

Technology Transfer and Uptake

From Scientific Discovery to Commercial Product

Ceramic Passive Sampler (CPS) and AWA Monitoring

Presented by

Evgeny Bulatov

IDAEA-CSIC // AWA Monitoring

Barcelona, Spain

November 11, 2025

1. Me, CPS, and AWA Monitoring

- Me: background and motivation
- Ceramic Passive Samplers (CPS)

2. Technology Transfer: From Scientific Discovery to Commercial Product

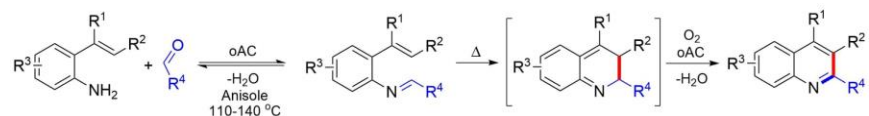
- Scientist's vs. user's perspective
- Industry driven research vs. market education

3. Technology Transfer Process: Asking the Right Questions

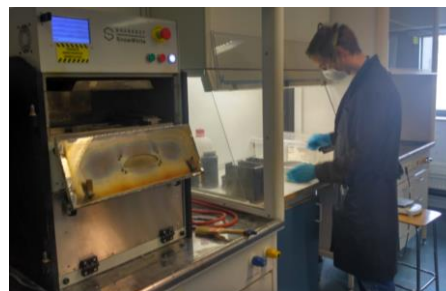
- The KTH readiness model: TRL, BRL, etc.
- Creation of AWA Monitoring: financial hurdles, from prototype to product, scaling, long-term vision

Me: background and motivation

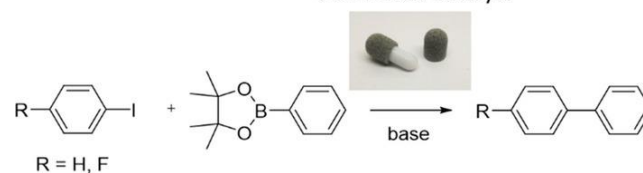
Adv. Synth. Catal., 363, 3775–3782, DOI: [10.1002/adsc.202100711](https://doi.org/10.1002/adsc.202100711)



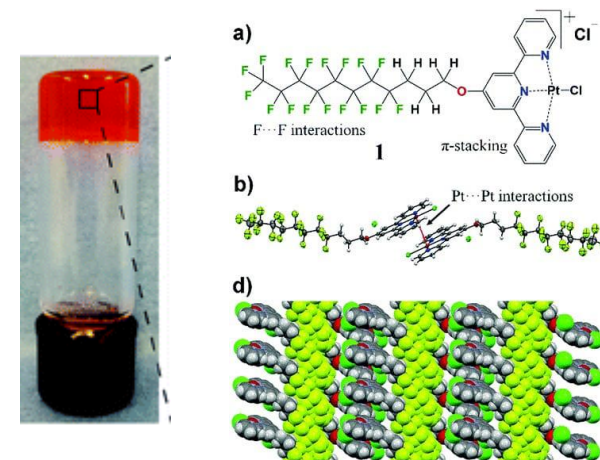
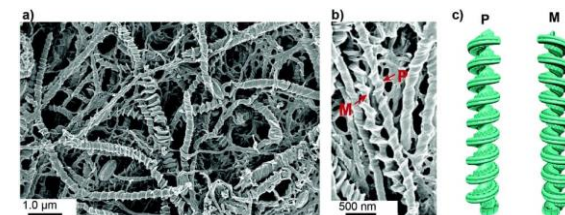
ChemCatChem, 12, 4831–4838, DOI: [10.1002/cctc.202000806](https://doi.org/10.1002/cctc.202000806)



