What are needs of the industry on education?

(the link between industrial practice and theory of academic education)

3rd International Conference on
Design Engineering and Science

Pilsen, CZ
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Michael Ondraschek
CEO ASTOS Machinery, a. s.

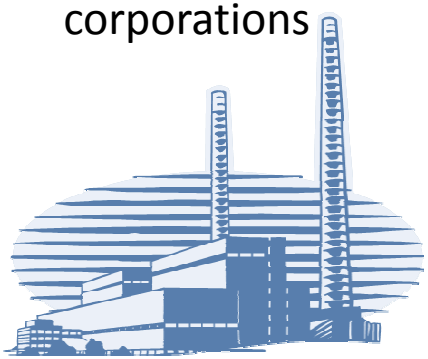
Design research is a costly process. The profit oriented entities are closely watching the profitability ratio (ROI)

Governmental agencies

Basic research

?

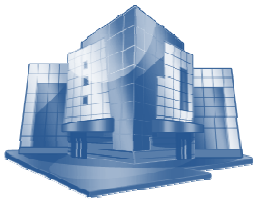
Large corporations



Applied research

?

Medium sized manufacturer



Product development

Who is apparent partner of the Academic Institutions and Universities in the research?

Basic research → Applied research → Product development

needs

- Highly specialized professionals
- Close linkup to present product development

risks

- Intellectual property and know-how will be at disposal to competition

disadvantages

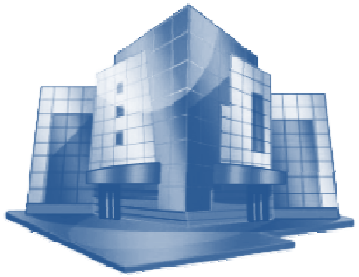
- Cost challenging, but for large corporations still acceptable

opportunities

- Competitive advantage gain
- High profitability in the initial years of production and sale

Medium sized companies prove to be an interesting partner of the University

Basic research → Applied research → Product development



needs

- Allocation of free workforce capacity -designers, researchers

risks

- Resulting product with no practical utility

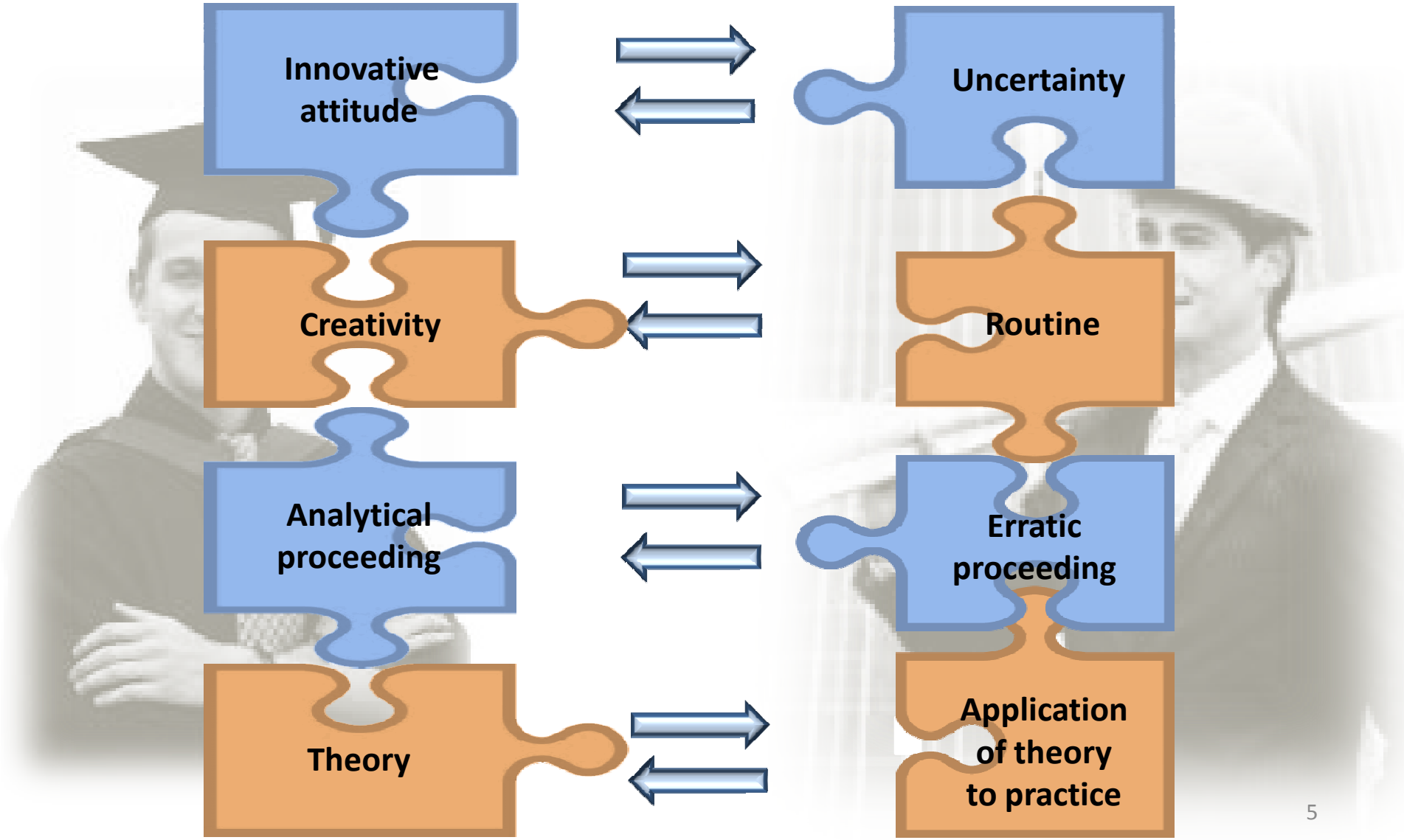
disadvantages

- The Universities and manufactures find challenging to fit in their differences and interests

