



TII Conference 2011

Innovation, Prosperity and Quality of Life

26th - 28th of May 2011

Nizhny Novgorod

Russia

**How
technical
universities
may provide
innovation
services**



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CEO, professor*

Technical University of Denmark





Engineering the Scandinavian way

Technical University of Denmark (DTU)

Management at DTU 1/1 2011:

I. Board of Governors, 10 members

II. Executive Board, 6 members

Balance 2005:

Turnover 275 mil USD

Facilities:

Buildings 353.000 square meter in

Lyngby

and

125.000 square meter in Scion•DTU A/S

in Hørsholm.



Technical University of Denmark



Engineering the Scandinavian way

DTU 2006

Staff:

800 Scientists

900 Technical and administrative

Students:

6000 Students

600 PhD students



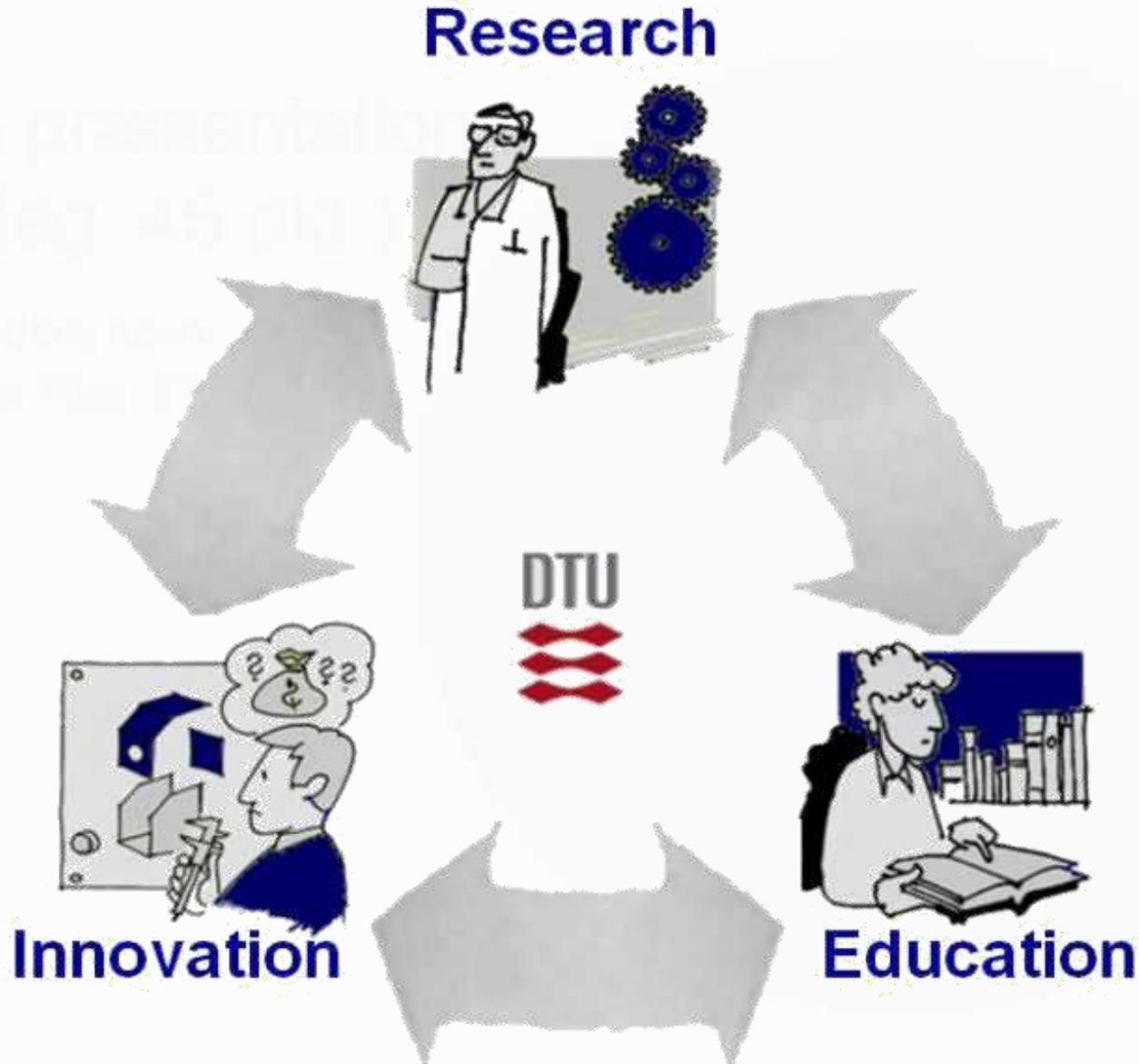
Technical University of Denmark

DTU cooperation with industry = innovation

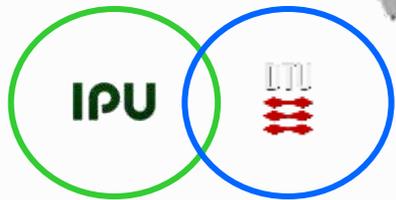
- DTU has defined *innovation* as 'the third task' of the university, alongside research and education
(the fourth task, actually, but ...)
- The DTU management now specifically negotiates KPI's for innovation in the departments' scorecards
