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CoCoRo

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FP7 - ICT

CoCoRo

Collective Cognitive Robots

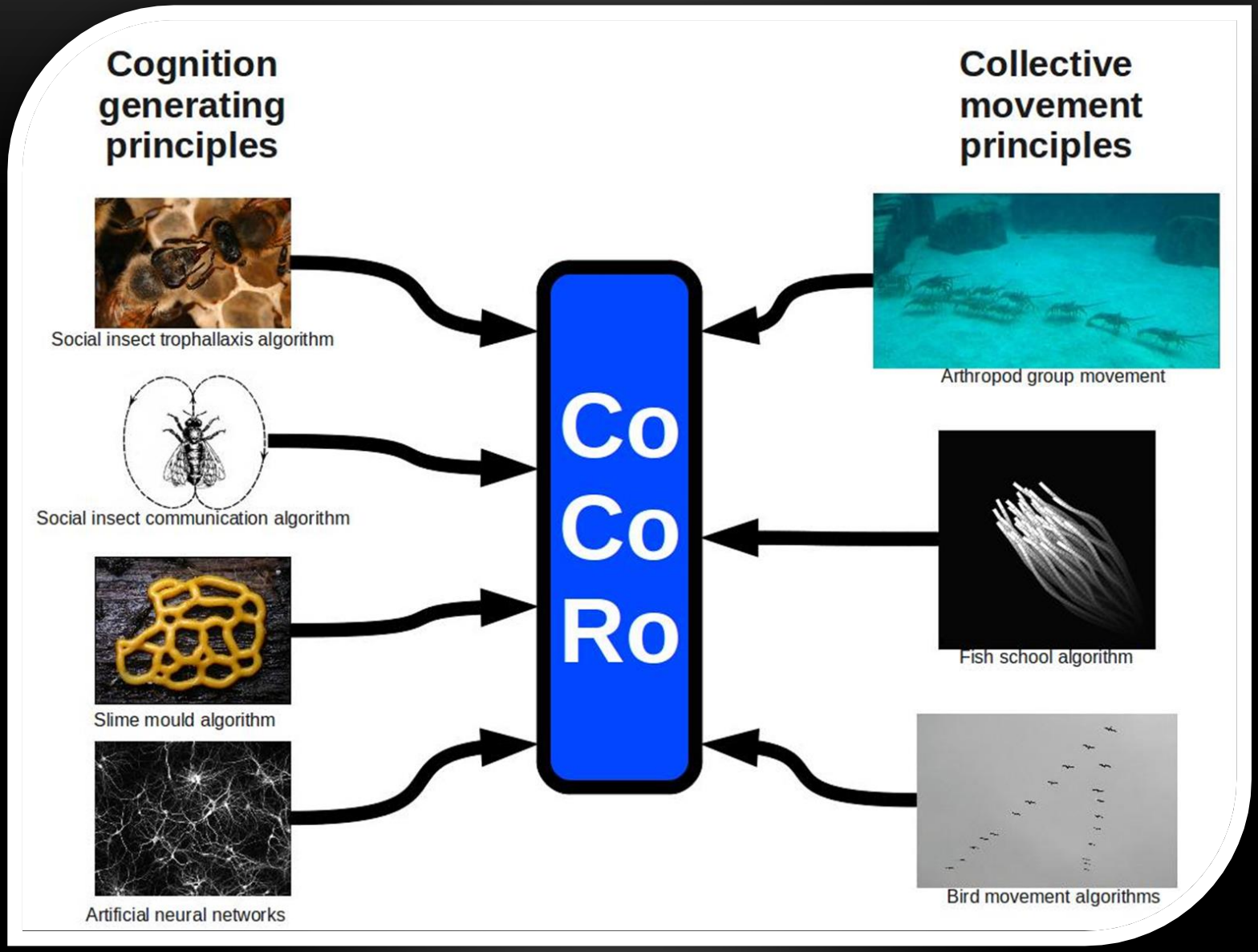
- **Sophisticated sensors**
- **Reliable & strong actuation**
- **High computational power**

Big, heavy & expensive

- **Keep it simple! (KISS principle)**
- **Keep it cheap!**
- **Have many of those units!**

