

No Data, No Scale:

Digital Readiness as a Prerequisite for Bankable CCS

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Agenda:

- **Quick context: what is Microsoft even doing in this space?** (hint: treating *digital* like infrastructure - because it is)
- **The “immutable ledger” idea** (no, not necessarily blockchain - just “tamper-evident truth”)
- **So, what do you get for all this effort?**
- **Lessons learned** from projects *in operation*
- **Resources** so you don’t have to figure everything out the hard way



“NEW DIGITAL” Design principles:

- Make data a first-class asset
- Value chain integrated MRV
- Ecosystem orchestration

2019

Microsoft CO₂
Pledge

Northern Lights



Northern Lights
Operational Launch

2025

Strategic Collaboration Agreement



CCS Digital Enablement & CO₂
Sinks

CCS Carbon Credit Generation &
Procurement

Clean Energy

Quantum & AI for Science

Communications & Ecosystem
Engagement

2026

PROOF POINTS, Northern Lights

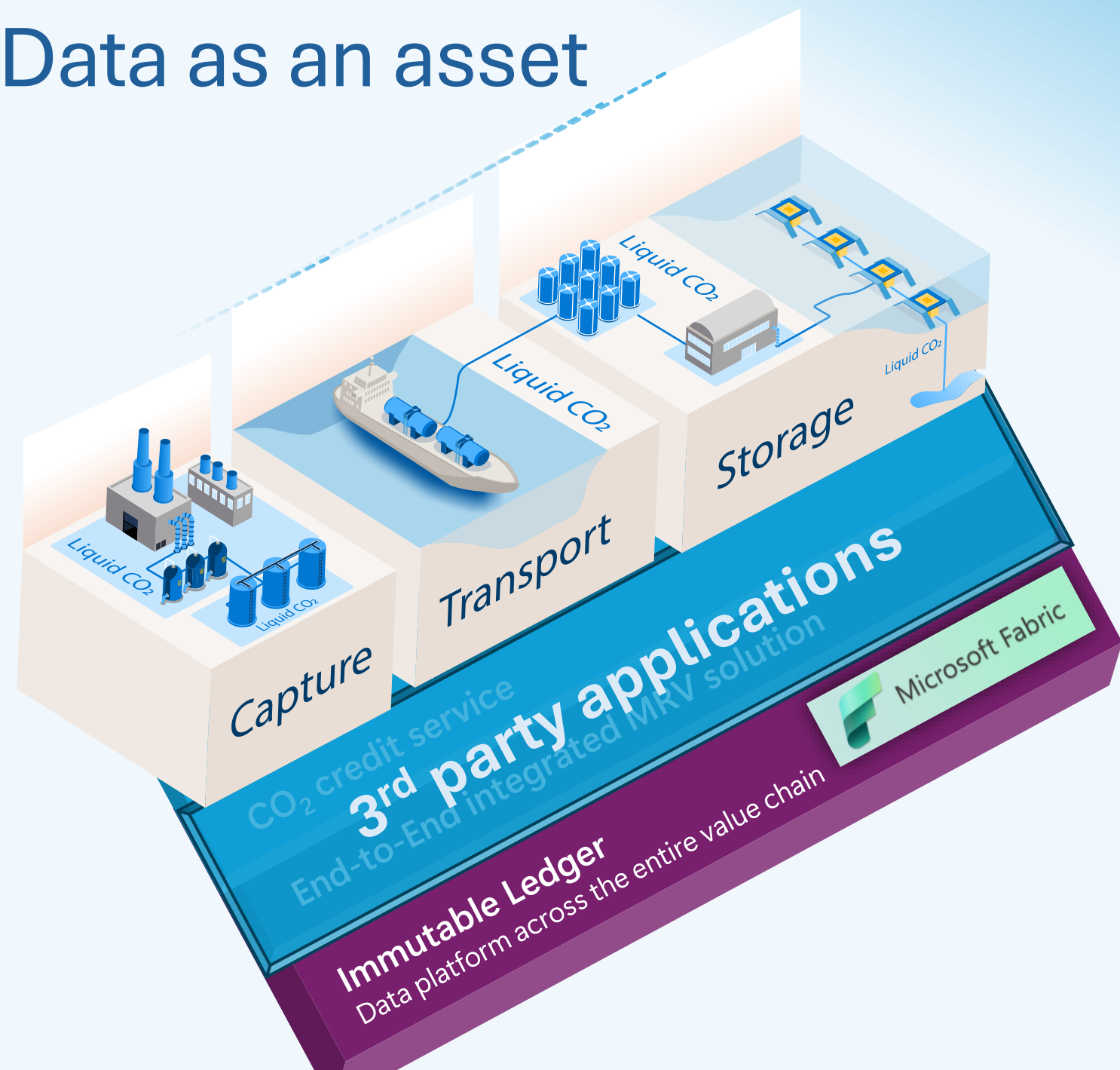
- **First CO₂ safely stored.** Phase 1 at 1.5 Mtpa is operational; Phase 2 will lift capacity to ≥ 5 Mtpa.
- **“End-to-end MRV is built in.”** Microsoft data platform capabilities and integrity combined with MRV and environmental credit service capabilities developed by Northern Lights gives traceability and evidence for high-integrity credits.
- **“Public-private model scales.”** Strong Longship support + customer contracts (e.g., Heidelberg Materials and Stockholm Exergi) enabled FID and expansion

