

FOR INTERNAL USE ONLY



Open Innovation in at DSM & Chemelot 11th Congress ECRN

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HEALTH · NUTRITION · MATERIALS

➤ Introduction

- Royal DSM
- Open Innovation

➤ Examples

- Biobased Products & Services
- Biomedical Materials

➤ Chemelot

- History
- Current situation
- Future

➤ Learnings



DSM's mission

Our purpose is to create brighter lives for people today and generations to come.

We connect our unique competences in life sciences and materials sciences to create solutions that nourish, protect and improve performance.



DSM: 110 years of successful transformation

Coal Mining → (Petro)chemicals → Life Sciences & Materials Sciences



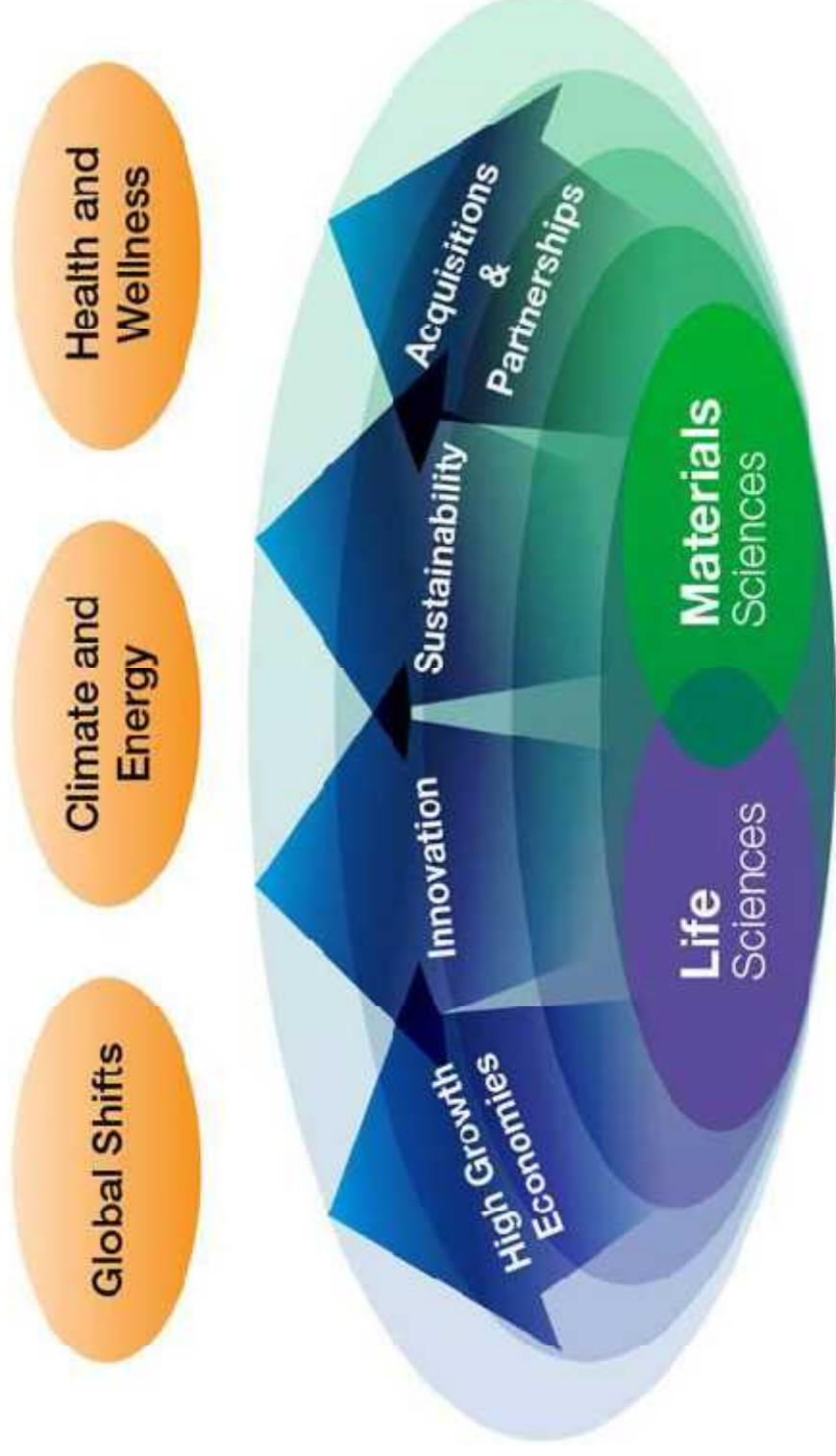
DSM today

Leading in Life Sciences & Materials Sciences

Revenues: ~ € 9 bn
Employees: ~ 23.500 at 200 locations worldwide
R&D: ~ 10% of people
Credit Rating: Single A



DSM in motion: *driving focused growth*



People - Planet - Profit: creating value along three dimensions

Innovation =

lack of time

+

lack of resources

+

optimism

Innovation =

8

**R&D is turning money
into know-how**

**Innovation is turning know-how
into money/value**

Source: 3M



Innovation
107.000.000

Collaborative Innovation
37.800.000

Successful collaborative Innovation
3.980.000



Why do we need Open Innovation?



