



*ECONOMIC VALUATION
OF
UPSTREAM TECHNOLOGIES*

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How to Measure Intangibles

- ✓ Market Capitalization
- ✓ Return on Invested Capital
- ✓ Scorecards
- ✓ Direct Measure of Intellectual Capital
- ✓ Brand Valuation

How to Evaluate Intangibles

- ✓ **Market Capitalization**

Measure of the difference between a company's market capitalization and book value

at Corporate level

- ✓ Return on Invested Capital

- ✓ Scorecards

- ✓ Direct Measure of Intellectual Capital

- ✓ Brand Valuation

How to Evaluate Intangibles

- ✓ Market Capitalization
- ✓ Return on Invested Capital
 - Comparison between the ROIC of the firm and an industry reference index. The spread gives the value creation capabilities of Intangible assets of the firm
 - at Corporate level*
- ✓ Scorecards
- ✓ Direct Measure of Intellectual Capital
- ✓ Brand Valuation

How to Evaluate Intangibles

- ✓ Market Capitalization
- ✓ Return on Invested Capital
- ✓ Scorecards

It allows to define a rating of Intangible assets on the basis of a set of key parameters (indicators) set for a specific asset

Specific to Single Asset

- ✓ Direct Measure of Intellectual Capital
- ✓ Brand Valuation

How to Evaluate Intangibles

- ✓ Market Capitalization
- ✓ Return on Invested Capital
- ✓ Scorecards
- ✓ **Direct Measure of Intellectual Capital**
 - Tries to identify the whole cash flows connected with a specific intangible asset
 - Specific to Single Asset*
- ✓ Brand Valuation

How to Evaluate Intangibles

- ✓ Market Capitalization
- ✓ Return on Invested Capital
- ✓ Scorecards
- ✓ Direct Measure of Intellectual Capital
- ✓ **Brand Valuation**

Focused on a single intangible asset: the Brand (Company image)

at Company level

Our approach: agenda

1. Valuation of tangible benefits:

- Net Present Value and Internal Rate of Return
 - *Integrated Crosswell Seismic*
 - *Expandable Technologies*
 - *Multiphase Boosting*
- Introduction to other tangible indicators

2. Valuation of intangible benefits:

- Intangible assesment



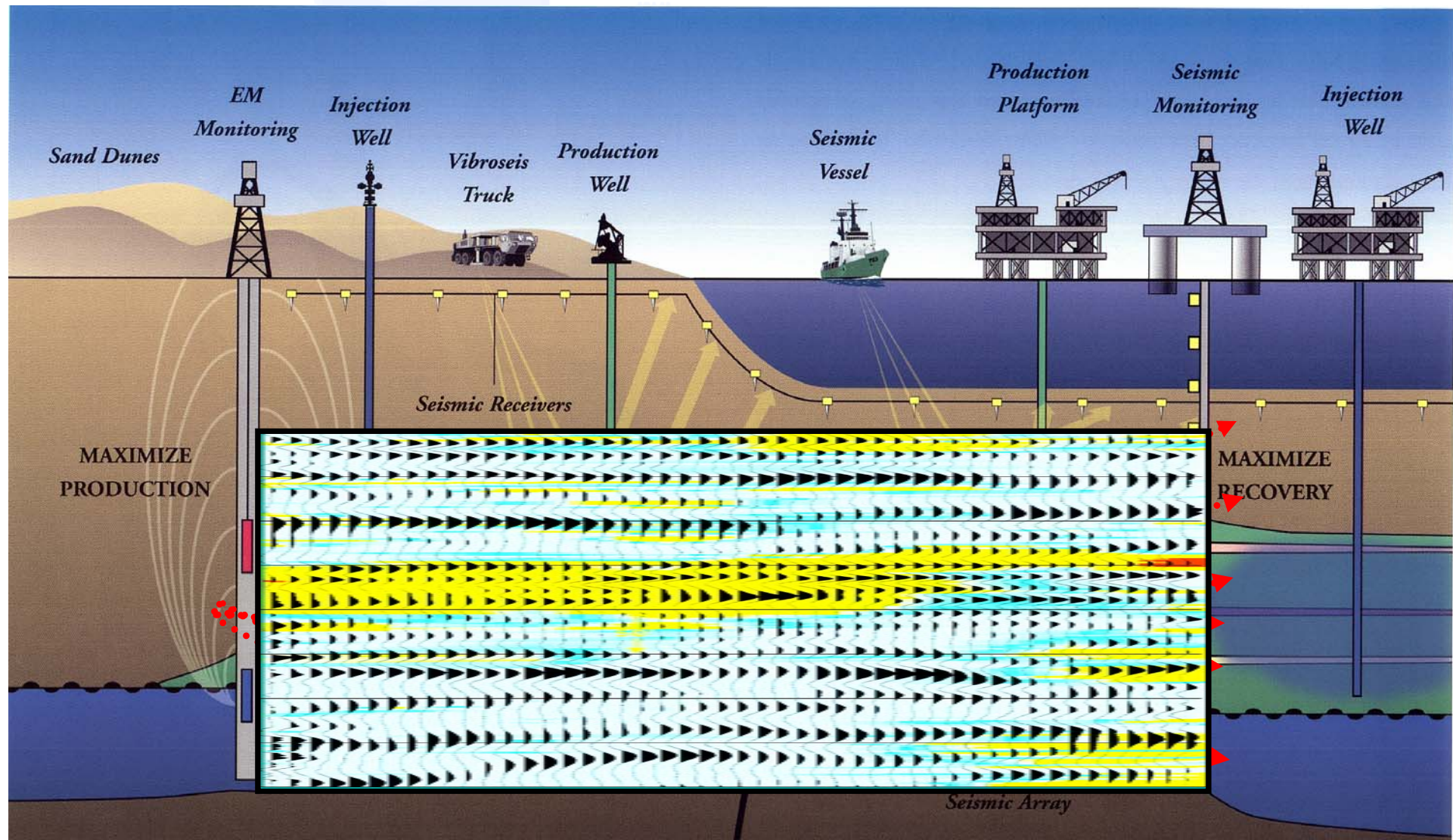
Economic Evaluation of Upstream Technology

