eni e&p exploration

February 2014

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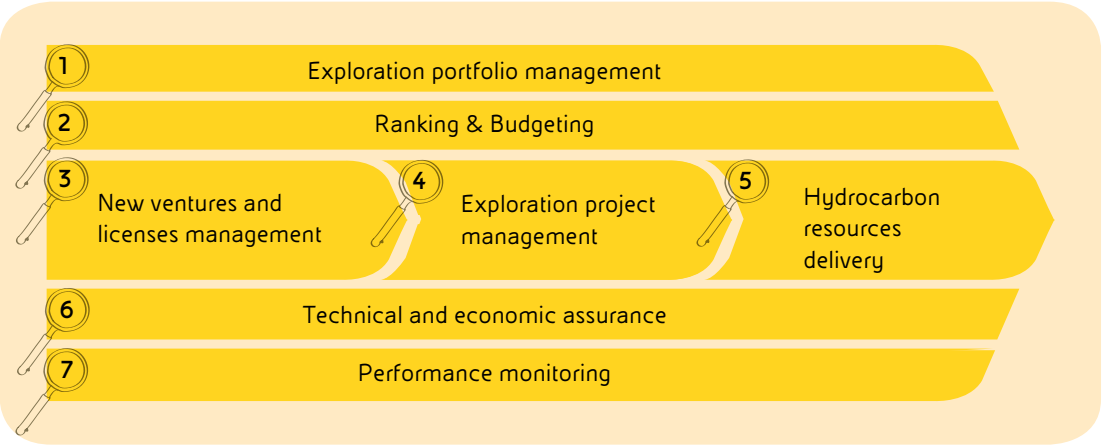
eni's vision for a successful exploration

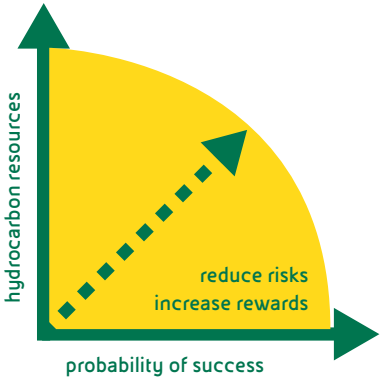
Successful exploration is not a matter of chance, but is the result of appropriate risk management, analysis of unexpected outcomes and optimization of the geological evaluation based on a deep understanding of the earth.

the strategy

- be an "early mover" in a competitive environment
- anticipate and capture new opportunities
- develop and maintain best-in-class technical skills
- strong focus on R&D and Knowledge Management
- centralized assurance process
- rigorous project management
- exploration portfolio management
- balance risks vs rewards
- time-to-market focus
- prioritization & rapid delineation of projects

the exploration process





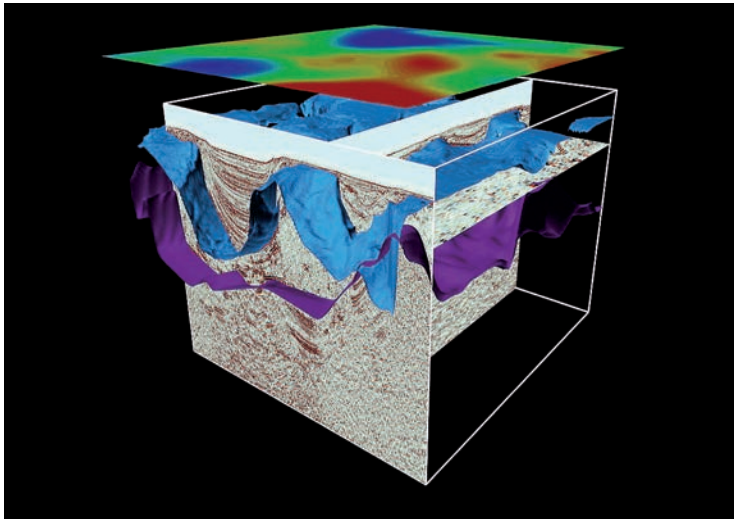
eni g&g technologies portfolio

Today's exploration scenario is characterised by increasing risk and cost, challenging targets, complex geological settings and ultra-deep water environments.

Technical flexibility, integration and the application of appropriate geophysical and geological technologies are fundamental for successful exploration in these challenging physical and economic environments.

eni's current G&G technology portfolio is the result of continuous investment in Research and Development to develop state-of-the art techniques & methodologies and deliver leading-edge software, combined with the continuous enhancement of the technical knowledge and insight of our staff.