3D Printed Catalyst

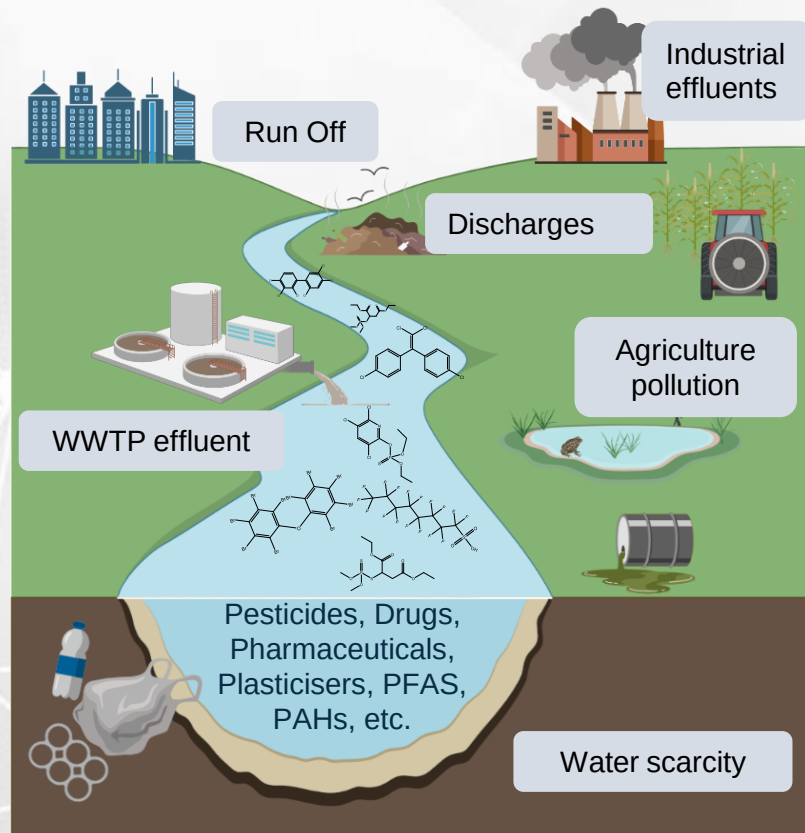


Soft Matter, 16, 2795–2802, DOI: [10.1039/C9SM02186H](https://doi.org/10.1039/C9SM02186H)



10 years of academic experience in 6 groups and 4 countries
20 publications in organic chemistry, inorganic chemistry, and materials science

Ceramic Passive Samplers (CPS)



