

RESEARCH COOPERATION BETWEEN INDUSTRY AND UNIVERSITY

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Cooperation between higher education, research institutes and automotive industry
section

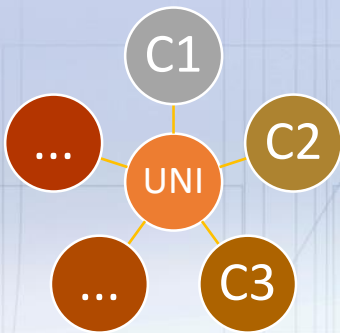
Introduction

- Main activities in TÁMOP 411C project:
 - Industrial co-operation
 - Common R&D activities
 - Cooperation in education
 - International relations
 - Organization and service development
- Topics of presentation
 - Forms of university-industry cooperation
 - Case-study: Audi – University - Győr City common activities
 - Future plans

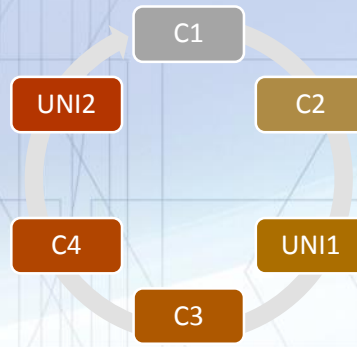
History of company-university cooperation

- Traditional
 - Occasional contacts
 - Market-oriented research projects
- New motivations
 - Struggle for the bests students
 - Competition in research and innovation
- New forms
 - Multilateral research projects (Pázmány Péter Program, VKSZ 12, ...)
 - Long-term contract between company, home city and university
Wide variety of cooperation in teaching, research, establishing common laboratories, form common departments, independent research units, help local community, ... etc.
- Examples:
 - Occasional contracts
 - Multilateral Company-University Research Projects
 - Audi-UNI Institute – participation of Győr city in the programs

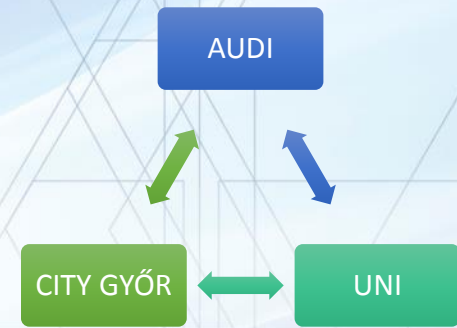
Forms of cooperation



**Contract research
(occasional)**



**Multilateral
Research Projects**



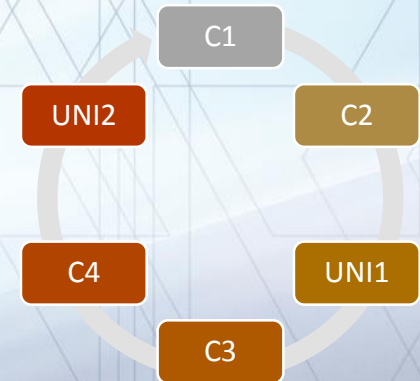
**Exclusive
cooperation**



Strength of cooperation

Multilateral Research Projects

- The networks are/were generated by the National Innovation Office from national resources
- Close cooperation is/was among UNIs and companies – all beneficiary partners
 - Multi-lateral projects
 - Everybody is working with others
- **The development tasks are determined by the enterprises!!!**
- Structure of budget
 - UNI: 100 % support for developing infrastructure and common research with partners
 - Companies: support and self financing



Multilateral Research Projects: Experiences

- Only the best universities and their high-tech partners could gain support
- This is the most appropriate form for multi-lateral cooperation among UNI-s and companies
- Involvement of students into research is significant
- Main activity areas of SZE in these projects are the followings:
 - Vehicle unit development
 - Technology development and quality management of participating SME-s and TIER1 suppliers
 - Knowledge transfer

Exclusive cooperation: Company – City – UNI

- Partners:
 - Audi Hungaria Motor Company
 - Győr city
 - Széchenyi István University
- Initiated by Audi AG
 - Worldwide concept
 - Win-Win partnership
 - Long-term, stable contacts
- Objective: close cooperation in the field of
 - Education
 - Research
 - Social life



