

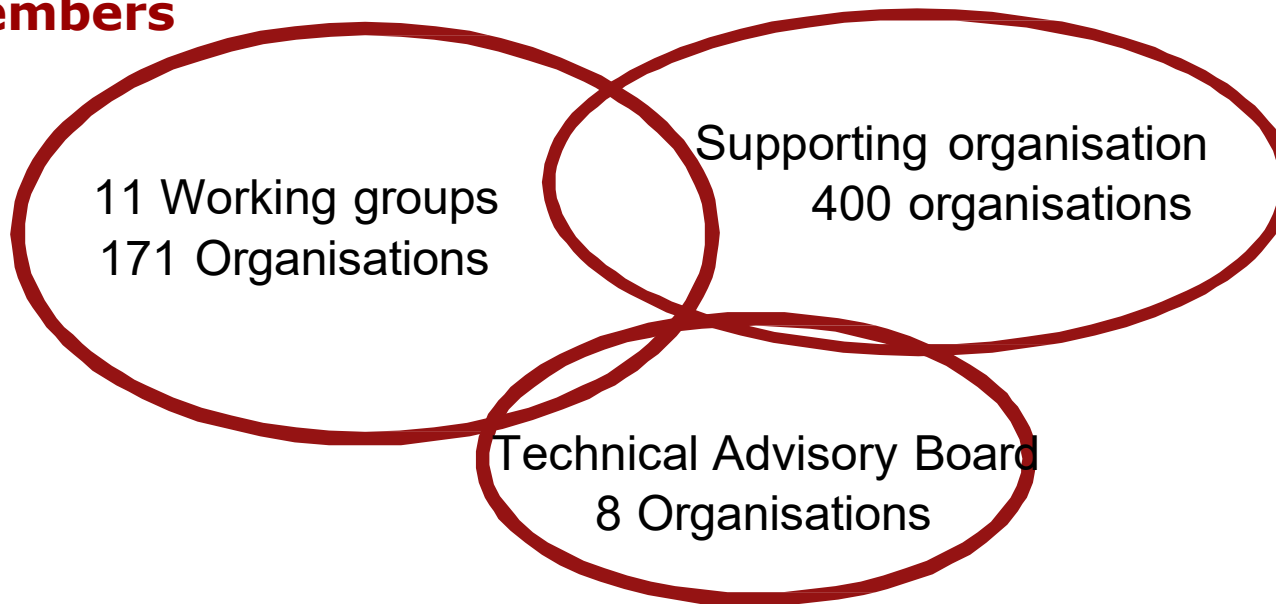
Building Clusters

Best Practice Report by Kunststoffinstitut Lüdenscheid
Thorsten Urban, Cluster Manager

The innovation cluster

Lüdenscheid Plastics Institute

2022
489 members



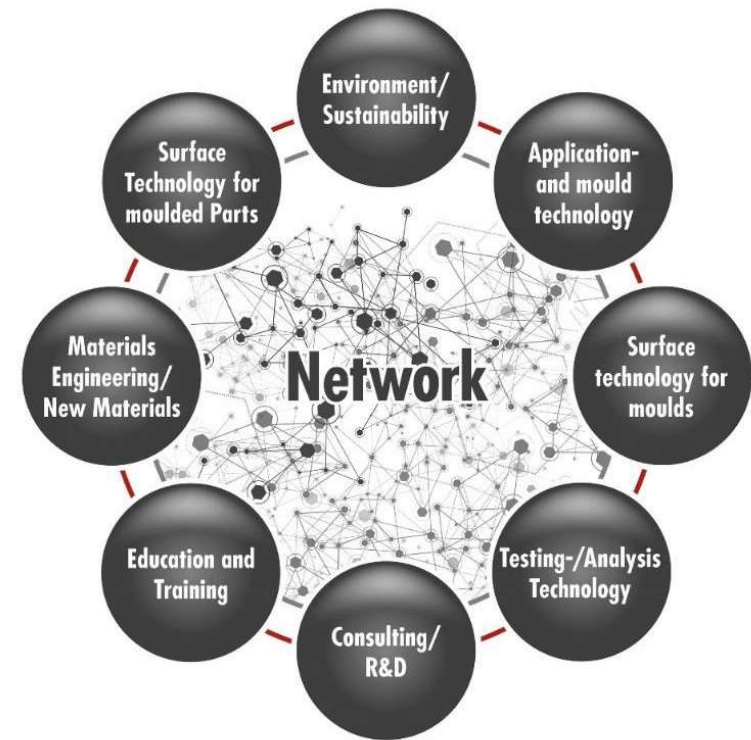
Our Performance

The Kunststoff-Institut Lüdenscheid supports in

- ▶ the selection
- ▶ the development
- ▶ the optimization and implementation of products, tools and processes in the entire field of plastics technology

Our Business Mission:

*"Plastics are multi-layered/versatile - so are we!
Precise and forward-looking solutions for practical applications"*

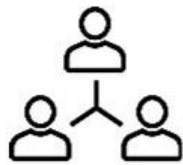


Vortrag "GEOkomm Networking & Innovation Summit"