opportunities

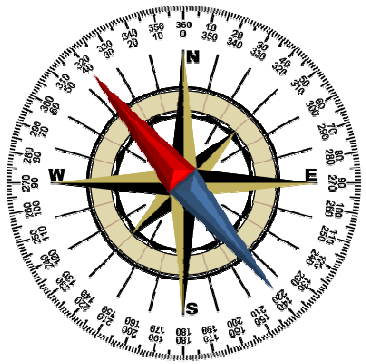
- New direction in the development of the product

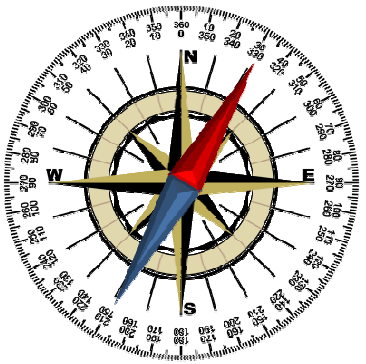
Students and designers have each different solution focused approach



For academic institutions it is imperative to know, where the industry is heading in practice.

We have problems for all of your solution





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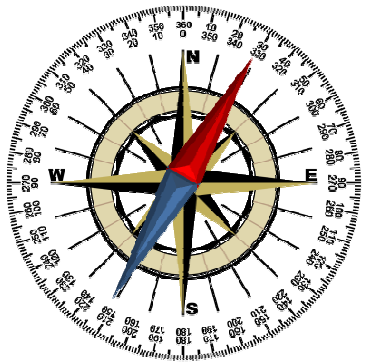
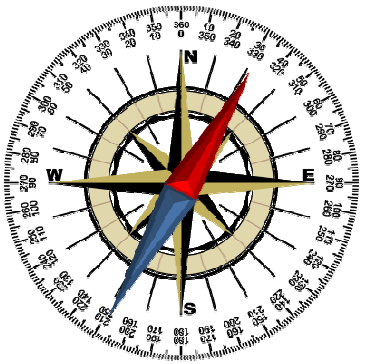
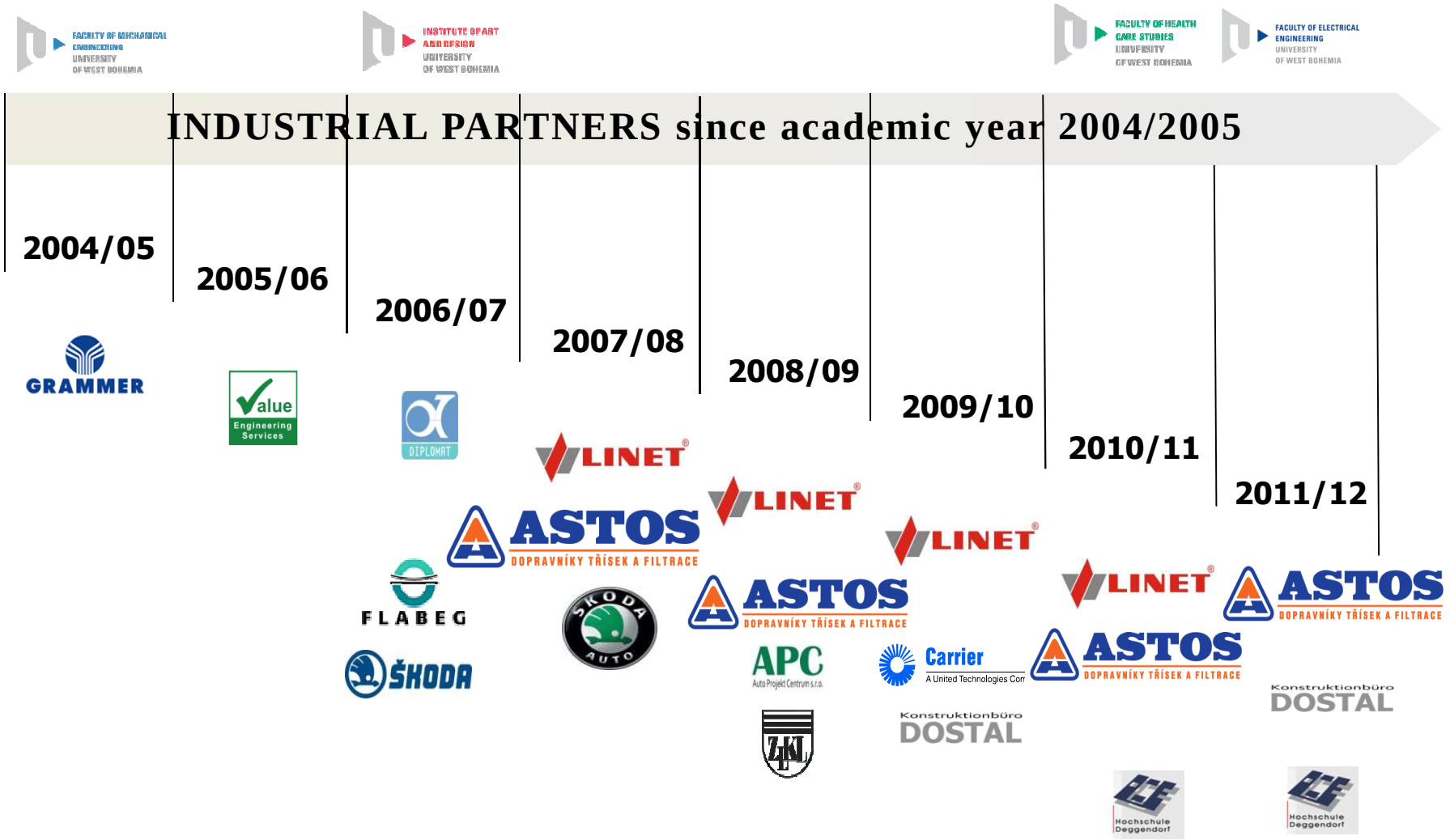




