



**OST**

Eastern Switzerland  
University of Applied Sciences

# **Academia-Industry Interaction in Innovation for Impact**

**AIT-SASBI Spring Conference 2023**

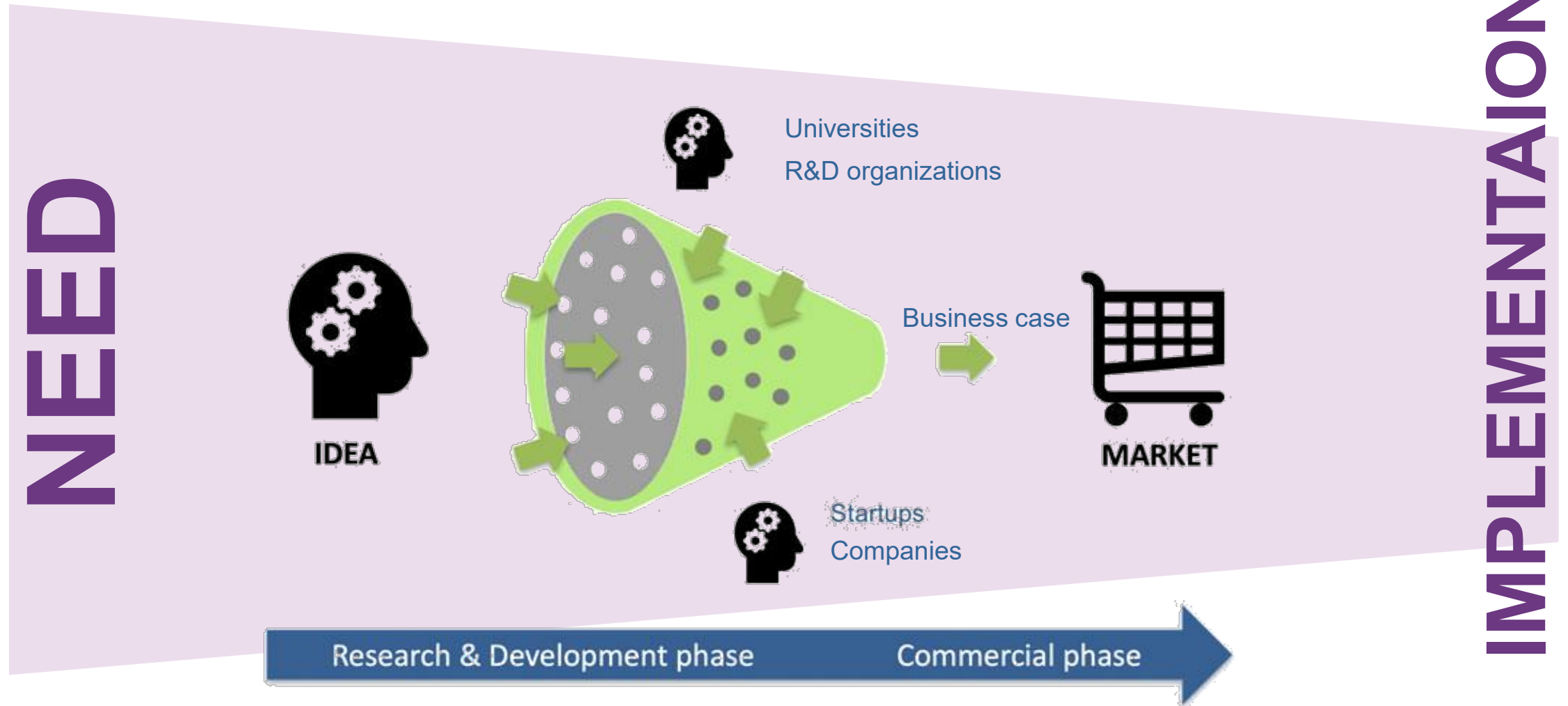
Prof. Simone Stürwald

23 February 2023

# Our World is changing fast

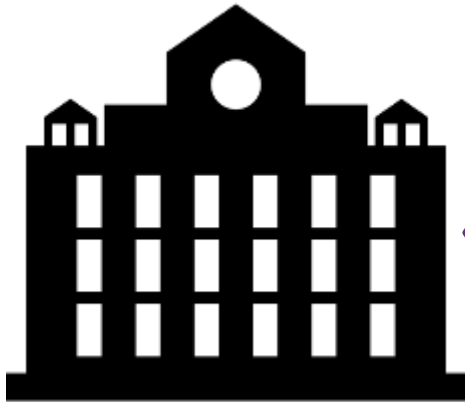


# Open Innovation Process



# Benefits of Academia – Industry Interaction

## Universities



- **Research organization**
- Basic science and knowledge,
- Focus on scientific output, publications
- Education for research

But also

- Creative and critical thinking,
- Methodologies, problem solving
- Innovation and development

- 
- A large purple double-headed arrow pointing from the Universities section to the Enterprises section.
- Enhanced transfer of knowledge and expertise
  - Accelerated innovation and commercialization
  - Entrepreneurial and corporate experience of students

## Enterprises

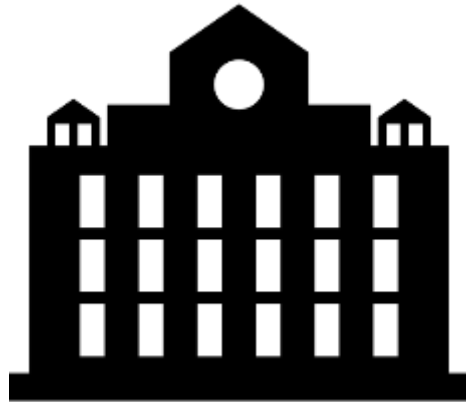


- **Business driven organization**
- Focus on profits
- R&D to keep or enlarge the market share or enter new markets
- Lack of specific knowledge, capacities and equipment for innovation



