



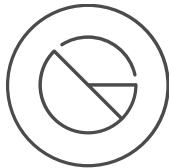
IHS Markit™

IHS Vantage

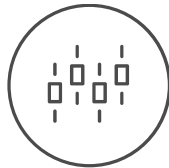
Upstream asset screening, evaluation
and strategy

Vantage

IHS Vantage provides detailed **economic analysis** and **technical data** for upstream oil and gas assets globally in a powerful online platform



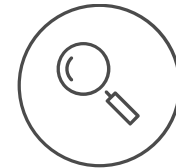
Production & Cost Analysis



Asset Economics & Valuation



Technical E&P and Midstream Data



Upstream Intelligence

Historical and forecast production and costs created by experts using best in class data

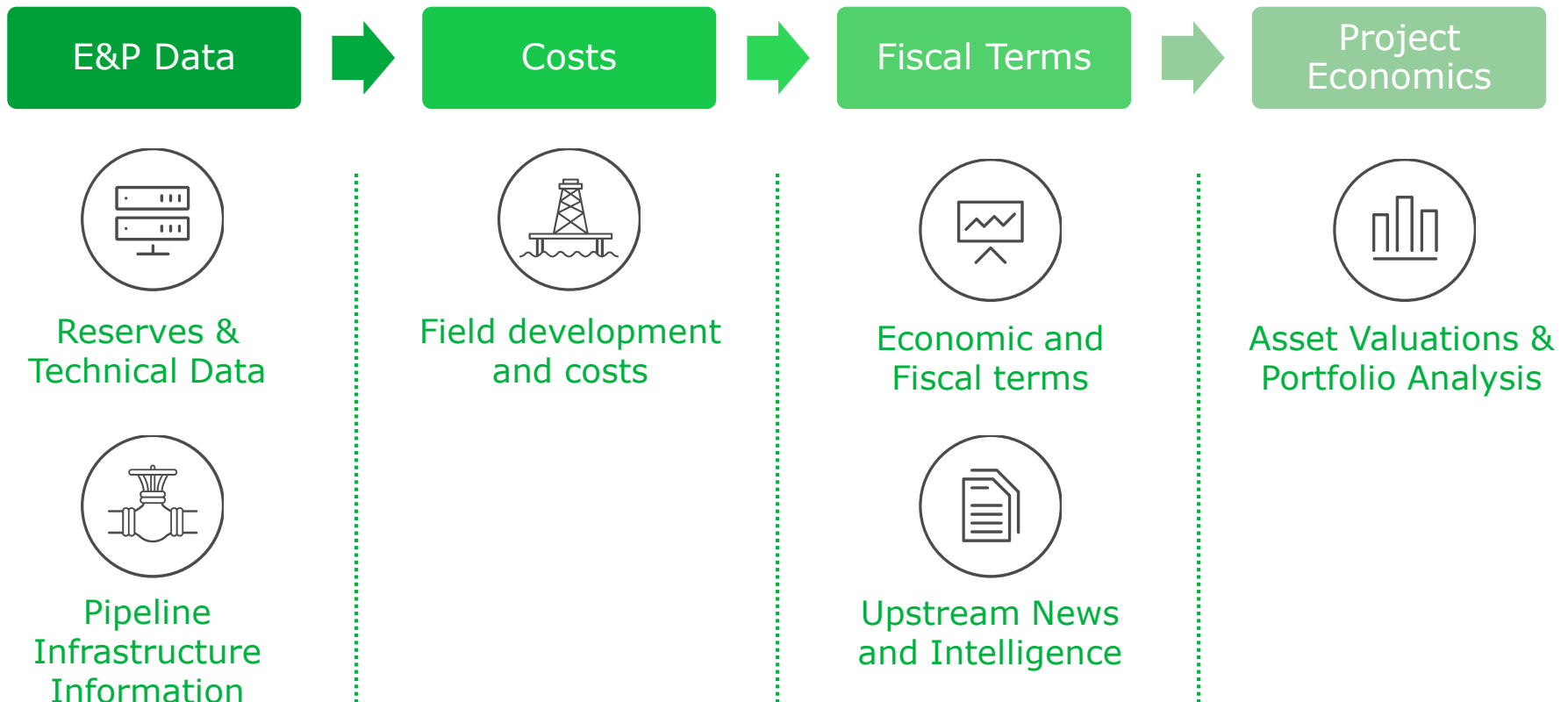
Fiscal terms, project economics and Excel models for more than 19,000 assets

