help.**

Knowledge Reservoir provides:

Geological and Geophysical Analysis including: regional field studies, 3-D seismic interpretation and mapping; static model building; geostatistical analyses; saturation maps and reservoir volumetrics; development and review of geological interpretations.

Petrophysical Analysis including: estimation of reservoir properties, such as mechanical skin, permeability, thickness and porosity values; development of reservoir characterization based on well-logs tied to the seismic interpretation.

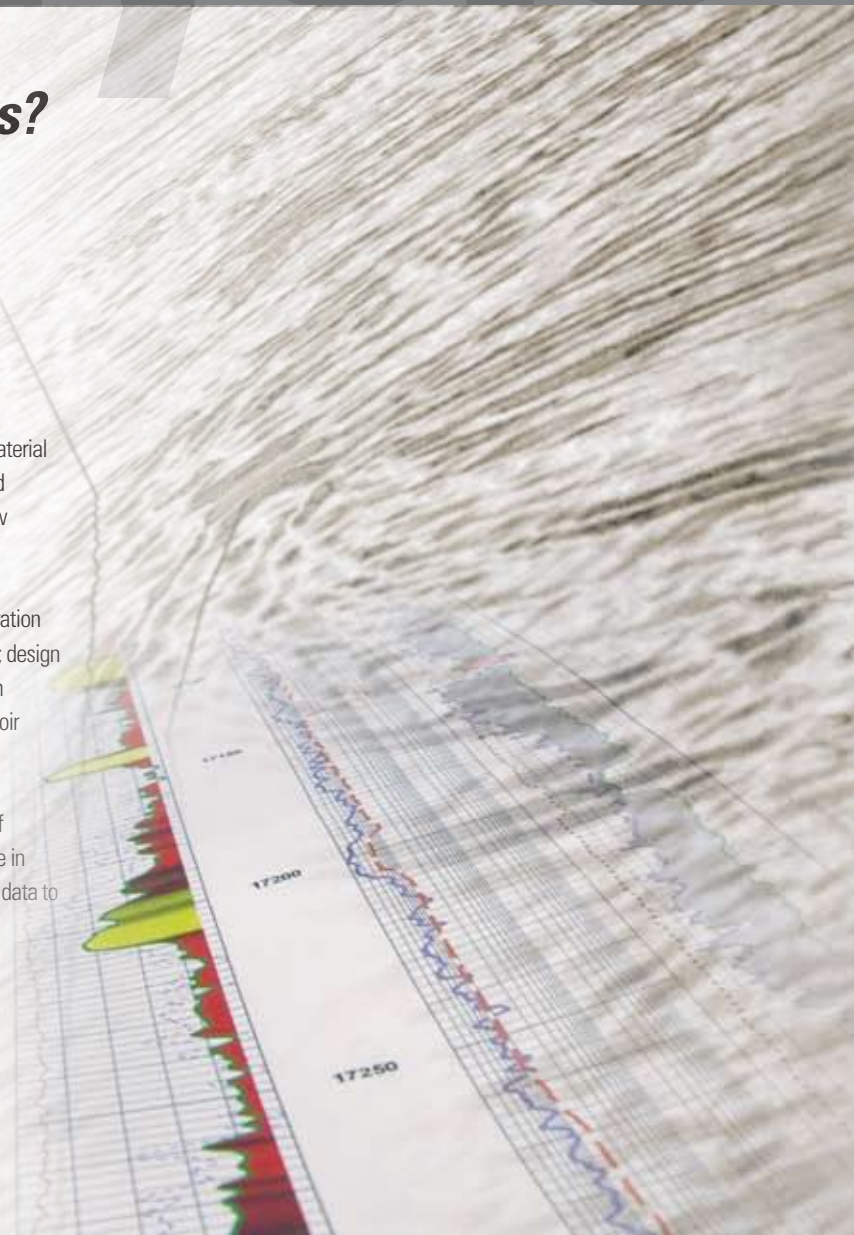
Engineering including: use of pressure transient analysis to determine reservoir parameters and structure; PVT analysis establishing fluid properties and behavior.

Integrated Reservoir Studies including: reservoir characterization integrating all available information, including 3-D seismic, well logs, downhole flow profile, borehole image and core data; single-well and full field simulation studies using black oil and thermal simulators; conceptual facility design and incremental economic evaluations.

