



Data+AI in Sustainability

Databricks Speakers



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Solutions Architect, Energy SME lead

Do Good > **Look**
Good



Data + AI

Company

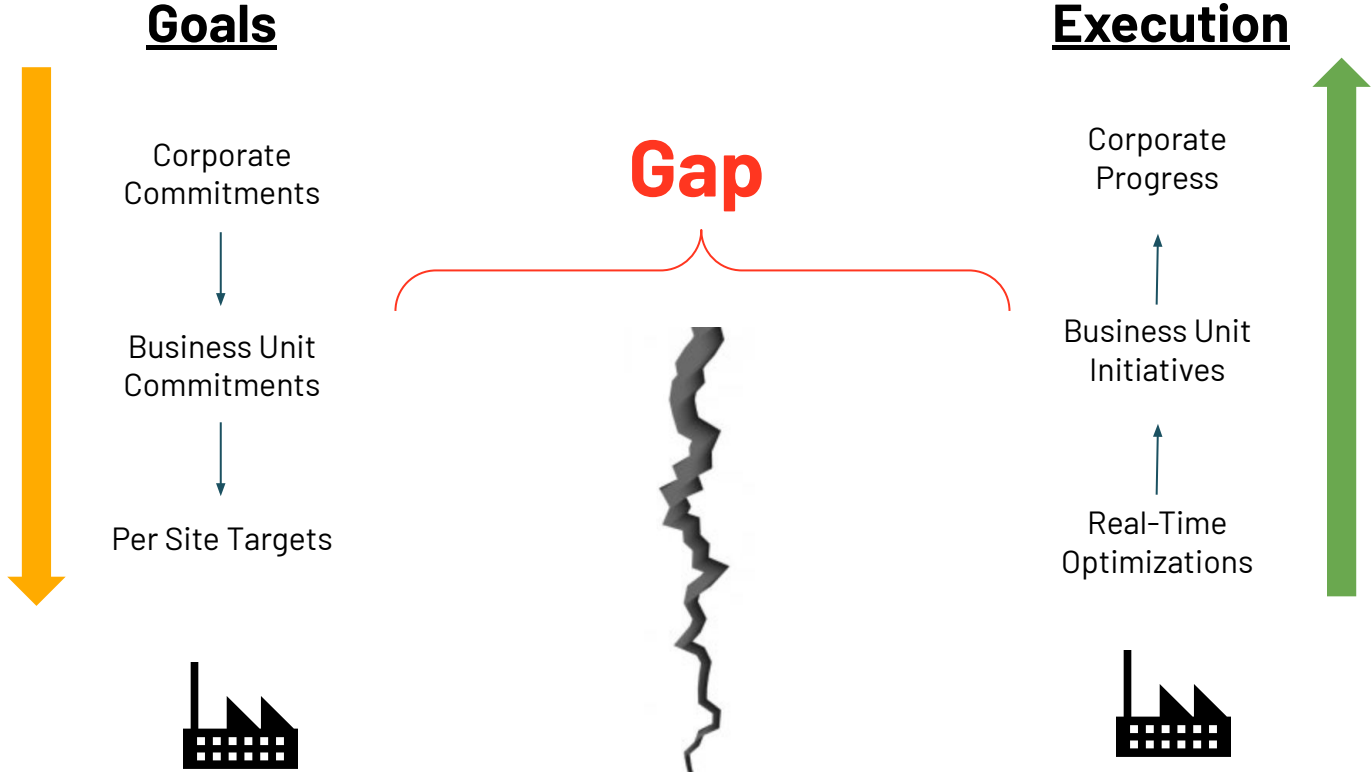
Sustainability

is a

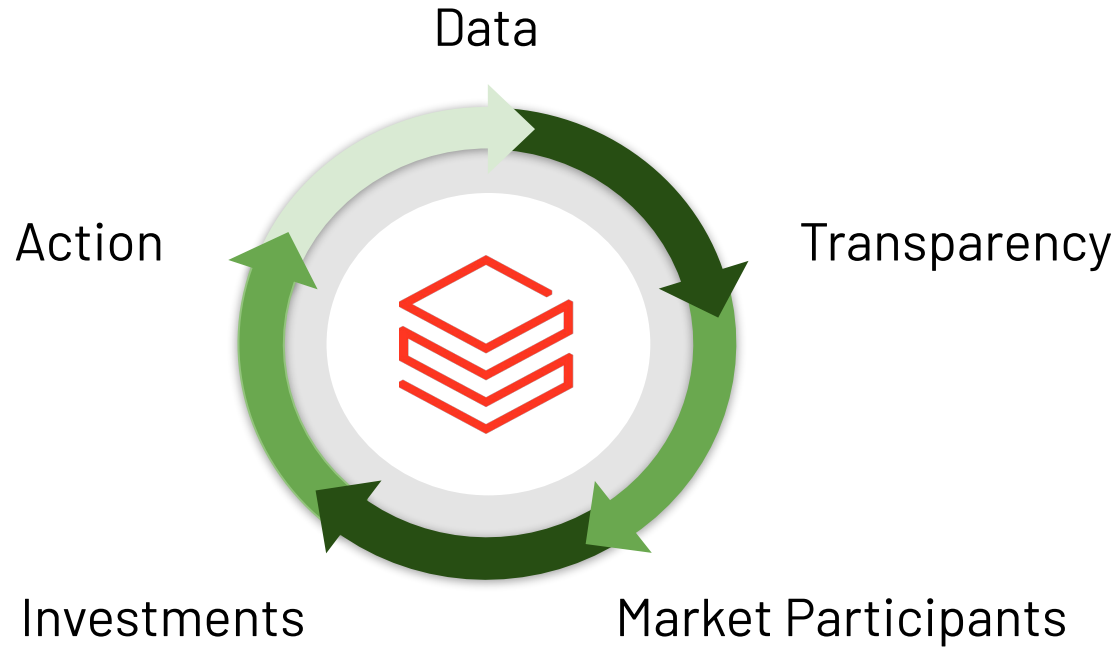
Data + AI

Challenge

Suite to Site Gap in Sustainability



Data+AI in Sustainability



Databricks helps customers move up the ESG maturity curve



How does it work.... and what is a
Lakehouse ?

Top 3 themes from our Utilities customers

Fraud Detection /Energy Loss

Detect theft of energy

Misuse of energy (greenhouses, overloading)

Loss of energy via leakage/faults

Detection of abnormal patterns of energy usage

Controlling costs while improving customer experience

Grid Optimisation

Reduce outage

Real-time anomaly detection

Overload Transformer Predictions

Predictions /proactive maintenance

Gather inputs from weather

Peak load recognition, GIS/ESRI data

load balancing, and recognizing leakage to improve uptime

ReGrid

ESG

Mobile Workforce Efficiency

Customer support efficiency gains in the field

Improved customer satisfaction by improving response times

Employee safety improvement through real time alerting on downed wire/infrastructure

Self Service portal to empower customers and create a supplemental service revenue stream

