Steering Committee S3
Platform Industrial Modernisation

Lia Voermans

Director Innovation Strategy
Brightlands Chemelot Campus
Trilateral Innovation Table/ Executive Board

Bilbao, 26.11..2018

Brightlands
Chemelot Campus

Trilateral Region
Largest Chemical Cluster in the World!

Ministry of Economic Affairs

DEPARTMENT OF ECONOMY SCIENCE & INNOVATION

Ministry of Economic Affairs, Innovation, Digitalization and Energy of the State of North Rhine-Westphalia

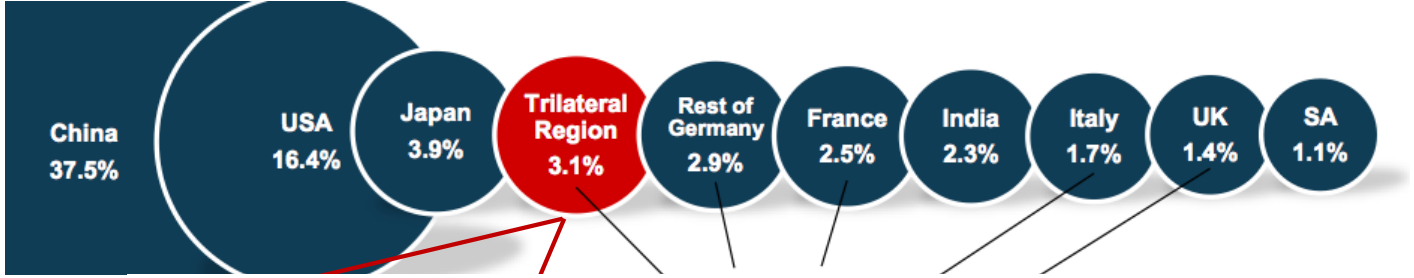
Trilateral strategy for the chemical industry

Striving to become the world´s engine for the transition towards a sustainable and competitive chemical industry cluster in 2030.

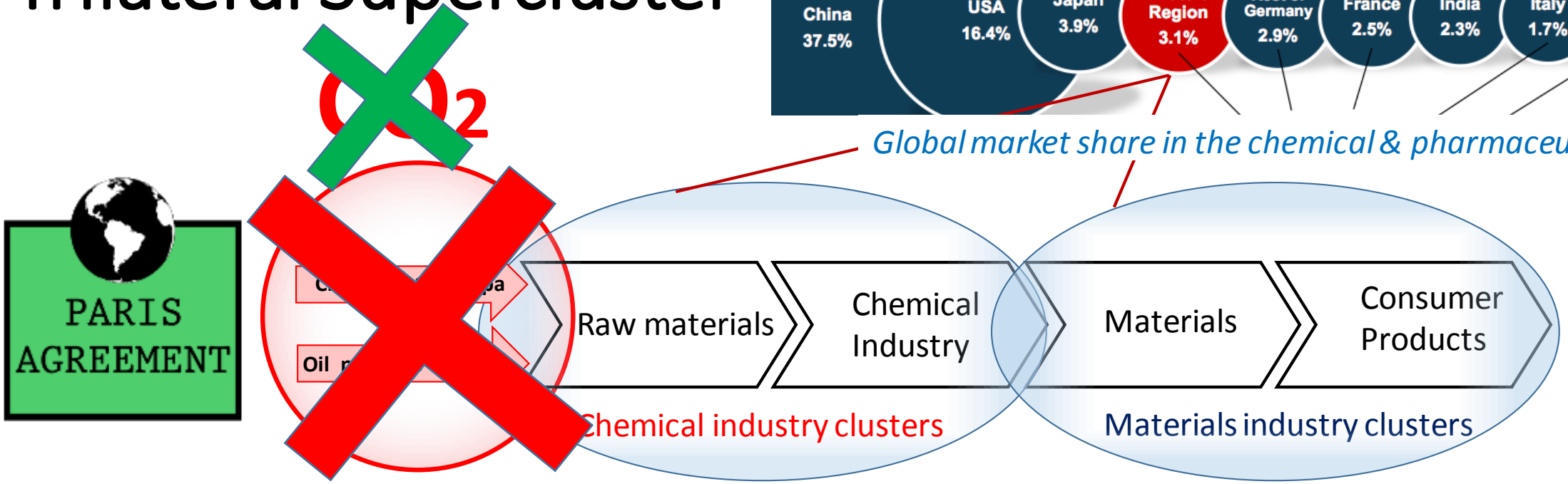
Cross-border cooperation between the Netherlands, Flanders and North Rhine-Westphalia.

Innovation Table Trilateral Strategy
chaired by Brightlands Chemelot Campus

Trilateral Supercluster



Global market share in the chemical & pharmaceutical industry



180 B€ turnover

350 000 direct jobs

Sales per capita € 3600

China 1300, EU 1500, USA 2400

2018 – **OUR AIM** → 2030 → → 2050

Assuming **Successful Transition** to a Sustainable Economy in 2050:

Diagnose the Challenge Ahead

- Local
- Regional: in view of interdependencies
- Trilateral: in view of Crossborder interdependencies
- (Supra)national : in view of EU policies

→ **Mobilize Partners**

- Industry, Governments, Universities, Investors, Innovators, Society

Create Programs and Projects, and required Innovation

- Key Enabling Technologies KETs:
- Specific, and generic. Concrete. Impactful. SMART.