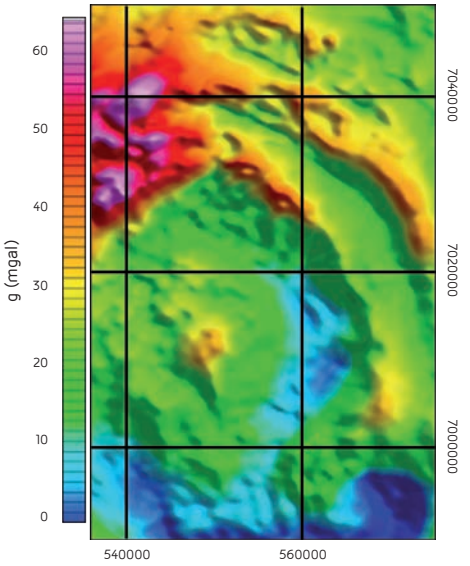
eni's explorationists are supported by a wide range of distinctive and proprietary tools which cover all the key technologies required to assess and exploit the potential of both mature basins and frontier areas.



modeling & inversion for 3D basin | architecture reconstruction

potential methods

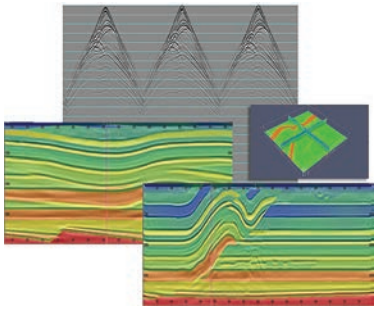
eni has developed state-of-the-art tools for crustal structure modeling and inversion & basin reconstruction.



proprietary algorithms |

geophysical survey design

Integrated survey design defines the most appropriate geophysical acquisition to maximize G&G value vs. project requirements. Geophysical Survey Design studies are performed internally for all operated seismic acquisition projects using proprietary tools.

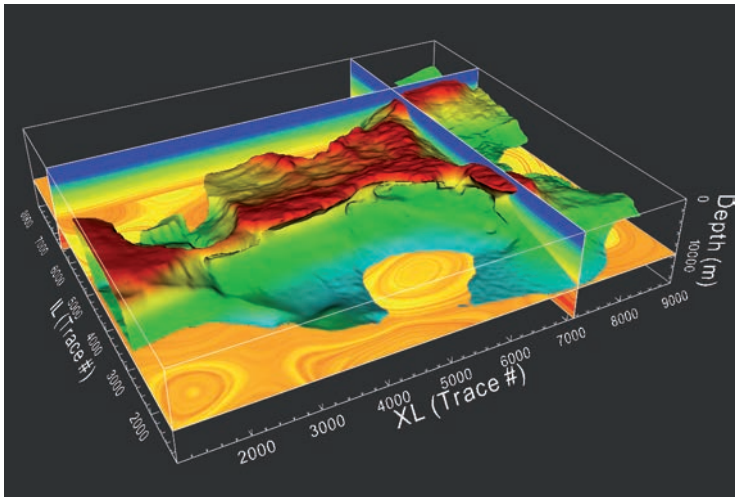


3D visco acoustic modeling | (**eni** proprietary)

seismic imaging

eni depth velocity analysis

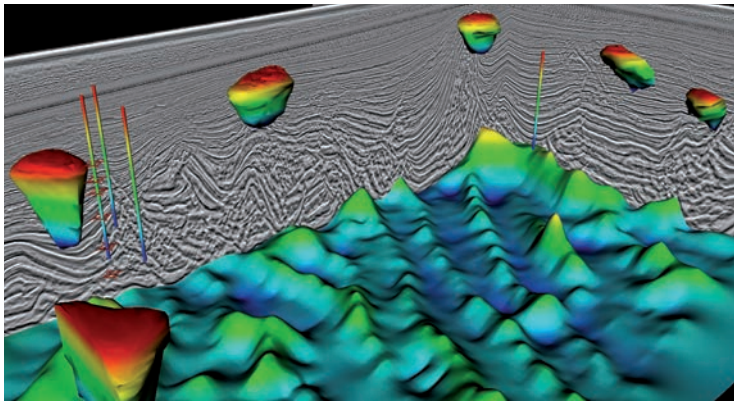
e-dva™ is a software platform for anisotropic seismic velocity analysis integrating all the functionalities needed to run a depth imaging project.



e-dva™ reflection tomography is a very flexible grid tomography tool, in particular:

- it has the flexibility and adaptability allowed by the grid, but it can also take into account interpreted horizon to build layers
- it can handle VTI (Vertical Transverse Isotropy) and TTI (Tilted Transverse Isotropy) anisotropy allowing to jointly estimate velocity and anisotropy parameters

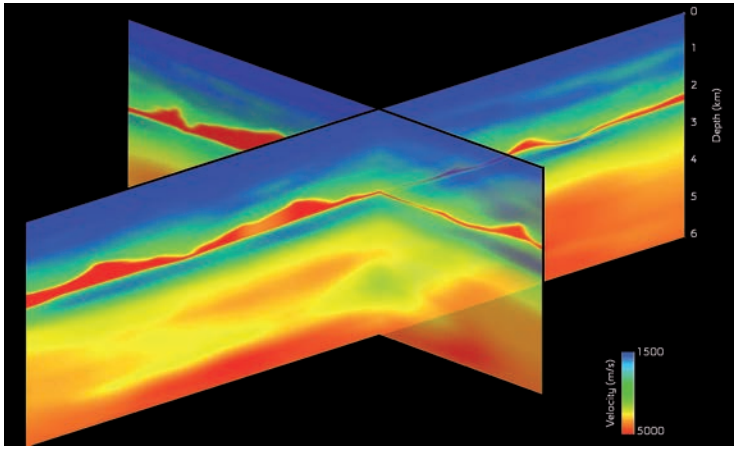
The reliability of the estimated velocity model can be enforced by both taking geological constraints (consistency of velocity with geological structures) and well data (sonic logs, VSP, markers) during velocity model updates.