- The DTU departments are treated to a number of services to facilitate meeting their innovation goals
- IPU is one of those services



Synergy in three domains



- A non-profit organisation at the TU of Denmark
- Research and development projects on contract
- Commercialisation of ideas, innovations, and patents
- 50 full-time staff
- 70+ associated DTU staff
- Co-location with DTU colleagues on campus
- Turnover: ~ 6 mill EUR/yr



... since 1956

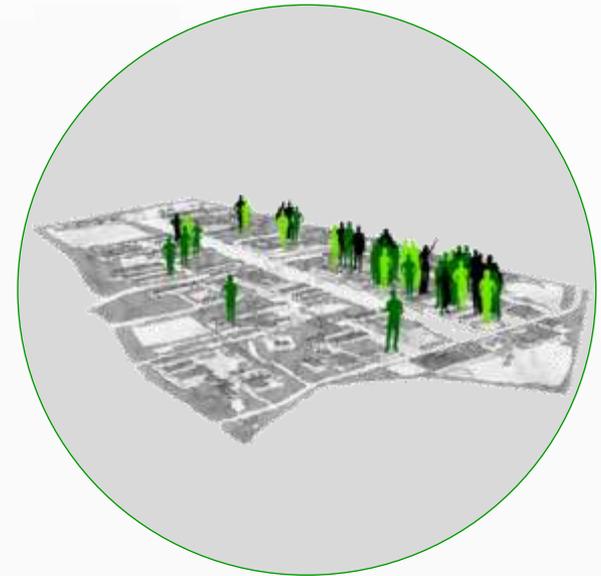
The mission of IPU

... to offer highly qualified **innovation, consultancy, and collaboration services** with specialists in key engineering and communication technology fields.

... to boost the business capacities of client companies by creating **innovative, visionary, and sustainable solutions.**

... to **promote such research, and carry out such engineering projects, which are of technological and/or scientific significance,** and which are of importance to the society and the business community.

... to **promote the collaboration between the university and the private and public sector.**



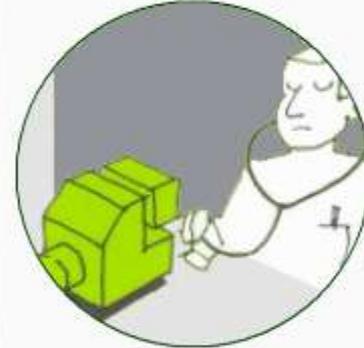
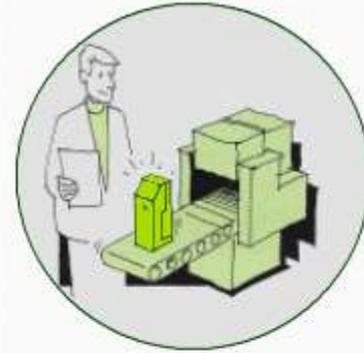
Distinctive feature : Co-location of DTU & IPU colleagues