History of AHM-UNI Győr cooperation

- 1997- Practical semester for students
- 2000- Audi Information Centre, SAP Competence Centre
Optional Course: „Audi - The modern enterprise”
- 2005- Frame contract for research activities
- 2006- Audi Hungaria Institute
- 2007- Audi Hungaria Department of Combustion Engines
- 2011- New, extended contract for research activities
Audi Hungaria Department Group (3 departments)
- 2013- Extension of Audi Hungaria Department Group (4 departments)

Principles of cooperation

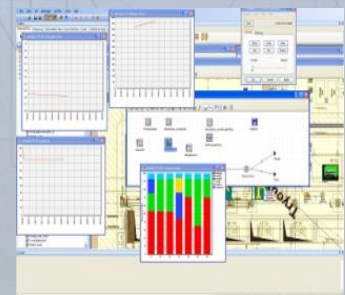
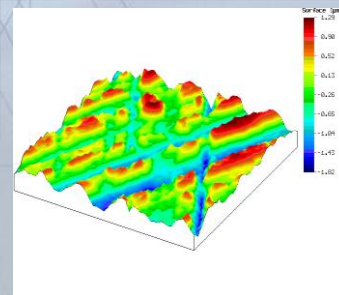
- Framework contract for regulation of research activity
 - Launching of new project is easy
 - Interest from AHM (5-6 slides)
 - Offer by UNI (2 pages)
 - Acceptance by AHM (1 page) → launching
 - Everyday research contacts between university and company
- Participation of Audi in university education
 - Courses delivered by the company
 - Practical semester for students
 - Thesis works at the company
 - Research topics and grants for students

Closer cooperation: common teaching unit

- AHM and Uni-Győr have established a common teaching unit: „Audi Hungaria Department Group”
- Participating departments:
 - Audi Hungaria Department of Combustion Engines
 - Department of Material Science and Technology
 - Department of Vehicle Production
 - Department of Vehicle Development
- Main characteristics
 - Full-time employees of AHM are part-time professors at the University
 - Running expenses are covered commonly
 - AHM and city Győr participate in the development of laboratories

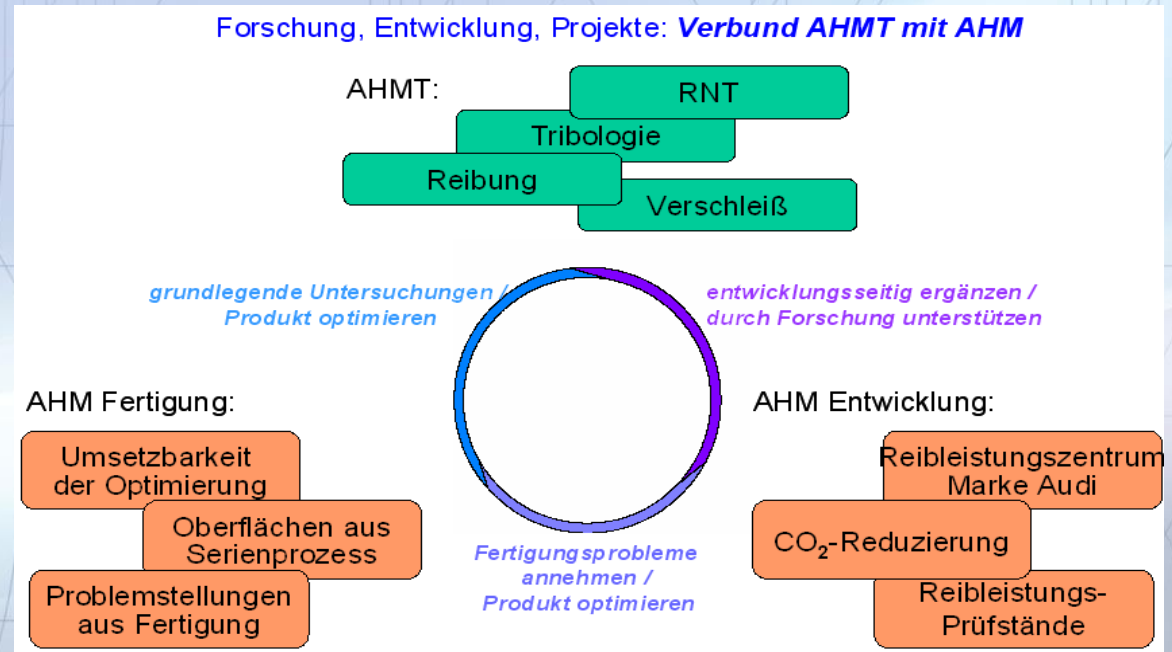
Research projects (AUDI-UNI)