e-dva™ 3D velocity model | with interpreted salt drops

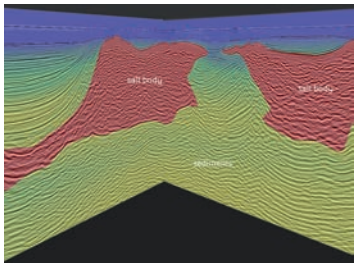
The core tools are:

- reflection Tomography, for velocity model updating
- kirchhoff True Amplitude (KTA) Pre-stack Depth
- migration, for imaging and to provide the migrated gathers used as the input to reflection tomography
- reverse Time Migration (RTM), for imaging and salt model building
- 2D and 3D visualization
- internal database for project management and quality control

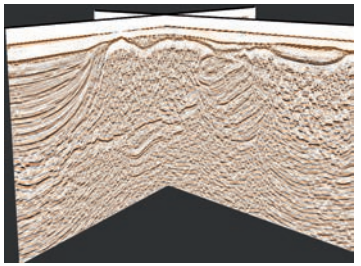


e-dva™ velocity model |

RTM proprietary algorithm is very effective in presence of salt.



RTM + velocity field |



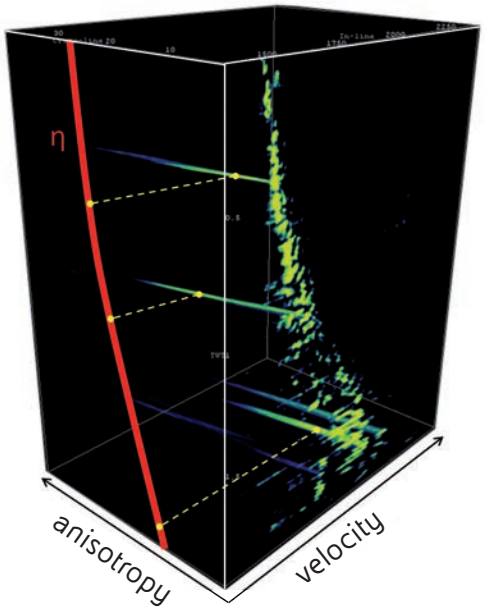
RTM 3D volume |

Additional proprietary wave equation migration codes:

- PSPI
- Multi one-way PSPI

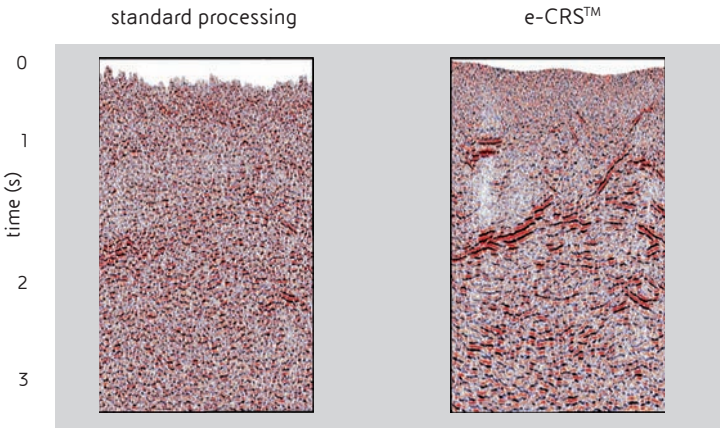
eanis is an **eni** proprietary software for the estimation of seismic anisotropy from pre-stack data.

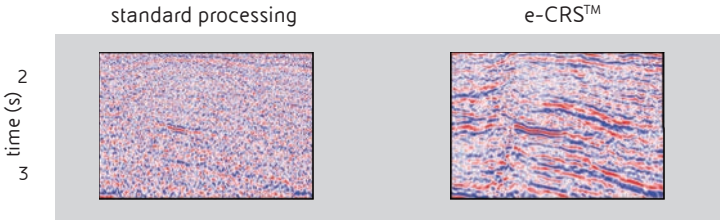
- better focusing
- better well-tie



eni common reflection surface stack

e-crs™ is an exclusive proprietary eni technology and represents a breakthrough in seismic time imaging. e-crs™ is a very powerful tool to image the subsurface particularly where the quality of seismic data is poor.