Titel på præsentation
(Anal. Reg. 4.5.04)
Kursusnavn
Dato



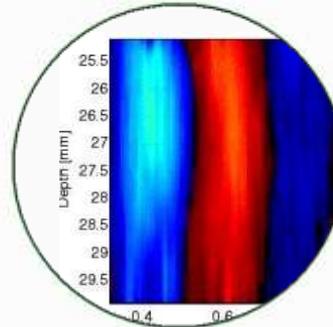
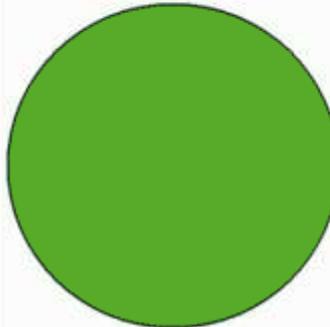
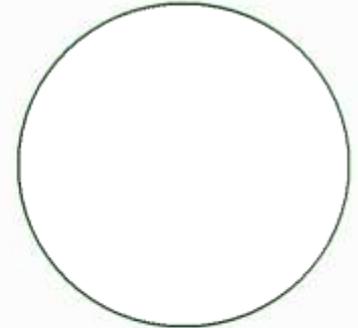
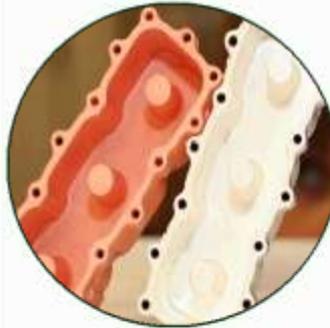
Types of services from IPU

- Strict product, process or materials development
- Technical advise, problem solving and arbitration
- Project facilitation, process management, benchmarking ...
- Implementation of new methods & procedures
- Strategic analysis and planning
- Organisational development
- Continuing education and on-the-job training
- Support of commercialisation of DTU-based ideas, inventions, and patents



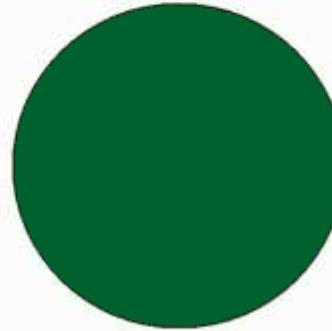
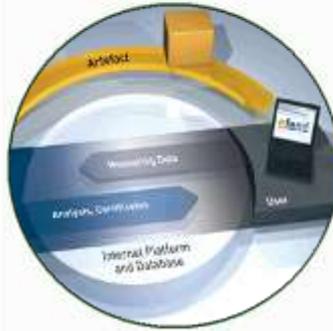
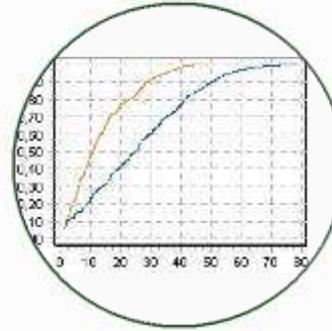
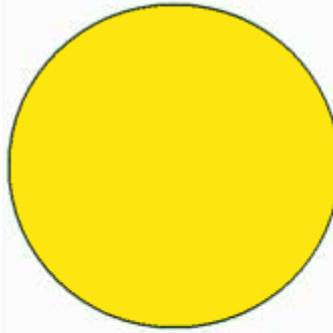
Supporting facilities at DTU & IPU

- Usability lab
- Metrology center
- Rapid prototyping facilities
- Prototype workshop
- Indoor environment center
- MEMS & nanostructure manufacturing facilities
- Acoustics lab
- Materials testing lab
- Polymer center
- ...



