

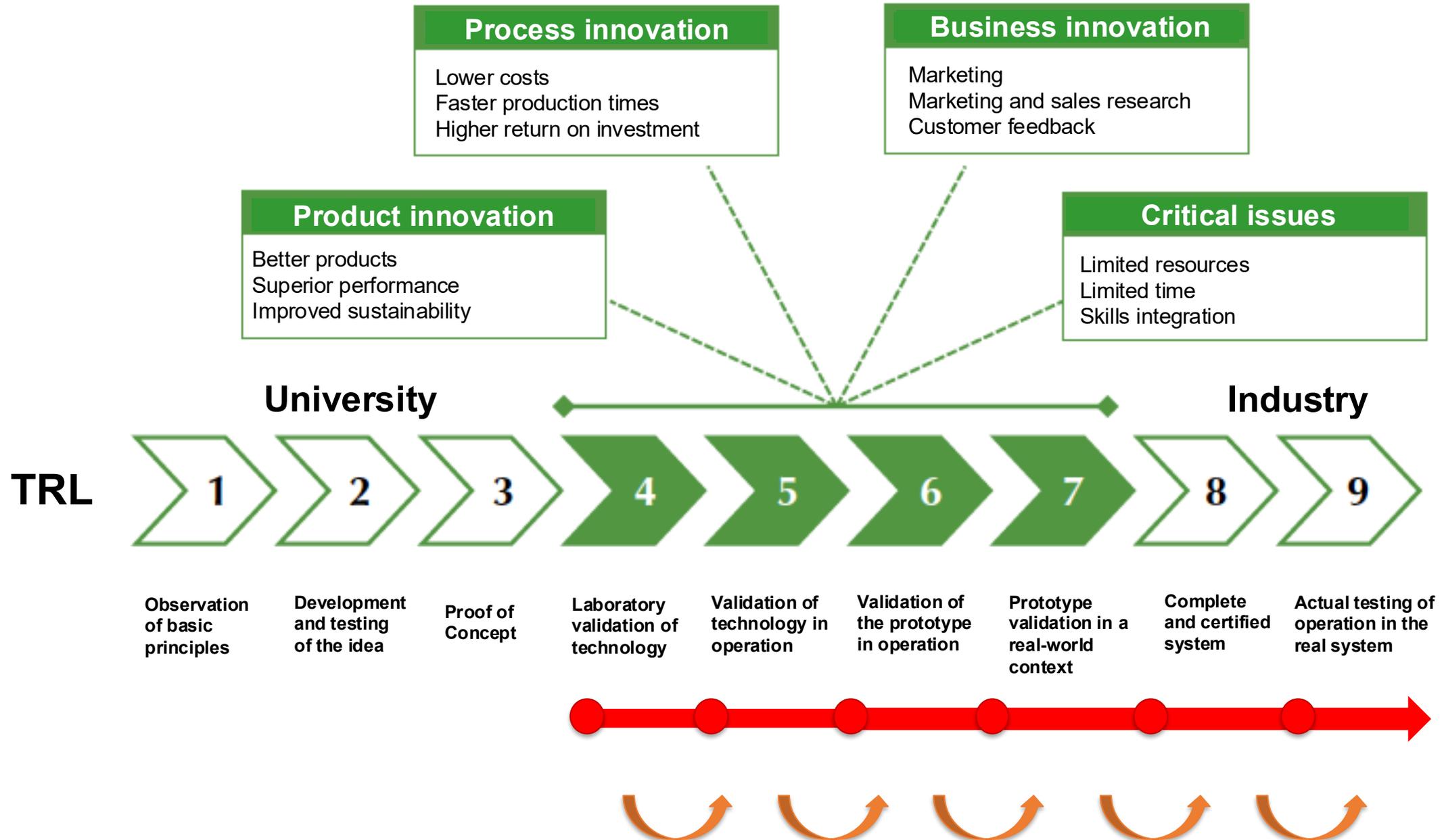


Industry-academia cooperation in practice: perspectives within universities of applied sciences