99.999996%
of world
population
outside
DSM!

Networks
needed!

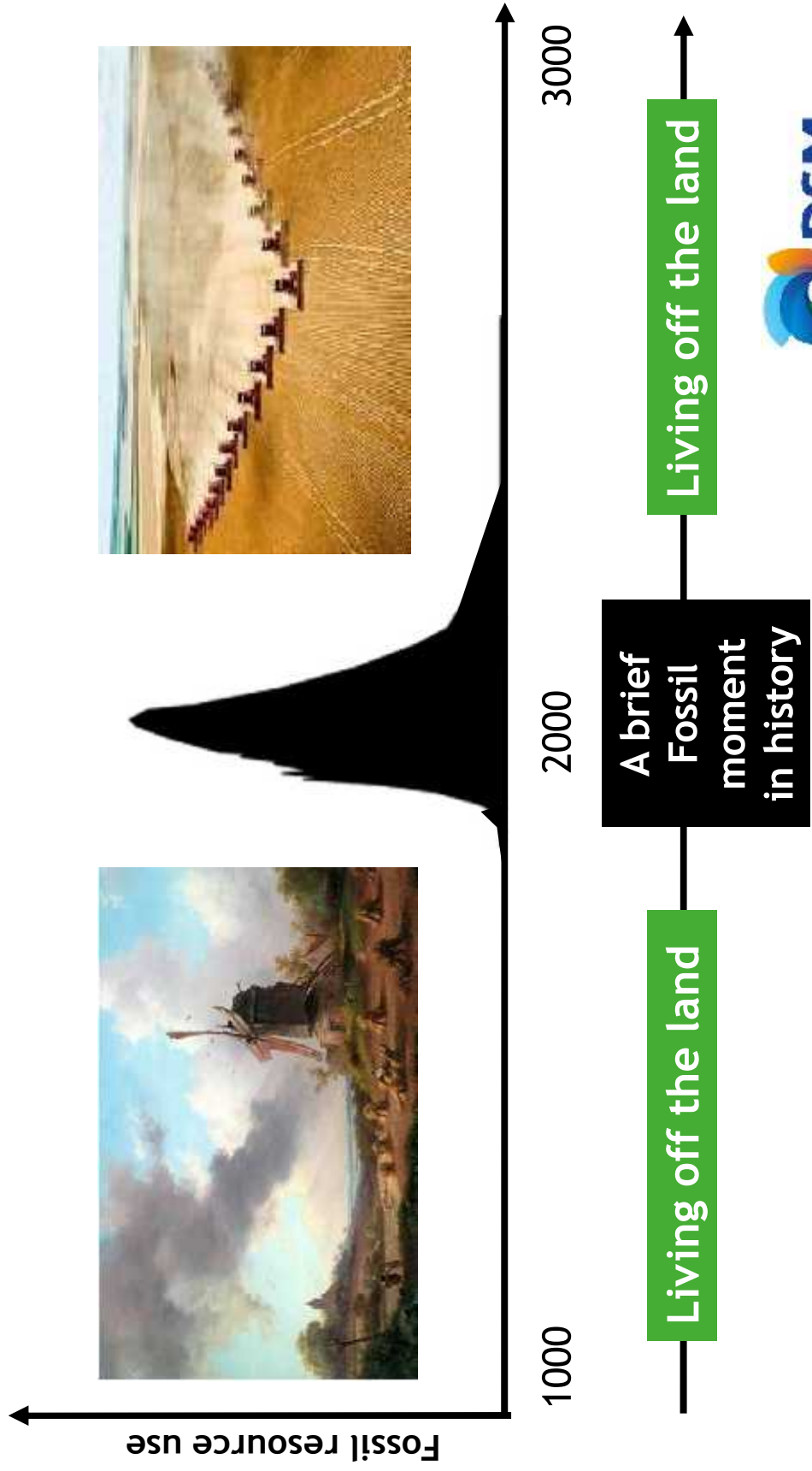