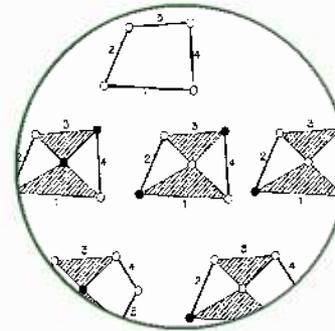
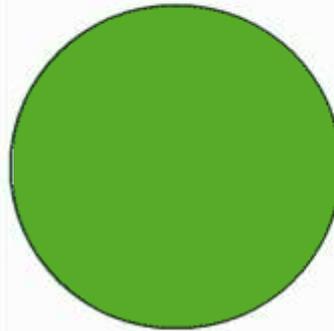
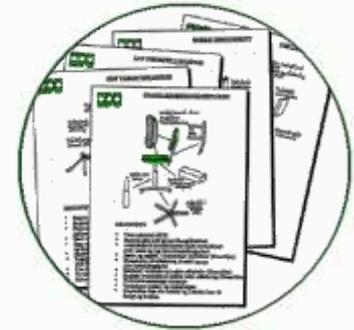
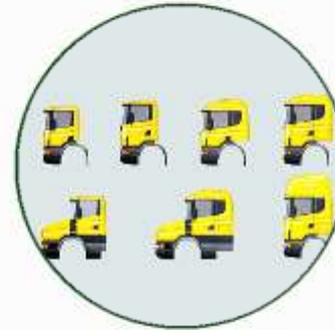
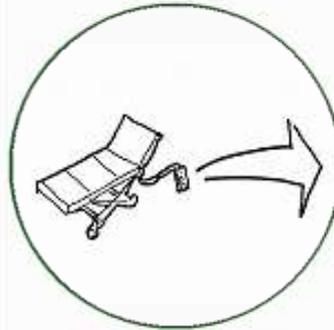
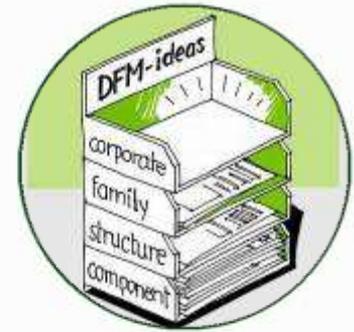
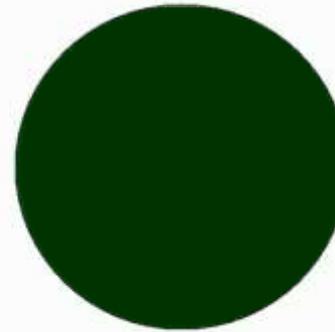
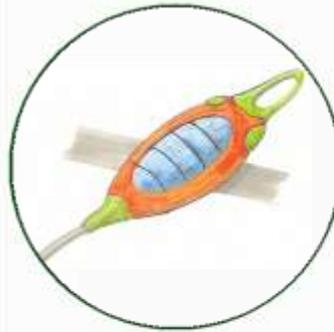
Supporting technologies and competencies at DTU & IPU

- Surface layer & surface treatment technology
- Materials technology
- Process technology
- Machine elements & tribology
- Mechanics
- Fluid dynamics
- Thermodynamics
- Sound & vibration
- IT & Communications
- Socio-technical analysis
- ...



Specific innovation competencies

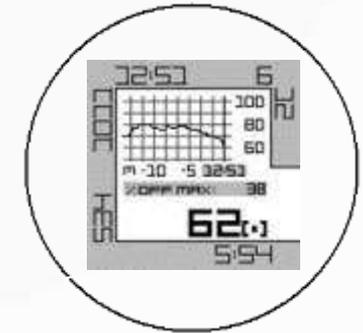
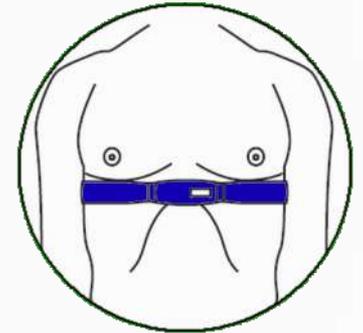
- Innovation management
- Systematic design
- Industrial design
- Conceptualisation
- Creative techniques
- Sketching, rendering, illustrations, ...
- Mechanisms design
- Man-Machine Interface design
- Design for X: DFM, DFA, DFQ, DFE, ...
- Multi-product development
- Product/service development
- Detailed design