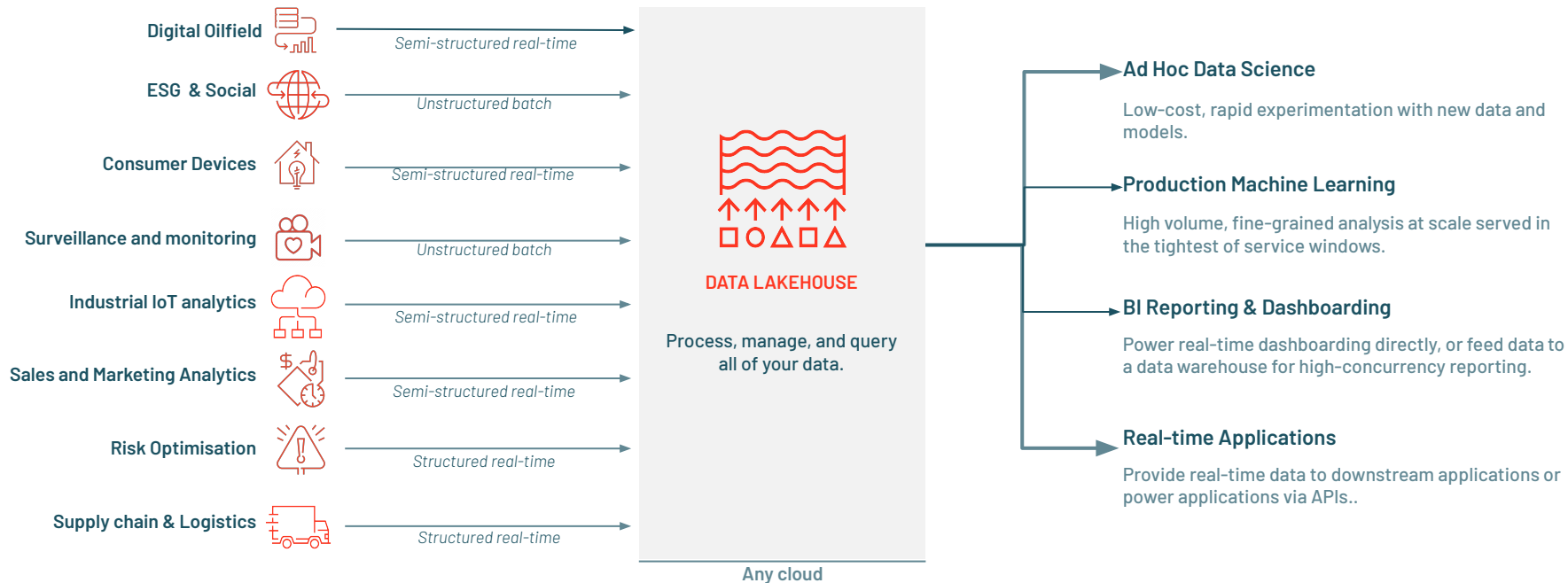
The Lakehouse for Energy

All of your sources

Any structure or frequency

Reliable, real-time processing

Analytics capabilities for any use case or persona



Why you need Lakehouse & Delta Lake for ESG

80% of ESG data is unstructured

Exhibit 13: Of the top 50 E&S disclosed metrics, 40 are binary in nature, and only 10 are quantifiable
Environmental and social metrics with the highest global disclosure rates, MSCI ACWI

Metric description	E or S	Metric type	% Disclosure*	Metric description	E or S	Metric type	% Disclosure*
Policy Community Involvement	Social	Policy	85%	Policy Child Labor	Social	Policy	56%
Training and Development Policy	Social	Policy	82%	Policy Forced Labor	Social	Policy	56%
Policy Skills Training	Social	Policy	79%	Crisis Management Systems	Social	Policy	55%
Resource Reduction Policy	Environmental	Policy	79%	Environment Management Training	Environmental	Policy	55%
Health & Safety Policy	Social	Policy	78%	Employees Health & Safety Team	Social	Policy	55%
Policy Career Development	Social	Policy	78%	Policy Fair Competition	Social	Policy	55%
Policy Diversity and Opportunity	Social	Policy	76%	Energy Use Total	Environmental	Numeric	53%
Policy Employee Health & Safety	Social	Policy	76%	Energy Purchased Direct	Environmental	Numeric	52%
Policy Energy Efficiency	Environmental	Policy	74%	Policy Human Rights	Social	Policy	51%
Policy Data Privacy	Social	Policy	73%	Water Withdrawal Total	Environmental	Numeric	51%
Employee Engagement Voluntary Work	Social	Policy	73%	Environment Management Team	Environmental	Policy	50%
Policy Emissions	Environmental	Policy	70%	Renewable Energy Use	Environmental	Policy	50%
Management Training	Social	Policy	70%	Corporate Responsibility Awards	Social	Policy	49%
Waste Reduction Initiatives	Environmental	Policy	69%	CO2 Equivalent Emissions Direct, Scope 1	Environmental	Numeric	49%
Health & Safety Training	Social	Policy	69%	CO2 Equivalent Emissions Indirect, Scope 2	Environmental	Numeric	49%
Policy Business Ethics	Social	Policy	69%	Donations Total	Social	Numeric	48%
Policy Bribery and Corruption	Social	Policy	67%	Human Rights Contractor	Social	Policy	47%
Human Rights Policy	Social	Policy	67%	Employees Health & Safety OHSAS 18001	Social	Policy	46%
Whistleblower Protection	Social	Policy	62%	ISO 14000 or EMS	Environmental	Policy	46%
Policy Water Efficiency	Environmental	Policy	59%	Climate Change Commercial Risks Opportunities	Environmental	Policy	45%
Improvement Tools Business Ethics	Social	Policy	59%	Electricity Purchased	Environmental	Numeric	45%
Policy Environmental Supply Chain	Environmental	Policy	58%	Environmental Partnerships	Environmental	Policy	44%
CO2 Equivalent Emissions Total	Environmental	Numeric	58%	Waste Total	Environmental	Numeric	44%
Women Employees	Social	Numeric	58%	Targets Emissions	Environmental	Target	43%
Environmental Supply Chain Management	Environmental	Policy	56%	Environmental Materials Sourcing	Environmental	Policy	43%

Of the top 25 disclosed metrics, 23 are binary (yes/no) in nature; with only 'CO2 Emissions' and 'Women Employees' metrics in the top 25

Social disclosures are more commonly policy-oriented, with only 2 numeric social metrics among the top 50 disclosed metrics (vs. 8 numeric environmental metrics)

Emissions targets is the first target metric to breach the top 50

* Policy and Target disclosure equals % with 'yes'; Numeric disclosure rate represents any non-null value.