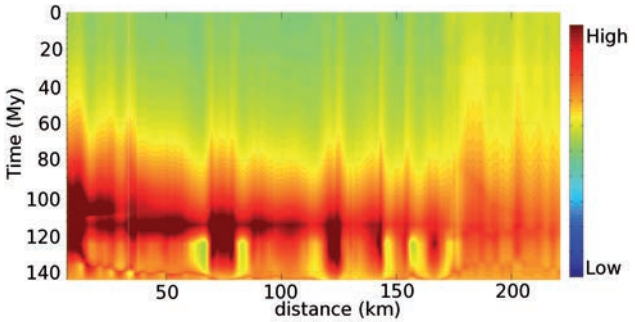
geological technologies

e-simba eni basin simulation

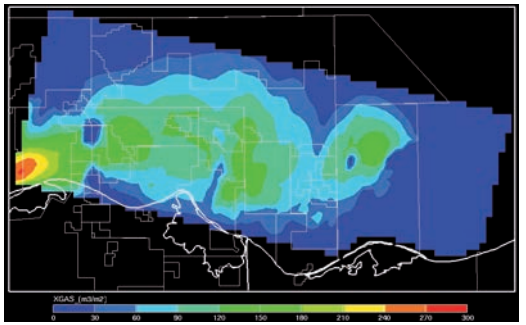
eni basin simulation

e-simba™ is the proprietary technology for Basin & Petroleum System Analysis And Modeling.

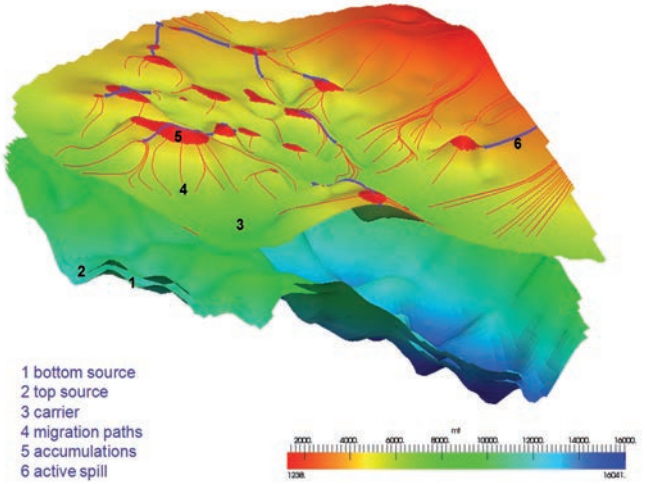
- basin geometry evolution
- temperature and pressure
- HC generation and expulsion
- migration and trapping
- probabilistic simulations
- charge probability
- exploration risk evaluation



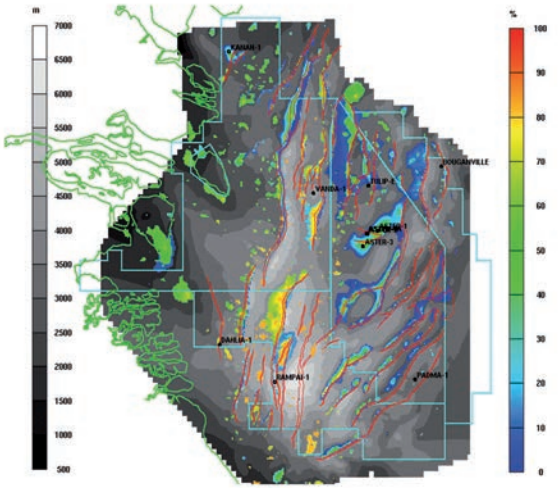
heat flow history |



generation and expulsion modelling |



- the prospect ranking is defined by the probabilistic distribution of trapped hydrocarbons
- computation of hydorcarbons volumes, types and quality

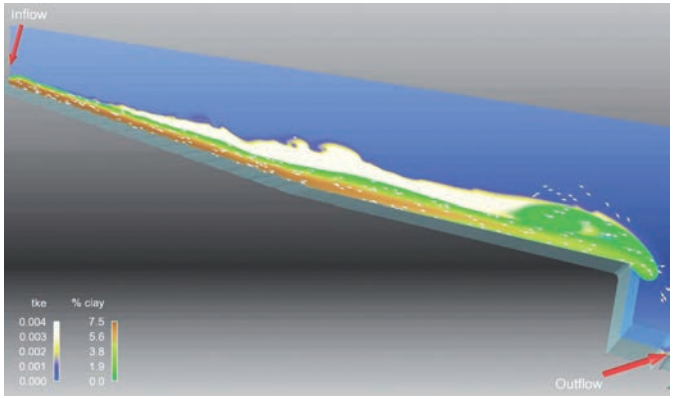


- the efficiency of Petroleum System is considered as a Joint Probability that an active source is present in the basin, has generated and expelled hydrocarbons and that the hydrocarbons have migrated into the structure and have been preserved

3D gravity flow

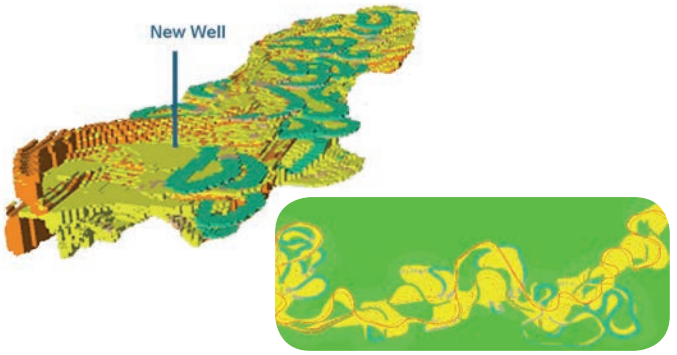
eni proprietary 3D modeling tool for the forward simulation of high and low density gravity flow deposits (turbidites).