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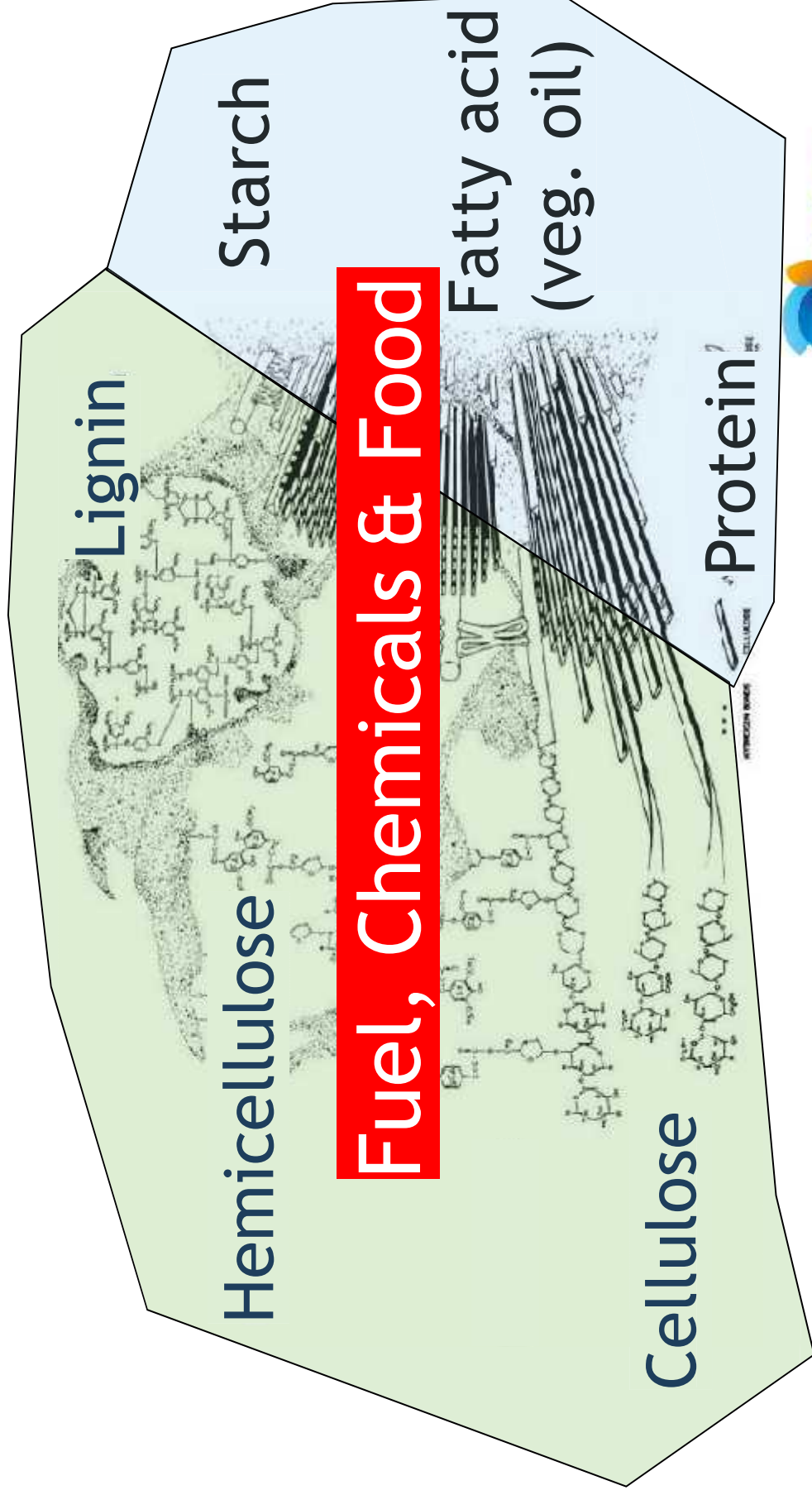
Biobased Chemicals and Materials