Small, light, cheap & many

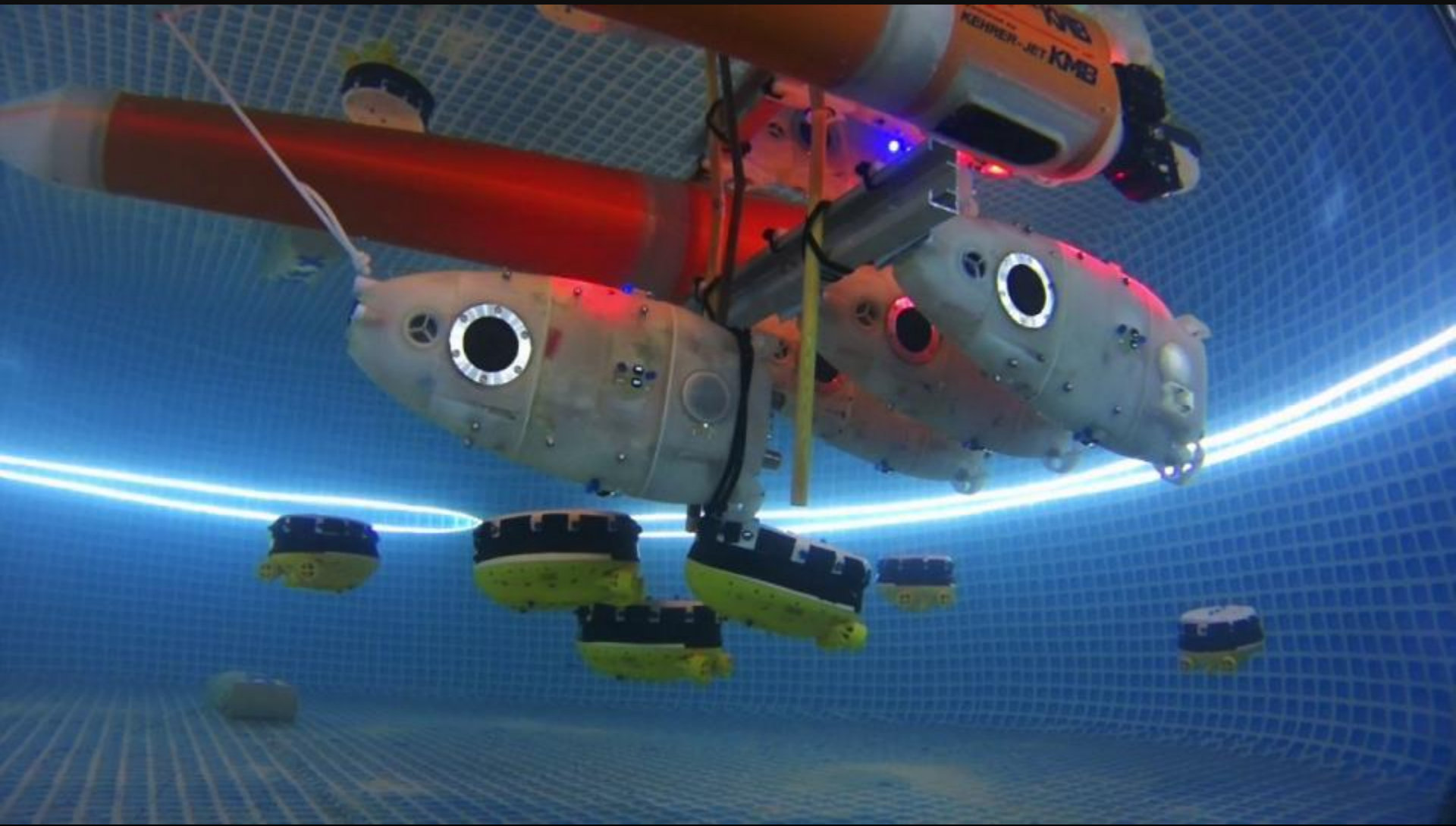
COGNITION-GENERATING ALGORITHMS



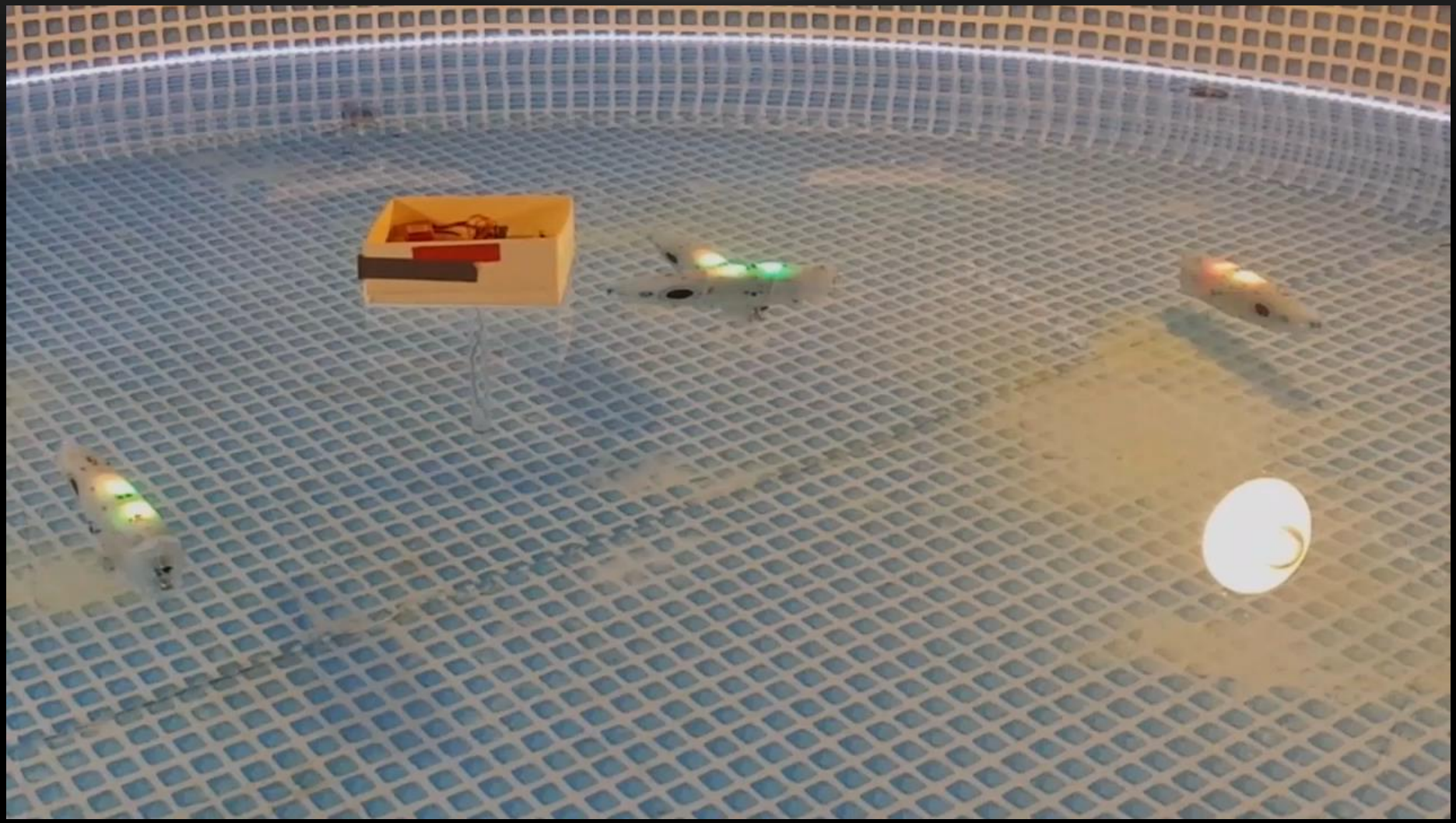
We have gone a long way in 3.5 years

THE YEAR OF COCORO PLAYLIST ON YOUTUBE (#TYOC)

- 52 videos in 52 weeks throughout 2015



One example: Electric confinement

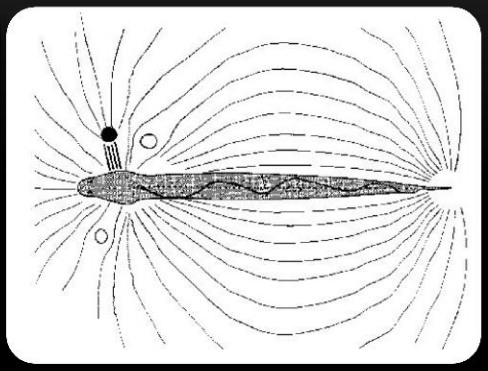


Cybertronica Research

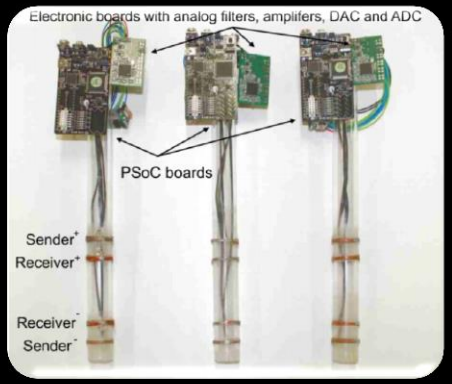
- spin-off, University of Stuttgart, Research and innovation company
- “keep smart”: SME, 5 permanent persons, 2x Dr.rer.nat
- 2x laboratories, mechanical and electronic workshops in house
- separate division: Laboratory of Advanced Sensors
- main activities: advanced measurements (sensor development), robotics (electronics), laboratory services
- own products: precise fluidic/EM measurement devices