- bipartite flow modeling calibrated with flume experiments and outcrop analogues
- prediction and quantification of the vertical/lateral distribution of sedimentary facies
- simulation of deep current effects on sediment distribution
- impact of gravity flows and deep currents on submarine infrastructure



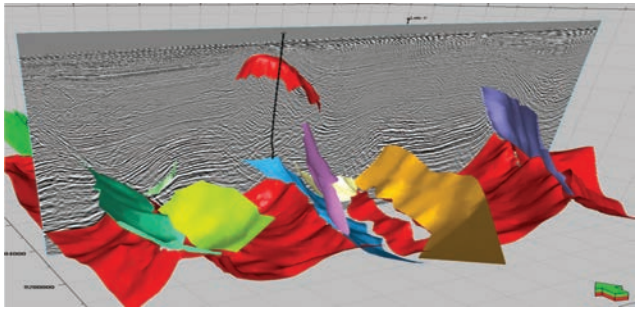
3d deepwater meandering channel systems modeling

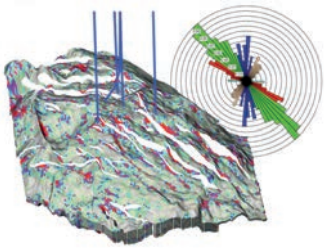
- estimation of net/gross and reservoir facies distribution through time



structural validation & 3D model builiding

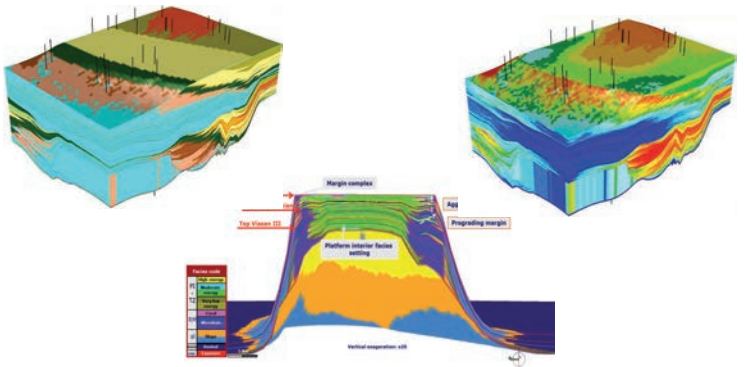
eni developed a workflow for the extraction of structural features from seismic volumes, the geometrical validation and the statistical analysis in terms density, distribution, trends





3D forward modelling

- support to exploration with source/reservoir multiple scenarios distribution at basin scale
- prediction of the location, extension, geometry of reservoir bodies at field scale



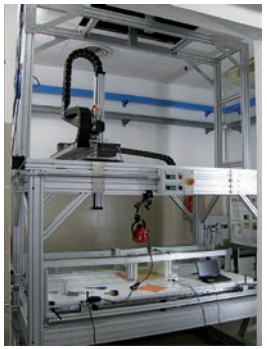
geosciences laboratories

A strategic value for exploration.

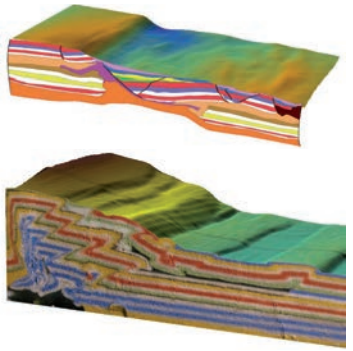
- world-class analytical laboratories established in 1937
- the laboratories provide leading-edge instrumentation and expertise for geochemical, petrophysical, petrographic, mineralogical and diagenetic studies

sandbox - analogue simulator

- proprietary computer-controlled sand box apparatus
- 4D evolution of structurally complex sedimentary basins
- conceptual geological models for poorly known exploration area



sandbox machine |

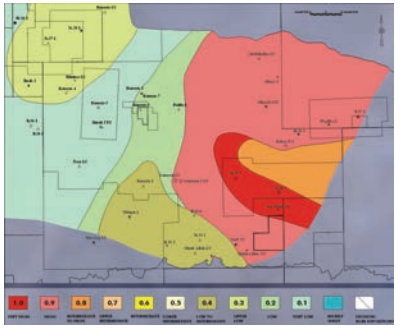


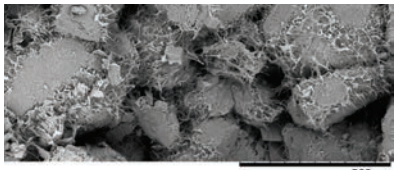
digitized analogue models |

eni reservoir efficiency index

e-rei™ is a deterministic approach to reservoir quality prediction based on quantitative petrographic analyses.

