

Discovery of Scientific and Innovative Potentials in Russia

for **degussa.**

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1. Position & Figures of **DEGUSSA AG.**

- **third-largest chemical company in Germany (47.000 employees)**
- **the global market leader in specialty chemicals**
- **sales of € 11.4 billion and operating profits (EBIT) of € 878 million**
- **innovative products and system solutions for the success of customers**

Corporate co-funded R & D *creating essentials*
organized in **Project Houses and Technology Platforms ...**

**Biotechnology
Project House**



**Petri dish with cell
culture**

**Catalysis
Project House**



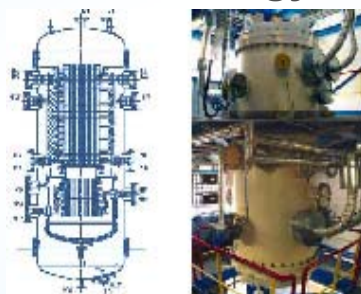
**combinatorial design,
high-throughput screening**

**Functional Polymers
Project House**



**fluidized-bed powder for
surface coating**

**Microreaction
Technology**



microreactor

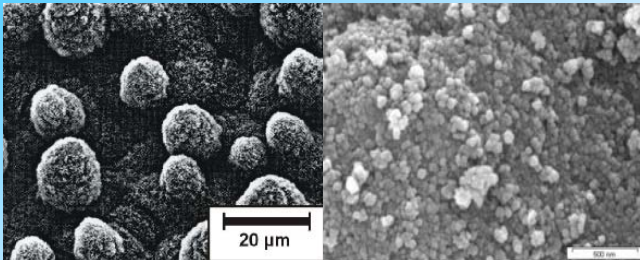
**Intensification
Process House**



production plant

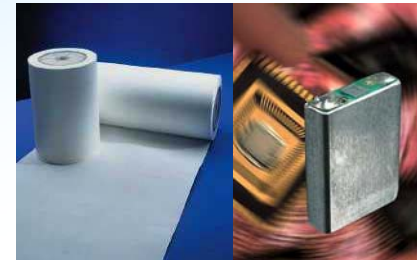
... in order to create
new business or internal start-ups

Lotus Effect[®]
(Creavis)



Lotus plant technical structure

Membranes
(Creavis)