The participation on research projects with University of West Bohemia (ZČU Plzeň)

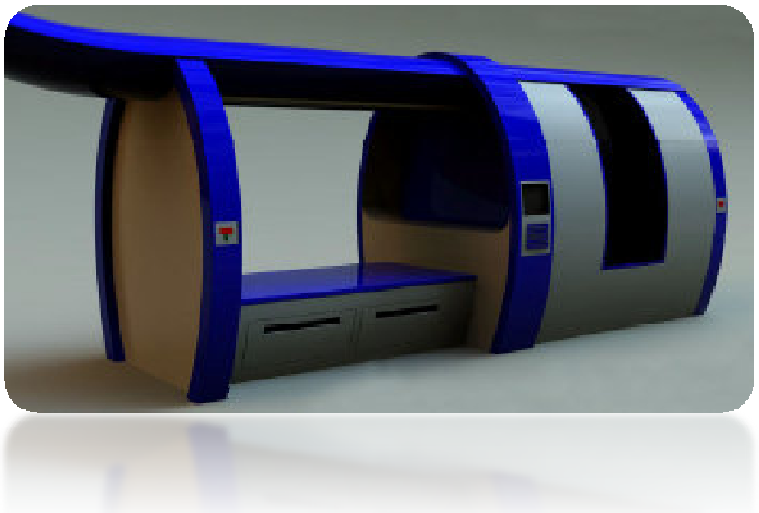


Source: A_Designers2+ 2012-04-19

Summary of Semester-end Term papers assigned by ASTOS Machinery, a. s.

1. Structural concept with the designer‘s solution for tool machinery protective housing and covering
   Year 2007/2008

2. Structural concept with the designer‘s solution for robotic station for welding of hinged steel belt for the conveyor
   Year 2008/2009



Summary of Semester-end Term papers assigned by ASTOS Machinery, a. s.

3. Structural concept with the designer‘s solution for industrial washer - rinser
   Year 2010/2011

4. Structural concept with the designer‘s solution for gravity filter which takes into account the environmental requirements for production
   Year 2011/2012

Summary of Semester-end Term papers assigned by ASTOS Machinery, a. s.

5. Solution for the equipment for industrial filtration of coolants which takes into account the environmental requirements for production
   Year 2012/2013

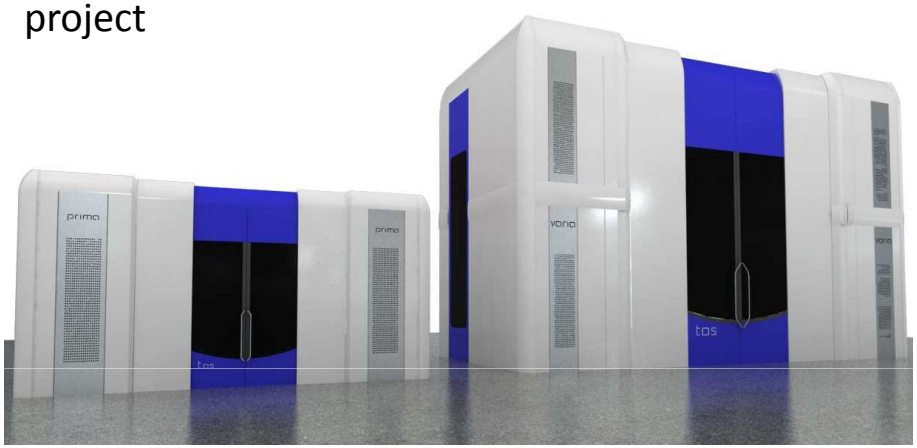
6. Industrial metal chip crusher integrated into chip management systems for tool machinery
   Year 2013/2014