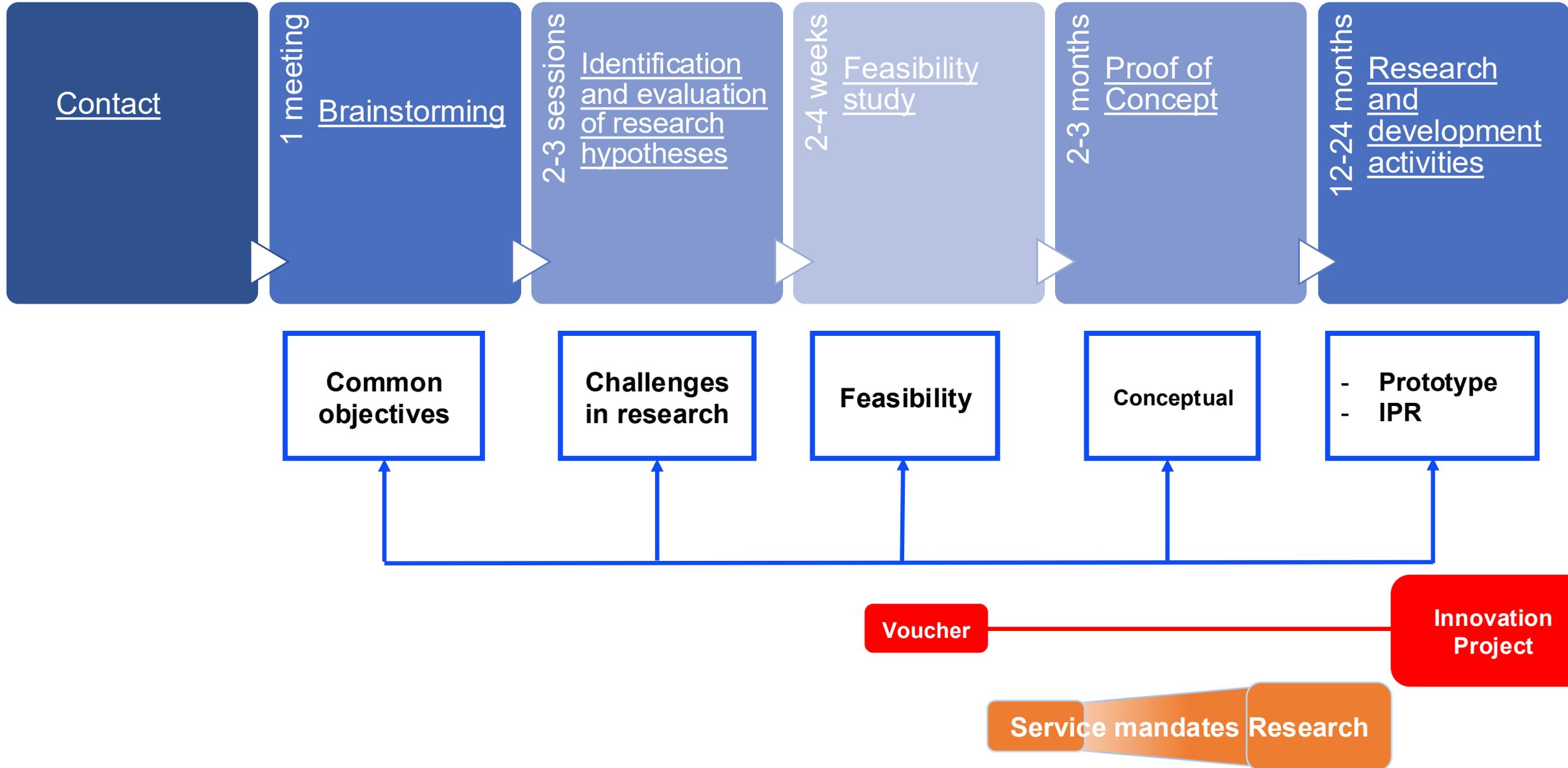
Prof. Dr. Emanuele Carpanzano

University of Applied Sciences and Arts of
Southern Switzerland

SUPSI's position in the innovation chain



How do we establish partnerships with companies?