- HR data
- Energy Use
- Diversity & Inclusion
- IOT
- CO2 Emissions
- Social Media
- Charitable Donations
- Health and Safety
- Competitive

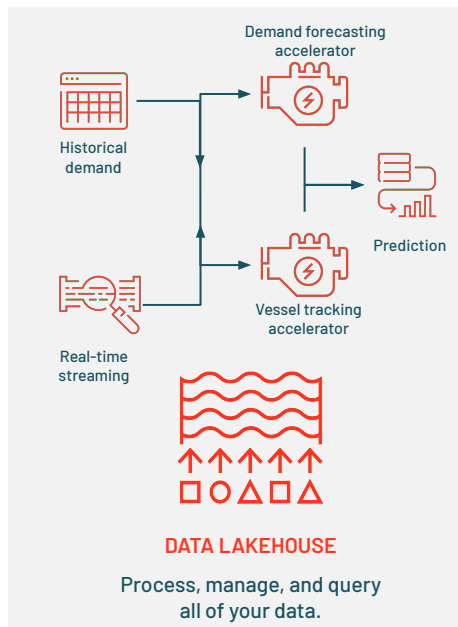
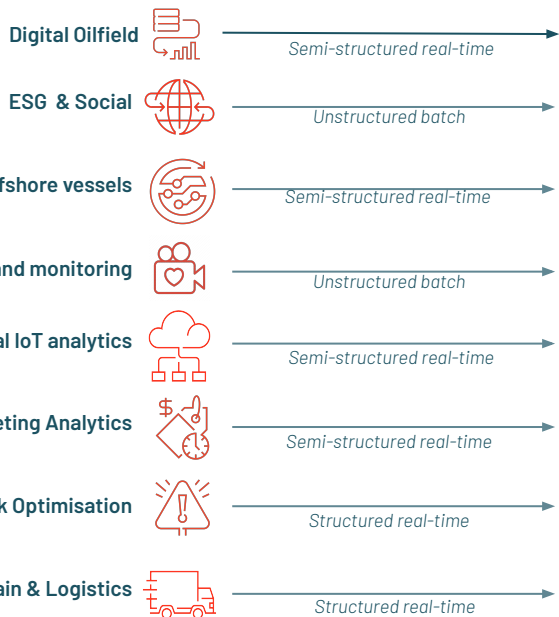
The Energy Lakehouse - Fuel efficiency accelerator

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Any cloud

Ad Hoc Data Science

Low-cost, rapid experimentation with new data and models.

Production Machine Learning

High volume, fine-grained analysis at scale served in the tightest of service windows.

BI Reporting & Dashboarding

Power real-time dashboarding directly, or feed data to a data warehouse for high-concurrency reporting.

Real-time Applications

Provide real-time data to downstream applications or power applications via APIs..



