



One-stop Research and Development TU Dortmund / BTS Public Private Partnership Invite

Prof. Dr.-Ing. Gerhard Schembecker Frankfurt, October 9, 2014

TU Dortmund University at a Glance

- Founded in 1968
- 300 professors
- 7,000 employees
- 31,000 students

- 16 departments in the fields of
 - Engineering and Sciences
 - Social and Cultural Studies

- 280 M Euro total budget
74 M Euro from third-party funding



TU Dortmund University: Profile Areas

- Production and Logistics
- Chemical Biology and Biotechnology
- Modeling, Simulation and Optimization of Complex Processes and Systems
- Youth, School and Education Research



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Humboldt's Educational Ideal

- Unity of research and teaching
- Knowledge pipeline transports simultaneously
 - Students
 - Ideas

Teaching



Bachelor/Master



PhD



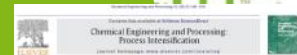
Knowledge Pipeline



Fundamental Research



Product or
Service Idea



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Dortmund Technology Park

- Germany's largest technology park, third in Europe
- 280 companies
- 8,500 jobs
- ... and still growing

150 start-ups since 2000
tu startup ⇒ 30 start-ups p.a.

www.tu-startup.de

**WIR FÖRDERN
HERAUS.**



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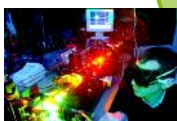


PhD



Knowledge Pipeline

**Bottleneck
Implementation**



Fundamental Research



Collaborative Research

Bottleneck in the Knowledge Pipeline

Invention + Implementation = ~~Innovation~~



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Private Public Partnerships to unclog the knowledge pipeline

- At the interface of academia and industry/market
- Demonstration of academic ideas in an industrial environment
- Joint engagement to reduce knowledge transfer losses
- Fast track innovation



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Private Public Partnerships: Success Factors

- Mutual interest
- Think big: aim for game changing technologies
- Long term commitment
- Ready for compromise
- Focus on pre-competitive topics
- All skills under one roof, not a virtual center
- Relocation of employees while maintaining career paths



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invite

- Technology of the future: continuous manufacturing
 - Research and Development
 - Demonstration
 - Training
- Long term commitment (GmbH)
- Dedicated building with unique infrastructure
- Researchers and process engineers under one roof
- Focus on pre-competitive manufacturing technologies
- Enabling PhD theses as well as industrial careers



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Innovation



Novel & intensified processes

Methods and Tools



Process Design,
Equipment Selection,
Risk Assessment

Standard Equipment



Process Container

Process Container



Flexible and mobile

Containerplant

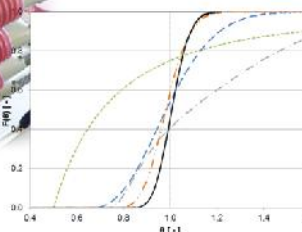


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- Continuous manufacture of monoclonal antibodies (mABs)



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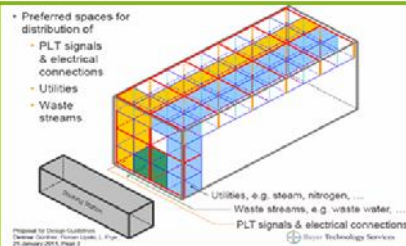
- Standardization



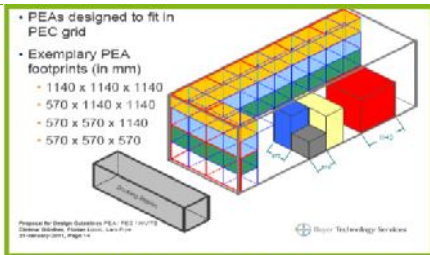
SYNFLOW



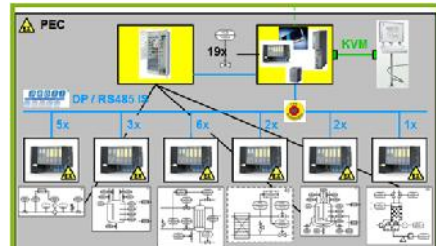
Size based on freight container standards for an easy transport



Specific interface locations for easy interconnections



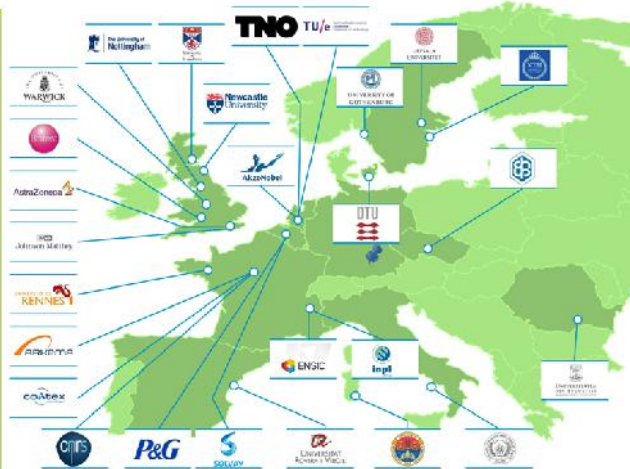
Grid definition within PEC for easy implementation or interchange



Relevant process control command between PEA, PEC and the backbone

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- International cooperation



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Public Private Partnerships: Synergies

- Share a dream and capture the collective vision
- Fast track innovation
 - Academia: see your impact
 - Industry: exploit academic ideas
- Join forces
 - Fight for competitiveness
 - Fight for talents



Stiftungsprofessur

Prof. Dr.-Ing. Norbert Kockmann



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Public Private Partnerships: Synergies

With INVITE we build on strong chemical engineering science competences in Germany and utilize them as competitive advantage in global markets

invite.

■ innovations
■ visions
■ technologies

demonstrating future production concepts



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