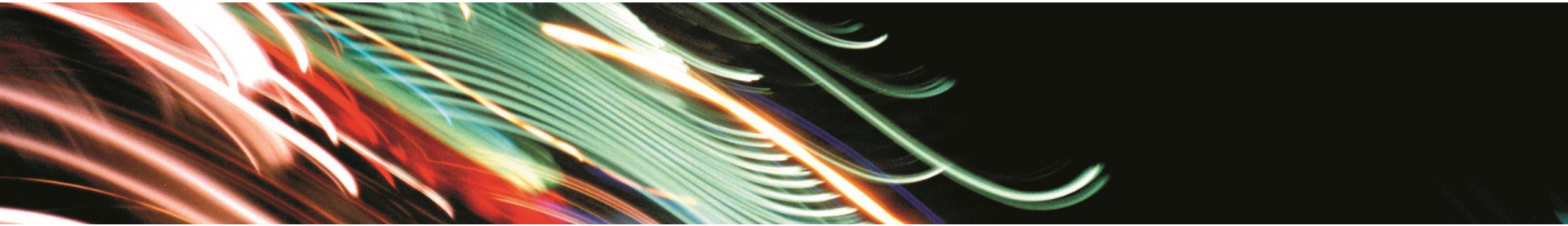


# Challenges in the Collaboration of Universities and Industry

Forum LED Workshop 2014



# Advantages of a collaboration between industry and universities

## Universities:

- Challenging new problems
- Money
- Application know-how
- Interesting projects for students
- New IP
- ...

## Industry:

- Access to missing skill sets
  - Basic research know-how
  - Contact to new potential employees
  - New IP
  - Creative Solutions
  - ...

# Types of collaborations

1. **The idea lab**: open collaboration from both sides

2. **The extended workbench**: university works on product related problems

3. **Deep exploration**: longterm relationship to investigate a new topic that might become important

4. **The grand challenge**: basic research with a challenging problem

# The Idea Lab

## Characteristics:

- Usually short-term problems
- University is free to publish
- Open Exploration
- Well aligned to academic norms

## Requirements:

- Clear description of the work
- Not overspecified project (academics may choose methods and objectives)

## Advantages:

- Disruptive new ideas
- Academics from other areas might be attracted to this problem as well
- Test how the relationship between industry and university works

# The Grand Challenges

## Characteristics:

- long-term problems
- University is free to publish
- Often a joint effort of major industry players with universities

## Requirements:

- Clear defined objectives
- Carefully governed interaction

## Advantages:

- Fundamental problems which are relevant for an entire industry sector may be addressed (for example in the pharmaceutical industry).
- Follow-on research by universities can be attracted by these open research programs.
- In some cases these programs could even help to shape new and emerging market segments by attracting more focus to it.

# The Extended Workbench

## Characteristics:

- Non-routine industry problems
- Short term projects
- Often product related research
- Intellectual property distribution clearly defined

## Requirements:

- Often no publication possible
- Confidential research
- Research results have to be protected
- Framework agreements are helpful if multiple such projects are planned

## Advantages:

- Universities are often more open than consulting companies which might have their preferred solutions based on previous projects.
- Universities bring in a different perspective

# Deep Exploration

## Characteristics:

- Long-term projects
- Deep and protected collaborations
- „guided“ research
- Usually not cheap