INTEGRATED CROSSWELL SEISMIC

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Survey



Why use crosswell seismic?

- Extremely high resolution geology and structural imaging (i.e. 10 to 100 times better than that achievable with surface seismic)
- Repeated surveys for time-lapse (4-D) monitoring of fluid movement in the reservoir are sensitive to changes of as little as 1% in velocities due to production or injection programs
- Measurements are directly referenced in depth and co-located with log data
- Near surface effects such as topography, weathering or gas sands and overburden effects such as salt can be entirely bypassed
- Seismic and Log / Core Integration

'Classic' indicators of tangible value NPV, IRR

Assumptions:

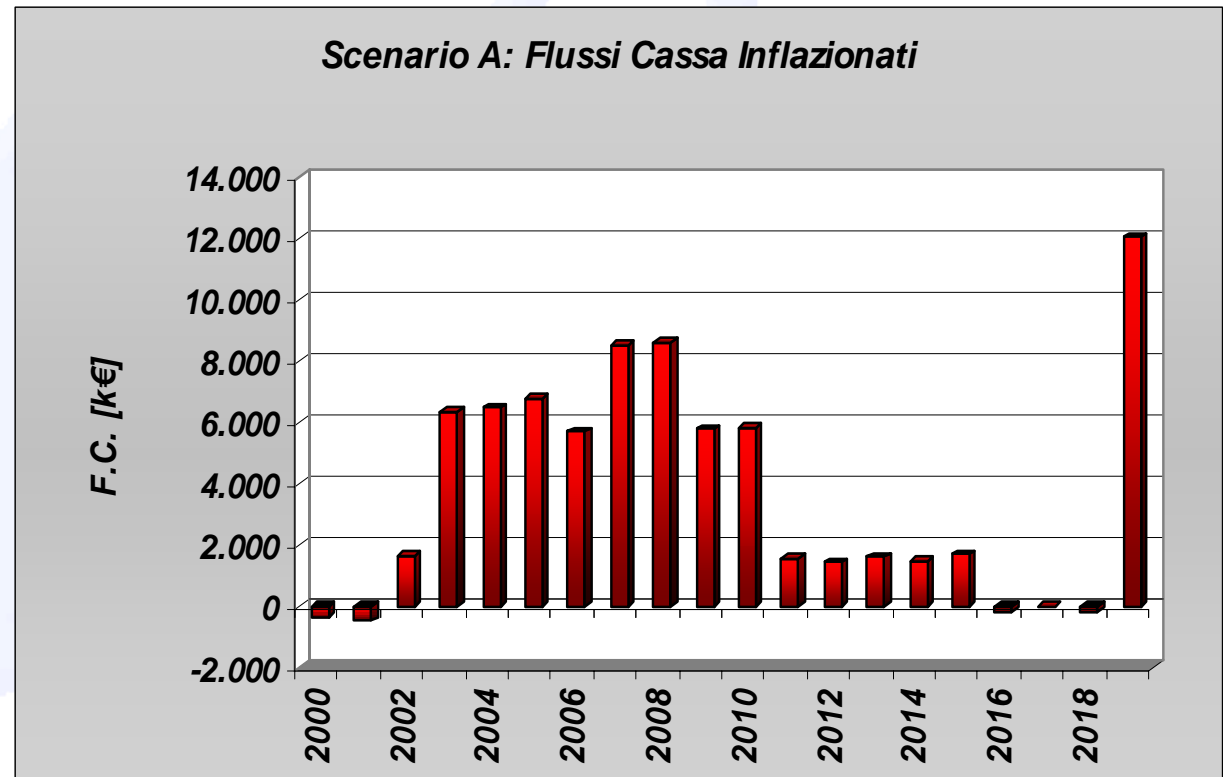
- ✓ NPV includes cost of R&D development
- ✓ Oil price:
 - a) low price scenario: 18 \$/bbl
 - b) high price scenario: 24 \$/bbl
- ✓ Gas price: 1,3 \$/MMBTU
- ✓ Inflation constant at 2,5% per annum
- ✓ Exchange rate €/€ constant at 1,17
- ✓ WACC: 8,1 %
- ✓ Average life of a well assumed at 10 years

NPV valuation: low price scenario

Crude oil price at 18 \$/bbl

Application of technology in two fields (North Africa)

NPV: 39 172 k€
IRR: 221%



NPV valuation: high price scenario

Crude oil price at 24 \$/bbl

Application of technology in two fields (North Africa)

NPV: 57 625 k€
IRR: 421%