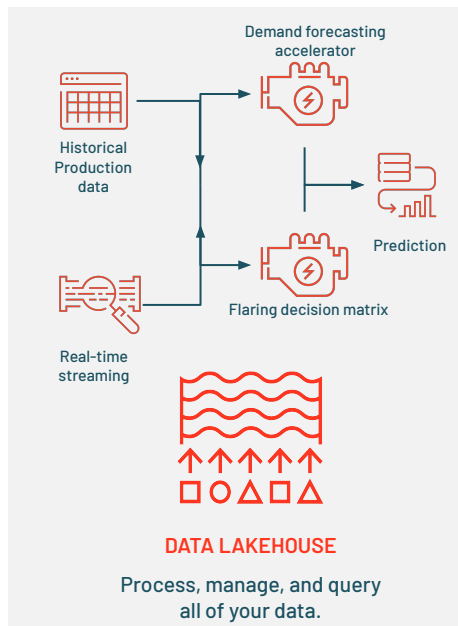
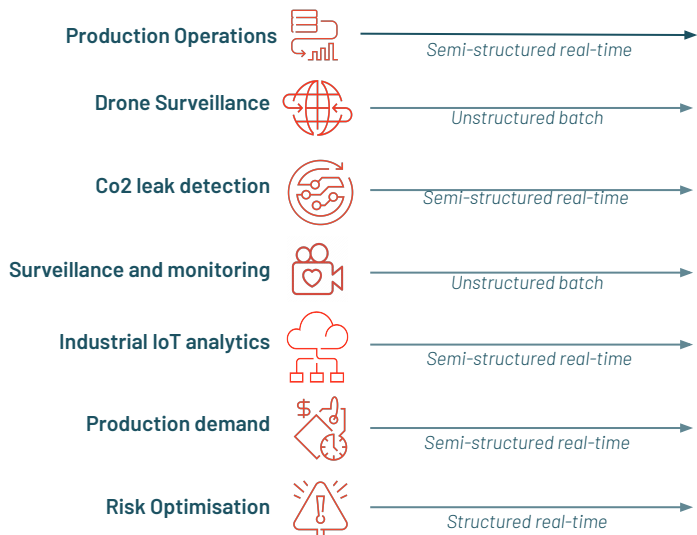
The Energy Lakehouse - Methane Abatement

All of your sources

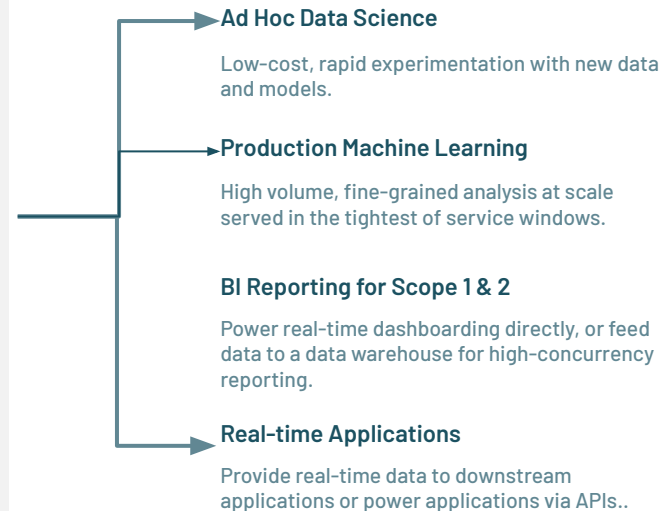
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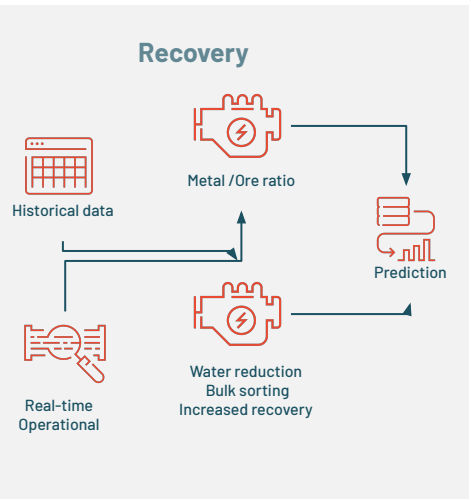
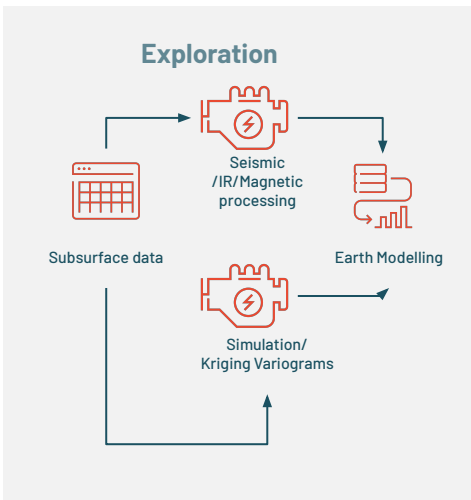
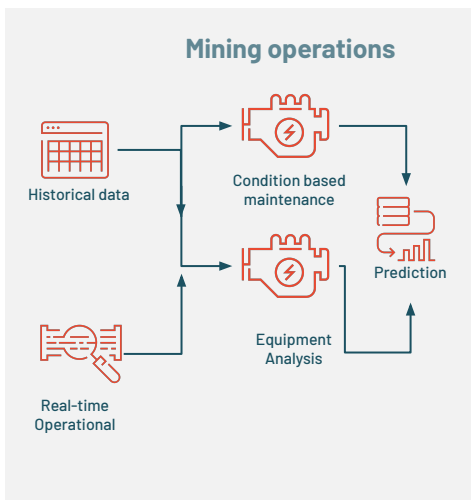
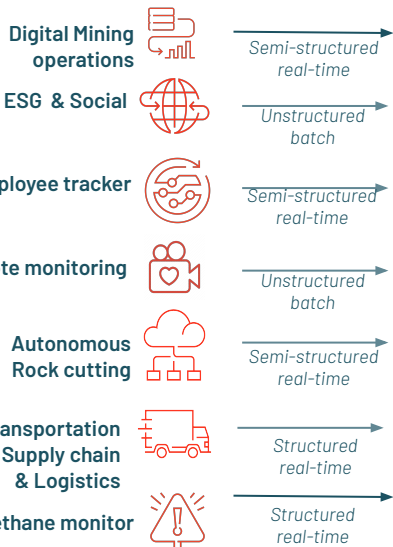
The Energy Lakehouse - Mining overview