Emerging contaminants

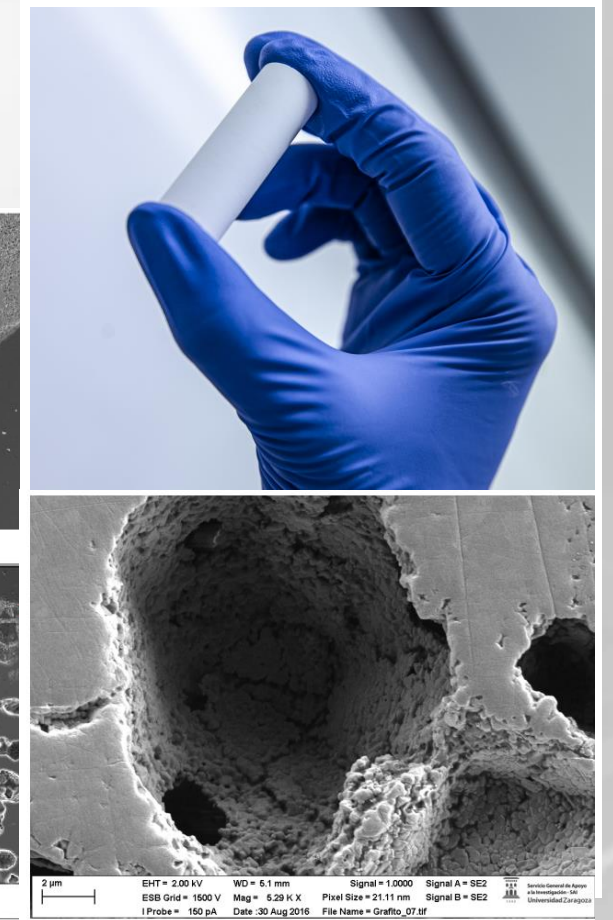
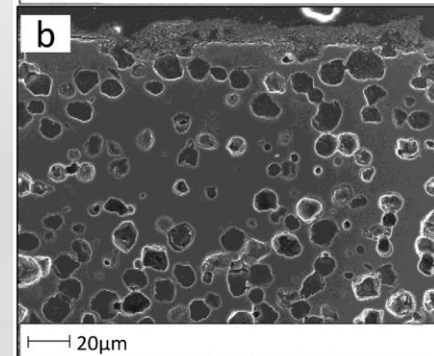
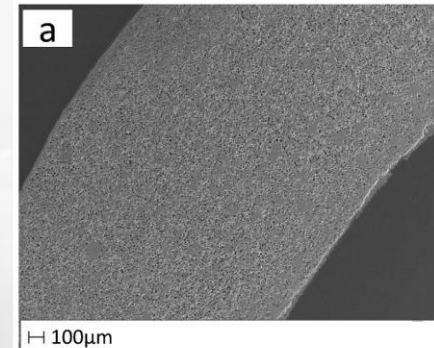
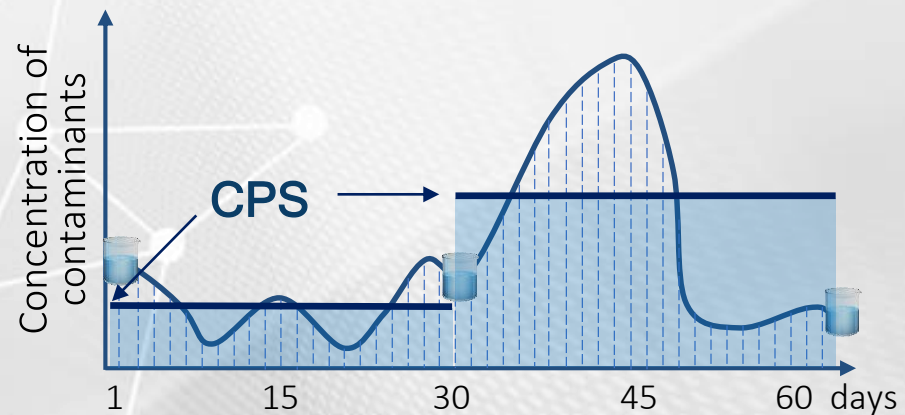
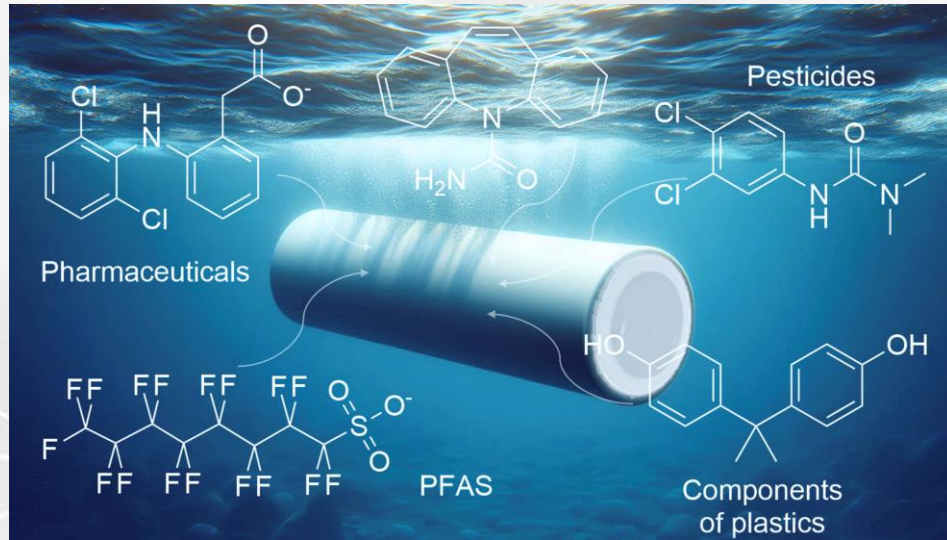
80,000 – 350,000
chemicals on the market
+ 2,000/year
new chemicals approx.