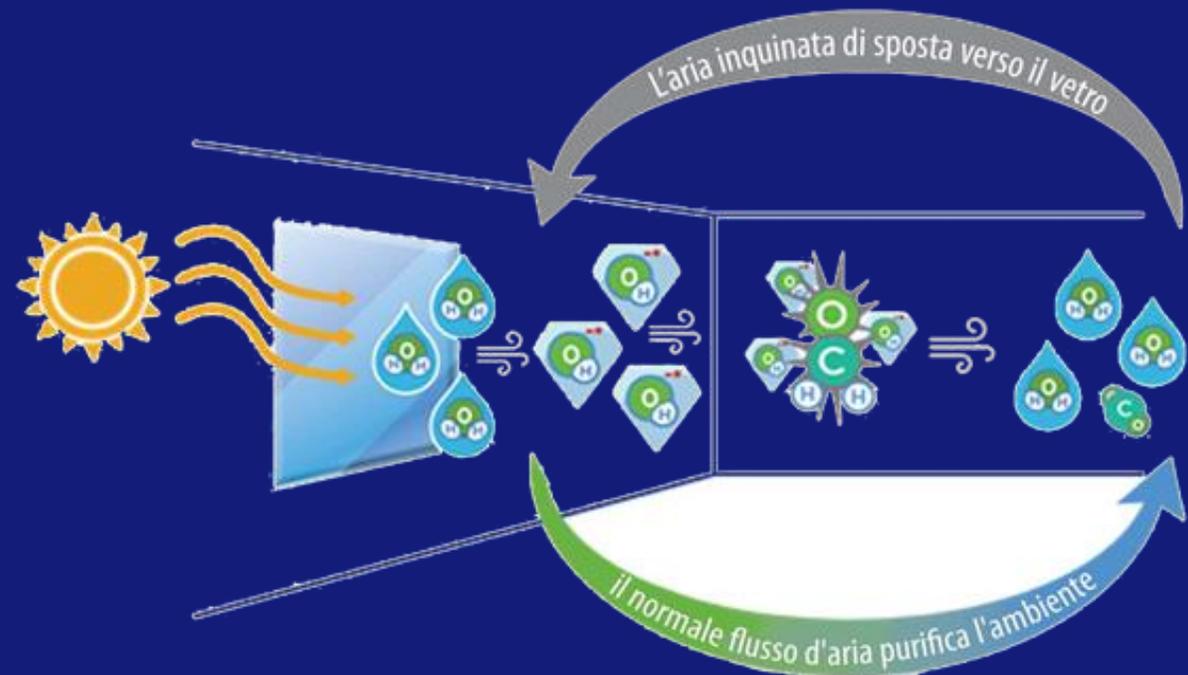
Solar Skin

 **Goal:** Evaluation of a new photocatalytic treatment for shutters and blinds.

 **Result:** Support for the development of the new multifunctional shading system.

 **Impact:** Improve energy efficiency and comfort in buildings, reduce consumption and maintenance.

TRL: 5 - 6



Sustainability assessment and consulting in the mold and die industry

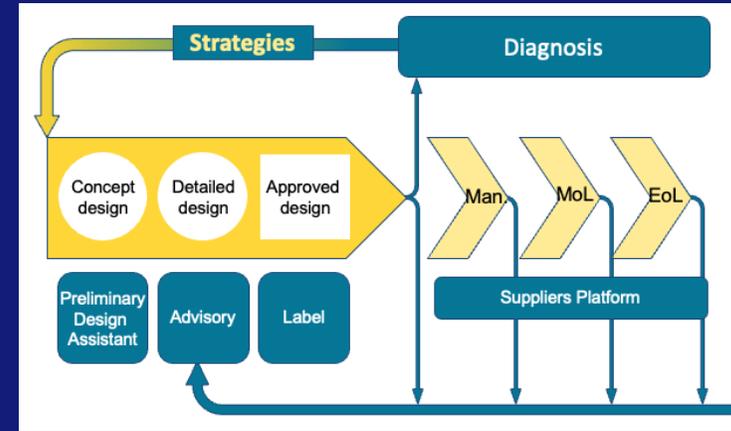
Objective: To support the Swiss mold and die industry in assessing sustainability and adopting sustainable innovation models.

Result: Development of the SAM platform to assess and improve the sustainability of products and processes.

Impact: Increase competitiveness, reduce environmental impact, and promote sustainable industrial practices.

TRL: 6 - 7

Companies:



The SAM Platform

Yellow box: Interroll workflow before SAM
Blue box: New steps and features introduced by SAM



INTERROLL SAM Sustainability Label

Mould P308

Mould family: family 1
Mould lifespan: 2014 – 2024
No. cavities: 1
Runners type: hot runners, direct
Injected material: G038-PA66 30%GF
Lifecycle production vol.: 200'000 units