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Process, manage, and query all of your data.

DATA LAKEHOUSE

- Manages uncertainty
- Reduces Risk – Catastrophic consequences
- Reduces cost
- Effective management of the mine ecosystem
- Ensures you meet the Energy supply demand



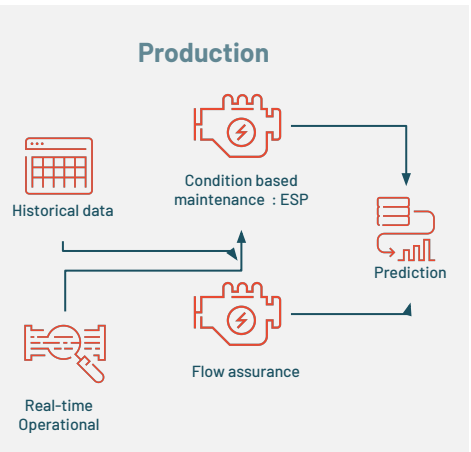
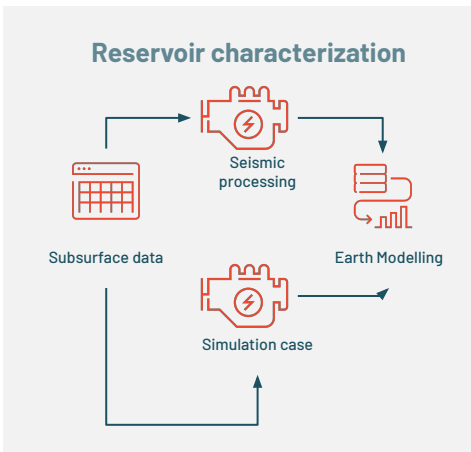
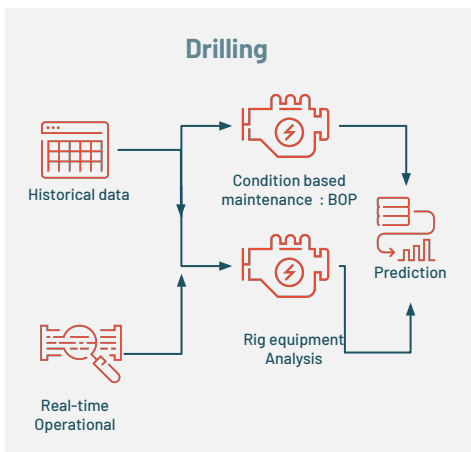
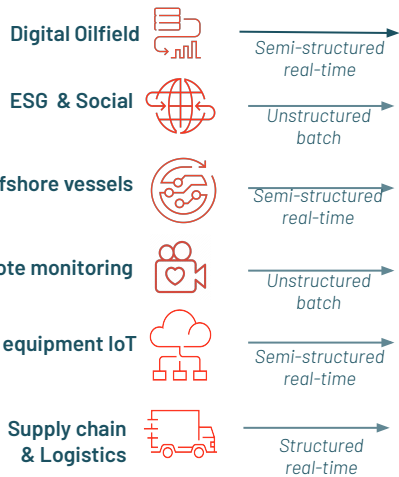
The Energy Lakehouse - Oil and Gas Overview