- Manufacturing processes
 - Crack process analysis of connecting rods
 - V-8 engine block stress analysis
 - Investigation of laser honing process
 - Analysis of surface roughness of cylinder
 - Optimization of production process and logistic
- Engine development
 - Tribology, wear resistance
 - Engine testing projects
 - Component analysis



Competencies of the AH CE Department

- Engine development:
 - Tribology, friction, wear
 - Cold and hot test of engines
 - Analysis of heat transfer, fluid flow
- Production development
 - Process optimization of surface technology
 - New testing methods for engine components



Audi Hungaria Department of Combustion Engines
 R&D topics

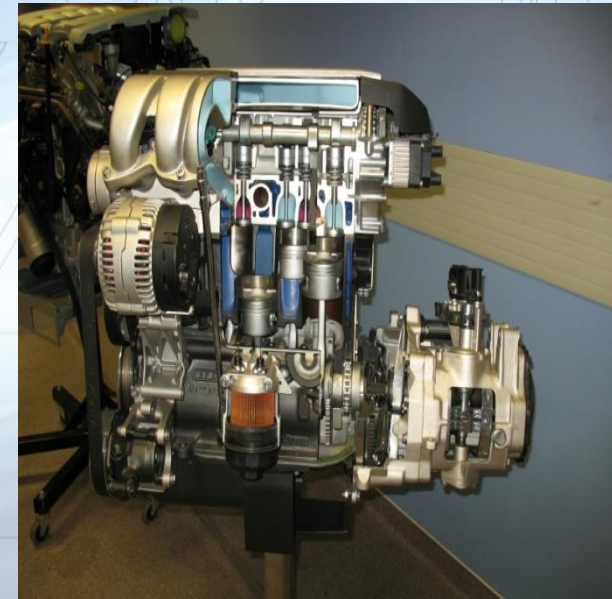
Evaluation and experiences

- Audi has developed a new policy with the establishment of the Company-Uni-City cooperation
- Benefits:
 - AHM Company: motivated labor force, local research capacity
 - University: practice oriented training, experience in high-tech research
 - City of Győr: elementary and grammar school in German, support of local sport and culture
- Experiences prove that
 - Extended participation of the universities in the research activity of company, and
 - participation of the company in the undergraduate, graduate and PhD training

results in a mutually beneficial cooperation

Conclusions

- Company-university cooperations are closer recently, than that of were in the past
- New forms prove that UNI-s and companies can gain mutual advantages
- Three basic forms are in Hungary :
 - Occasional research contracts
 - Multilateral Research Projects
 - Exclusive co-operation with Audi Hungaria Motor Company
- UNI-s and companies can find the most appropriate ways for supporting common research activity



THANK YOU FOR YOUR ATTENTION.

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COOPERATION BETWEEN HIGHER EDUCATION, RESEARCH INSTITUTES AND AUTOMOTIVE INDUSTRY

TÁMOP-4.1.1.C-12/1/KONV-2012-0002

BASIC RESEARCH FOR THE DEVELOPMENT OF HYBRID AND ELECTRIC VEHICLES

TÁMOP-4.2.2.A-11/1/KONV-2012-0012

"SMARTER TRANSPORT" - IT FOR CO-OPERATIVE TRANSPORT SYSTEM

TÁMOP-4.2.2.C-11/1/KONV-2012-0012

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HUNGARY'S RENEWAL



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