Supporting technical data such as detailed field reports, wells data and pipeline infrastructure

Articles on recent events and detailed information on fiscal regimes

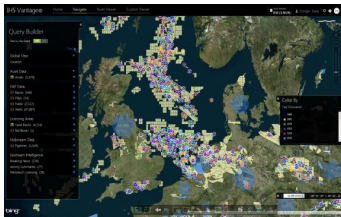
Vantage platform integrates IHS content for upstream commercial analysis

IHS Vantage



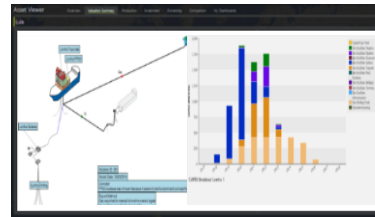
Vantage allows diverse teams to work together in a consistent and integrated platform

Exploration & Development



Single access point for field, production, well, block, and pipeline data

Cost & Engineering



Pre-modelled engineering cases and cost estimates with detailed schematics

Economics & M&A



Fiscal terms, valuation results and downloadable excel economic models

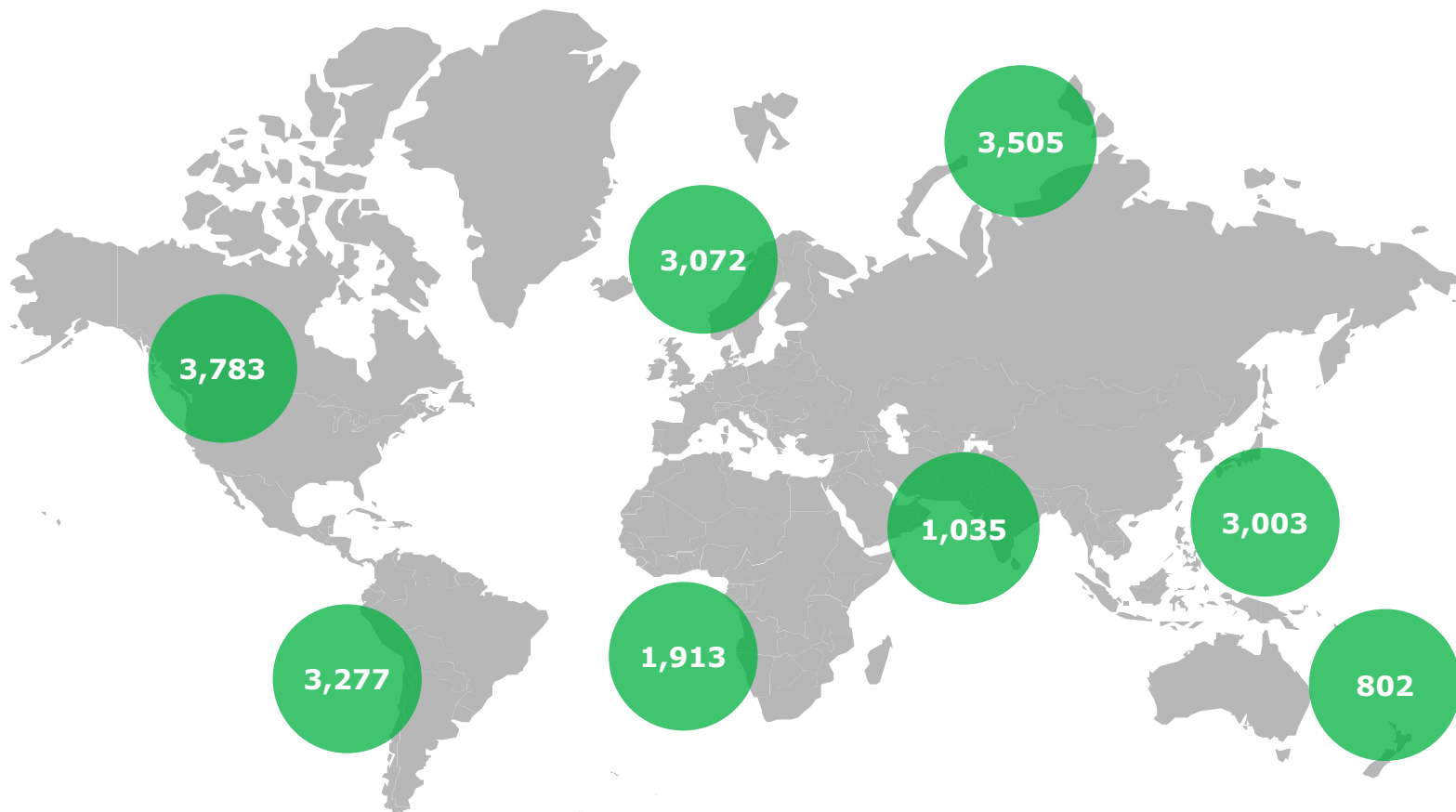
Corporate Strategy



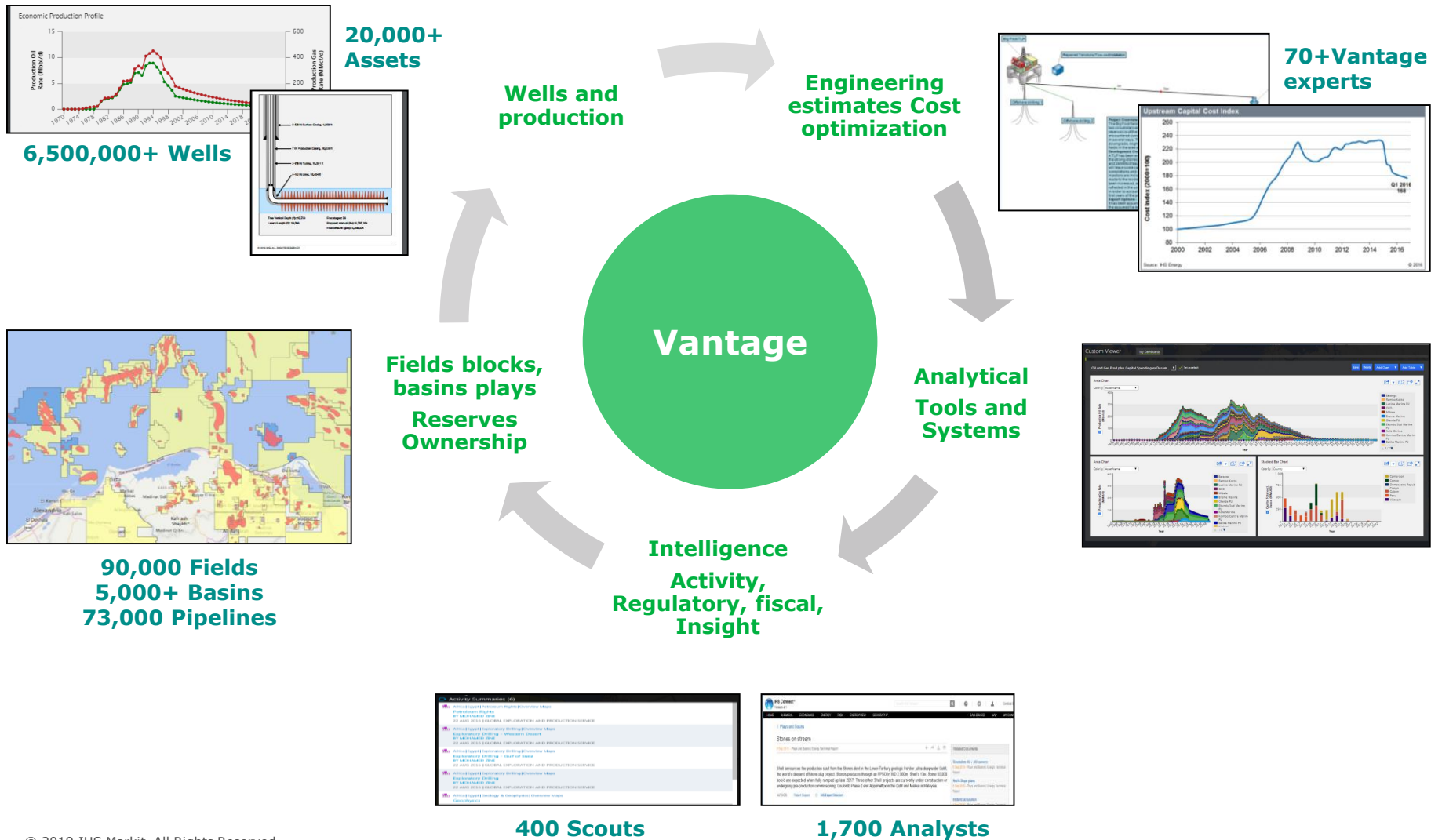
Generate high-level (company, country etc.) analysis under-pinned by transparent bottoms-up analysis