7. Industrial chip conveyor to be integrated within body of the tool machine.
   Year 2013/2014

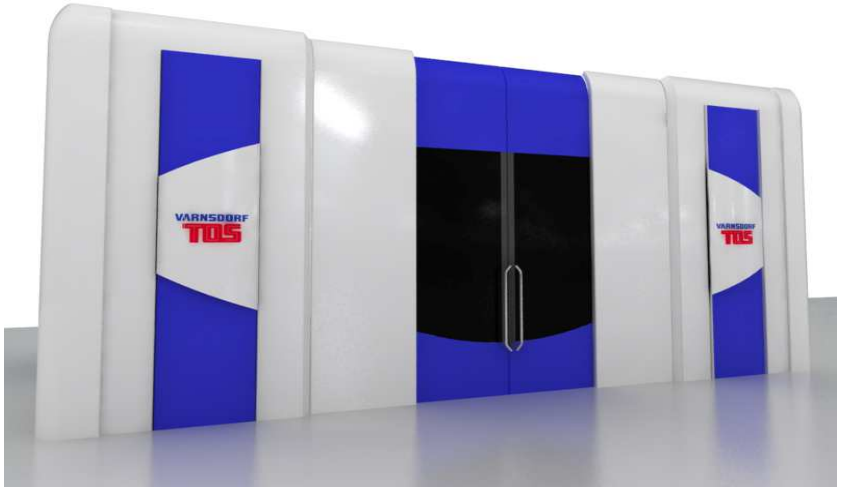
Year 2007 marks a starting point of successful partnership between ZČU & ASTOS Machinery

Team discussion

Follow-up: design result of a first industrial project



Follow-up: design result of a first industrial project

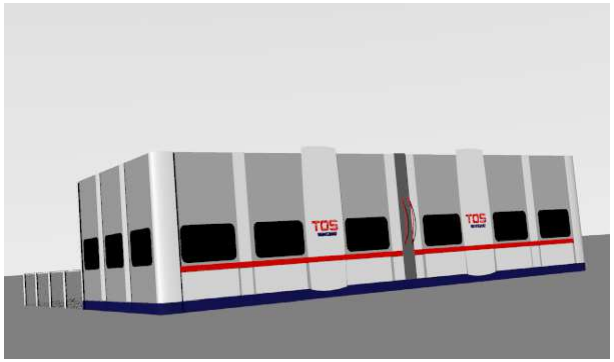
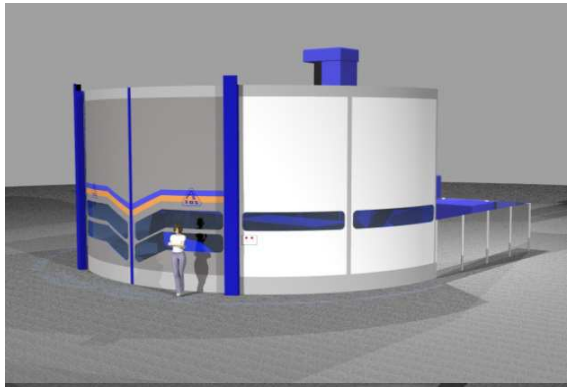
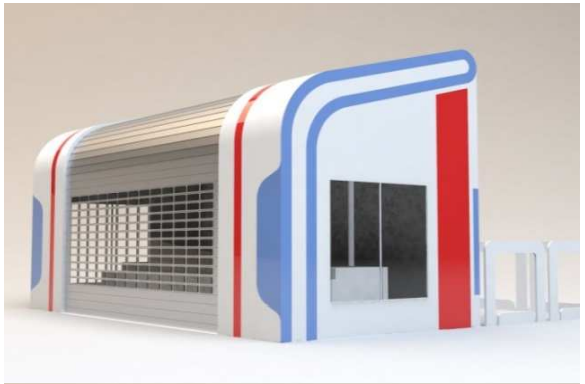


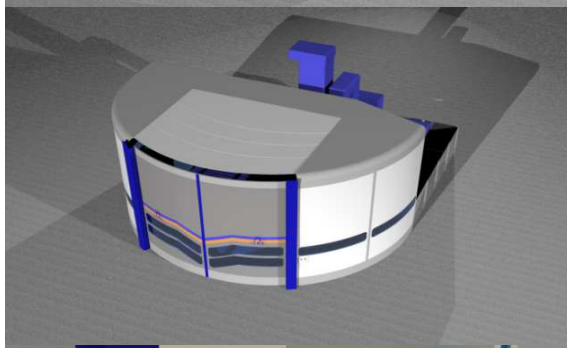
The winner team

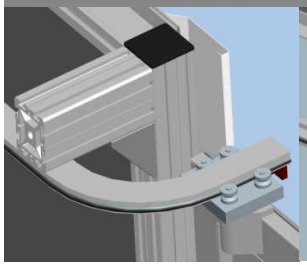
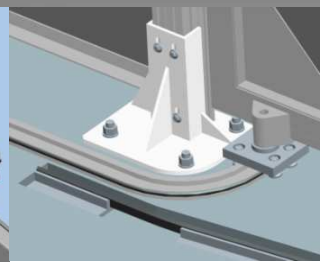
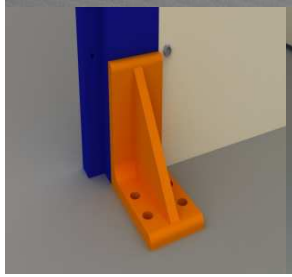
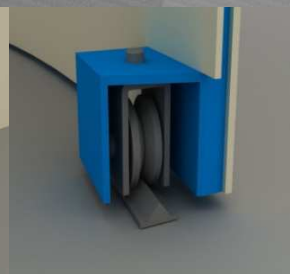
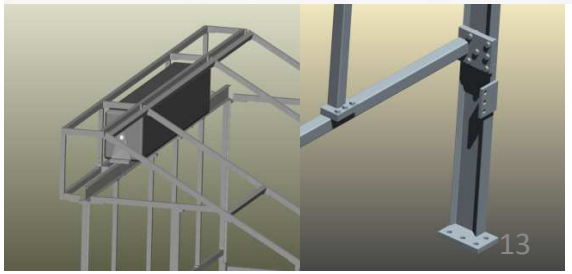
The fruitful collaboration continued in years to come…