Reservoir Evaluation including: estimation of in-place volumes and proven reserves based on volumetric and material balance techniques; Monte Carlo analysis of reserves and production risk; economic evaluations, including cash flow analysis and net present value determination.

Reservoir Simulation including: construction and calibration of reservoir models (black oil, compositional and thermal); design and forecast of performance based on alternate depletion strategies; simulation history matching and overall reservoir management.

Deepwater Specialist Advice including: integration of deepwater data into static and dynamic models; expertise in interpreting 3-D seismic data, well penetrations and core data to deduce depositional environments.





Increase your confidence

Knowledge Reservoir's expertise gives you the increased confidence in your reservoir model providing a foundation for:

Better understanding of risks and ability to manage them, resulting in more reliable scheduling, capital investment and development of operating cost estimates.

Smarter production strategies for long-term sustainable development of your assets and overall increased recovery.

Faster return, improved economics and higher net present value.

Providing subsurface appraisal and development expertise globally onshore, offshore and in deepwater

Knowledge Reservoir has been an important advisor to our clients and their integrated project teams, playing a key role in helping them move their projects from appraisal to development.

We've supported project teams in their goals to high-grade existing geophysical interpretation; integrate the wireline log, core, petrophysical and sedimentological data; develop geological and dynamic reservoir models to quantify reservoir uncertainty and evaluate well and reservoir flow performance.

For many clients, our team also continues to update geological and static models and revise geological interpretations through batch drilling, to production of first oil, and well into the full production stage of the project.



innovation

Production Solutions

Knowledge Reservoir's
Production Solutions division features:

- **A comprehensive, integrated approach.**

Our expertise in all phases and areas of reservoir production, flow assurance and transportation allows us to understand the impact of each part in the whole process and its effect on the total production cycle.

- **Multi-level strategic deliverables.**

We present a complete range of possible approaches and potential results. We provide clients not only traditional consulting services, but strategic advice for optimum performance.

- **Broad and deep experience.**

We have expertise in both the onshore and offshore environments with extensive experience in deepwater, mature and marginal fields. It includes both conventional and unconventional plays including tight gas, high and low permeability, heavy oil, fractured and carbonate reservoirs and coalbed methane.

How will you replace reserves?

In part, by getting the most from assets you currently own. **We can help.**

Bringing by-passed reserves to the surface faster

Our Production Solutions team brings timely, creative solutions to the industry-wide dilemma of sustainability.

We work to understand our clients' existing production data and help them decide on and implement effective strategies to start improving production immediately.

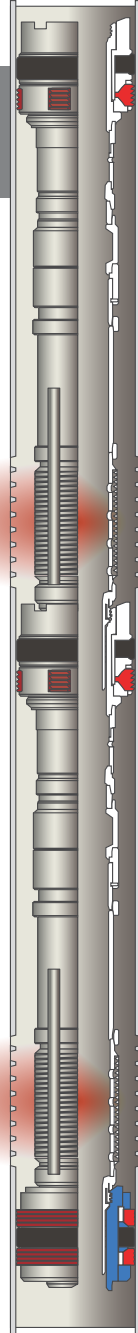
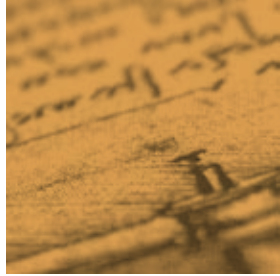
Decisiveness is critical—delays in implementing strategies mean delays in realizing production improvements.

We work to maximize reserves and increase asset value by improving recovery efficiency and implementing EOR/IOR methods well suited for underdeveloped, mature, marginal and brown field assets.

Using a rigorous engineering process comprising a sequence of **evaluate, prioritize, recommend, implement and monitor**, our Production Solutions team delivers:



In the near future, a greater percentage of the world's oil and gas supply will come from existing discoveries, mature assets, and unconventional sources. **It's time to focus on production improvement.**



Working smarter to deliver sustainability

Better planning means increased return

Getting more from investment in production and transportation comes from planning early, planning smarter, with a focus on sustainable development.

