

AI Opportunities in CCUS: an 'Industrial' Perspective

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Challenges and Opportunities

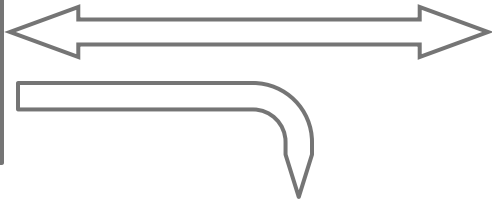


'Simple'
Weeks/Months

'Complex'
Decades

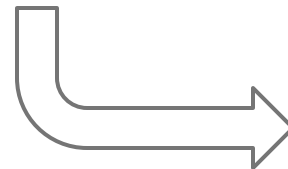
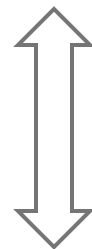
Challenges Aboard

Speed
Scale
Complexity

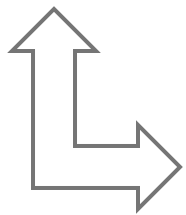


Energy is infrastructure - not IT
Current system is efficient and very material
Need 30 years to gain 1% of market share

Scenarios range from 2-8 Gt/annum by 2050
Needs two 1.5Mt/annum plants every week




Solar PV
Onshore Wind
Shales
RNG / 1st gen bio
Offshore wind
Refinery
DAC
CC(U)S



Complex value chains
Capital intensive
Skeptical society
Risk allocation

Opportunity Space Growing

Need recognised
Technology proven
Economic boost
Monetizing a waste product
Carbon as feedstock



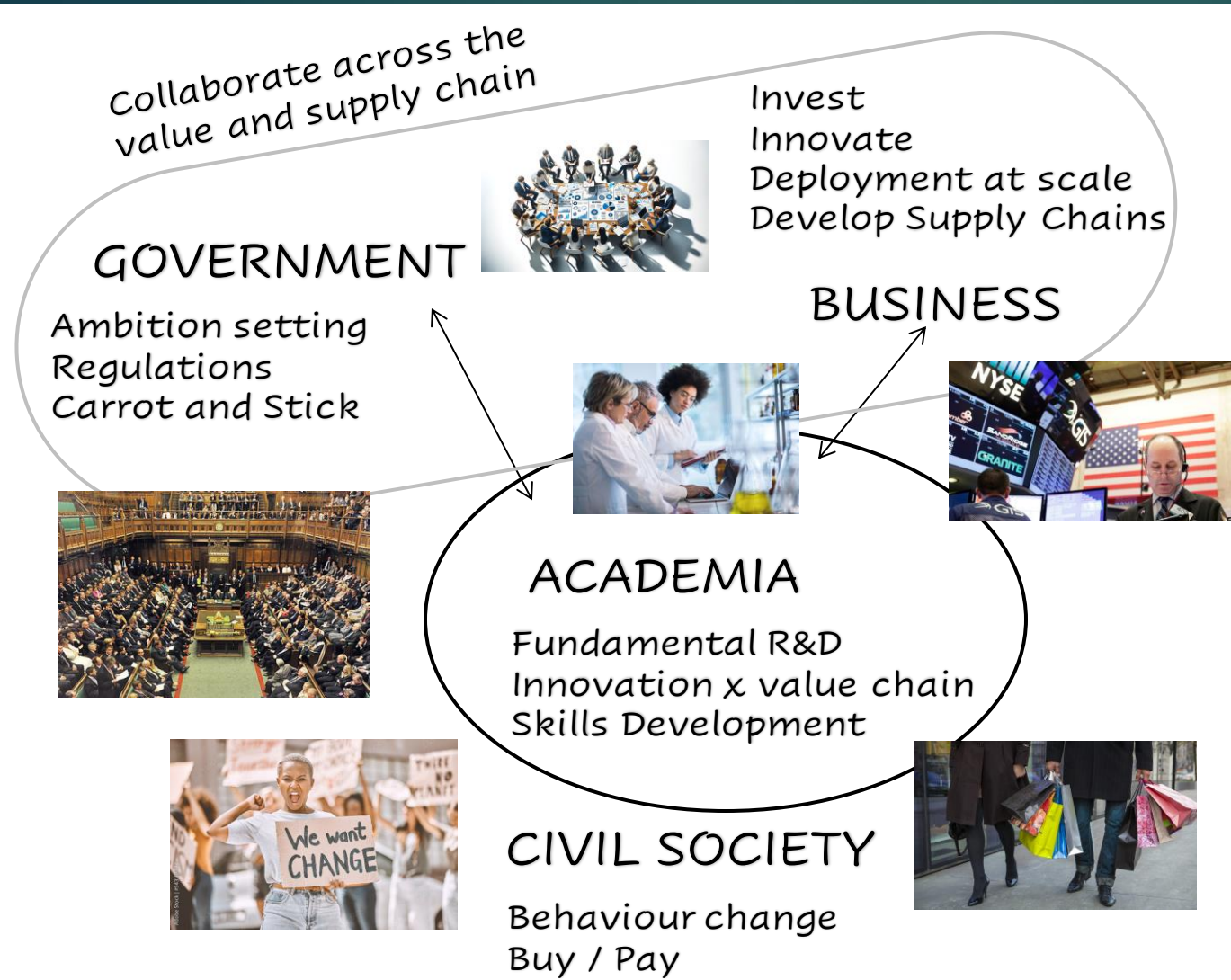

Aerial photo of the Maasvlakte by Danny Cornelissen, via Porthos

News
8 March 2024

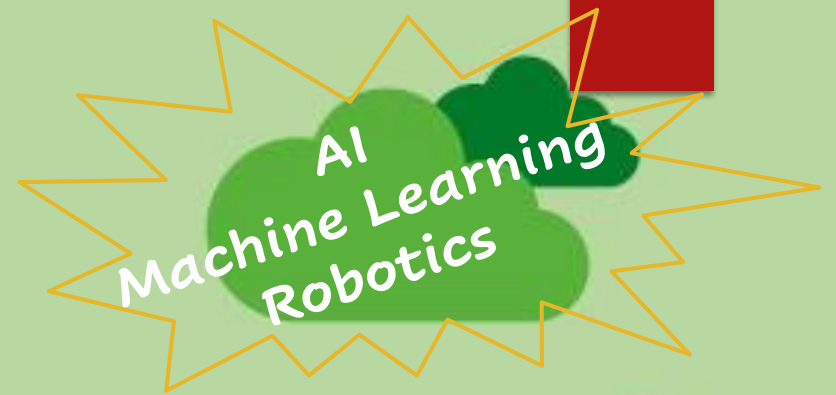
Groundbreaking Dutch CO2 storage-project costs soar

Every 'One' Counts
But we have to develop a successful industrial model

The Main Characters and their roles



Process Optimisation ³
Solvent / Catalyst Development



Design and Engineering ²
Additive Manufacturing
Knowledge Management
Education and Competence Development

Flow assurance ¹
Reservoir characterisation
Dynamic behaviour

CO₂

Value Chain Optimisation ⁴
Things 'once and many'