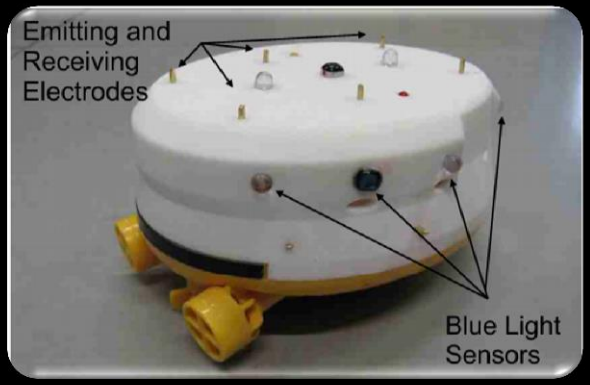
ELECTRIC SENSE TECHNOLOGY

Angels (**ANGuilliform Robot with ELectric Sense** FET Grant 231845, 2009-2012)

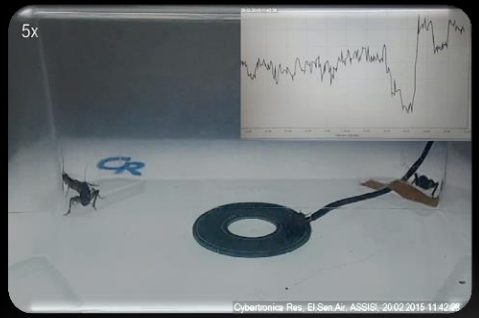


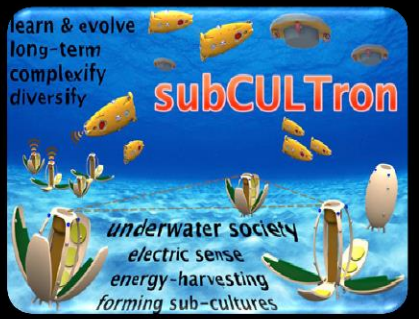
CoCoRo (Collective Cognitive Robots, Grant 270382, 2011-2014)





ASSISIbf, florarobotica subCULTron, FET-Proactive Grants, 2013-2019)



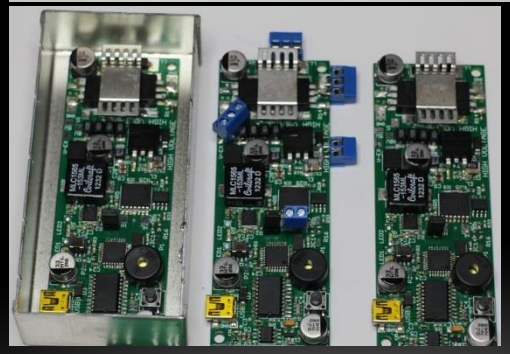


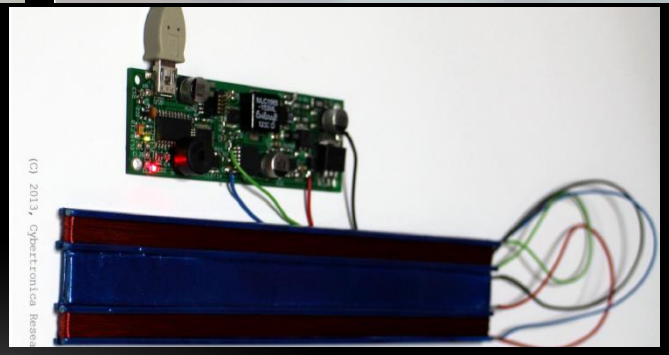
INNOVATION, COMMERCIALIZATION, PRODUCTS

Detection of dielectric object under Earth surface (non-metallic mines, plastic pipes, different non-metallic objects of interest)
currently: indoor and outdoor

Multifunctional EM and combined EM-optic emitting devices

Specific electronics (OEM and for end user) for field generation and sensing





Advantages and Problems

Advantages:

- fast innovation way from basic research to market/product
- available technology with high technology readiness level (TRL) for consortia and research projects
- “driving consortia” to more practical aspects of research

Problem:

- no “innovation phase” in EU projects (6-12 months after end of project only for a few partners that aim at innovation)
- extremely high cost of patenting (DE: 10-15k€, EU: 15-50k€, WO: 50-120k€)
- high danger of cloning by Asian companies (example: clones of 3D printers)

THANKS