EXAMPLES of RESULTS in 2007/08

Protective housing for workspace of boring and milling machines TOS Vansdorf (5 teams)

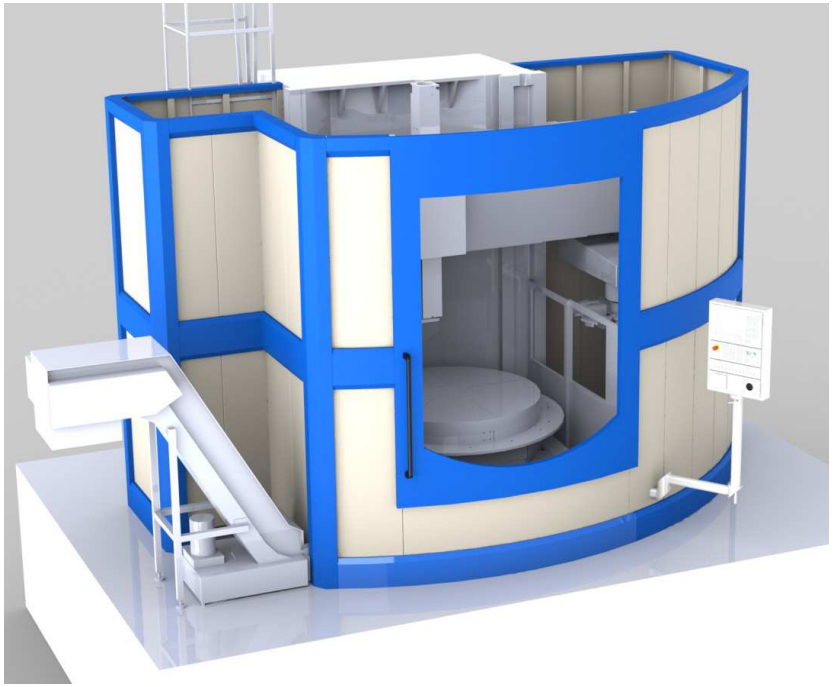


ASTOS Machinery became a leader on the market of protective housing

At the start of the success story in the area of tool machinery protective housing is the participation of Astos and the students of ZČU on the Semester -end Term papers

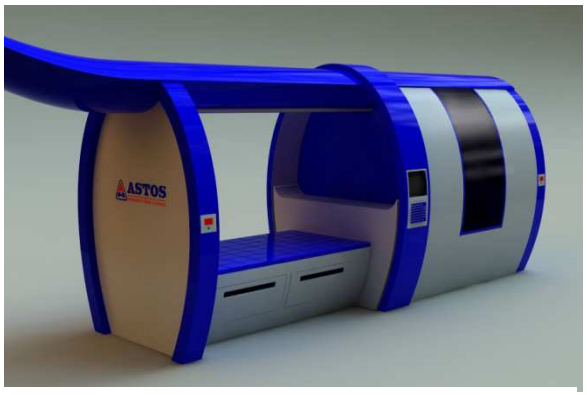
From Astos Machinery design engineers' concept (2010) … *… to final result*

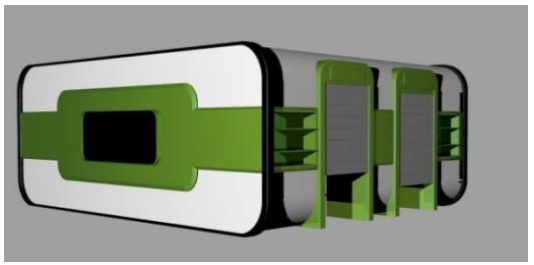


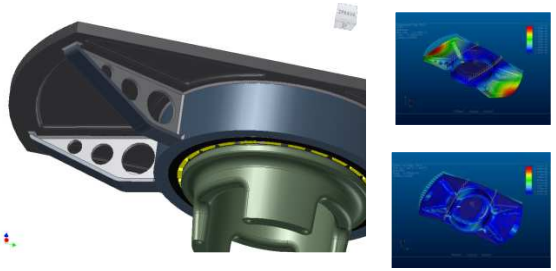
The fruitful collaboration continued in years to come…

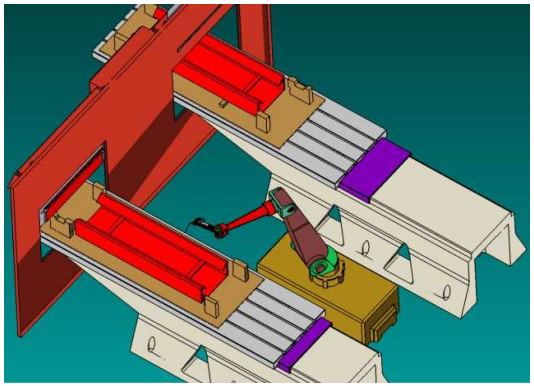
EXAMPLES of RESULTS in 2008/09

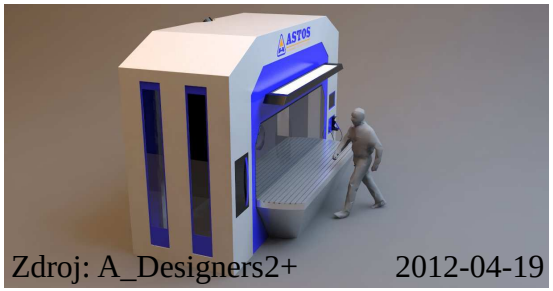
Semi-automatic robotic workplace for welding of the hinged steel belts for conveyors (4 teams)