The planning cycle must encompass the complete deliverability sequence including the reservoir, wellbore, flowline and pipeline. This, in turn, requires expertise in:

- **Reservoir Performance:** Understanding of reservoir mechanics and dynamics to evaluate reservoir deliverability and prediction capability.
- **Reservoir Completions:** Integrating reservoir performance with optimum completions design ensures deliverability and improves sustainability and asset profitability.
- **Flow Assurance:** All aspects of hydrodynamic and chemical issues are addressed at the early planning and design phase of any field development. Design integration must deal with the spectrum of challenges in the wellbore and flowline including slugging, hydrates, asphaltenes, wax and scale.
- **Pipeline simulation analysis:** Our single-phase and multi-phase analyses provides critical information for pipeline design and flow assurance. Highly experienced engineers use best-in-class software for simulations.

- Well completion and optimization options
- Screening analysis of EOR/IOR techniques
- Determination of the remaining potential of assets
- Recommendations for well candidates for production enhancement
- Profitability analysis and development of "what-if" scenarios

Our Production Solutions team focuses on closing the gap between current production levels and the reservoir potential. This is achieved by addressing, in a tiered manner:

- **Assets**
by working on portfolio generation, evaluation and tiered opportunities
- **Fields**
by using analysis based on benchmarking, technology, confidence ranges, technical limits, development and optimization
- **Reservoirs**
by looking at completion strategies and dynamic performance
- **Single and multiple well production systems**
by investigating optimization possibilities

understand

Knowledge Management

Transforming your existing data into information and knowledge

What's missing?

Often, knowledge exists within an organization, but it may be difficult to identify. **We can help.**

Our Knowledge Management Process

Our formal knowledge management process begins with our SMEs talking with our clients' SMEs, expert to expert, to capture information accurately and completely. We also review and analyze all relevant existing data and information sources.

The team creates a knowledge base of data, information, and best practices designed so that information and knowledge is easy to find, easy to use, and delivered in a way that makes sense for each organization.

The bottom line for current and future projects is better information, smarter decisions, faster time to market and eventual return.

With the "graying" of the oil and gas industry, it is vital that we capture and store all of the knowledge we can—especially that which resides only in the minds of our soon-to- retire experts.

Better access to knowledge means **smarter decisions faster**

The core of our work as geoscientists and engineers is the information and knowledge we derive and generate. Often that knowledge is not captured or stored so that we can find it again for future use.

We can't learn from past experience if we don't remember and record that past experience and what we have learned from it.

In addition to our geoscience and engineering subject matter experts (SMEs), Knowledge Reservoir has a team of information and computer specialists who work with our clients to sift through and analyze existing data, determine what's important, then organize and store it so that you can find it again when you need it.

Our subject matter experts cover:

- Geophysics
- Geology
- Reservoir Engineering
- Sedimentology
- Petrophysics
- Geostatistics
- Petroleum Engineering
- Production Engineering
- Surface Systems
- Economics

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Reservoir KB, the definitive deepwater knowledge base for the GOM and more

Reservoir KB is a web-based knowledge base containing vital detailed analog, technical and statistical information about more than 100 fields and associated reservoirs and wells in the deepwater Gulf of Mexico.

The knowledge base was developed in response to our clients' needs for a compendium of deepwater data to help them economically quantify projects, assess risks and measure them against other opportunities in their portfolios.

Reservoir KB is updated annually with additional production information, statistical analysis and field analog data. New knowledge base modules are in development for other regions in the world.



Executives waste 6 weeks per year searching for lost documents.

- **FastCompany Magazine**

Employees spend about 25% to 35% of their time looking for information they need to do their jobs.

- **Document Magazine**

Through 2007, three-quarters of enterprise productivity gains will be attributed to knowledge management and other knowledge-work enhancements.

- **Gartner Group**

Some estimates put the cost of "knowledge deficit", which includes costs and inefficiencies resulting from intellectual rework, substandard performance and inability to find knowledge resources, at tens of millions of dollars per year.

- **IBM Systems Journal**

We've heard the questions, recognized the problems, and delivered the solutions.

The Knowledge Reservoir advantage gives you maximum reservoir management through better processes, decisions and smarter risk analysis, resulting in faster time to production and faster return on your investment.

Subsurface Asset Consulting

to best define your reservoir and increase confidence in your reservoir models.

Production Solutions

to produce the most, efficiently and effectively, from your existing assets for optimum sustainable development.

Knowledge Management

to transform data into information and knowledge captured for smarter decisions now and in the future.



To find out how our experienced and comprehensive team of experts can help support your projects, contact us today.

www.knowledge-reservoir.com



www.knowledge-reservoir.com



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