The Plastics Institute in detail



100
Employees



400
Shareholders



10 Mio. €
Turn over



300
Seminar days



>100
Laboratory



15
Injection moulding



2
Compounder



> 4.500 m²
Production area



1988
founded



In 24h
worldwide

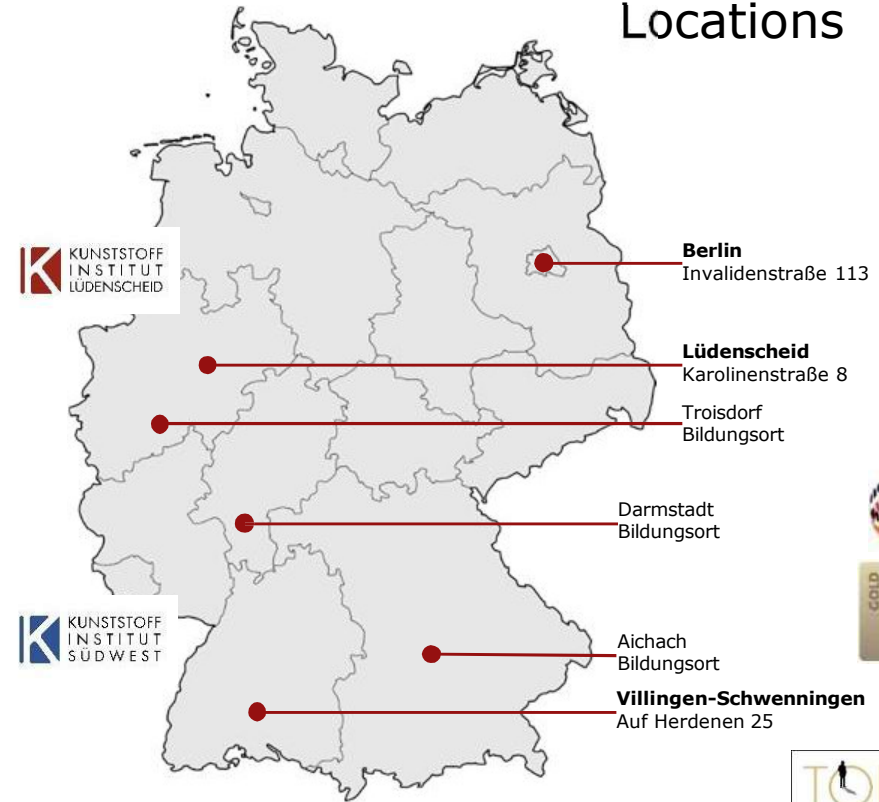


3
CVD Equipment



1,9 Mio. €
R&D

Locations



Vortrag "GEOkomm Networking & Innovation Summit

Shareholder Association

Shareholder Association 2

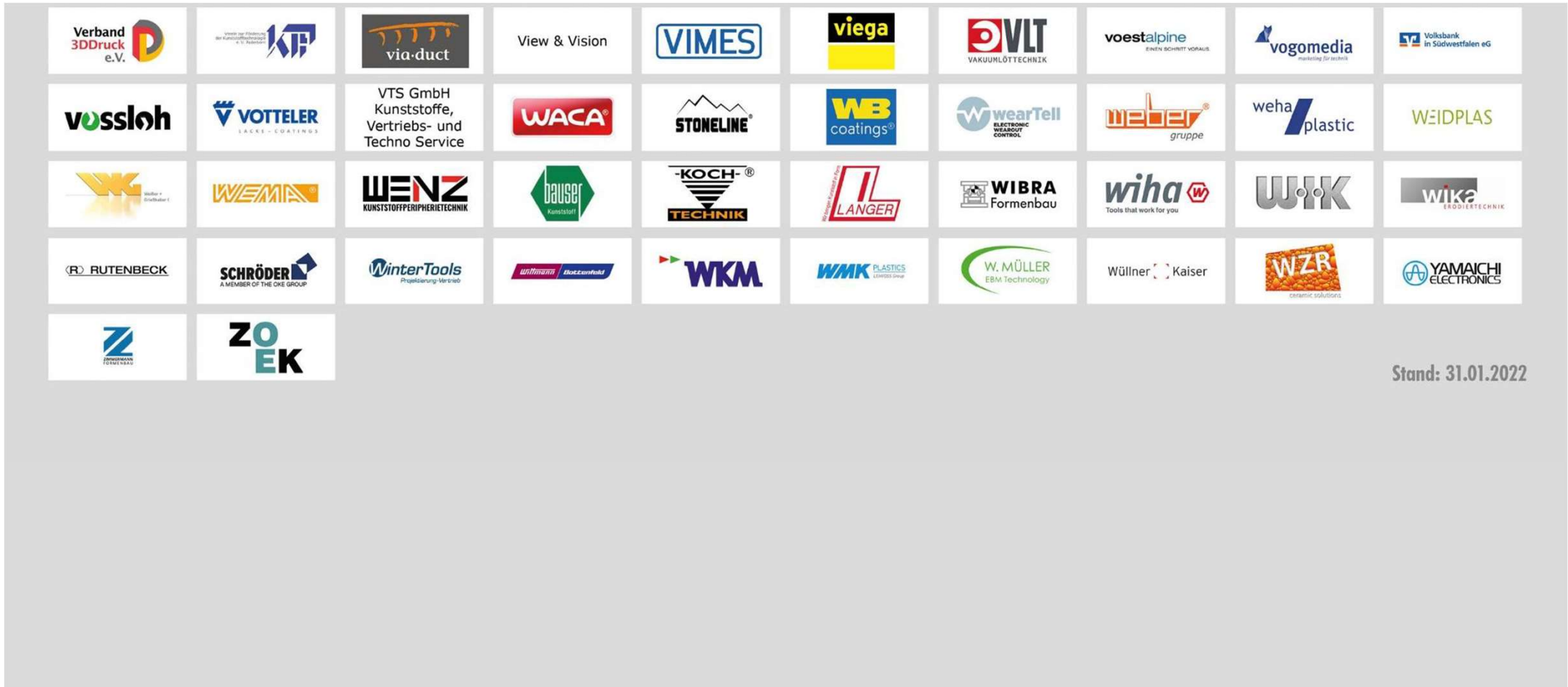


Shareholder Association 3

									Jendrek & Partner
									
									
									