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Any cloud



Integrating ESG objectives into field operations

Scope 1 & 2

Environmental

- Real-time emissions reporting
- Methane tracking
- Water and Power handling

Social

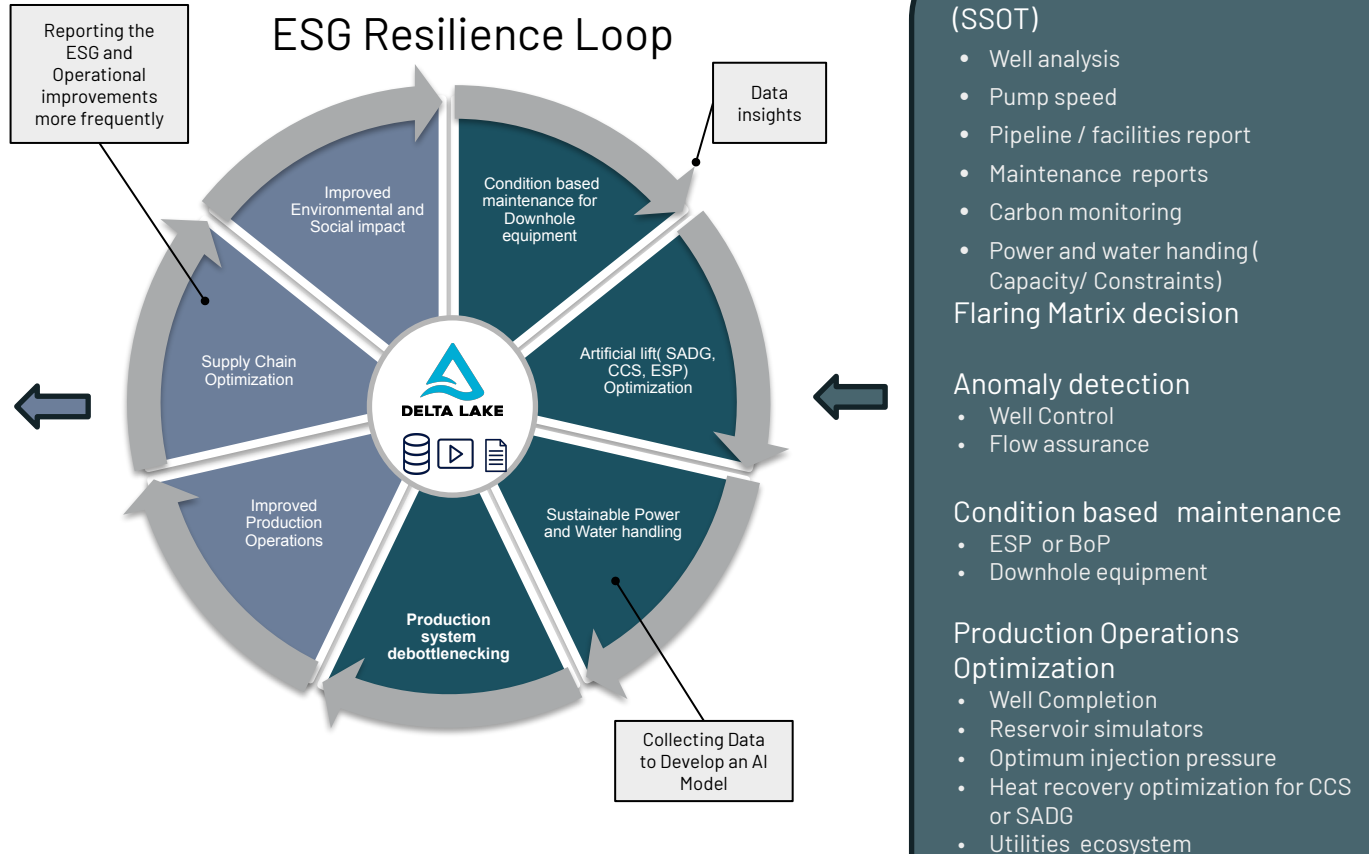
- Public perception
- Investor visibility
- Diversity of skill/employee

Governance

- Sustainable operations for Production

Operational

- Reduced carbon footprint
- Improved HSE
- Reduced Risk
- Reduced cost
- Increased real-time visibility on operations
- Reduced incomplete flaring
- Reduce venting



Example : Emission reduction for Production Operations

Do Good > **Look**
Good