Vantage provides unprecedented breadth with coverage of more than 20,000 assets globally

- Vantage covers assets at all stages of the lifecycle: from yet-to-find, new discoveries, appraisal, development to currently producing, enhanced recovery and abandoned



IHS Vantage Platform – Upstream asset evaluation



Assets can be queried, segregated and re-aggregated based on large range of attributes

Vantage's 20,000 assets can be filtered using a wide range of geographic, technical and economic criteria such as:

Geographic

- Country or region
- Onshore / offshore
- Terrain type
- Water depth

Technical

- Reserve volume
- Reservoir depth
- Development concept
- Resource type
- Year of discovery
- Year of first production

Economic

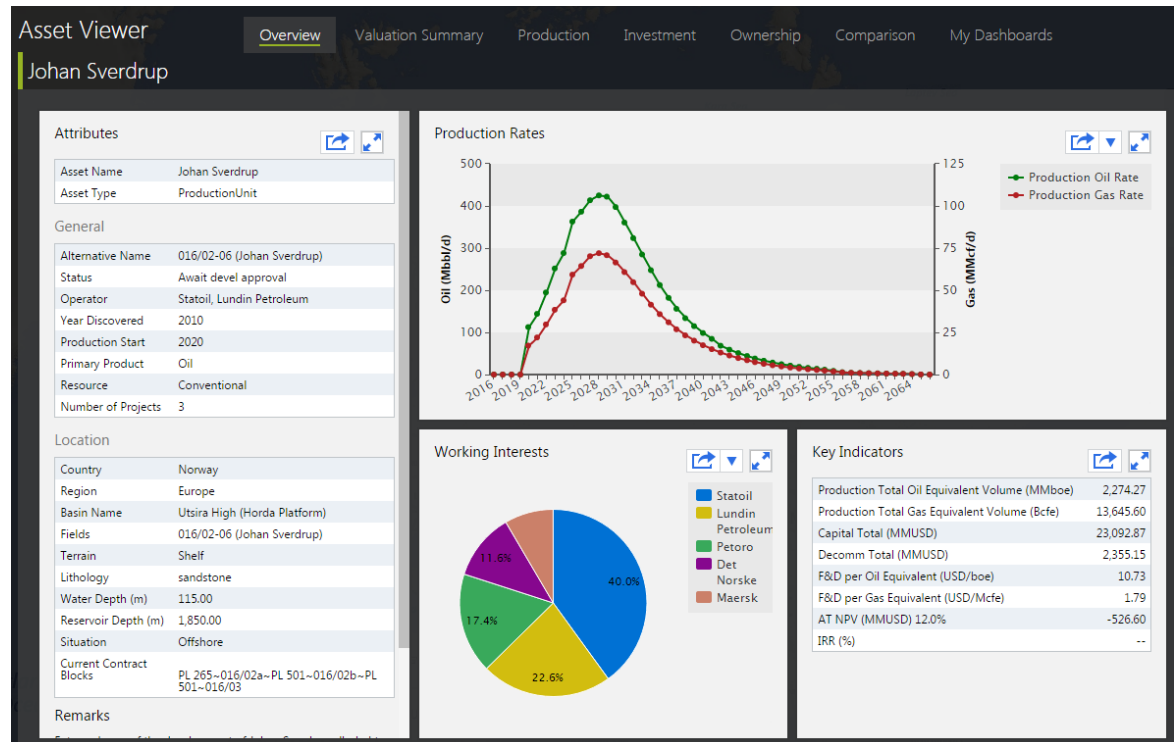
- NPV, IRR
- Breakeven oil & gas prices
- Capex, opex
- Pre and post-tax cash flow