ReElight: Dynamic bicycle light



LINDE + WERDELIN: Biformeter



National Health Service: Brightness Acuity Tester



Novo Nordisk: Cooling bag



National Health Service: Pellet distributor



Coloplast: Ostomy bag – and product development procedures

THE PRODUCT DESIGN
APPROACH



StressMeter: Stress-O

StressMeter A/S



Price-Invena: ClampCut - SCC-23



Novo Nordisk: Pen



Envacare: Hospital bed remote control



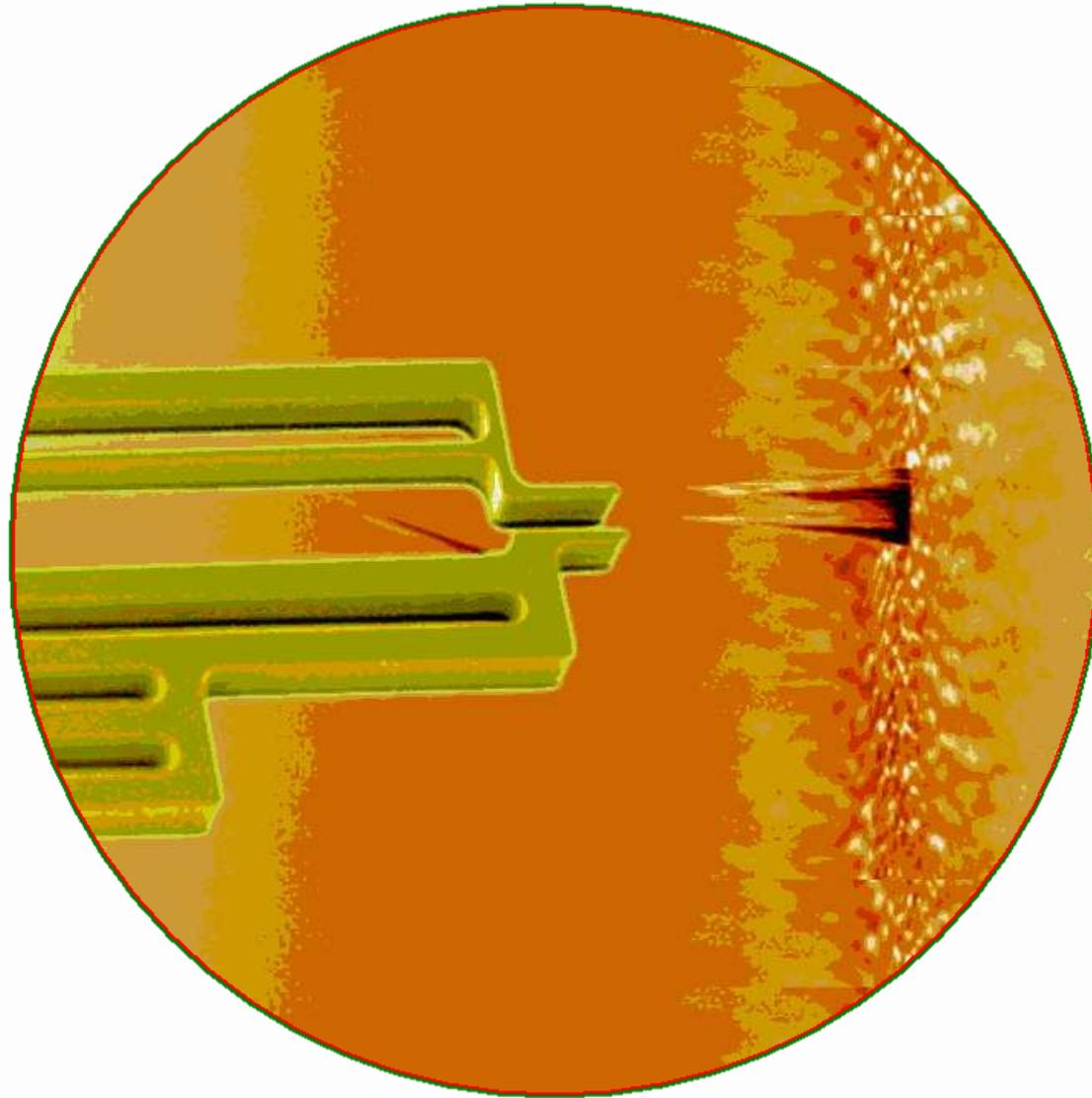
Maersk: Catheter



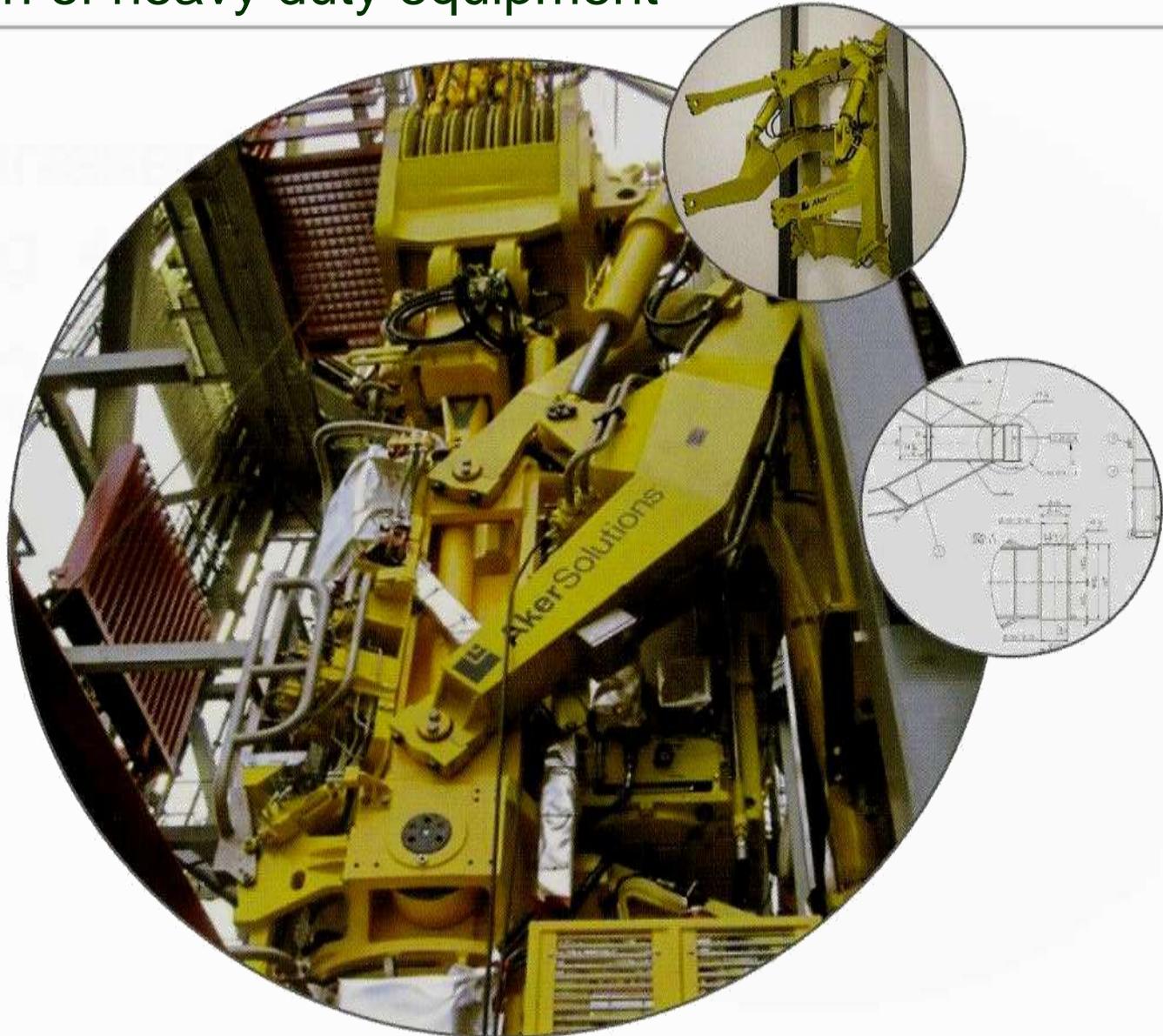
Process technology: surface treatment



MEMS, micro- and nano technology



Aker: design of heavy duty equipment

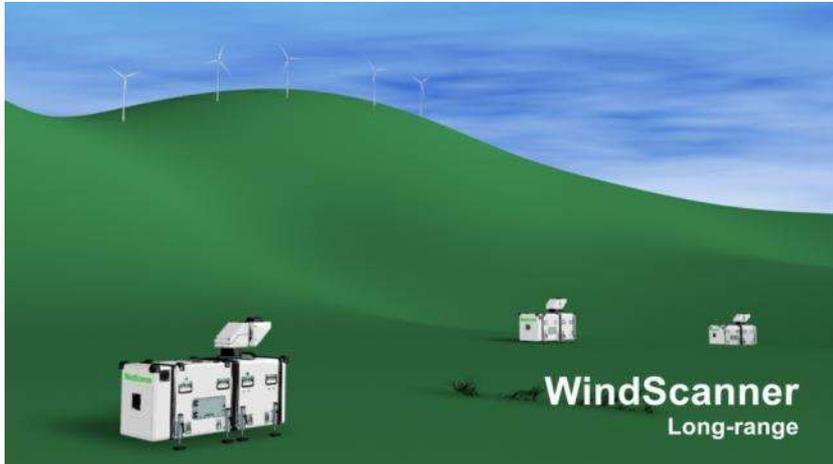


Process technology: lasers



IPU Strategidag 2011

Four different ways of wind scanning



Long Range Scanner



Short Range Scanner



Spinner Lidar



Off shore wind scanning



In conclusion

- IPU is a non-profit, tech-trans company located on campus at the university
- IPU has its own staff of full time employees, highly educated, skilled and trained in innovation
- IPU's staff is co-located (share the buildings and facilities) with the staff of the university: professors, associated professors, etc.



Benefits to the university

- *provides technology services beneficial to industry and society, adding to the esteem of the university*
- *provides professional development of research and lab equipment, enhancing the output of the scientific work*
- *acts as a partner with the university and with industry in international cooperative projects*

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