									
									
									
									
									

Shareholder Association 4

Shareholder Association 5



Stand: 31.01.2022

Collaborative projects Status 03/2022

Collaborative projects	2020				2021				2022				2023			
Foaming in the injection moulding process	■	■														
Surface treatment of moulded plastic parts 11	■	■	■	■												
EMC shielding	■	■	■	■	■											
RapidTooling 2	■	■														
PVD coating of plastics 3	■	■	■	■	■	■										
Technology scout 4	■	■	■	■	■	■	■	■								
Overmoulding of electronics 2	■	■	■	■	■	■										
Haptic feedback 2	■	■	■	■	■	■										
Thermally conductive plastics 3	■	■	■	■	■	■	■									
Digital printing	■	■	■	■	■	■	■									
InMoldElectronics	■	■	■	■	■	■	■									
Individual carbon footprint	■	■	■													
Paper injection moulding		■	■	■	■	■										
Tax incentives for research			■	■												
Surface treatment of plastic moulded parts 12						■	■	■	■	■	■	■	■			
E2C (Easy to Clean)						■	■	■	■	■	■	■	■			
Antiviral / Antibac surfaces (study)						■	■	■	■	■	■	■	■			
EMC II						■	■	■	■	■	■	■	■			
Paper injection moulding 2						■	■	■	■	■	■	■	■			
Laser textures						■	■	■	■	■	■	■	■			
Carbon footprint for SMEs						■	■	■	■	■	■	■	■			
Entry into the Medical & Healthcare sector						■	■	■	■	■	■	■	■			

in Planung

laufend

R&D projects, KIMW GmbH / KIMW-M GmbH Status 03/2022

Funding projects	2020				2021				2022				2023			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
NetC - Actuators for injection moulds	■	■	■													
MicroCoolPump	■	■	■	■	■											
Acoustic STRUCTURE	■	■	■	■	■	■	■	■	■	■						
ZIM-NW-PurWerk (mould technology InMould-Coating)		■	■	■	■	■										
ZIM-NW CAM-SYS-4.0 (micro-optical systems)		■	■	■	■	■										
Delta-P		■	■	■	■	■	■	■	■							
ZIM-NW REAChAble (Environmentally Friendly Electroplating)			■	■	■	■										
CO2 reduction (secEqui)				■	■	■	■	■	■	■	■					
IGP-POPmA-DB				■	■	■	■									
EUREKA-PolyModSim				■	■	■	■	■	■	■						
ZIM-NW PaP (Environmentally Friendly Plastics Production)						■	■	■	■							
ZIM-NW-Medic 4.0						■	■	■	■	■						
Functionalisation of filaments for 3D printing							■	■	■	■	■	■	■	■		

in planning
Application submitted
ongoing

R&D Projects, KIMW-P GmbH / KIMW-Q GmbH Status 03/2022

Funding projects	2020				2021				2022				2023			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
eMission (emission analytics)																
Mobile technical centre																
Regionale 2025 (AR / VR)																
Marrokko (Teach the Teacher)																

ongoing

Application
submitted

in planning

R&D projects, KIMW-F gGmbH (1) Status 03/2021

Funding projects	2020				2021				2022				2023			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
DynaHeat (Energy Efficiency NRW)																
AbraCoat (ZIM)																
TBC - Thermal Barrier Coatings (BMBF)																
BNP - Biocidal Nano Particles (BMBF)																
CPC - Corrosion Protection Coatings (BMBF)																
Metal Direct - Antenna (ZIM)																
Thermal barrier coatings for thin-wall pr. (IGF)																
InfraSurf - (Research Infrastructure NRW)																
GasMold (ZIM)																
KeraIn (ZIM)																
Nanolight (ZIM)																
IsoCer (Research Infrastructure NRW)																
RepMetalMold (ZIM)																
dEcoPP (ZIM)																
DraKo (ZIM)																
FlamZation (ZIM)																
SUCRE (ZIM)																
Q-Foam (ZIM)																
GLIM (ZIM)																
Tribo layer (ZIM)																



in planning
Application submitted
ongoing

R&D projects, KIMW-F gGmbH (2) Status 03/2021

Funding projects	2020				2021				2022				2023			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
DiffMold2 (ZIM)							■	■	■	■	■	■	■	■	■	
ContiSpray (ZIM)					■	■	■	■	■	■	■	■				
Bio-Plaque (IGF)								■	■	■	■	■	■	■	■	■
TIGER (ZIM)						■	■	■	■	■	■	■	■	■		
RFID2 (ZIM)									■	■	■	■	■	■	■	■
BiPPMoldCoat (ZIM)							■	■	■	■	■	■	■	■		
PURWerk 1 (ZIM)							■	■	■	■	■	■	■	■		
FIM Slim Light (ZIM)									■	■	■	■	■	■	■	■
wash-out (IGF)								■	■	■	■	■	■	■	■	
IMT (Eurostars)								■	■	■	■	■	■	■	■	
NewRun (ZIM)							■	■	■	■						
Tempor (ZIM)							■	■	■	■	■	■	■	■		
SElect (IGF)								■	■	■	■	■	■	■	■	■
TSGlas4CarAPP (IGF)									■	■	■	■	■	■	■	■
SmarteOrthesis (IGF)									■	■	■	■	■	■	■	■
NanoTribKo (IGF)										■	■	■	■	■	■	■

in planning
Application submitted
ongoing

Advantages through internationalisation in R&D cooperation and cluster

Cooperation with global technology leaders

- Development of internationally competitive technologies
- Strengthening the competitive position

Developing new international business contacts

- Supporting the members of the network in developing new business contacts

Growth of the innovation network

- Increase the proportion of foreign members in the network
- Internationalisation of the service offer

