

Transition to the biobased and circular economy in the Netherlands: ambitions and case study of the Port of Rotterdam

Rick Bosman

DRIFT / Erasmus University Rotterdam

bosman@drift.eur.nl

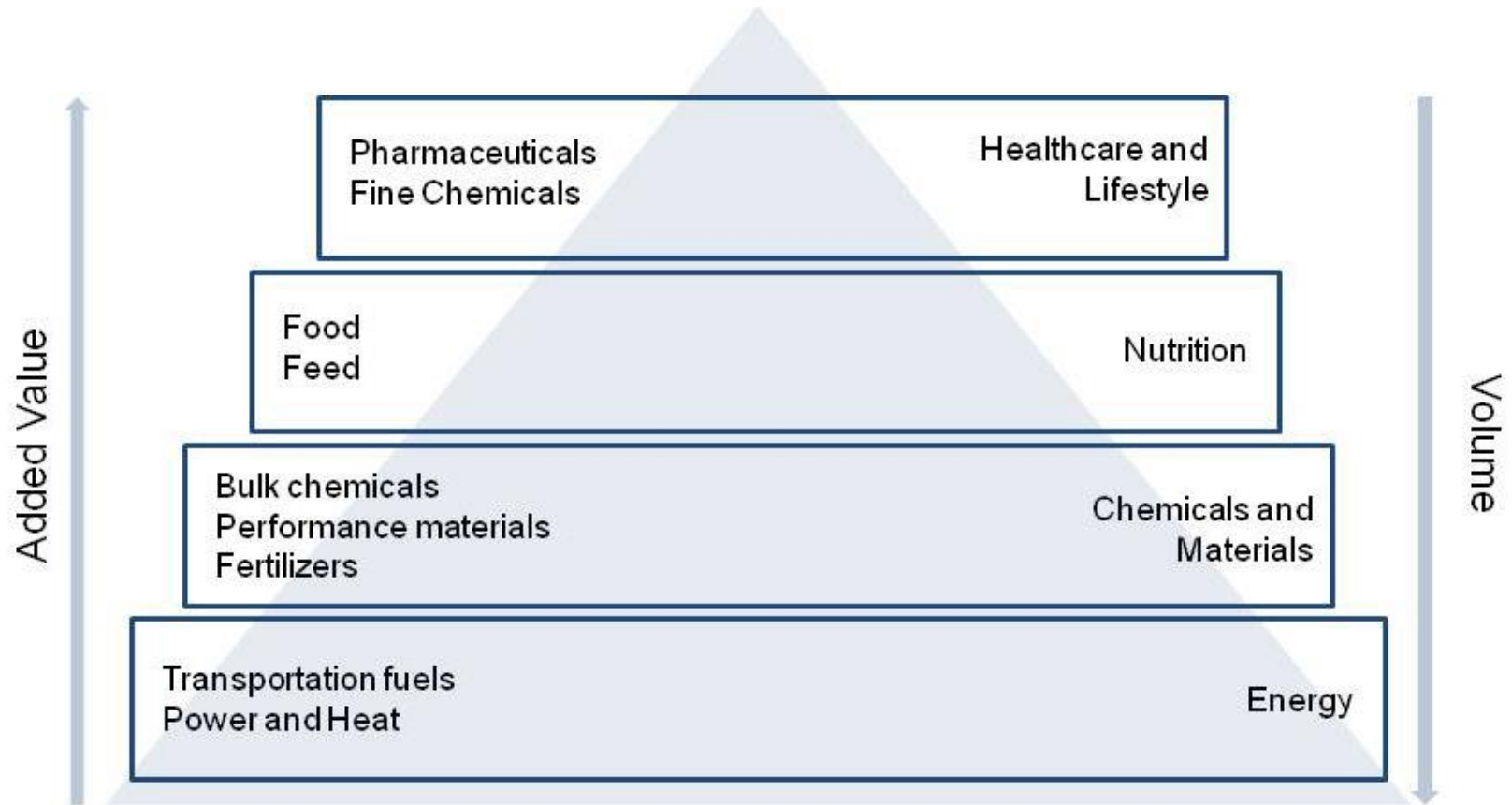
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Ambitions biobased

- Netherlands leading bioeconomy in 2050
- 40% green resources in 2040
- 1/3 of technical students work in bioeconomy in 2030

Biomass value pyramid



Ambitions circular economy

- Dutch economy completely circular in 2050
- Use 50% less virgin materials (metals, minerals, fossil resources) in 2030
- Five priority supply chains / sectors: Biomass & food, plastics, manufacturing, construction, consumption goods
- This year: resource-agreement with societal partners