S. Brander, *One Earth* **2022** 5, 316

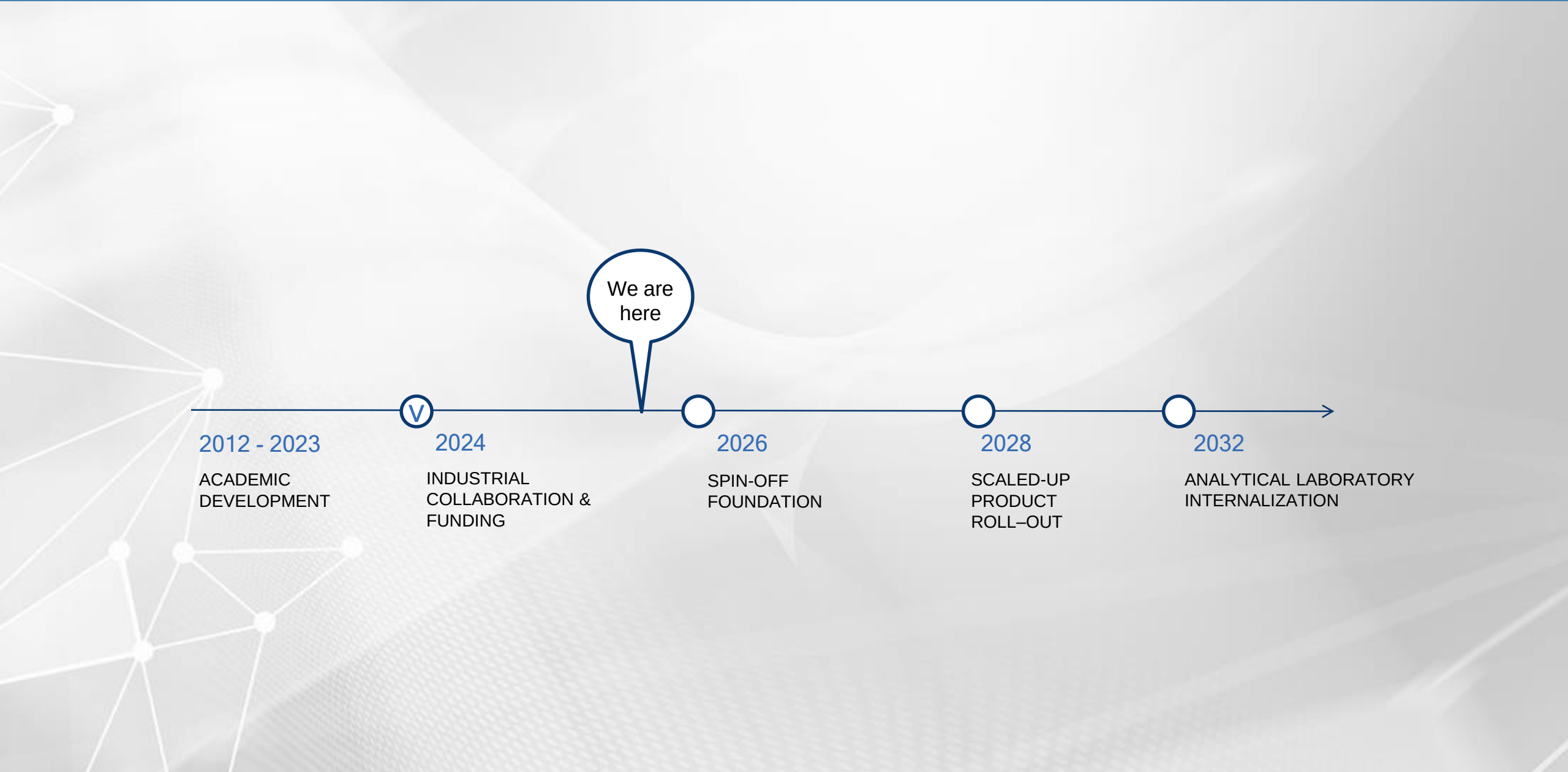
Z. Wang *et al.*, *Environ. Sci. Technol.* **2020** 54, 2575



Ceramic Passive Samplers (CPS)



Ceramic Passive Samplers (CPS) and AWA Monitoring



1. Me, CPS, and AWA Monitoring

- Me: background and motivation
- Ceramic Passive Samplers (CPS)

2. Technology Transfer: From Scientific Discovery to Commercial Product

- Scientist's vs. user's perspective
- Industry driven research vs. market education

3. Technology Transfer Process: Asking the Right Questions

- The KTH readiness model: TRL, BRL, etc.
- Creation of AWA Monitoring: financial hurdles, from prototype to product, scaling, long-term vision