- provides reservoir quality maps directly correlated to porosity and permeability
- handles burial and thermal history of the basin

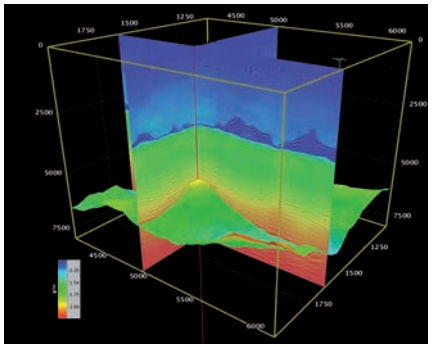




eni 3d pore pressure prediction

3P is a fully 3D pore pressure prediction tool.

- velocity or impedance-based
- handles multiple trends & centroid effects

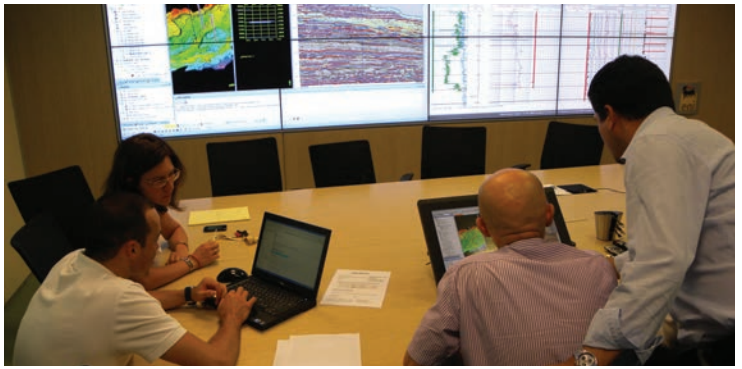


operations geology

eni real-time operations geology workflow

Thetis is a workflow to support operations geology decisions in real time.

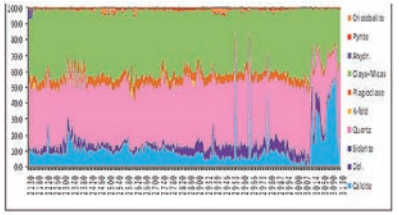
- the collaborative multi-platform interactive environment allows significant operational savings

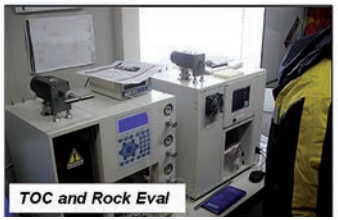


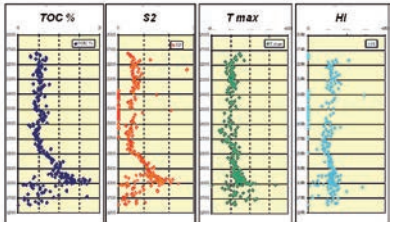
eni advanced real-time cuttings analysis

arca is an on-site methodology to assess the mineralogy and TOC of drilled formations.

- while-drilling formation evaluation
- operational savings due to real-time decisions





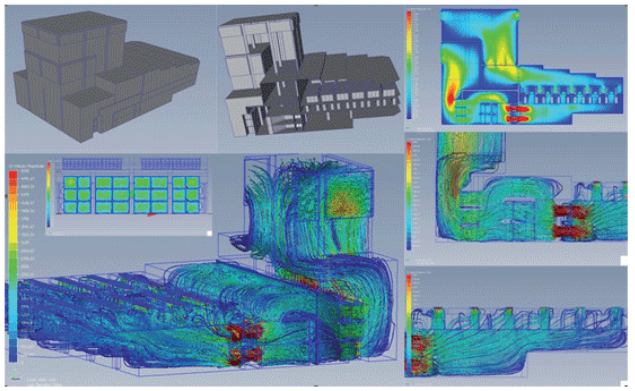


green data center

eni High Performance Computing hub, able to deliver a peak speed of 3 Petaflops and utilized to validate through proprietary software imaging packages all critical well locations.

Innovative infrastructures and cooling systems allow a significative reduction in operating costs and CO_2 emissions.

The center meets the requirements of the most demanding geophysical and geological software.



achievements

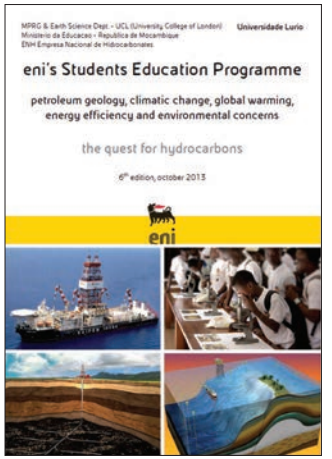
Between 2008 and 2012, **eni** has been the world's most successful major oil company in terms of reserves replacement and finding costs. In 2012, a standout exploration result was achieved, adding 3.6 billion boe of resources, more than 80% operated.