Maintenance class: class 1

Certification Data
Certification Date: 23.03.2015
Library version: 0.8
Benchmark product: P300

| Category | Metric | Value | Unit | Grade |
|---------------------------|----------------------------------|--------|------|-------|
| Environmental Performance | Environmental Level | 5'513 | pt. | A |
| | Economic Performance | | | |
| Economic Performance | Mould Manufacturing Cost | 21'632 | CHF | B |
| | Mould Replacement Cost | 16'032 | CHF | E |
| | Unitary Expected Induced Profit | 21'455 | CHF | D |
| | Product Lifecycle Cost | 95'665 | CHF | C |
| Social Performance | R&D Investments Intensity | 650 | CHF | A |
| | Social Performance | | | |
| Social Performance | Staff Develop. Invest. Intensity | 44 | CHF | B |
| | Injuries Intensity | 0.002 | # | A |
| | Workforce Turnover Intensity | 0.001 | # | B |
| | Income Level | 105 | % | B |
| | Worked Hours | 40 | h | C |

Tools for quantifying and reducing CO2

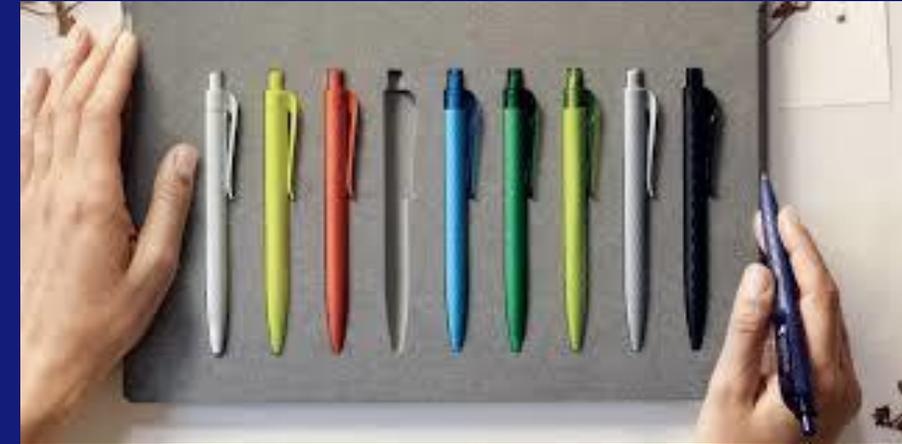
 **Objective:** To provide tools for measuring and reducing greenhouse gas emissions throughout the entire life cycle of products and the organization.