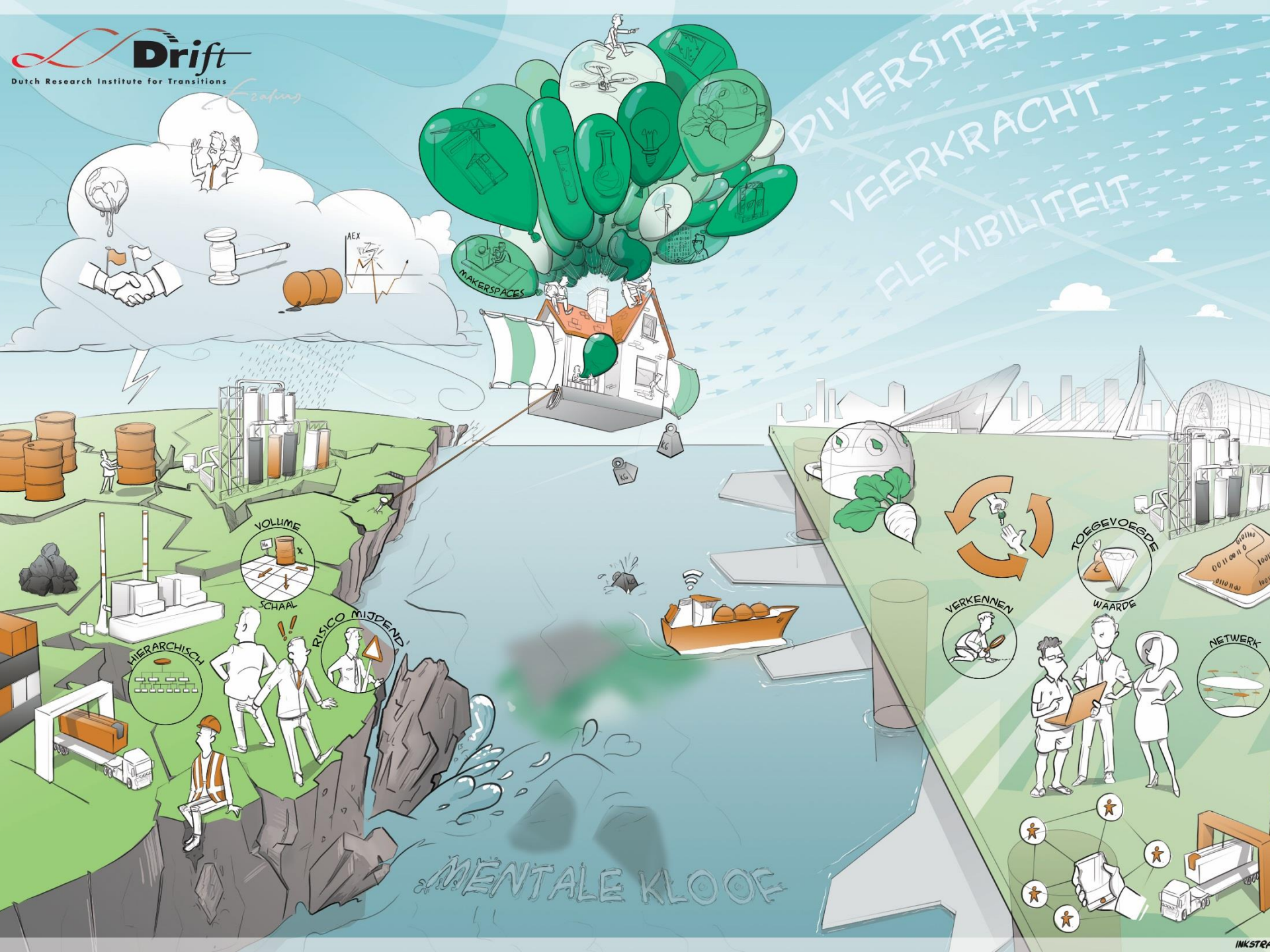
Netherlands well positioned

- Big harbours, transport and logistics
- Chemical industry
- Agriculture & food industry
- Energy production
- Waste handling & recycling
- Knowledge & innovation

Urgency: petro under pressure

- **Economic:**
 - Stabilizing growth and demand in EU
 - Overcapacity and refining closer to source
 - Low oil prices
 - Competition from biobased and clean tech
- **Socio-political:**
 - Geopolitical concerns (e.g. Russia)
 - Environmental concerns, particularly climate change

Creating



DIVERSITEIT
VEERKRACHT
FLEXIBILITEIT

MENTALE KLOOF

MAKERSPACES

VOLUME
SCHAAL

RISICO MIJDEND

HIERARCHISCH

TOEGEVOEGDE
WAARDE

VERKENNEN

NETWERK

Transition pathways

- Biomass and biofuels in existing petrochemical cluster (Neste oil)
- Cascading existing biobased flows (wood, food- & feed)
- Agro meets chemistry
- Circular resource roundabout
- Black swans

Challenges circular biobased port

- Why would the port be the right place for circular biobased activities?
 - instead of close to feedstock, knowledge, ...?
- What are nuclei for circular biobased industry?
 - feedstock, products, technologies, infrastructure, customers, ...?
- What will be the 'new crude'?
 - sugars, wood pellets, lignine-derivatives, ethanol, syngas, ...?

Comparing NL, Fin & Swe

- Circular bioeconomy transition fundamentally different in NL, Finland & Sweden
- Product development and processing vs raw material production
- Focus on top of biomass value pyramid
- Agro-food and chemical sector in the lead
- Core challenge: untie economy from fossil fuels and feedstock