Increasing international visibility

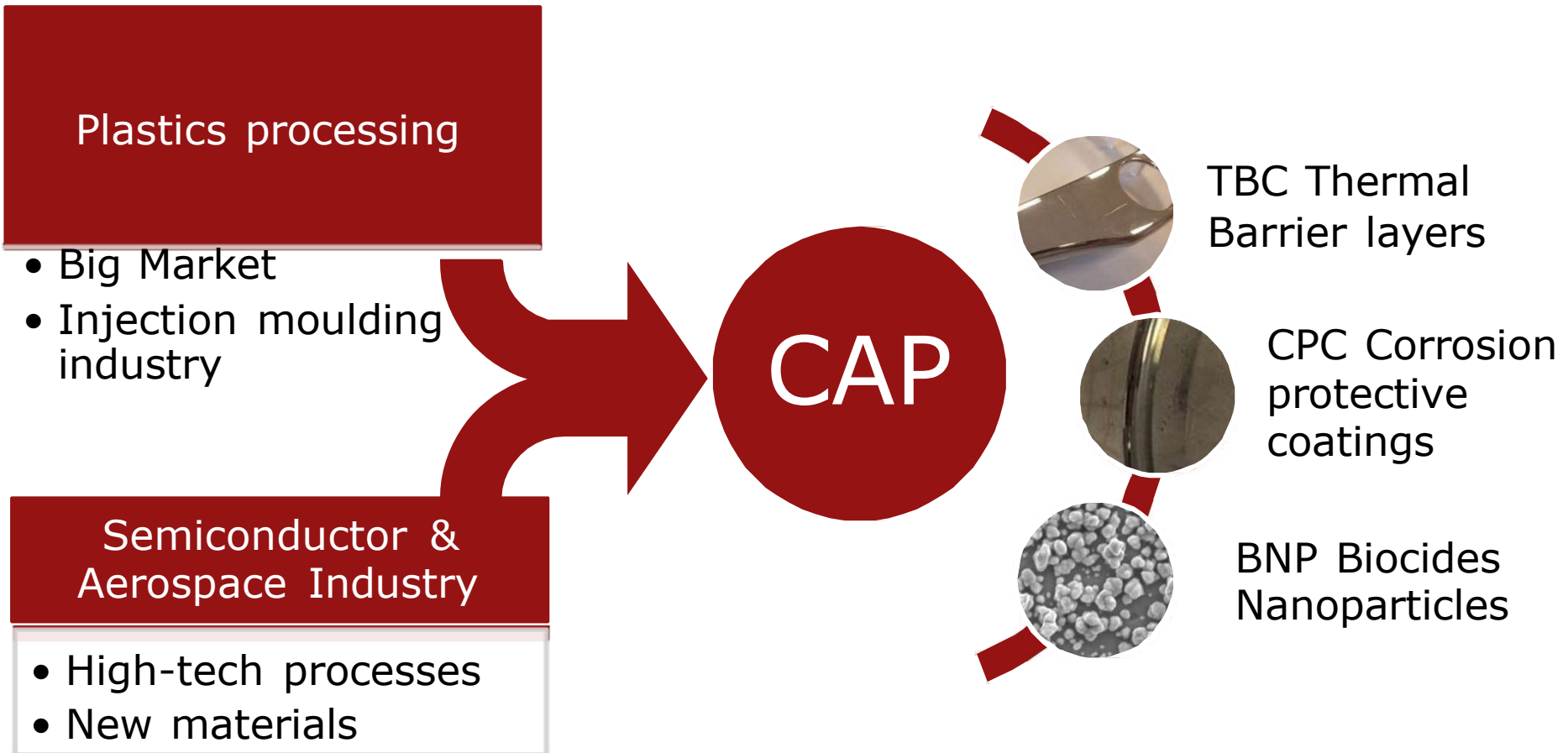
- Participation in international projects (Wiintech, Materialix,...)

Best Practice: 5 Examples

- 1: Coating and Particles (CAP)
- 2: CAM-SYS-4.0
- 3: MED-IG-4.0
- 4: Business Scouts for Development
- 5: PE&T (Training Center at Casablanca)

Best Practice: Coating and Particles

▶ Linking two industries...





Independent evaluation:

ZENIT - CVD Market Study

IIT - International Cluster Analysis

IWF - Technology Study Coating

IUTA - Technology Study Nanoparticles

Technologieanalyse



Anzahl der Publikationen

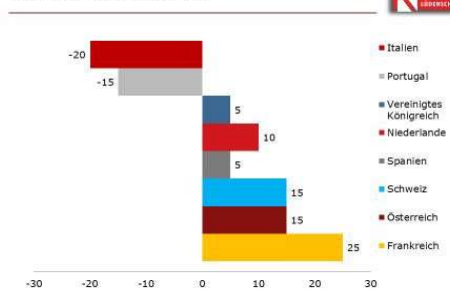


SWOT-Analyse

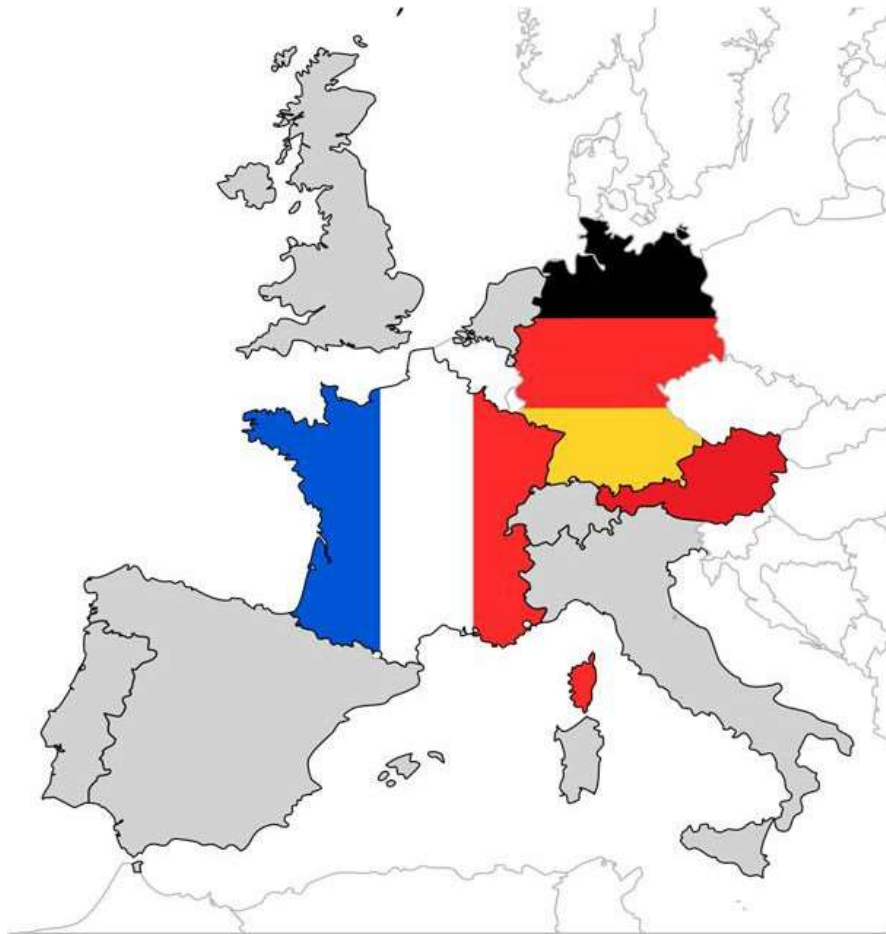
► Beispiel Niederlande

Strengths (Stärken)	Punkt	Weaknesses (Schwächen)	Punkt
Führende Distributionsscheibe Europas.	5	Kleiner Binnen	
Wirtschaftliche Erholung.	10	Industrieproduktionsleistung abhängig vom Ölpreis	
Eigene Erdgasvorkommen- und exporte.	0	längere innenpolitische Abstimmungen	
Interkulturelle Offenheit, Produktivität und Wettbewerbsfähigkeit.	10		
Gute IKT-Infrastruktur.	5		

Ergebnis der Auswertung



Search for suitable partner countries



Independent evaluation:

- ZENIT - CVD Market Study
- IIT - International Cluster Analysis
- IWF - Technology Study Coating
- IUTA - Technology Study Nanoparticles

Destination regions in France



Development of an internationalisation concept

Internationalisation, WIN-WIN aspects

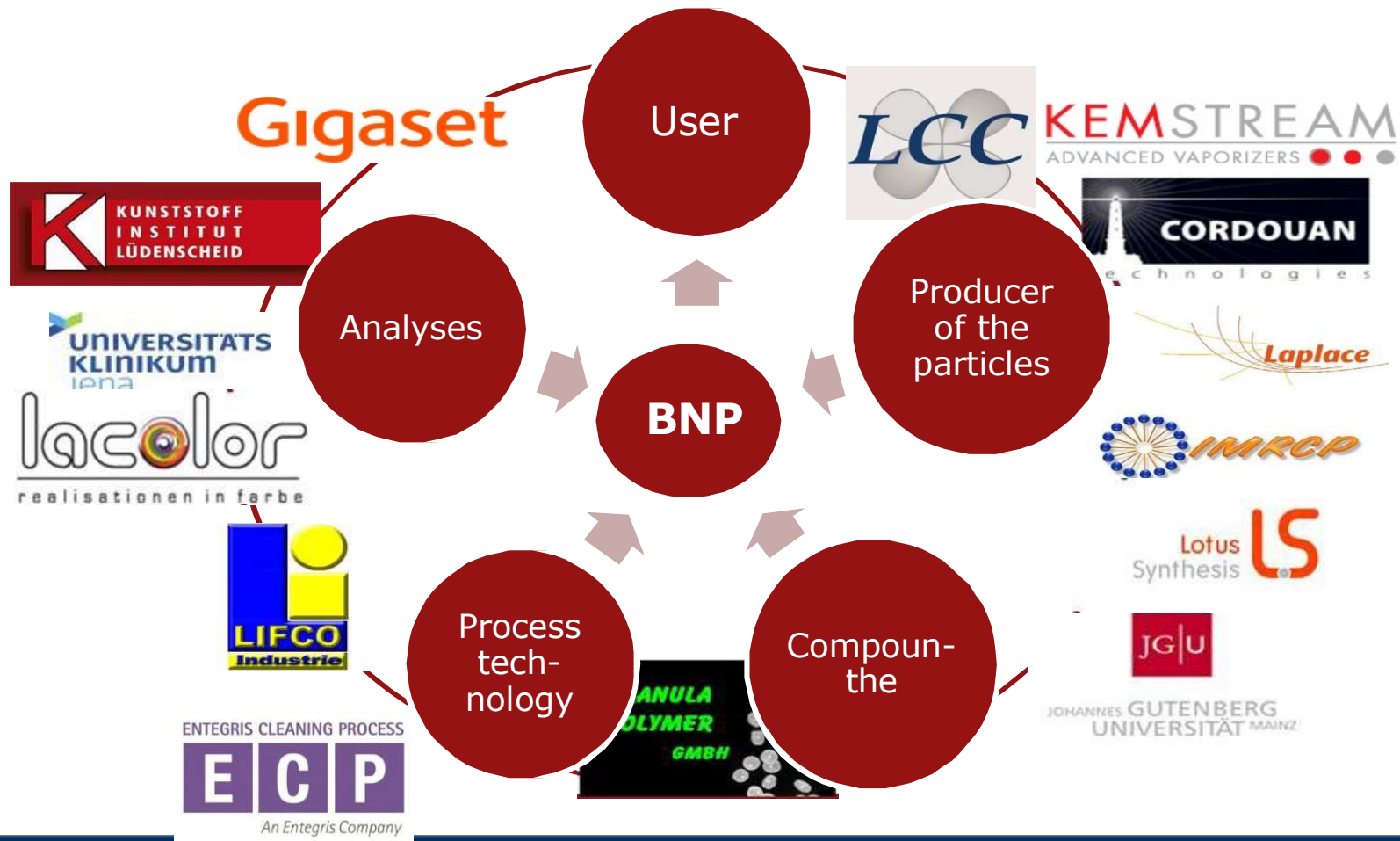
- ▶ Strong aerospace partner in materials/coating technology found in France
- ▶ Each partner expands its market (plastics or aerospace technology)
- ▶ Both networks can use the project results (~700 companies)
- ▶ Other sectors gain access to the project results
- ▶ Technological exchange (surface engineering: turbine versus gear wheel)