Other Criteria

- Operator
- Partners
- Project lifecycle
- Asset type (LNG, HPHT, EOR etc.)
- Field, block or basin name

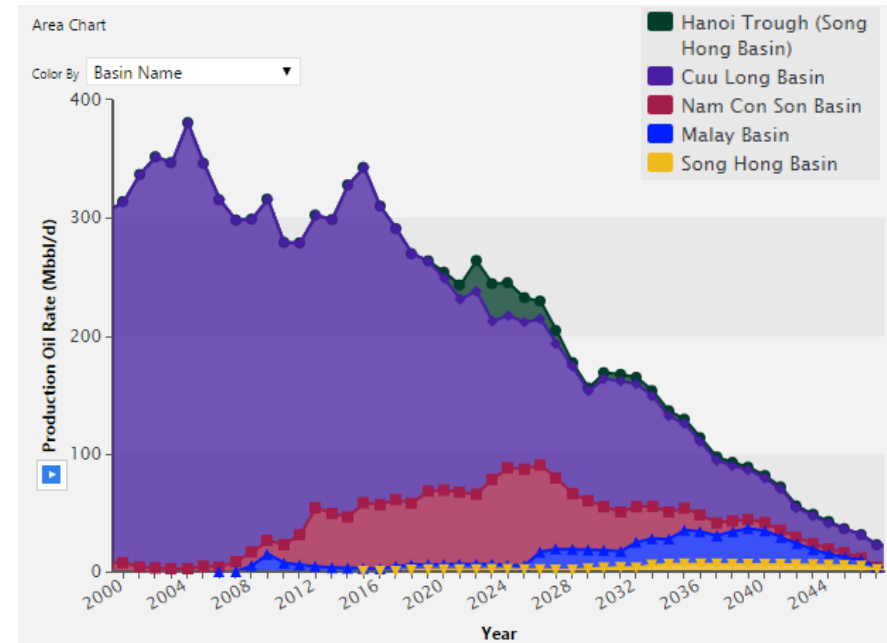
Vantage's bottom-up approach allows detailed analysis of individual projects...

- Each project has been individually analysed by a team of geologists, engineers and economists