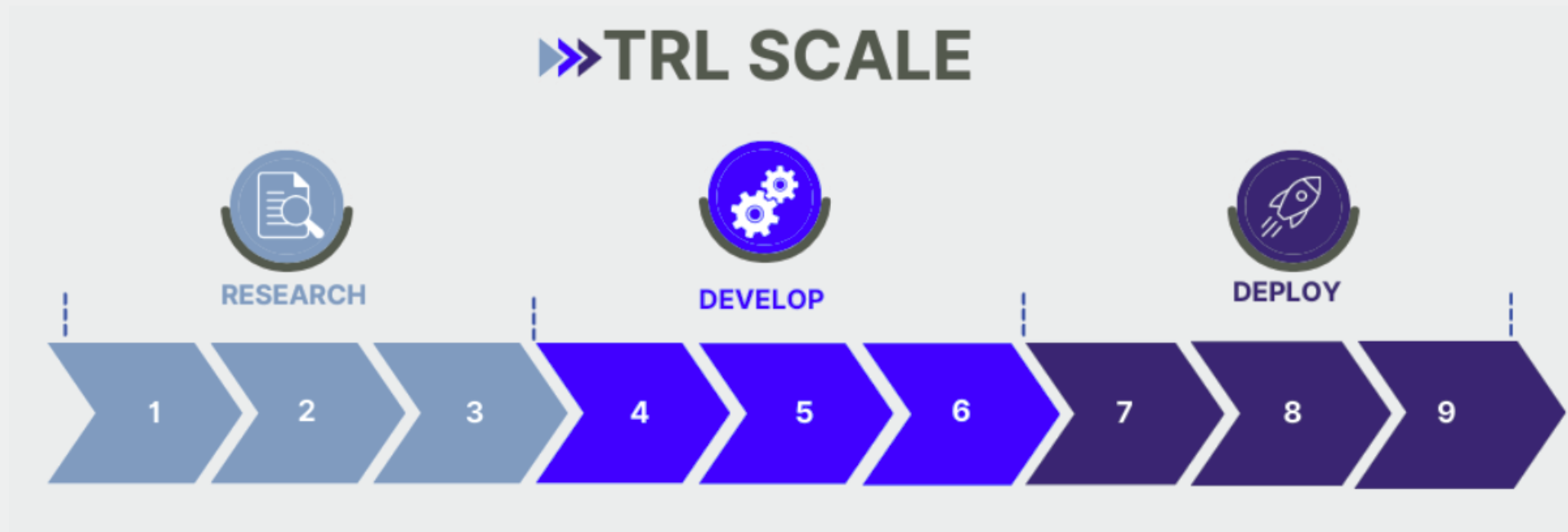
Two Perspectives on Technology Transfer

The Researcher's (Deep Tech Innovator's) Perspective



Two Perspectives on Technology Transfer

The Researcher's (Deep Tech Innovator's) Perspective

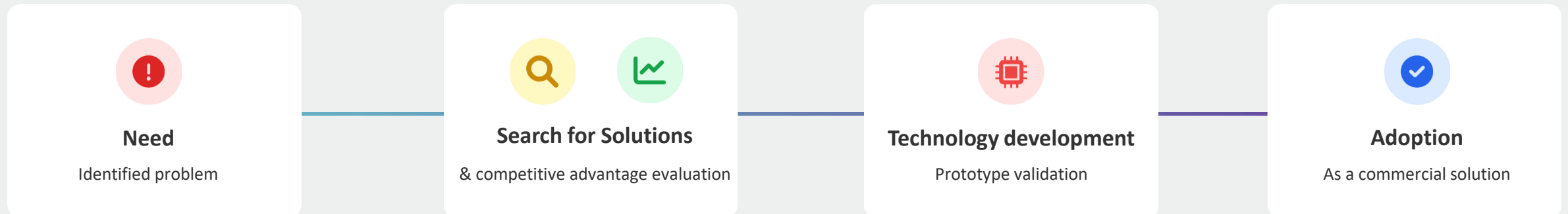


Two Perspectives on Technology Transfer

The Researcher's (Deep Tech Innovator's) Perspective



The User's Perspective



Two Perspectives on Technology Transfer

The Researcher's (Deep Tech Innovator's) Perspective



Idea & Research

Falsifiable theory
Laboratory and/or field work



Publication

Validated by peer-review
results + idea on application



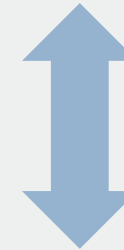
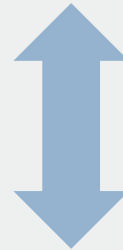
Technology development