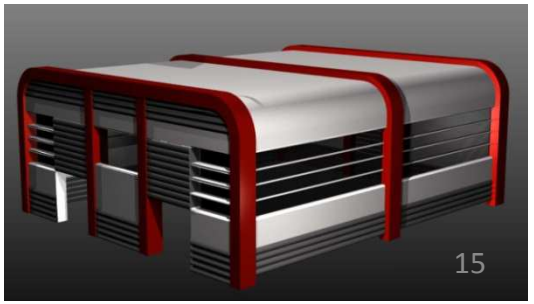








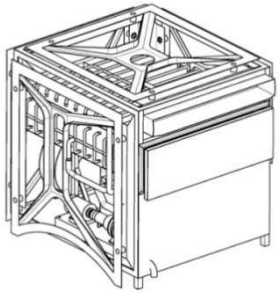


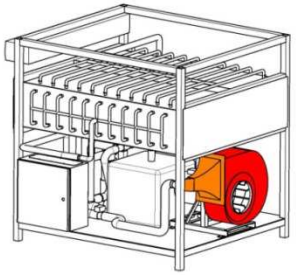


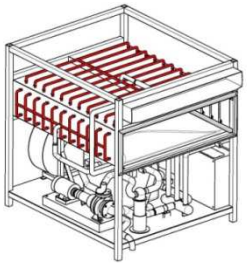
The fruitful collaboration continued in years to come …

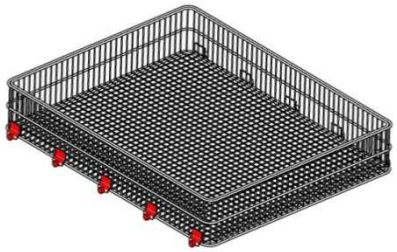
Washers and rinsers for machine parts (5 teams)

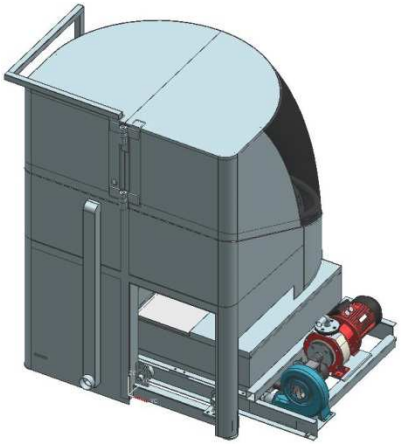
EXAMPLES of RESULTS in 2010/11

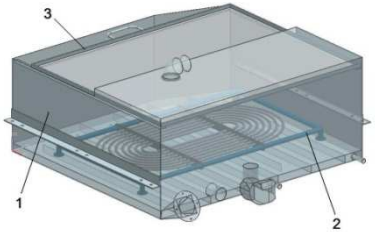


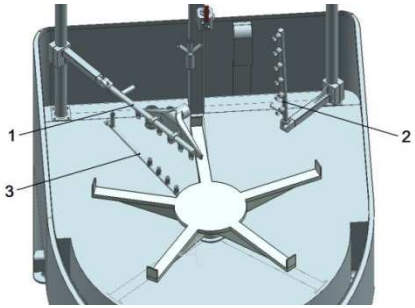








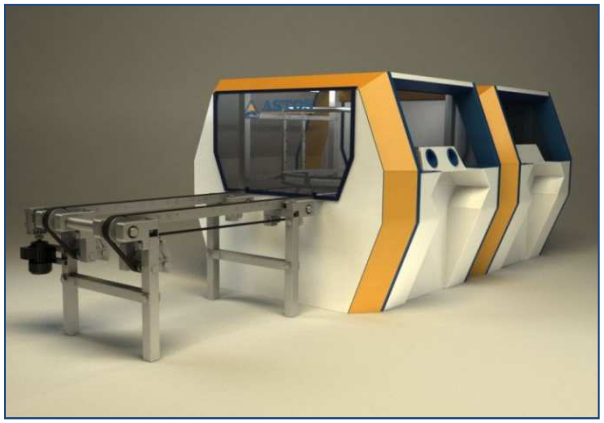
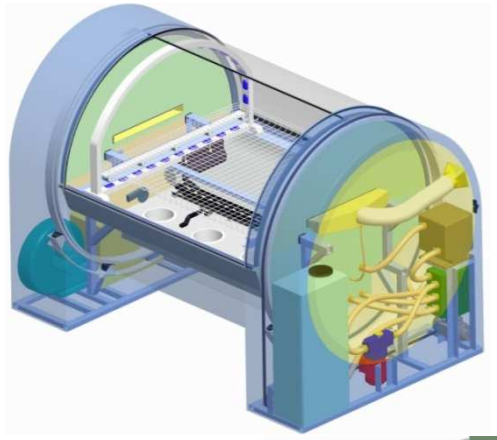