HOW
Trilateral Innovation
Workshops April 13th 2018

Given company and national programs:

Identify potential trilateral collaborations

Accelerating innovation by creating critical mass

Outcome .....

- Ca. 80 participants
- Highly interactive workshops
- Industry driven
- Clusters of shared interest identified

Unique Value Proposition
Trilateral Regions Cross-border cooperation

Trilateral Agenda Innovation Themes

Trilateral Region Agenda Themes	ENABLING TOPICS
1. CO_2 as a feedstock source (CCU)	Start-ups & Scale ups Demo- and pilot plants Funding & Innovation Hurdles
2. Electrification in high-T cracking	
3. Electrochemical conversion	
4. Carbon circularity in products	
5. Hydrogen of the future	
6. Biomass as a feedstock	
7. Industry 4.0 for digital transformation	

Industry in the lead - cluster participation - bottom-up approach

Report

Trilateral Innovation Workshop

Friday, April 13, 2018

Taking climate ACTION

PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21·CMP11

2015 TIME FOR GLOBAL ACTION FOR PEOPLE AND PLANET

Wrap Up:
Regional Needs in Program Outline

Process Innovation – Site Innovation – Reginal Innovation – Cross border Innovation

Co-Invest Program	2030 – 2050	2019-2020 Annual	CAPEX indication Annual
Electric Cracking	*Electric heating – feasibility, piloting, demo* *Plasma-assisted – explorative*	**30 Million** - Shared Technology Center - HR - Large scale up project - Pilots & demo's	**300 Million** - Shared Technology Center - Large Scale up project - Large scale up infra
Green Hydrogen	*Plasma decarbonisator: pilot 2019, demo > 2022* *Molten metal: explorative, pilot 2021*		
Plastic Reuse and Recycling	*Biomass, municipal, plastic: comparative merit assessment; pretreatment, standard development*		
Waste Gasification	*Biomass, municipal, plastic: comparative merit assessment; pretreatment, standard development*		
Digital Transformation	*Process safety /Ind. 4.0 /system flexibilization* *Demand side mgmt / energy storage*		
Design for sustainability	*Light materials, construction materials*		
CCU / PtX	*Power to Methanol (and vice versa)*		

➔ *Intelligence* ➔ *Startups and Scaleups* ➔ pilots and demos ➔ *innovating funding and innovation*

Unique Value Proposition

Chemelot Industry Park

Raw materials → Chemical Industry → Materials → Consumer Products

- *Intelligence*
- *Piloting*
- *Debottlenecking*
- *Large Project mgmt*
- *1000 Shared Industrial Engineers*
- *10 B€ turnover*

Brightlands Sustainable Technology Center + **Brightlands Materials Center**

Chemelot Campus

- *Industrial R&D*
- *Scaleup*
- *Pilot equipment*
- *Students*

Limburg

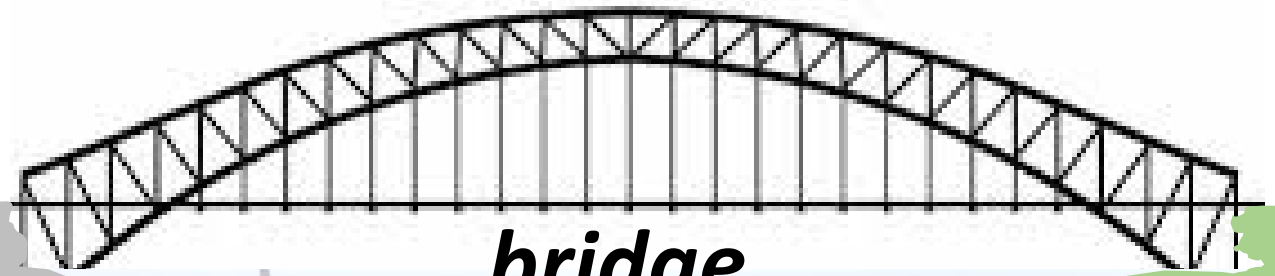
TNO innovation for life

Maastricht University

sitech services

Brightlands — Knowledge crossing borders

Our specialism:



bridge

chemelot — for today's future

The World of The Present

too expensive
too uncertain
too risky
too conservative

The Valley of Death

too gusty
too light-minded
too less experience
too naïve

The World of The Future

Benefits

New and Renewed Sustainable Chemical Industry

- Chemical Building Blocks from new, circular, renewable raw materials and – energy
- Drop-ins in new and existing, renewed chemical technologies and products

New Solutions

- Carbon Circularity of the polymeric materials value chain (plastics)
- Clean fuels
- Dealing with Intermittency and residual Heat: for Plant, Site, and Region

Societal Contributions to EU

- Center of Excellence: frontrunner, global attractor of HC
- Together with Partners (critical mass) : a significant contribution to survival of the Trilateral Cluster
- Idem, to continuation of the current level of prosperity for the next generations

Next Steps

- Pushing interregional cooperation in new cross-border value-chains
- Linking Industrial stakeholders to the innovation themes agenda and become the first movers (consortia building)
- Exploitation of KETs to the benefit of the chemical sustainability transition to stimulate competitiveness, growth & jobs
- Generation & scale-up of joint closer-to-market projects (pilot- demo)

What do we ask from the EU?

- Help with Early-phase feasibility assessment and search for co-investment opportunities in closer-to-market pilots and demonstrators;
- Help with Policy- and legislation hurdles

Thank You!