Working prototype



Product

Commercial solution



The User's Perspective



Need

Identified problem



Search for Solutions

& competitive advantage evaluation



Technology development

Prototype validation

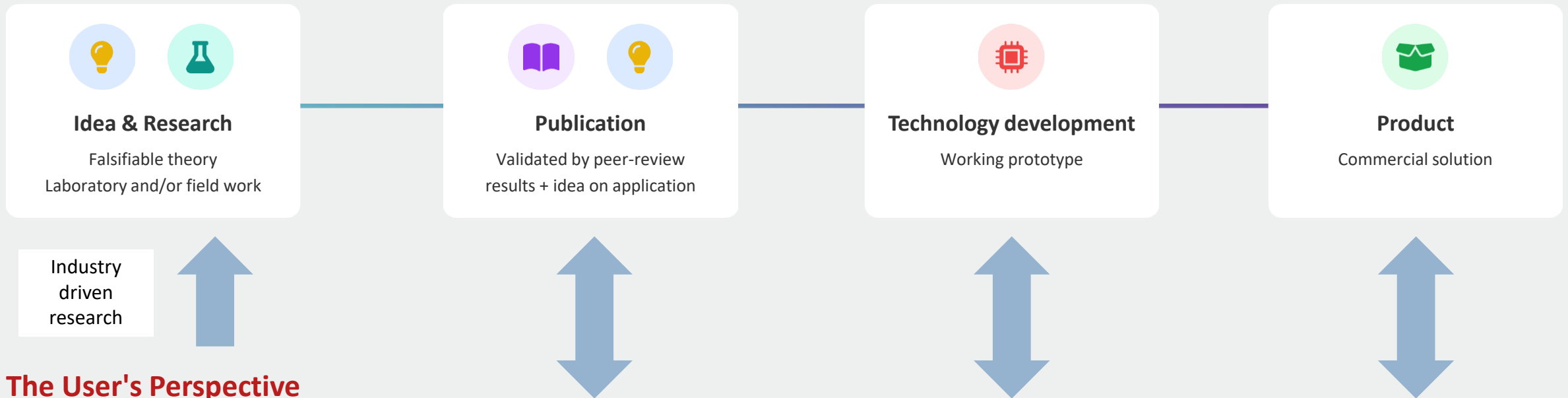


Adoption

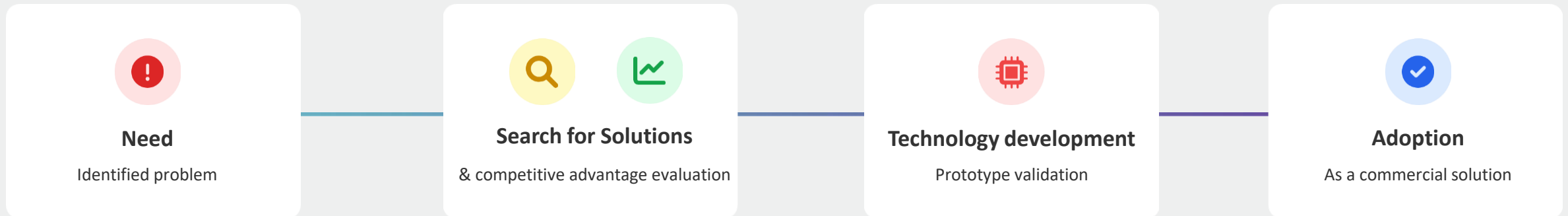
As a commercial solution

Industry driven research vs. market education

The Researcher's (Deep Tech Innovator's) Perspective