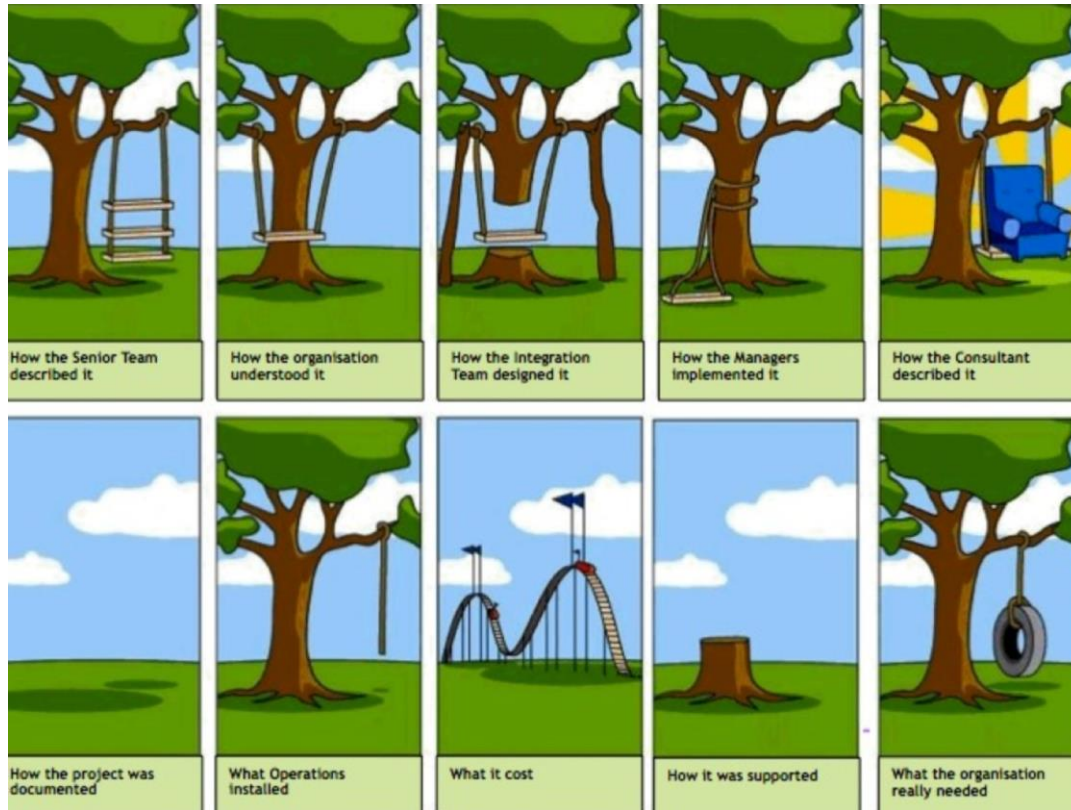
## Requirements:

- Often additional investments in infrastructure/labs
- Intellectual property provisions to reduce knowledge leakage

## Advantages:

- Industry can invest more deeply in the collaboration.
- Industry can disclose critical ideas to academic partners
- Close interaction between universities and industry

# Communication may be challenging



Source: <http://mdvfunesat.files.wordpress.com/2013/03/cartoon1.jpg>



# Challenges and Different Perceptions



# Students

## University:

- Get access to industry projects:
  - Diploma thesis
  - PhD thesis
  - Internships
  - ...

## Industry:

- Potential new employees



# Timescale: University Perception

## University:

- Good and deep research



## Industry:

- Just good enough to fix the immediate problem



# Timescale: Industry Perception

## University:

- Very long time scales



## Industry:

- Quick solutions for problems



# Research Focus

## University:

- Basic Research

## Industry:

- Applied Research

Chip



Packaged LED



LED light source/ module



Control gear (LED driver)



Luminaire



Light management



Lighting solution



# Project Length

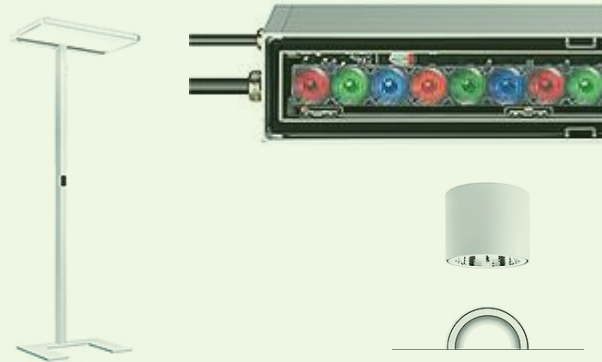
## University:

- Long projects to have a stable income



## Industry:

- Short projects to get immediate results



# Project Size

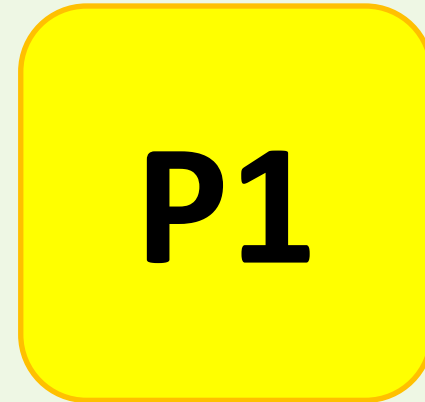
## University:

- Multiple smaller projects preferred for risk distribution and reducing the dependency on a single company.



## Industry:

- A few big projects preferred to reduce administration overhead.



# Confidentiality

## University:

- Open research environment
- Desire to publish as much as possible (benchmarking with other institutes / universities)
- Often high personnel turnover (diploma students, internships,...)

## Industry:

- Needs to protect it's IP
- Nothing critical should be published
- If something has to be published it should be marketing material



# University Patents

## positive:

- Potential licensing income
- Strong IP portfolio

## negative:

- Reduces collaboration opportunities (industry wants IP)
- Expensive to maintain
- Hard to defend against infringements (high costs)

# Thank you for your attention!