Development of an internationalisation concept

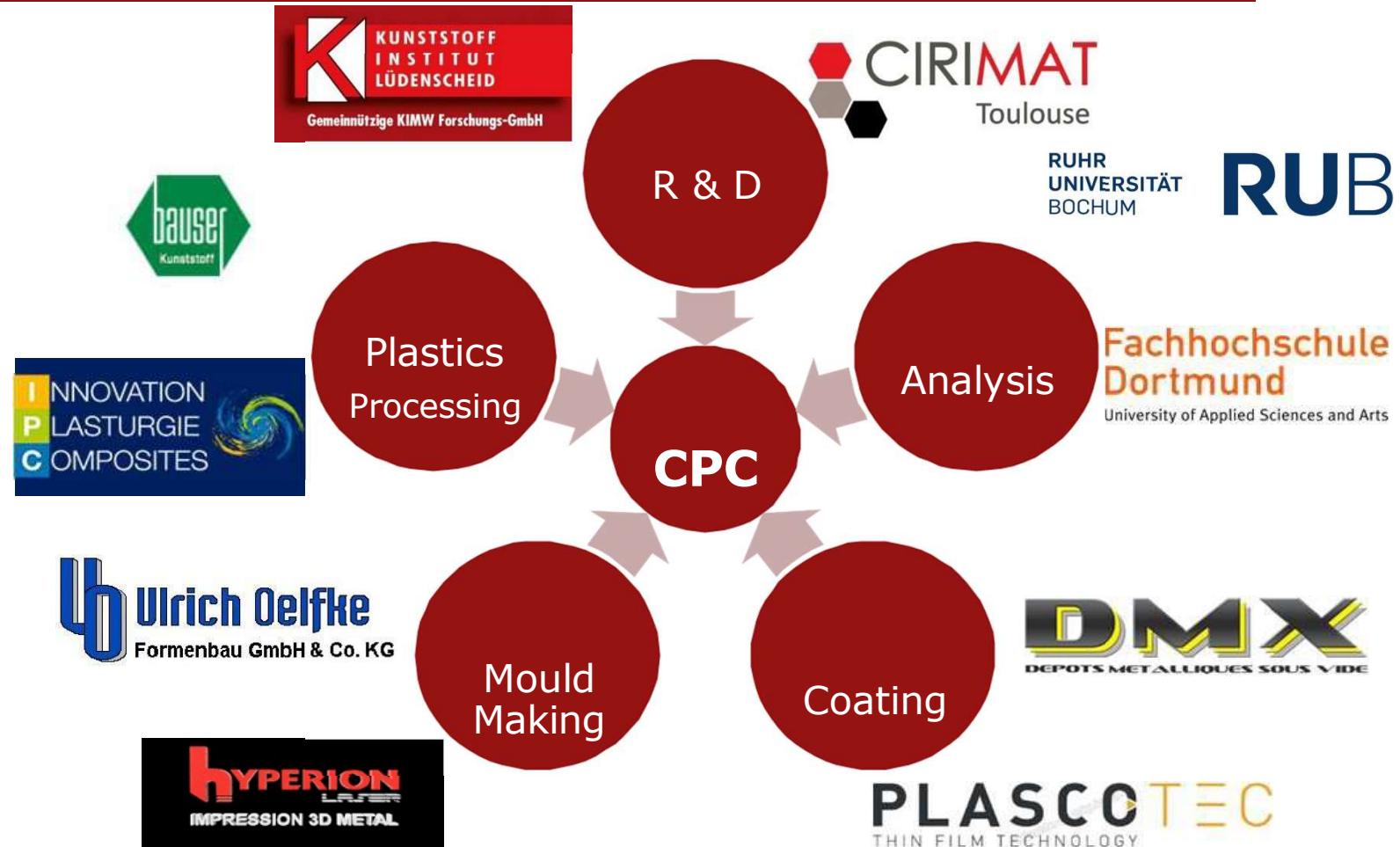
Innovative character

- ▶ CAP (Development of coatings and particles for the plastics industry)
- ▶ Making high-tech materials/processes from semiconductor and aerospace technology usable in plastics processing
- ▶ 3 technology areas are being worked on simultaneously (thermal and anticorrosive barrier coatings and biocidal particle formation)
- ▶ Higher quality level achievable (3-D separation, media tightness, precision and e.g. particle efficiency)
- ▶ Scaling from laboratory to industrial scale
- ▶ Cost and resource reduction (cycle times, energy)