 **Result:** Updated life cycle analysis model and carbon footprint tool, integrated and capable of simulating emissions from new products.

 **Impact:** Better decision support to reduce emissions and drive sustainable innovation.

TRL: 6 - 8

Company: Pagani Pens SA



Environmental Footprint
of your pen

P:



| | |
|-----------------|--------------|
| Quantity (pcs.) | 1000 |
| Pen model | DS 1 |
| Destination | Berlin |
| Packaging | Bulk bag 100 |

PAGANI
PENS

prodir.

We believe, that the world needs to take urgent action to tackle climate change.
Our ambition is to make sure that our products are in tune with the efforts of our customers as they move towards that goal.

Carbon Footprint of your order

Total carbon footprint: 98 kg CO2-eq  Which equals to: 253 km driven by car 

JETSIM: Fluid dynamics models for particle micronization



Objective:

1. Create fluid-dynamic models of the spiral-jet milling process.
2. Assess model limitations for full-scale systems and long-duration operations.
3. Deliver design guidelines that minimize expensive experimental trials.



Results:

- ✓ Developed a CFD-DEM model to examine the early classification stages and its computational limits.
- ✓ Created a finite-volume model in Python for analyzing the process at industrial-scale times and sizes.

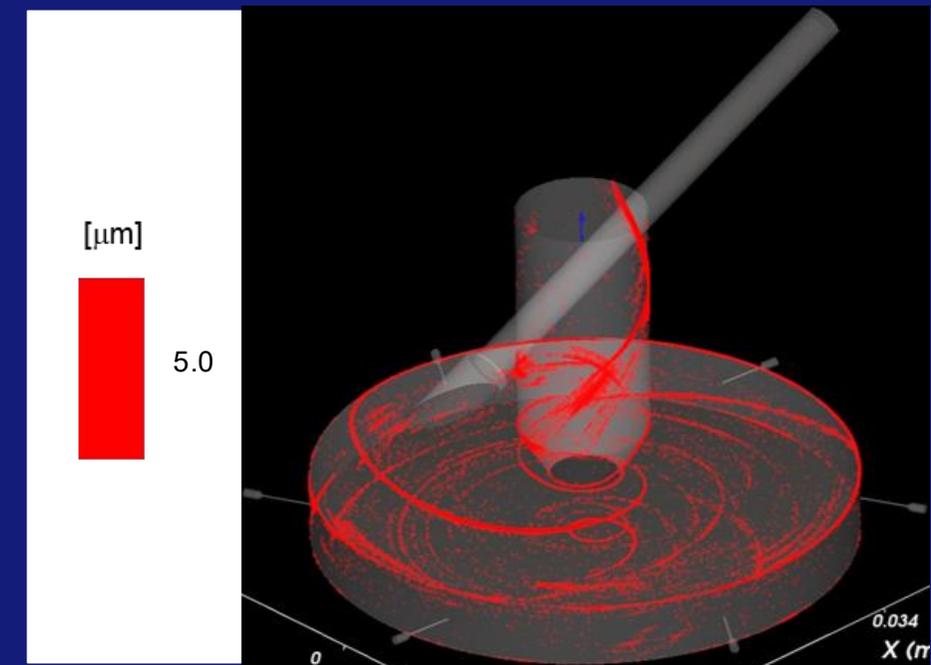
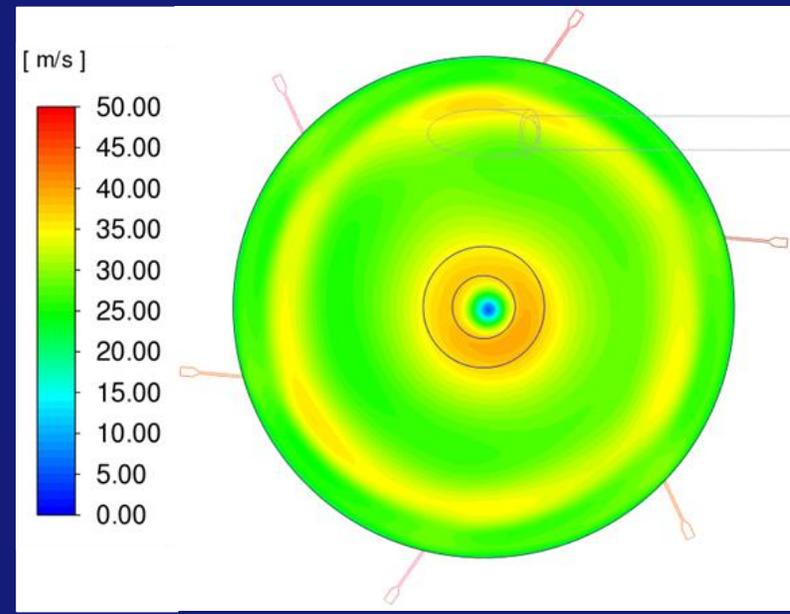