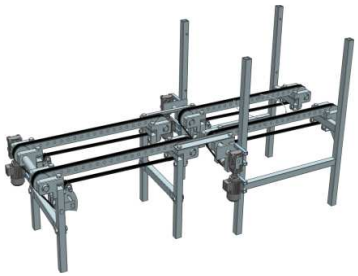


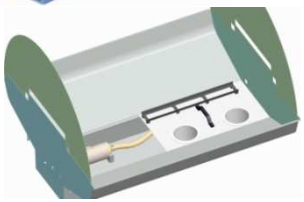
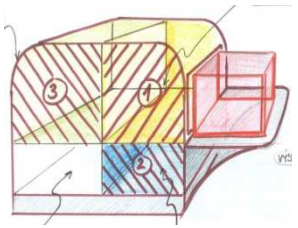
The fruitfull collaboration continued in years to come…

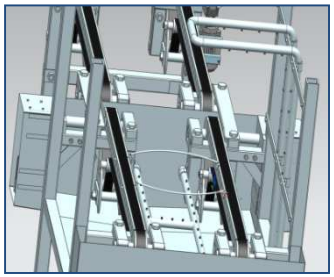
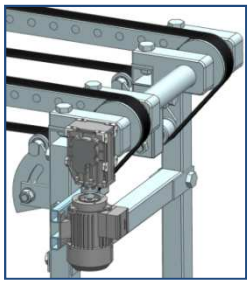
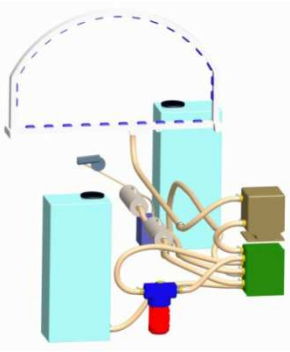
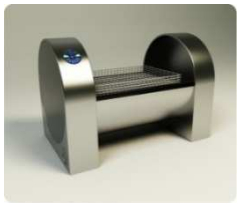
Industrial washers and rinsers for machine parts (5 teams)