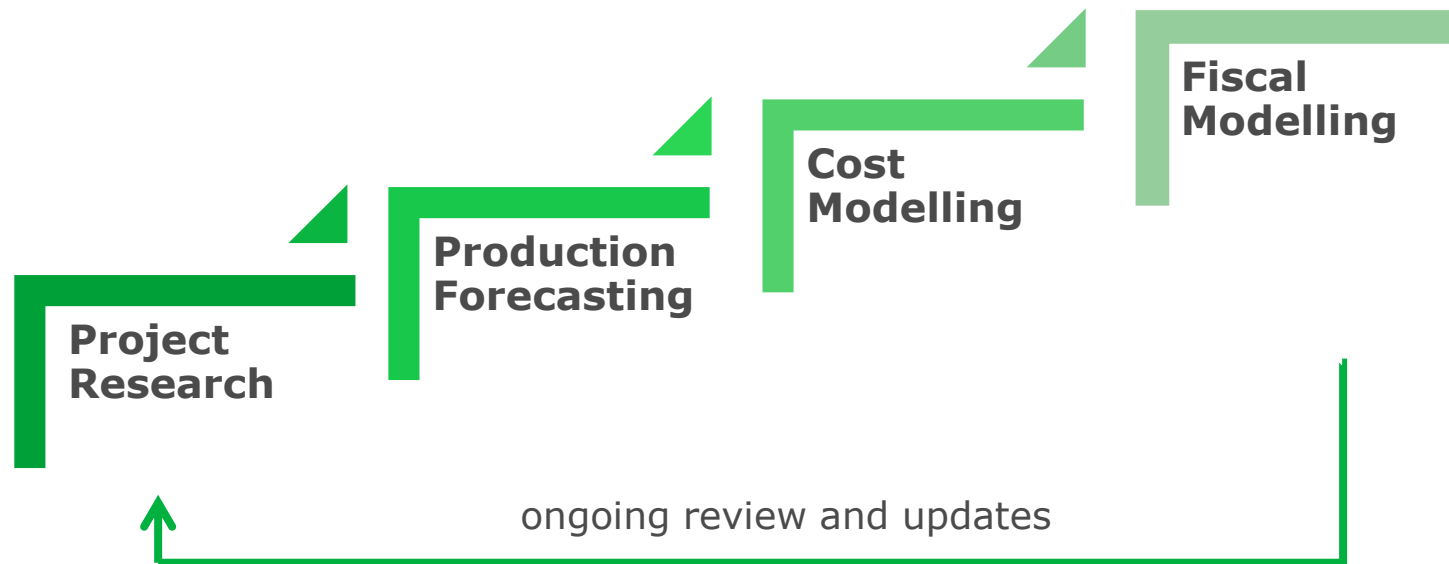


...and powerful data tools make it easy to role-up data to provide high level views

- Assets can be filtered and grouped based on multiple attributes to create detailed project supply outlooks:
 - > Group by country, basin or region to create geographical supply outlooks
 - > Show supply from specific assets types such as deep water, unconventional, FPSOs, heavy oil and many others
 - > Show supply outlooks attributable for specific partners in a project or entitlement share and gross production
- Any one of around 100 data attributes can be plotted on a chart or shown in tables



IHS Vantage Asset Analysis Methodology

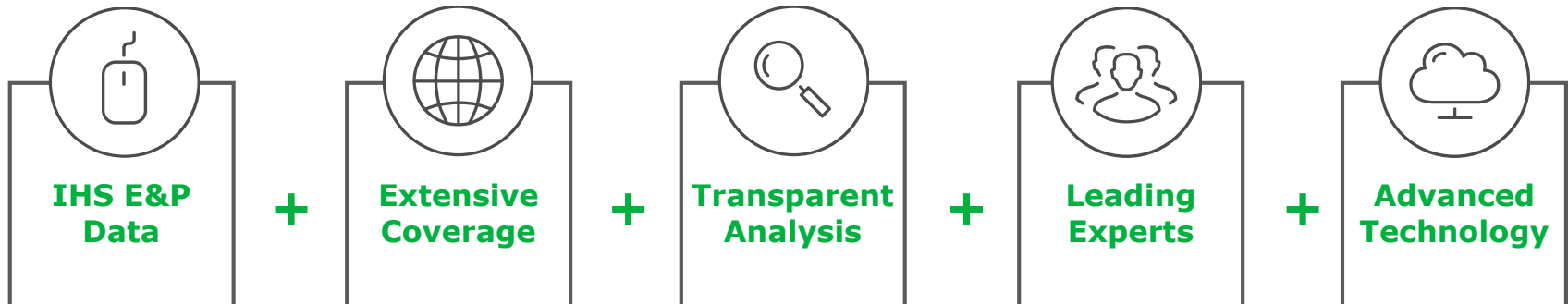
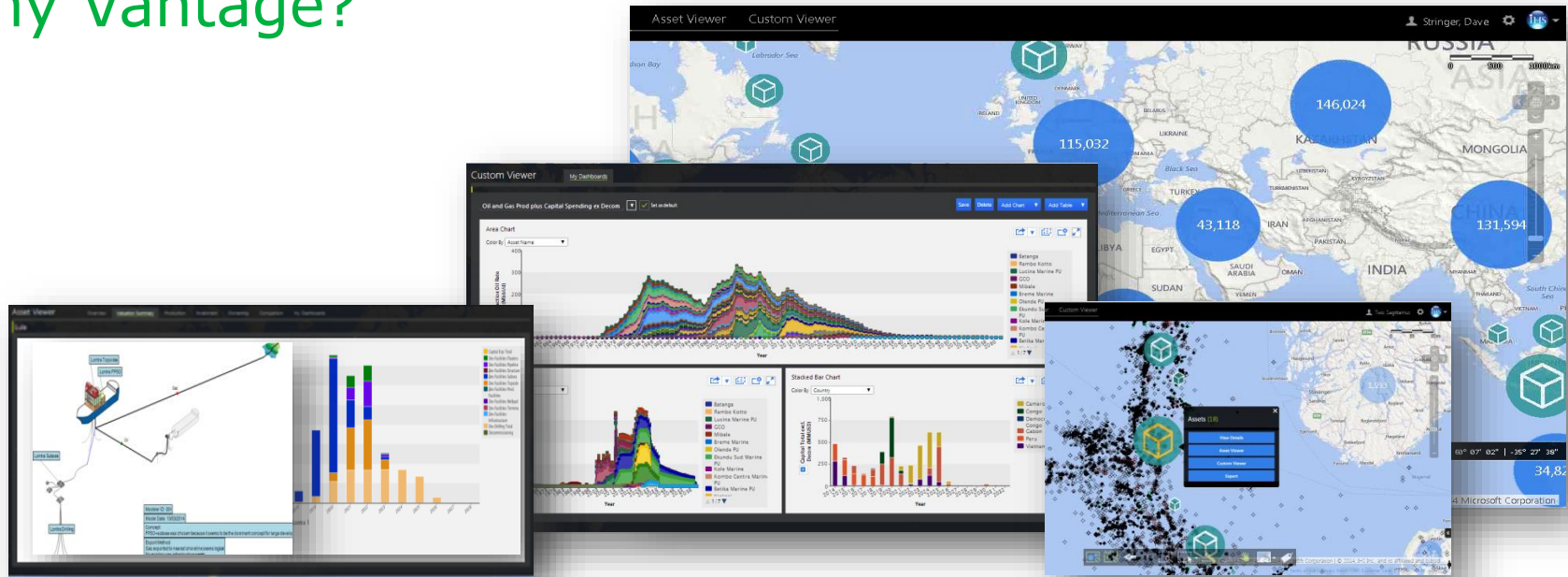