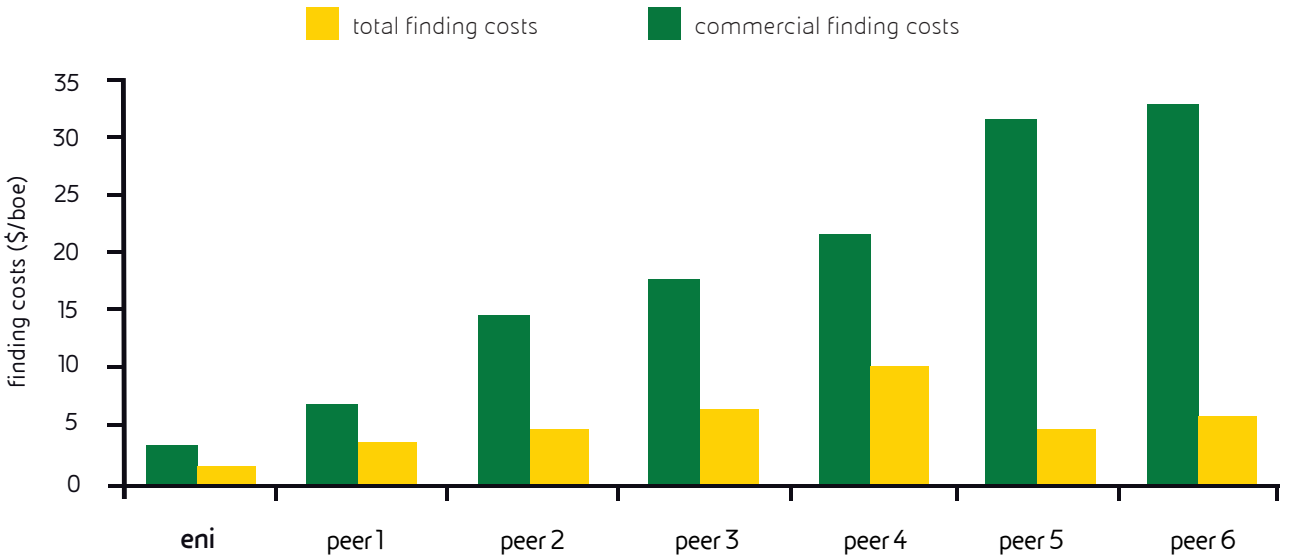
Around 70% of the exploratory wells drilled in the last five years benefited from the application of proprietary G&G technologies, showing the effectiveness of a fit-to-purpose and business oriented R&D strategy.

eni 's recent successes are rooted in a long tradition of giant discoveries started since the foundation in 1953 and confirmed by the recent supergiant gas discovery of Mamba, deep water Mozambique.

A successful exploration is not possible without a constant commitment to the development and strengthening of the relationships with national institutions in the host Countries.

eni exploration organizes the "Eni Students Programme", an educational campaign on petroleum geology, climatic change and environmental concerns targeted for school students and teachers.