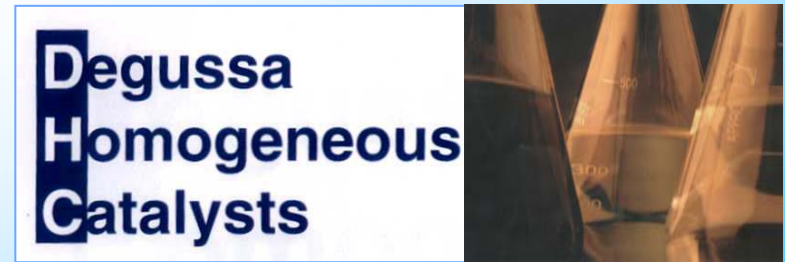
electric cell
separator
SEPARION

Internal Start-Up
Degussa Advanced Nanomaterials



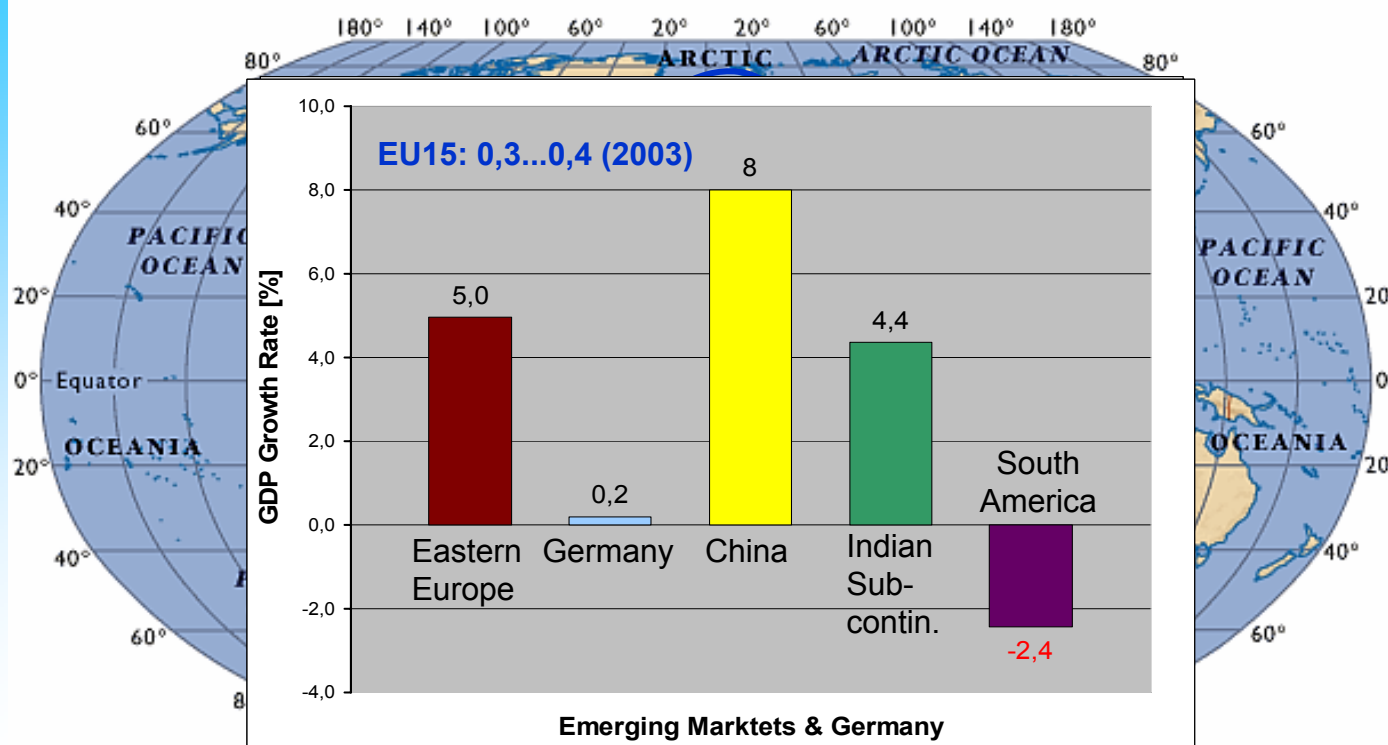
plasma reactor

Degussa Homogeneous Catalysts



solutions for catalysts

2. Eastern Europe in comparison to emerging markets



Basics of Eastern Europe's Integrational Potential



- Economic and political liberalization in progress
- Large tradition in science, international accepted institutes and Nobel laureates
- Cultural proximity, bridgeable cross-cultural differences
- Accumulated large consumer needs
- Improvement of infrastructure, industrial & scientific competitiveness & life standards
- Integration into EU, or stronger participation in international trade and partnerships
- Harmonization of trade regulations, financial transactions and law
- Vicinity and good attainability, developed communication networks

Markets in Comprison
(2002/2003)

	new EU countries	Russia	Germany
population	75 Mill.	144,5 Mill.	82,4 Mill.
market size	800 Mrd. EU	1.400 Mrd. EU	2.160 Mrd. EU
growth rate	4%	5%	0,2%
averaged salaries [EU/year]	4.500...7.500	2.400	39.440

Expected Development

Germany:

- saturated markets
- innovation pull
- huge R&D costs
- limited HR resources (e.g. young experts)
- cost-pressure caused by competition & low price imports
- huge non-wage labour costs & tax

Reactions:

- production displacement to China, Asia & Eastern Europe
- intensifying trade towards the new markets by foundation of trade offices etc.
- cooperation & JV & foundation of research centers in China, Asia & Eastern Europe

Consequences:

- increasing competition & merger activities
- destroy of jobs by rationalization
- decreasing budgets for R&D/innovative tasks
- low growth of GDP = restricted public budgets for science & education

3. **Russia** = Region of Scientific Excellence

18 Nobel Laureates,
 • 8 in physics
 • 1 in chemistry
 • 1 in physiology & medicine

1006 scientific institutions
 (inclusively education)
 5,6 mill. students
 272.700 professors & teachers

broad, manifold scientific scenery, e.g.

- Institutes of the **Russian Academy of Science** consisting of many subsidiaries in industrial centers and “Towns of Sciences”
- the **Institute of Technology** located in Saint-Petersburg
- **Universities** in Moscow (LOMONOSOV), Saint-Petersburg, Tscheljabinsk, Rostov, Nishnij Novgorod
- **Research Centers** of several Federal Ministries of Russia

**and manifold SME, Technoparks and industrial sites (+ R&D)
 endowed with equipments, experiences and market access**

Russia = Promising Economic Partner

- | | | |
|----------------------------------|----------------|-------------------------------------|
| • exports : | 168 bill. US\$ | } 2002
source: Bayer. Landesbank |
| • imports (Russia --> Germany) : | 13 Mrd. EURO | |
| • international investments : | 7 bill. US\$ | |

main export products :

crude oil	25%
natural gas	16%
petrochem. products	11%

trade balance dominated by oil business

broadening the export basis by:

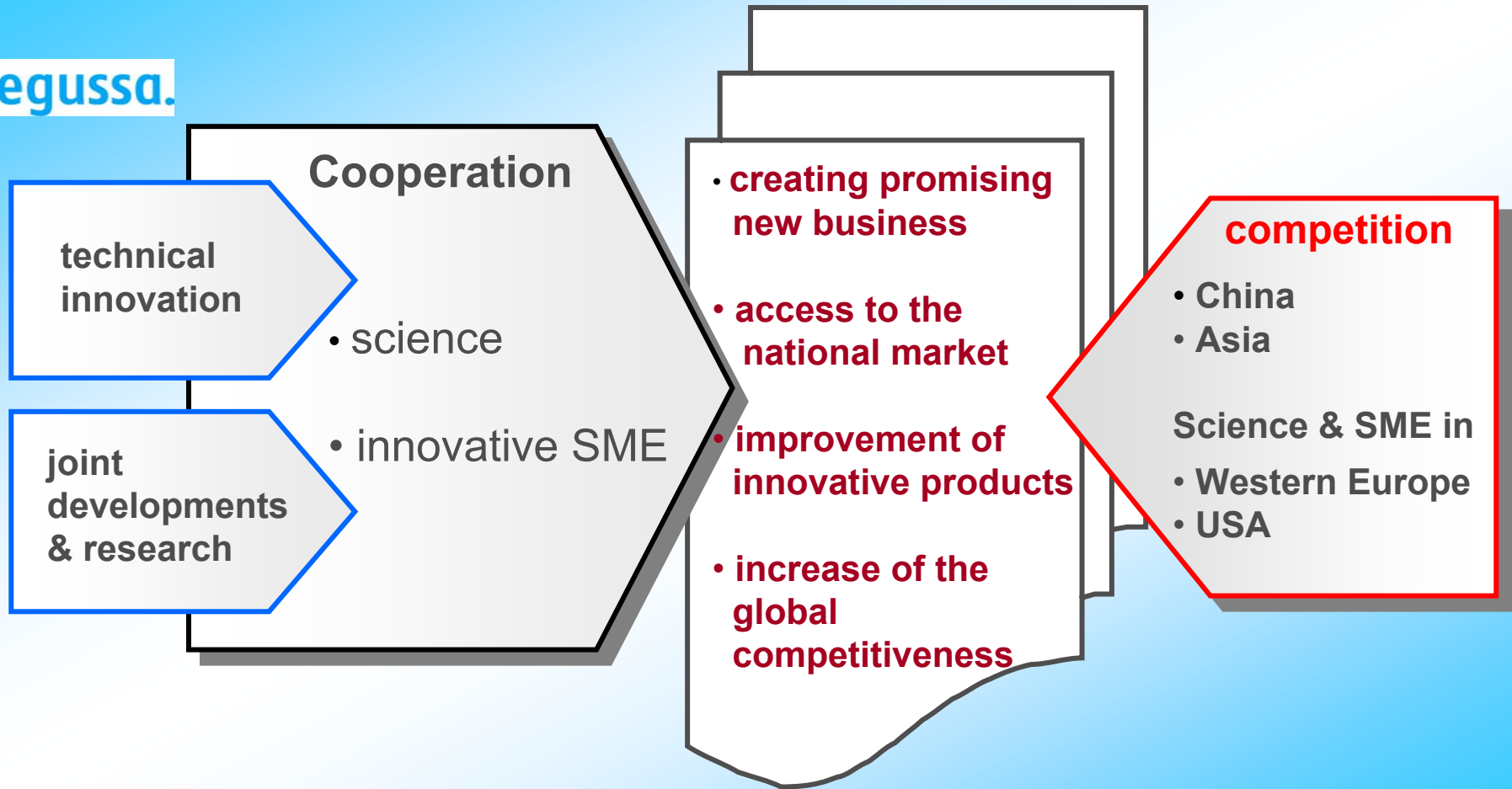
- national programs
- enlargement of the internationality and liberalization

important industrial branches:

- | | |
|-----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • mechanical engineering • metal processing • chemistry | <ul style="list-style-type: none"> • construction industry • food manufacturing • devices for household • agriculture industry |
|-----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

4. Targets of Cooperation in **Russia**

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Targeted Search and Selection



5. Experiences and Expectations

past

- strongly orientated towards basic research
- problems in communication and exchange of know-how and results (protection of IP)
- huge language barriers
- rigid management structures
- restricted options for expert exchange

present

- increasing relevance the demand of the market
- improved infrastructure and equipment
- growing costs for cooperation
- increase of the international competency
- decreasing language barriers

expectation

- acceptance and active support of industrial targets
- excellent project management
- efficient collaboration, communication and exchange of results
- international competitiveness
- liability and IP protection
- readiness for spin-offs, support of young entrepreneurs

6. Obstacles & Risks

- internet presentations are mainly printed in Russian
- modest IP protection by international patents
- language barriers
- infrastructural gaps & different methods to work
- confidence, loyalty, secrecy and attitude
- traditional & rigid administrations and leadership
- cross-cultural differences
- organizational efforts

7. Conclusion

- the strongly growing Russian Market has been opened
 the “Run to East” has been started
(market shares, best location factors...)
- R&D cooperation (bilateral coops, start-ups...) is an useful way
 - to enlarge the R&D efficiency and innovation potential
 - to access these markets avoiding large risks
 - to select and train young and well educated Russian experts to expand the business of DEGUSSA
 - to bear down cross-cultural barriers
 - to use public funds provided
- both, the international acting industry and Russian science should use the promising chances to improve their global competitiveness