Vantage is supported by a dedicated team of 75+ geologists, engineers and economists in addition to IHS's network of around 150 scouts and researchers worldwide

Key outputs from Vantage

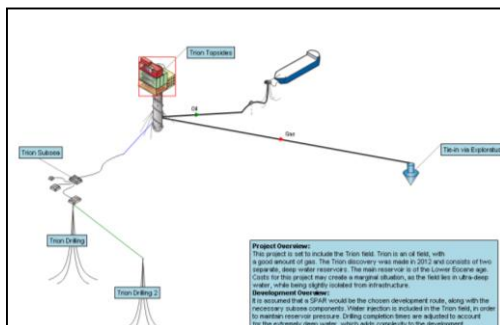
- **Customisable data tables** providing key project details such as status, ownership, costs and economics, reserves, reservoir depth, development type etc...
- **Time series data** covering costs, production, cash flow for any selected group of assets either in aggregate or on an asset by asset basis
- Detailed, fully functional **Excel economic models** for each individual project
- IHS developed **Que\$tor models** for all new developments (Que\$tor is an industry standard cost estimation tool developed by IHS)
- **Vantage provides easy export options:**
 - > All charts and tables visible in the application can be exported to Excel, PowerPoint or as an image.
 - > Maps can be saved as images or PDF files or exported into geospatial software

Why Vantage?