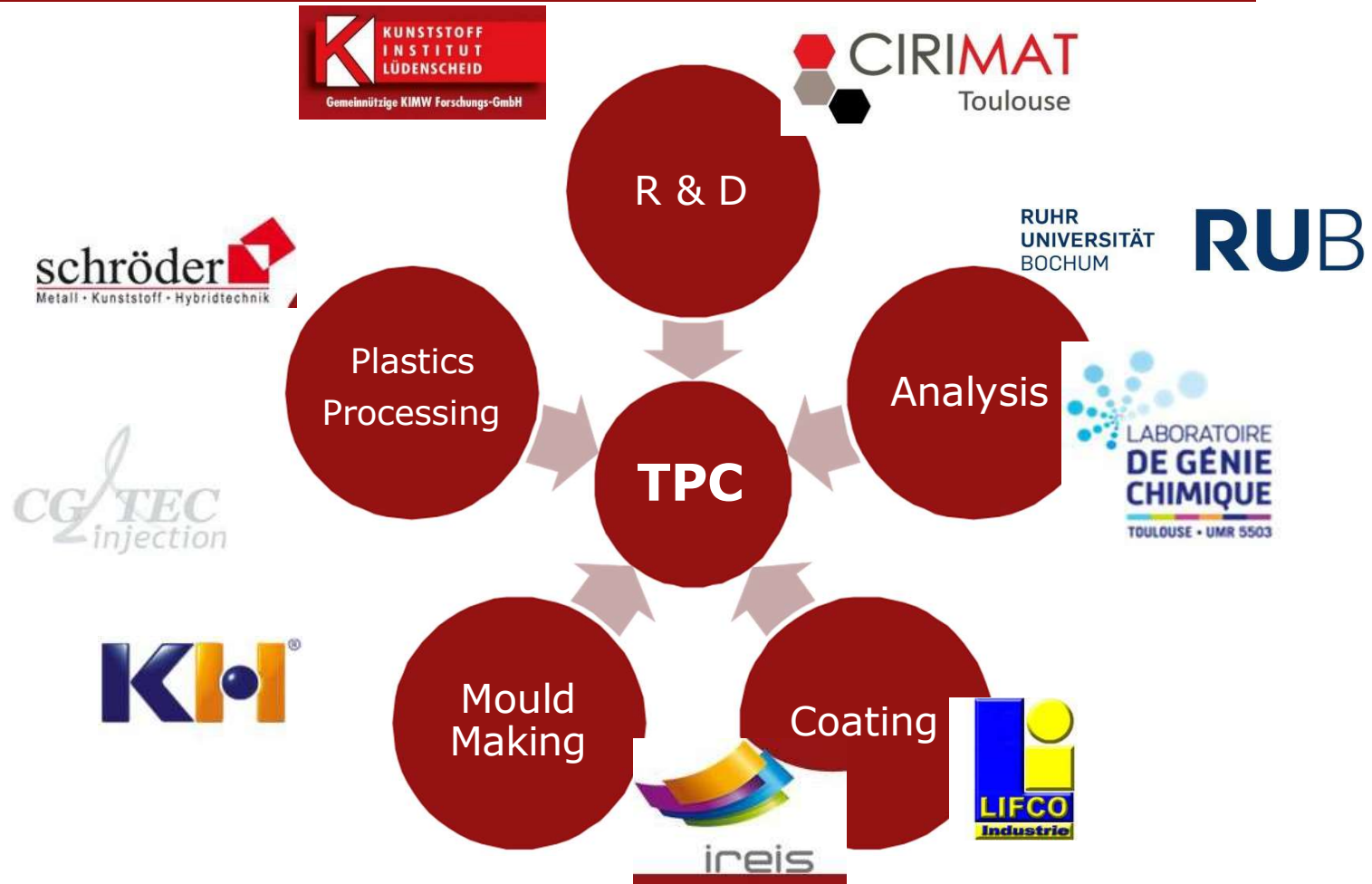
BNP - Biocide Nano Particles



CPC - Corrosion Protection Coating



TBC - Thermal Barrier Coating



Development of an internationalisation concept

Key success factors in the application process

- ▶ Membership of go-cluster
- ▶ Benchmark process within the framework of go-cluster
- ▶ Labelling process (Gold label)
- ▶ Technological expertise
- ▶ Intercultural competence
- ▶ Binding internationalisation strategy
- ▶ International network (at least visibility)

Internationalisation of the KIMW cluster

Problems– Challenges

- ▶ Funding in the target region
- ▶ Untiring commitment of all forces in the cluster and in the target region as well as from the project executing agency and the German Ministry
- ▶ Delay in the start of the project
- ▶ Additional financial expenses
- ▶ Elaborate IP regulations

Internationalisation of the KIMW cluster

Findings and recommendations for the conception

- ▶ Get an overview as objective possible of the target markets. (Size, industries of the companies, research and science)
- ▶ Use the entire value chain, industry, service providers, universities, chambers, associations and business promoters.
- ▶ Also use external service providers for neutral validation of your results/evaluation

Internationalisation of the KIMW cluster

Findings and recommendations for implementation

- ▶ Create intercultural competence
- ▶ Early evaluation of the funding instruments available in the partner country and involvement of mutual political decision-makers
- ▶ Seek technological expertise at eye level
- ▶ Stick to your binding strategy (cluster strategy, innovation strategy and internationalisation strategy)
- ▶ Plan sufficient resources for the IP regulations
- ▶ Plan with additional financial and human resources

Best Practice: 5 Examples

- 1: Coating and Particles (CAP) 2: CAM-SYS-4.0
- 3: MED-IG-4.0
- 4: Business Scouts for Development
- 5: PE&T (Training Center at Casablanca)

Example #2: CAM-SYS-4.0

Plastics Micro-Optics Systems

- ▶ Project duration Phase I: 01.06.2020 - 31.05.2021
- ▶ Project duration Phase II: 01.06.2021 - 31.05.2023



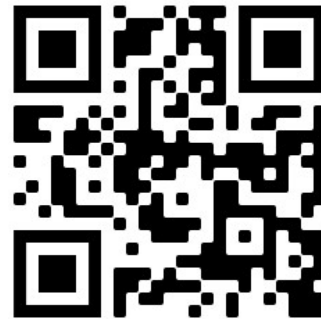
Goal:

- ▶ To analyze the demand for micro-optical systems made of plastic, to show ways of realization and to transfer them into R&D projects.