Impact:

- ✓ Better understanding of the mechanisms behind particle classification and micronisation.
- ✓ Shorter development times and lower costs for micronisation processes in the pharmaceutical sector.

TRL: 4 - 7

Company: Jetpharma SA



Predicting molecule prices using machine learning based on chemical structure

 **Objective:** Create an AI-driven cost-prediction model for drug compounds that leverages chemical complexity to streamline R&D efficiency.

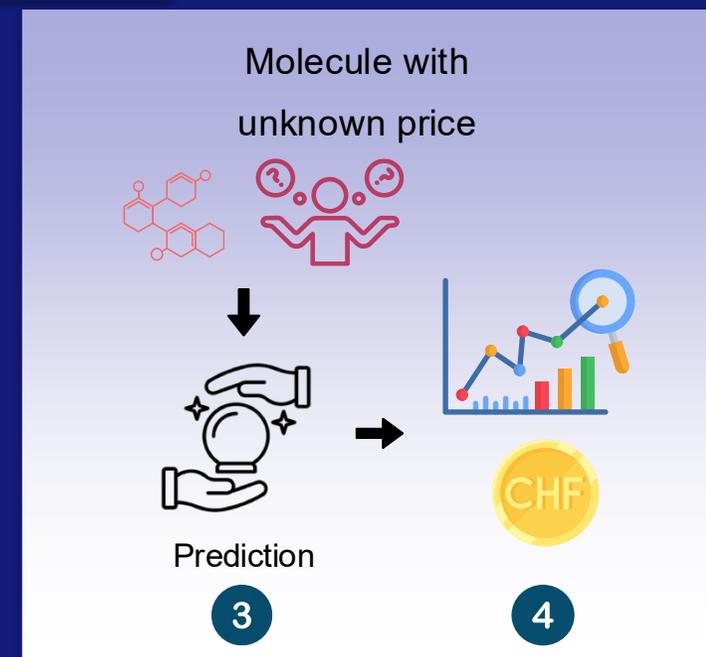
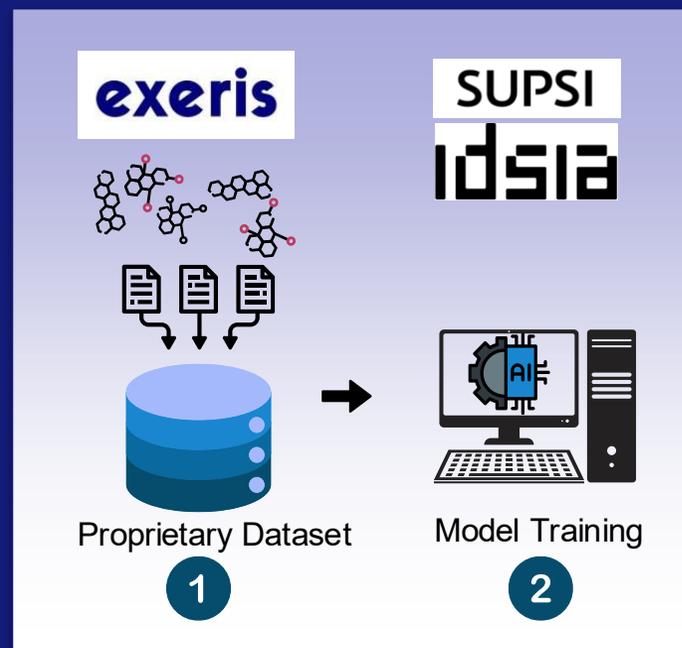
 **Result:** Created an ML model that predicts drug-molecule pricing directly from chemical formulas and highlights which structural attributes drive those cost differences.