# Academia and Industry – Missing Link?

## Universities



- **Research organization**
- Basic science and knowledge,
- Focus on scientific publications
- Education for research

But also

- Creative and critical thinking, methodologies, problem solving
- Innovation and development

- Differences in culture and priorities
- Intellectual property management
- Conflict of interest
- Limited funding for collaboration

- **Clear communications and expectation, trust**
- **Shared goals and benefits**
- **Legal and financial support**

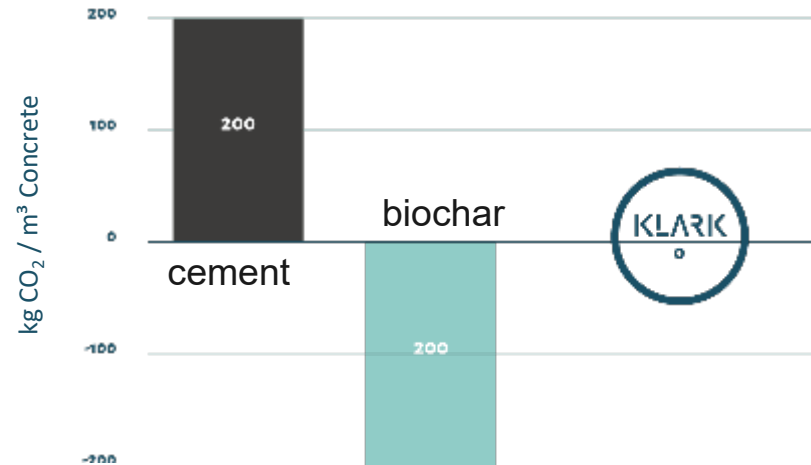
## Enterprises



- **Business driven organization**
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# Case Study: KLARK – Climate Neutral Concrete

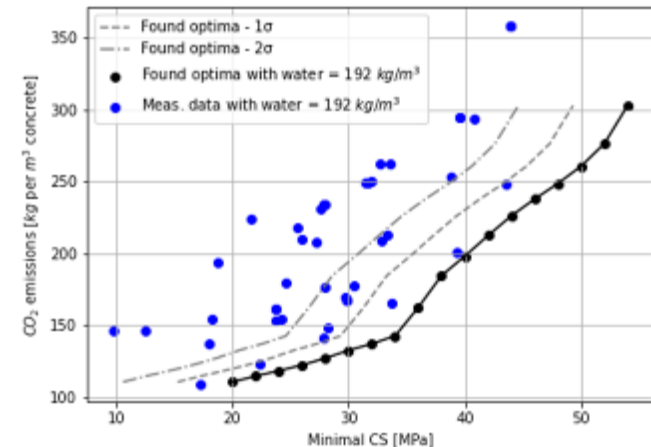
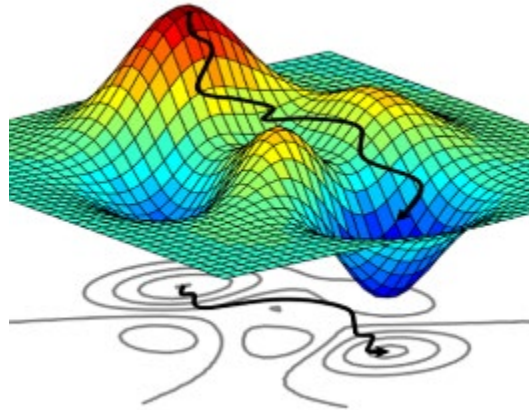
- Situation: CO<sub>2</sub> emissions of cement in concrete are under criticism -> less sales
- A company in Switzerland produces concrete and biochar, a storage of CO<sub>2</sub>
- CO<sub>2</sub>-emissions of cement can be compensated by biochar -> new concrete product



- Development of a concrete mix design with biochar in 2021 at our university
- Product launch of KLARK in March 2022 -> **first climate neutral concrete in the Swiss market!**

# Case Study: Optimix – Concrete Mix Optimization with AI

- Situation: Concrete a saturated market -> low margins & high CO<sub>2</sub> emissions -> less sales
- Optimization of concrete mix by using optimization algorithms, AI
  - -> less cement -> reduced costs, less CO<sub>2</sub>-emissions; use of local & cheaper ingredients, 0-cost-innovation
- Collaboration with software company of concrete plants -> 500 clients, data sets of 20 years,



- Integrated software tool, broad application in up to 500 concrete production plants to save  $\geq 10\%$  cement of the production -> **save of costs, save of approx. 600'000 to CO<sub>2</sub>-eq./ year**

# Case Study: Ecoplastile – Tiles from Social Plastic Waste

- Uganda has lots of plastic waste and unemployed workers; prizes of building materials are rising
- The Ugandan startup Ecoplastile
  - developed the production roofing tiles made of plastic waste with universities
  - established a social collection system of plastic waste with partners





# Impact of Interaction to take Advantage of Change

- Knowledge Transfer
- Accelerated future oriented Innovation
- Economic Growth
- Jobs Creation
- Creation of Impact

➤ **Economic Impact**

➤ **Environmental Impact**

➤ **Social Impact**

➤ *This presentation was created with the help of chatGPT ;)*