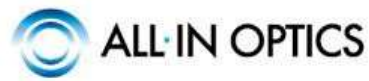
CAM-SYS-4.0 - Plastics Micro-Optics Systems

Content:

- ▶ Development and testing of a modular **assembly system** for the production of a plastic micro-optical endoscopy unit
- ▶ Generation of **high-gloss surfaces** for micro-optics
- ▶ Development of a new temperature resistant optical **anti reflection coating**
- ▶ Development of a quick **change tool concept** for micro lenses
- ▶ Development of a mold concept for micro-optics by means of **hot runner** direct connection
- ▶ Development of a fully **automatic sprue separation** of micro optics in the injection molding process
- ▶ Development of an **in-line measurement** technique and process validation for micro-optics



CAM-SYS-4.0 - Partners



Best Practice: 5 Examples

1: Coating and Particles (CAP)

2: CAM-SYS-4.0

3: MED-IG-4.0

4: Business Scouts for Development

5: PE&T (Training Center at Casablanca)

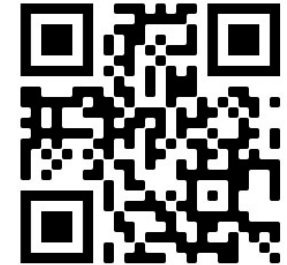
Example #3: MED-IG-4.0 Smart Medical Devices

- ▶ Project duration Phase I: 01.07.2021 - 30.06.2022
- ▶ Project duration Phase II: 01.07.2022 - 30.06.2024



Goal:

- ▶ Improve existing smart medical products and/or develop new smart medical products. "Smart" refers not only to IT, but also to functionalities, surfaces, etc.



MED-IG-4.0 – Smart Medical Devices

Content:

- ▶ Miniaturized protected sensor technology in **wearables** and prostheses
- ▶ Printed electronics on control elements in **surgery and diagnostics**
- ▶ Intelligent optical medical elements in **minimally invasive procedures**
- ▶ **Antibacterial plastic surfaces** on medical inventory in hospitals and medical practices
- ▶ **Sealing and media-resistant** elements for medical devices and equipment



MED-IG-4.0 - Partners



Best Practice: 5 Examples

- 1: Coating and Particles (CAP)
- 2: CAM-SYS-4.0
- 3: MED-IG-4.0
- 4: Business Scouts for Development
- 5: PE&T (Training Center at Casablanca)

Example #4: Business Scouts for Development in East Africa



Content:

- ▶ Online Seminars for 15 SME from Tanzania, Kenya, Uganda, Burundi
- ▶ Individual Sessions with focus on recycling, part design, process technology, material testing
- ▶ Installation of an „African Pavilion“ on our B2B Platform where the companies can introduce themselves to achieve further cooperation with German companies

Business Platform for Partners

KUNSTSTOFF INSTITUTE LÜDENSCHELD

Kunststoff-Institut

Wir haben die

Ihre Zufriedenheit
Durch unsere Una

Region wählen

- Afrika
- Baden-Württemberg
- Bayern
- Berlin
- Brandenburg
- Bremen
- Hamburg
- Hessen

MEHR UNTERNEHMEN
ECHT JETZT!

ZUR WEBSITE

Das neue Unternehmer-Portal der
Volksbank in Südwestfalen eG

wearTeil
ELECTRONIC WEARPART CONTROL

lenikon
hrsflow

PLASMA

Linde

meusburg

A. Schulman
compounding your success

BOY
Spritzgiessautomaten

EWIKON

markentrainer
MARKETING

MEKNIK
Your Solution Partner

GIP

Best Practice: 5 Examples

- 1: Coating and Particles (CAP)
- 2: CAM-SYS-4.0
- 3: MED-IG-4.0
- 4: Business Scouts for Development
- 5: PE&T (Training Center at Casablanca)

Example #5: Plannings in Casablanca, Morokko

- ▶ PE&T (Polymer Education & Training) Center
- ▶ Establishment of a training center for the plastics industry at Casablanca, Morokko.
- ▶ Development of a curriculum for the local population to train machine operators for injection molding production
- ▶ Establishment of the infrastructure for theoretical knowledge transfer
- ▶ Development of a workshop with machine for practical knowledge transfer
- ▶ Establishment of a train the trainer program, to promote the next generation of trainers from the local areas



Recommended actions for mutual growth

- ▶ Get to know and completely understand your stakeholders
- ▶ Create a trustful atmosphere, communicate in a transparent and open way
- ▶ Stay neutral
- ▶ In foreign regions: look out for native cluster management partners on site
- ▶ Generate added value for all participants
- ▶ Create unique selling points
- ▶ Develop attractive and demand-oriented offers in service and innovation, with marketable prices
- ▶ Keep an eye on, or better measure, the correlation of network service and business success
- ▶ Don't stick to old traditions – verify, validate and renew yourself continuously, implement structural changes if necessary (“planned demolition”)