From the Fossil Age to the Bio-Age



Biomass “cracking” enables the Bio-economy



Enabling Advanced Biofuels

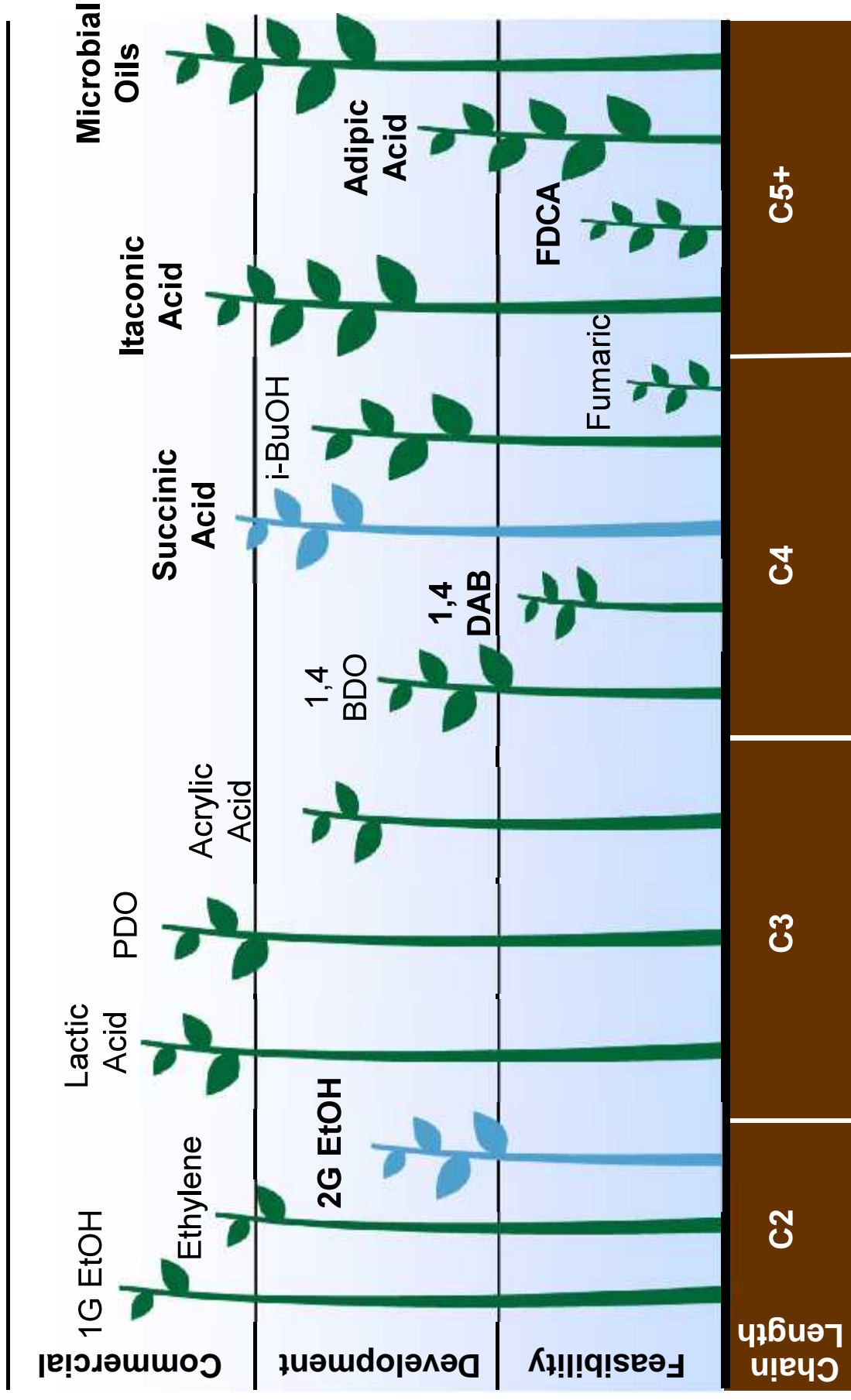
POET & DSM: two innovative leaders - one shared vision

- Making cellulosic ethanol competitive to grain ethanol
- Building Project LIBERTY (\$250 Mln investment) in Emmetsburg, Iowa