Transparent, editable and access to reports

QUE\$TOR engineered cases
For new asset developments



Vantage platform

Asset Evaluation
Wells/fields/plays
Blocks/Basins/Contracts

Vantage custom databases
Edit, prices/production/costs

Dynamic Calculation

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Field Name													
Production Oil Volume (MMbbl)	0.00	0.00	0.00	7.07	10.36	10.36	10.36	9.94	8.73	7.66	6.73	5.91	5.19
Production Gas Volume (Bbl)	0.00	0.00	0.00	0.26	7.71	7.71	7.71	7.29	6.49	5.69	5.01	4.39	3.86
Production Water Volume (MMbbl)	0.00	0.00	0.00	0.04	1.10	1.10	1.21	1.70	2.76	3.86	4.76	5.61	6.38
CO2 Emissions (MMT)	0.00	0.00	0.00	0.225	0.575	0.575	0.598	0.534	0.514	0.399	0.451	0.465	0.410
WT_Consumption	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAPEX (MMUSD)													
Capital Expenditure Capx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Capital Expenditure Opex	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Capital Appraisal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dev Drilling Template	0.16	2.02	7.59	8.95	11.79	6.61	4.00	0.00	0.00	0.00	0.00	0.00	0.00
Dev Drilling Intangible	0.00	1.07	28.18	184.18	294.86	206.51	287.40	21.80	0.00	0.00	0.00	0.00	0.00
Dev Facilities Prod. Facilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

IHS_Norway_RT
Project Name: Southeast Tor
Summary
Model Date: August 2016

Base Case NPV	Description	NPV Low	NPV Base	NPV High	Diff Low	Diff High
24.10						
-2.5%	Oil Production	9.13	26.00	26.00		
-1.0%	Dev. Facilities	24.84	26.00	26.00		
15.0%	Oil Price Export	21.42	26.00	26.00		
20.0%	Gas price Export	20.74	26.00	26.00		
-2.0%	Oil Price Domestic	24.50	26.00	26.00		
15.0%	Gas Price Domestic	24.50	26.00	26.00		
14.0%	Fixed Opex	20.38	26.00	26.00		
20.0%	Variable Opex	24.00	26.00	26.00		
20.0%	Dev Capex	8.14	26.00	26.00		
20.0%	Operex	0.89	26.00	26.00		
20.0%	ISACapex					
25.0%	Oil cost and O&M		4.08	4.08		
25.0%	Oil capex		0.86	0.86		
20.0%	Operex ABC		26.00	26.00		
20.0%	Common Scenario 1					
20.0%	Common Scenario 2					

Fully auditable/editable
Fiscal models in Excel

Attributes

Asset Name	Trion - Joint Operation Agreement (JOA)
Asset Type	Production Unit
General	
Alternative Name	---
Status	Appraising
Operator	Petroleos Mexicanos (PEMEX)
Year Discovered	2012
Production Start	2025
Primary Product	Oil
Resource	Conventional
Number of Projects	1
Location	
Country	Mexico
Region	Latin America
Basin Name	Sigsbee Sub-basin (DWGoM Basin)
Fields	Trion 1
Terrain	Deep Water
Lithology	sandstone
Water Depth (m)	1,940.00
Reservoir Depth (m)	4,183.00
Situation	Offshore
Contracts	Trion Block
Blocks	Trion Block
Review Status	
Last Reviewed Date	14 Oct 2016

Integrated Report access to reports for
Assets/fields/contracts/basins/blocks

Disclaimer

The information contained in this presentation is confidential. Any unauthorised use, disclosure, reproduction or dissemination, in full or in part, in any media or by any means, without the prior written permission of IHS Markit or any of its affiliates ("IHS Markit") is strictly prohibited.

Opinions, statements, estimates and projections in this presentation (including other media) are solely those of the individual author(s) at the time of writing and do not necessarily reflect the opinions of IHS Markit. Neither IHS Markit nor the author(s) has any obligation to update this presentation in the event that any content, opinion, statement, estimate or projection (collectively, "information") changes or subsequently becomes inaccurate.

IHS Markit makes no warranty, expressed or implied, as to the accuracy, completeness or timeliness of any information in this presentation, and shall not in any way be liable to any recipient for any inaccuracies or omissions. Without limiting the foregoing, IHS Markit shall have no liability whatsoever to any recipient, whether in contract, in tort (including negligence), under warranty, under statute or otherwise, in respect of any loss or damage suffered by any recipient as a result of or in connection with any information provided, or any course of action determined, by it or any third party, whether or not based on any information provided.

The inclusion of a link to an external website by IHS Markit should not be understood to be an endorsement of that website or the site's owners (or their products/services). IHS Markit is not responsible for either the content or output of external websites.

Copyright ©2017, IHS Markit. All rights reserved and all intellectual property rights are retained by IHS Markit.