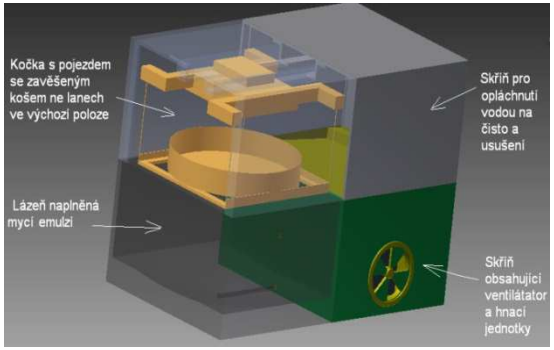
EXAMPLES of RESULTS in 2010/11

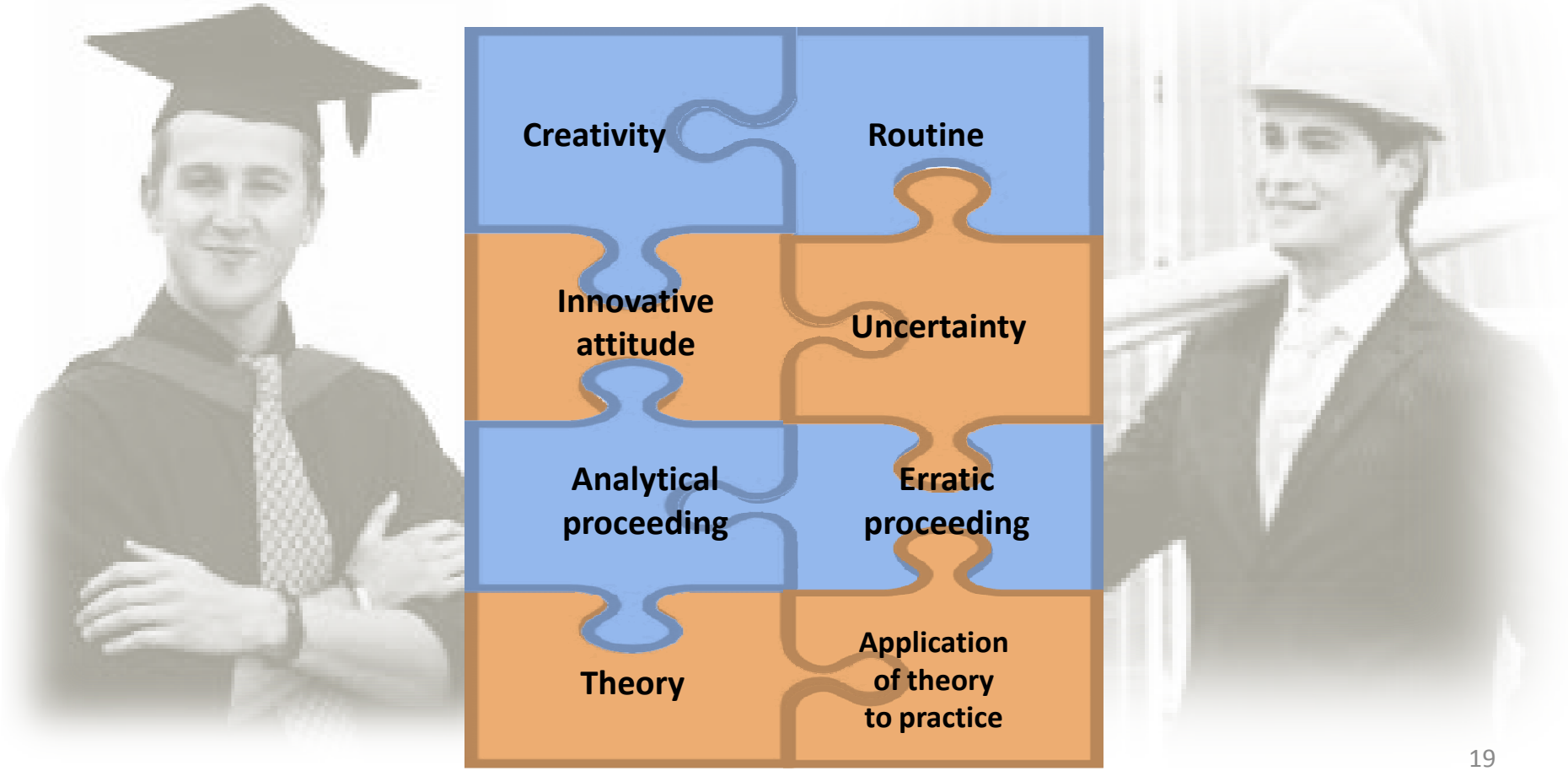


Successful long-term mutual cooperation resulted in establishing of the company Machinery Design

Machinery Design (branch of ASTOS Machinery) is located in the Technology park of Pilsen and has the potential to be interesting and long term partner for the West Bohemia University -ZČU.

Due to close collaboration between ASTOS Machinery and WB University we succeeded to bring together different solution focused approach of:

students as well as **designers**



Toyota chose Astos Machinery to be the overall winner of challenging European selection procedure

- ASTOS became the only non- Japanese supplier of technology for the progressive stamping press facility in Toyota Motor Corporation's plant in St. Petersburg. (RF).

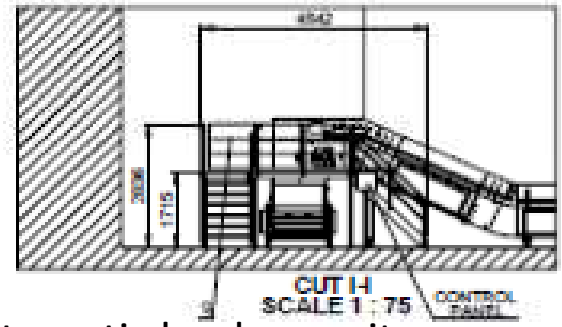
- Years of experience, presented technological solution and the visit to Astos Machinery convinced Japanese management, Astos to be the right choice of a long term partner for conveyor systems.

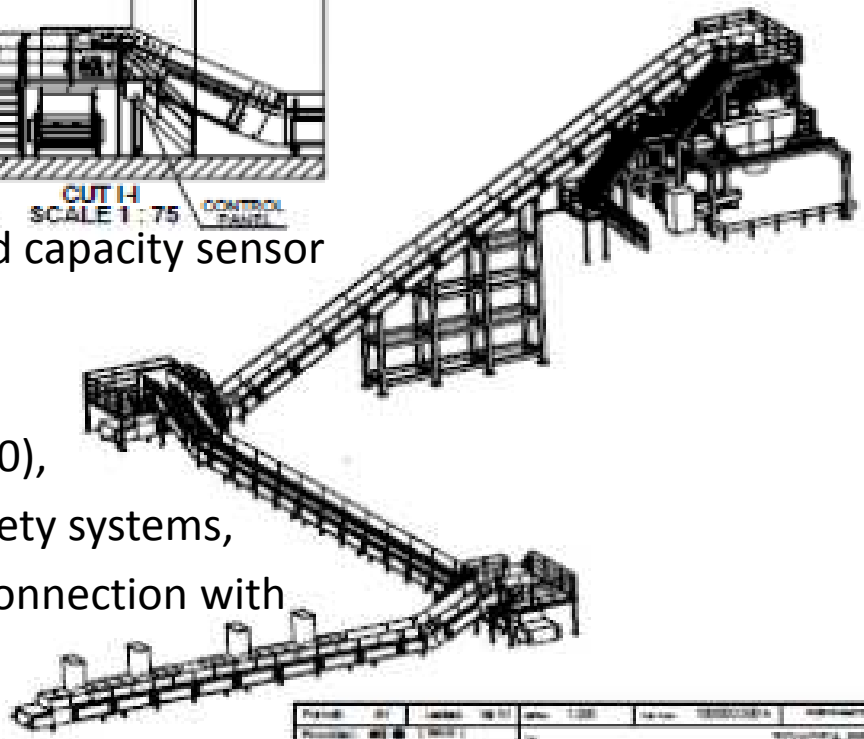
In the new stamping facility
is produced the car body work for model Camry

Not only the technical solution but also the logistic of the Toyota Project was extremely demanding.

Cut out from the automatic conveyor system

1. Hinged steel belt conveyor 23m,
2. Hinged steel belt conveyor 32m
3. Hinged steel belt conveyor 36 m,
   the height of discharge 14m
4. Tip over hopper for 2
   industrial scale containers with automatic load capacity sensor
5. service platforms (2x), crossover bridge,
   staircase (3 floor), supporting construction
6. Integrated control technology (Siemens S7-300),
   touch controller, warning and alert device, safety systems,
   electrical fittings for stamping facilities´ interconnection with
   conveyors and with other peripheral devices.





Project managers of Toyota highly appreciated the perfect realization of the conveyor system


KAIZEN-FIRST
IMPORT

Management of ASTOS Machinery would like to express a special thanks to the team leader of ZČU Faculty of Engineering and Design:

Prof Ing Stanislav Hosnedl CSc

&

Design Art Institute:

Mgr František Pelikán