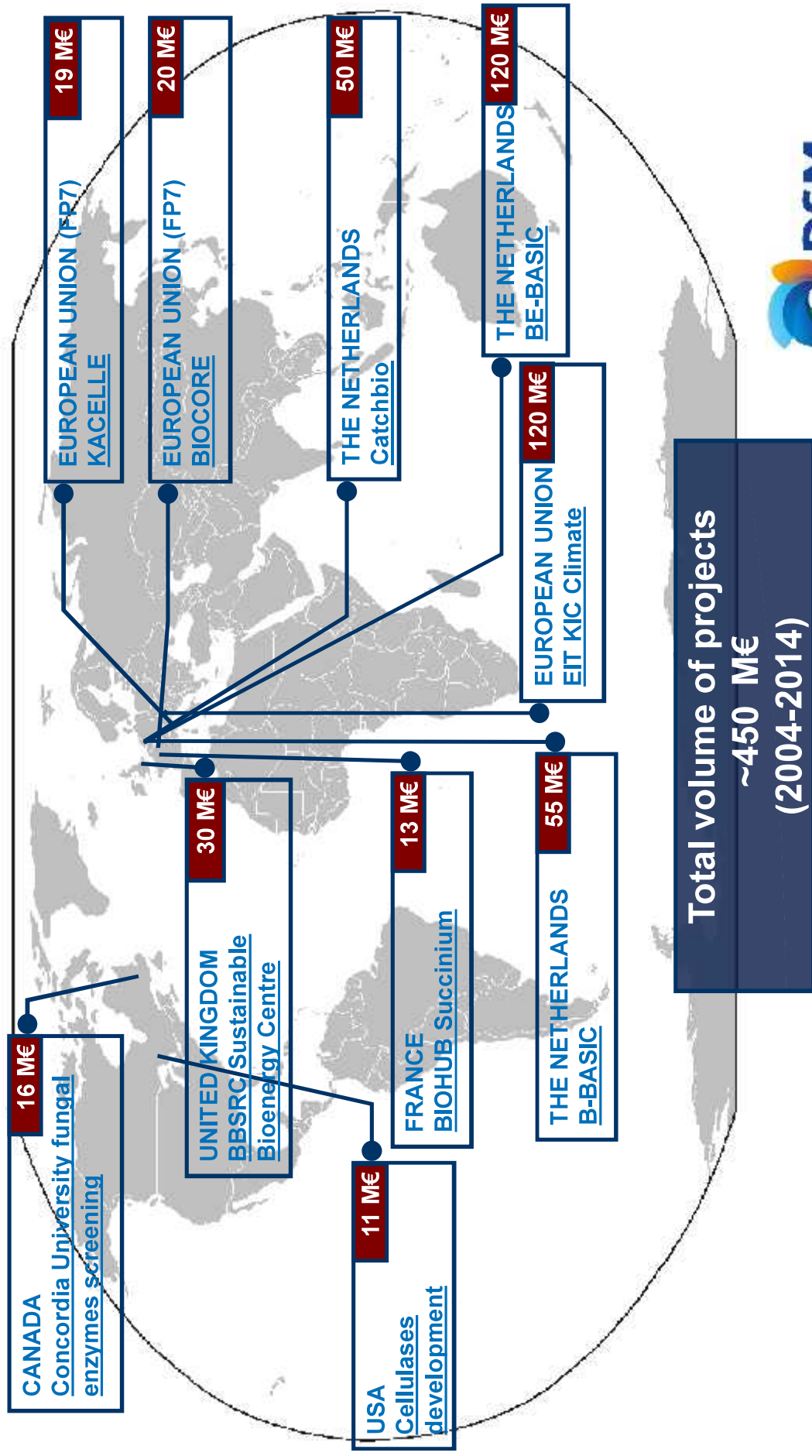


Growing a Biobased Chemicals Industry

not exhaustive / stages estimated



DSM in public-private partnerships for Industrial Biotechnology



DSM Biomedical



Our Strategic Pathway

repair > replace > restore > regenerate



Examples:

- Pacemaker leads
- Hip replacements



Examples:

- Back-of-the-eye delivery
- Drug Eluting Stent coating

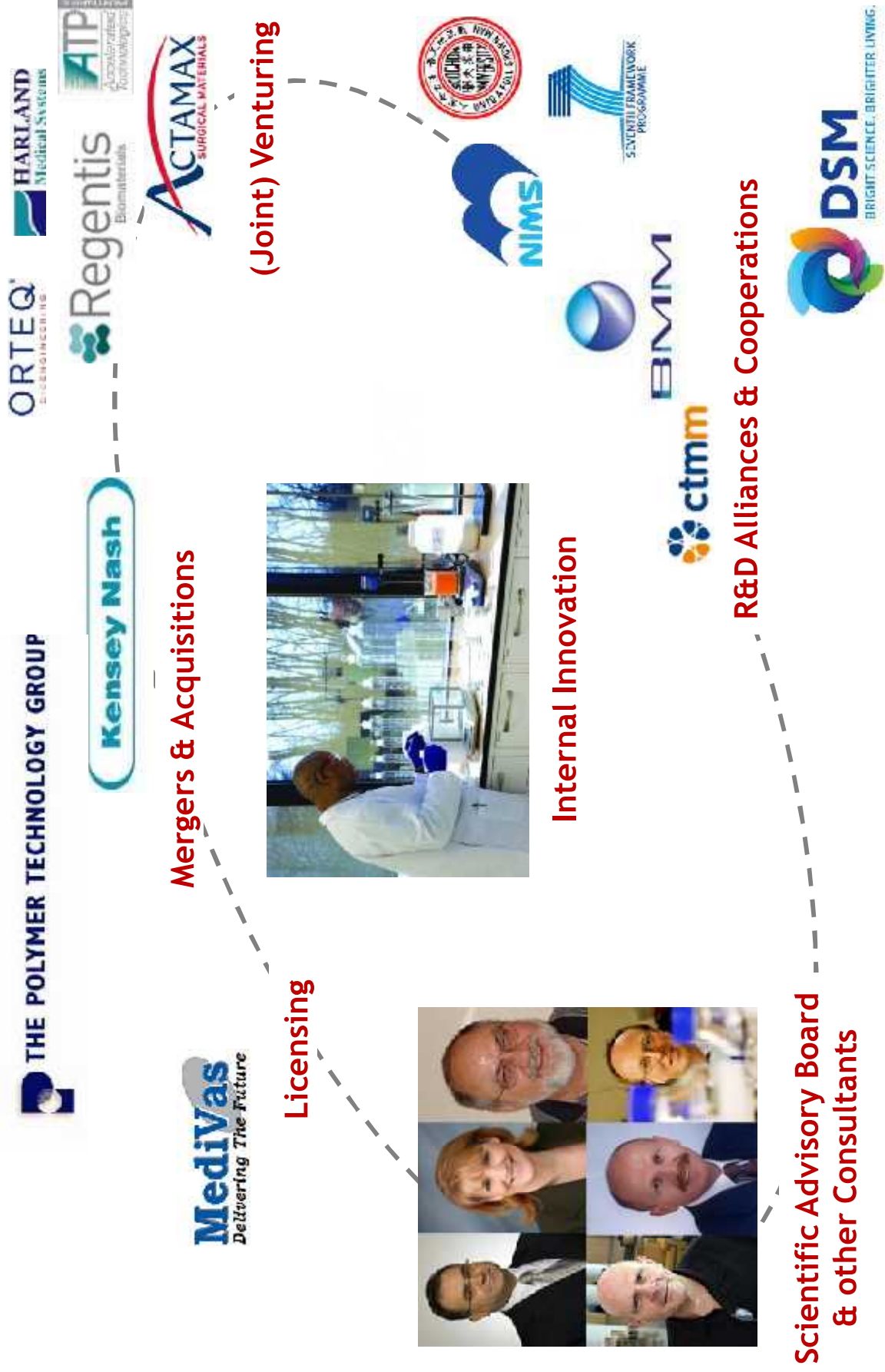


Example:

- Delivery of biologics
for cartilage repair



Open Innovation in practice



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Once upon a time these plants were all from DSM



Eindhoven

Aachen

Brussels

Maastricht

Chemelot Campus: Development since 2000



What is Chemelot?

- **One of the largest chematerial communities in Europe (> 800 ha.)**
 - Chemelot Industrial Park; and
 - Chemelot Campus (ca. 20 ha.)
- **Number of companies on industrial park > 110**
 - 90 new companies since 2005
- **Chemelot Campus: 40 companies**
- **Many of them global leader in their product market combination**
- **6.000 jobs on Chemelot**
 - 4.800 on Industrial Park
 - 1.200 on Chemelot Campus

Chemelot Industrial Park

Sharing infrastructure and costs



Chemelot Campus

Sharing knowledge & global networks



'Chemistry connects People'

Inter-Regional Initiatives (Geleen, NL)