2030

“VOLUNTARY CARBON MARKET 2.0.”

- **Industrial-grade, digital MRV for CCS** that is trusted by buyers and regulators
- **Clear, globally accepted permanence and liability frameworks for geological storage**
- **Standardized CCS crediting pathways** that integrate with compliance and procurement markets
- **AI shifts CCS from systems integration to system trust** - automating ESG proof, compliance, risk intelligence, and value-chain optimization.
- **Compliance market progress**

Data as an asset



CCS Need	Fabric capability
Unified CCS data foundation	OneLake
Ingestion & orchestration	Fabric Data Factory
Value-chain data modeling	Fabric Data Engineering (Lakehouse)
Real-time operations	Fabric Real-Time Intelligence
Certified MRV reporting	Fabric Data Warehouse
Dashboards & disclosure	Power BI (Direct Lake)
Governance & audit	Microsoft Purview
Advanced analytics	Fabric Data Science

Key learnings

“CCS scaling isn’t blocked by physics anymore - it’s blocked by trust. And trust, as it turns out, is mostly a data problem.”

~ me



1

Start Before You're Ready....

Building CCS infrastructure **requires early action** across both digital and physical layers. Waiting for regulations to fully settle or technologies to mature only delays progress.

2

Make data a first-class asset

Treat the **digital platform as critical infrastructure** (just like tanks and wells). Use **Azure + open interfaces** so capture sites, terminals, and the storage sites share **one evidence trail** for **operations, compliance, and credits**.

3

Bundle MRV with commercial design

Tie **MRV pipelines** to offtake/credit strategies so projects are **bankable**, with **traceable, high-quality credits**

4

Precision, Precision, Precision

Finance-grade precision across the value chain. Markets require accountable, auditable, and bankable carbon credits.

5

Dev & Ops Cost

CCS is low-margin, not O&G - cost discipline, modern tech stacks, and a break from legacy thinking are critical to viability.

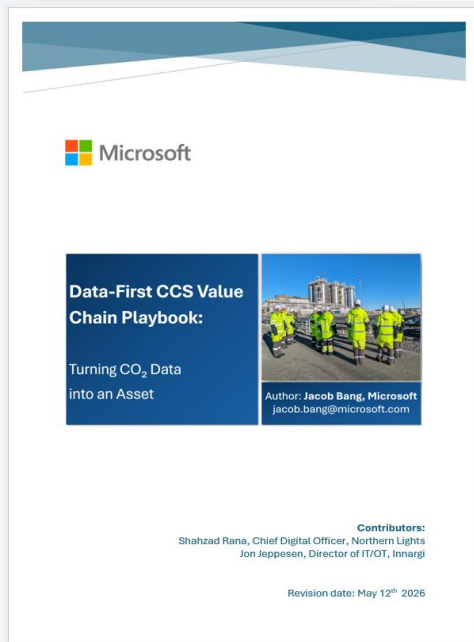
Resources



www.cdr.fyi: Evaluate suppliers, benchmark pricing, and navigate the market with trusted, structured data.



www.strateko.global : StratEko is a constraint-first thinking tool for testing projects, policies, and capital commitments before reality tests them for you.



A data-first playbook for scaling end-to-end CCS, grounded in real-world industry experience. It positions trusted, interoperable data as the foundation for operational excellence, compliance, and commercial scale - enabled by a unified, cloud-based platform.

Authored with key stakeholders from **Northern Lights** and **Innargi**

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Thank You