 **Impact:** Quickly molecule costs forecasting and cost-driving structural features identification, supporting faster, data-driven R&D and budgeting decisions.

TRL: 5 - 8

Company: Exeris SA

exeris



AOI3Dscan: High-precision automatic 3D optical inspection system for electronic boards

 **Objective:** Develop a next-generation AOI system for fast and accurate PCB inspections.

 **Result:** High-precision, high-speed optical inspection system designed to innovate electronic board quality control processes.

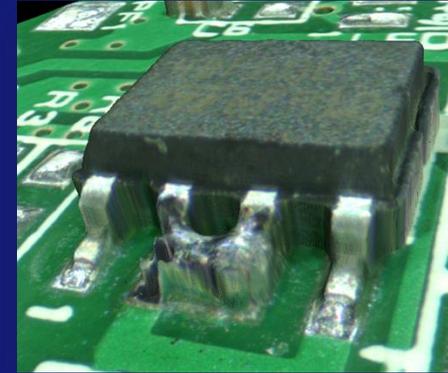
 **Impact:** Increased competitiveness for the company thanks to the provision of an inspection system with unique features.

TRL: 4 - 9

Company: Delvitech SA



Typical defect



Micrometer resolution

Patented and implemented

FinVA: Intelligent Virtual Assistant for Anti-Money Laundering (AML)



Objective: Develop an AI-based system to detect fraudulent banking transactions.



Result: Intelligent solution for AML detection that optimizes compliance strategies and reduces operating costs (currently being tested in Ticino).



Impact: Enhances the ability of the Ticino financial sector to prevent money laundering by promoting a more efficient and innovative use of data analysis technologies.

TRL: 5 - 9



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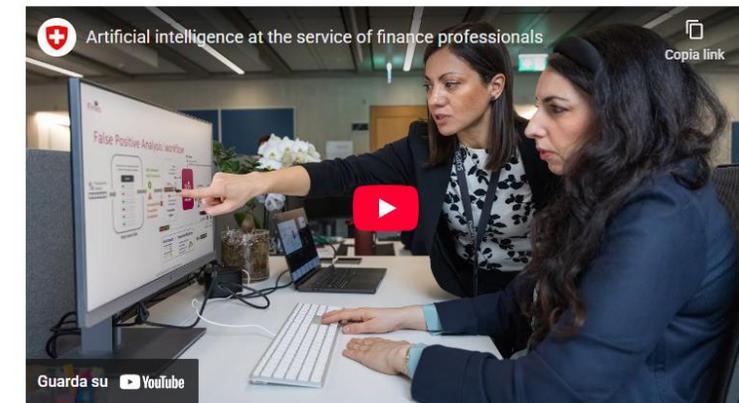


Success Story

Published on 26 March 2025

Artificial intelligence at the service of finance professionals

With the support of Innosuisse, the Ticino-based SME [Cube Finance](#) has developed an intelligent system designed to detect fraudulent banking transactions more efficiently, thereby helping to counteract money laundering. Currently undergoing trials in Ticino, this system aims to provide financial institutions with the means to reduce costs and enhance their compliance strategies.





THANK YOU FOR YOUR ATTENTION!
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