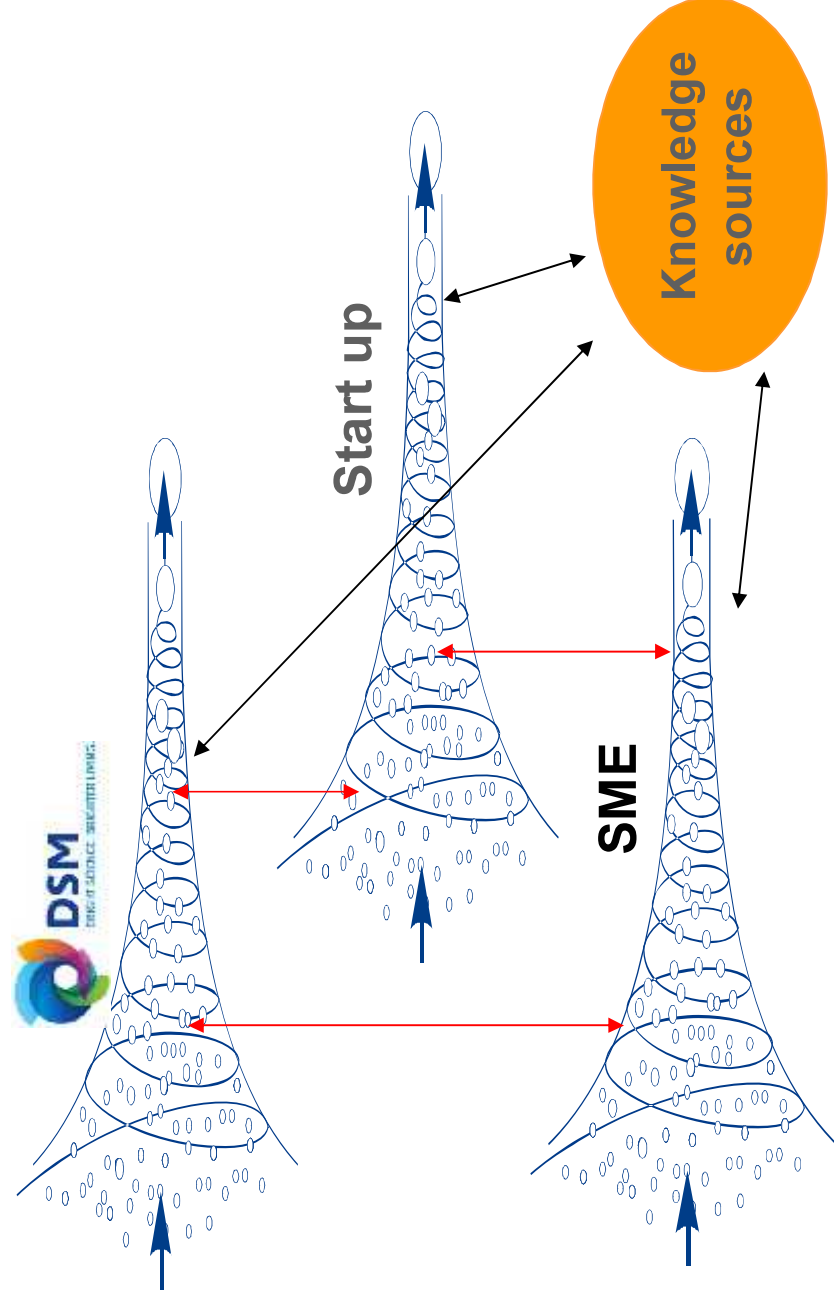
Chemelot Industrial Park

Chemelot Campus

DSM Innovation Center

Logos: SABIC, SITECH SERVICES, LANXESS (Empowering Chemistry), ORASCOM (CONSTRUCTION INDUSTRIES), DSM (BRIGHT SCIENCE. BRIGHTER LIVING.), SEKISUI, POLYSCOPE (reshaping your products), BMMI, VALUECENTRE, Basic Pharma, DSM (BRIGHT SCIENCE. DRIVING INNOVATION), CHEMTRIX YD, ZU, Iobionics (BioTechnology), Maasrishi Instruments BV, nllis (BIOBASE BIOTECH), SciTe (Science & Technology), Nano-Imaging, Interface (BIOmaterials BV), TIGENIX, TERREGO (Advanced Specialty Coatings), THE MAASRISHI BIOTECH INSTITUTE, KRIYA, Lydall, CallMeds, avantium, CallMeds, KRIYA, Lydall, avantium, CHEMTRIX YD, Basic Pharma, DSM (BRIGHT SCIENCE. DRIVING INNOVATION).

Open Innovation at Chemelot



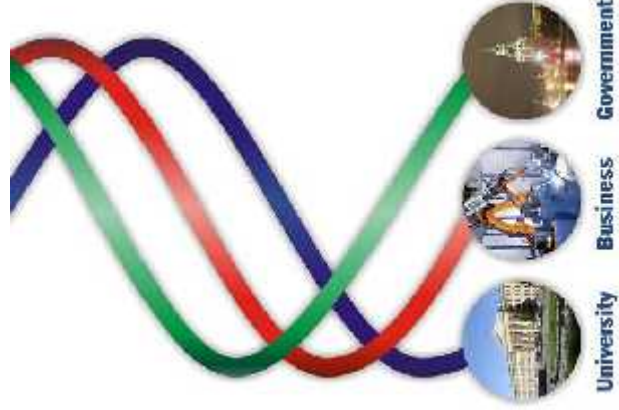
New LANXESS Elastomers headquarters Delivered January 2013, 125 people