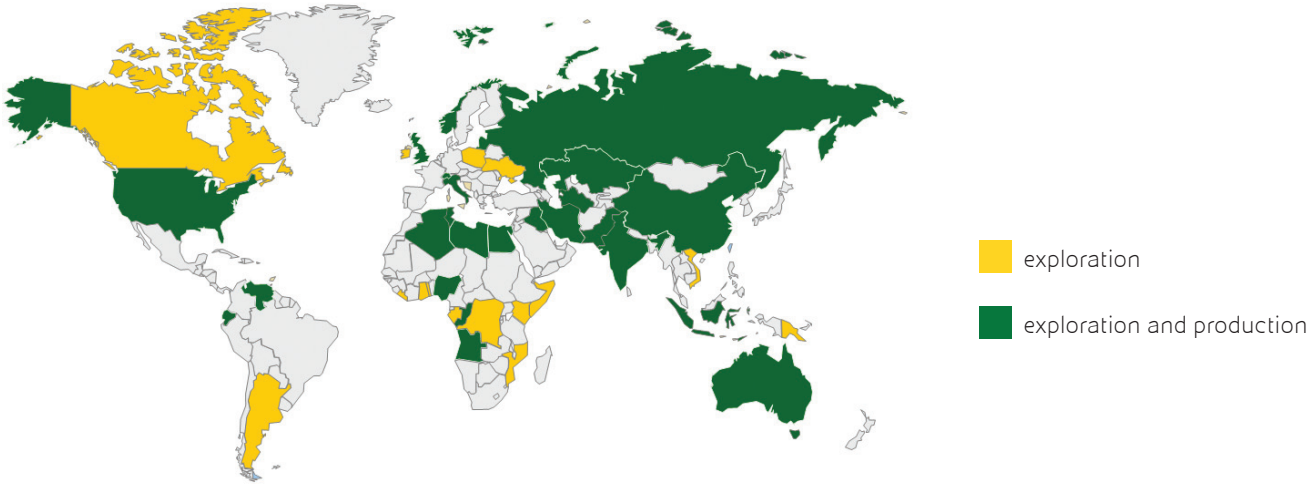


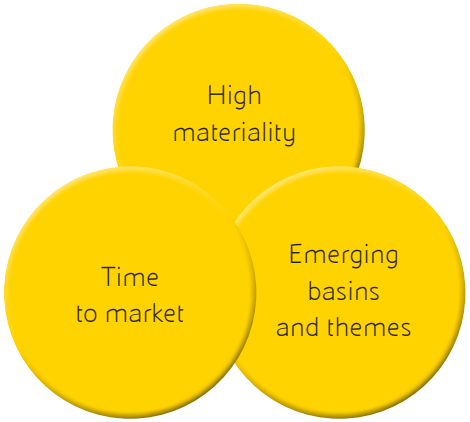


source: Wood Mackenzie CBT2013 Q1

the outlook

eni's organic growth strategy is based on successful exploration activities, believed to be the main driver of value creation in the company. The diversification of the exploration portfolio is a key factor in order to maintain an outstanding rate of success. Today, **eni** manages a highly diversified portfolio in terms of play type, materiality, location.





exploration key targets |

The global exploration scenario is moving towards an increase in competition among oil companies to secure the most promising acreage, particularly in underexplored basins.

eni takes up this challenge with a confidence that is grounded in its excellent technical know-how, continuous development, efficient exploration processes and rigorous management.

The past and recent successes demonstrate the effectiveness of **eni**'s exploration in converting new opportunities into real value for stakeholders.

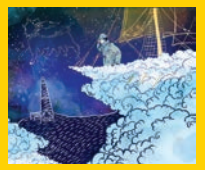
eni is a major integrated energy company, committed to growth in the activities of finding, producing, transporting, transforming and marketing oil and gas. The company has global operations in 90 countries and employs about 78 thousand people.

eni's strong presence in the gas market and in the liquefaction of natural gas, consolidated skills in the power generation and refinery activities, strengthened by world class skills in engineering and project management, allow the company to catch opportunities in the market and to realize integrated projects.

eni's business model for the creation of sustainable value is based on assets and strategic guidelines in a framework of clear rules of governance, with the highest ethical standards and rigorous enterprise risk management.

When implementing its strategy and running its day-to-day operations, **eni**'s efforts are inspired by these key drivers: cooperation, integration, innovation, excellence, inclusion, responsibility.

In 2013 **eni** confirmed its presence in the Dow Jones Sustainability Indices and in the FTSE4Good Index. Furthermore, **eni** enters the CDP's Carbon Performance Leadership Index in 2012 as the only company from the energy sector.



Since 2010 **eni** has been communicating with young talents from all over the world in various disciplines. The cover art for this brochure was created by Valentina Russello, a young Italian illustrator. The opera represents the importance of exploration as a promise for the future and success of the society business.

eni's activities

exploration & production
eni explores, develops and produces oil and natural gas mainly in Italy, Norway, North and West Africa, the North Sea, the United States, Latin America, Australia and in high potential areas such as Mozambique, the Caspian Sea, the Middle and Far East, Kenya, Liberia, Vietnam, Cyprus, and Russia. In 2012 hydrocarbon production averaged 1.701 million boe/day. Net proved reserves at December 2012 amounted to 7.17 billion boe.

gas & power
eni engages in natural gas supply, regasification, transport, trading and marketing, power generation and electricity sales. In 2012 overall sales amounted to 95.32 billion cubic meters of natural gas and 42.58 terawatthours of electricity.

refining & marketing
eni engages in oil product refining and marketing mainly in Italy and Europe. With the **eni/agip** brand, it is the Italian market leader in the distribution sector. In 2012 retail sales in Europe of refined products totalled 10.87 million tonnes. In the same period, refining throughputs were 30.01 million tons.

engineering & construction
saipem (42.9% owned by **eni**) is a leader in the provision of engineering, procurement, project management and construction services for the oil & gas industry, with unique capabilities in designing and executing large scale offshore and onshore projects. **saipem** has extensive expertise in operating in conventional and deep offshore as well as in remote areas. Order backlog was €19,739 million at December 31, 2012.

chemicals
versalis (**eni** 100%) engages in the production and sale of a wide portfolio of chemical products and holds a significant market share in Europe where it has state-of-the-art plants all equipped with innovative technology. Recently **versalis** entered the bio-chemical segment to produce advanced and eco-friendly plastics and rubber. It also boasts an efficient distribution network worldwide. In 2012 production amounted to 6,090 ktonnes.

trading
eni engages in commodity risk management, supply, shipping and asset backed trading activities. Through the midstream business unit and its wholly-owned subsidiary **eni trading & shipping** (**ets**) spa, **eni** is fully targeting the entire spectrum of energy commodities, such as crudes, refined products, natural gas, power and environmental products. In 2012 **ets** traded more than 600 Mboe of crude and products and more than 100 BCM of gas.

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