**New DSM Materials Science Center
Ready July 2014, 420 people**



A True Triple Helix Approach



Maastricht UMC+



Chemelot Campus

initiator, developer, broker



Public Private Partnerships at Chemelot



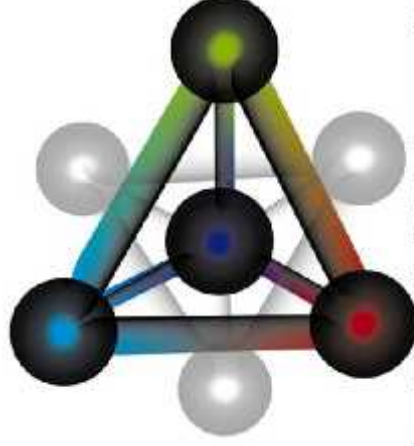
Chemelot
InScite

Biomedical materials



Chemelot
InScite

Biobased materials



AMM | Biobased
Materials
Institute of RWTH Aachen and Maastricht University



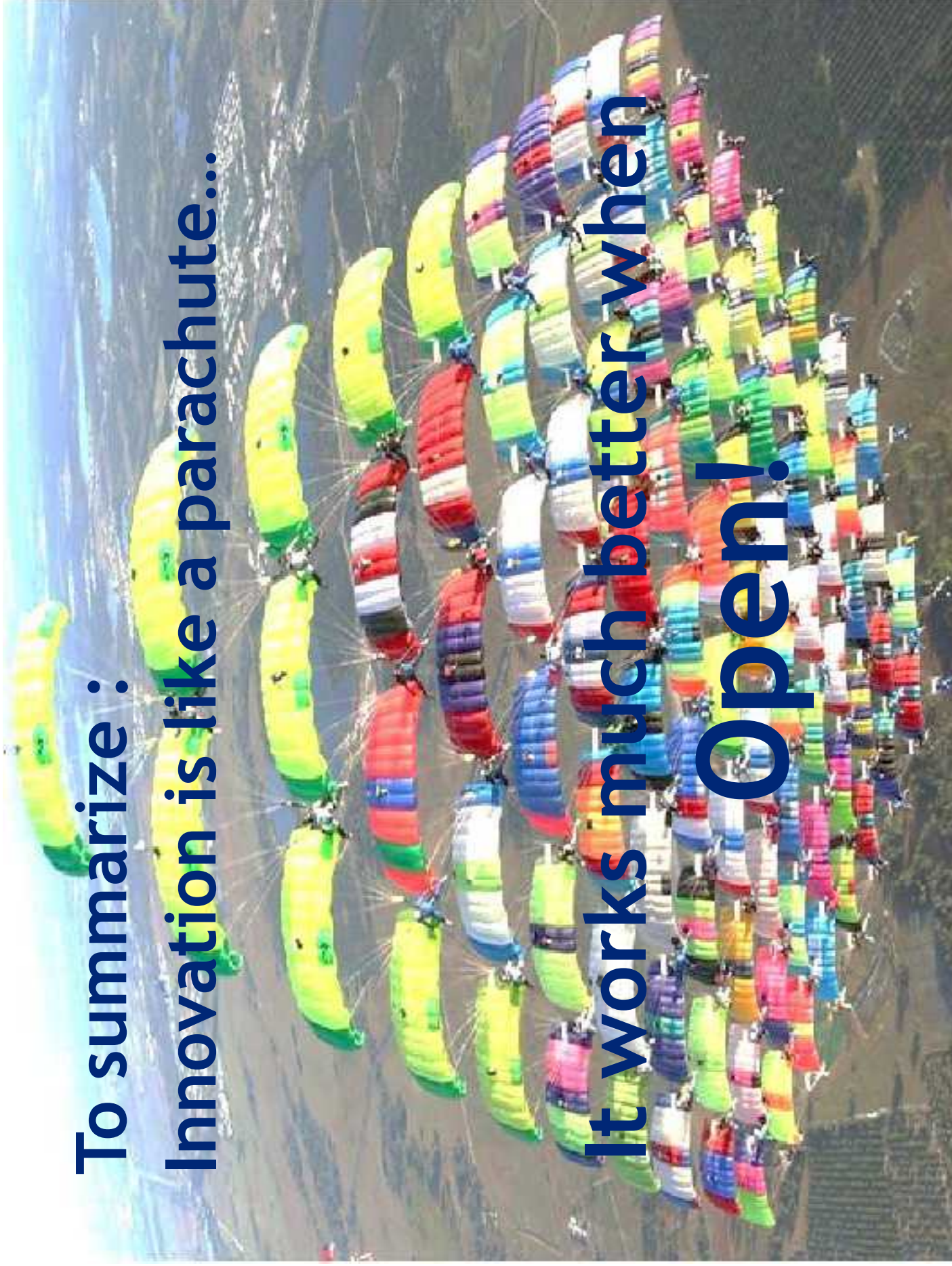
Chemelot Campus - The Results in 2023

Chemelot Campus has a significant contribution to **Economic Growth, Employment, Regional Cohesion and Sustainability**:

- The technological **hot spot in Europe** for chemistry and performance materials
- Acceleration of innovation and business growth via **Open Innovation ecosystem** fully embedded in Brainport region
- Creation of **13.500 new jobs**
 - direct growth on campus from 1000 – 2500 (and beyond)
 - indirect labor: factor 8 – 10* (at least 12.000 jobs)
- **Attraction of new talent** via unique education set up (CHILL)
 - 1000 students
- **Close cooperation with academia in region & cross border**
 - RWTH Aachen, TU/e, Maastricht University
- **Creation of new scientific institutes**
 - Chemelot InSciTe
 - Material Science Centre

**To summarize :
Innovation is like a parachute...**

**It works much better when
Open!**





BRIGHT SCIENCE. BRIGHTER LIVING.™