The User's Perspective

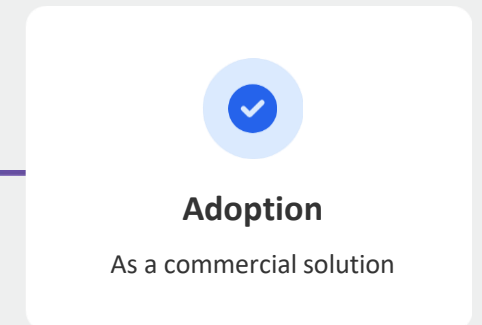
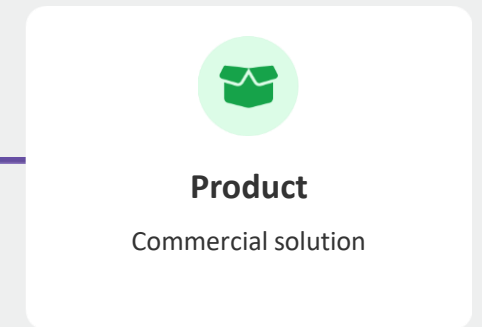
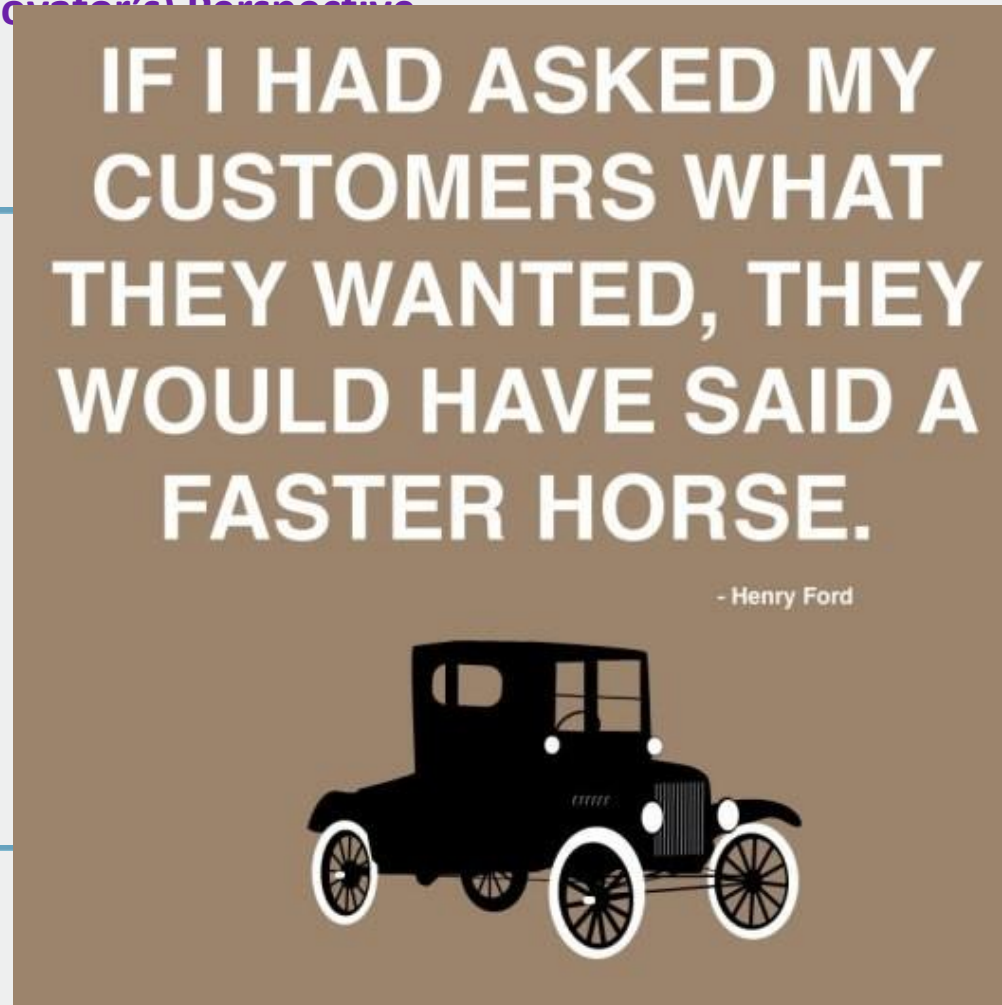
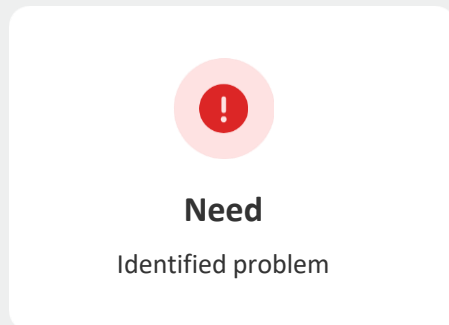


Industry driven research vs. market education

The Researcher's (Deep Tech Innovator's) Perspective



The User's Perspective



Industry driven research vs. market education

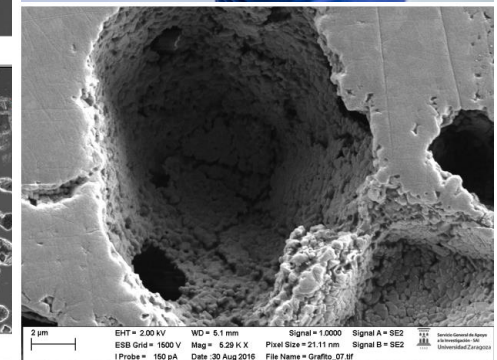
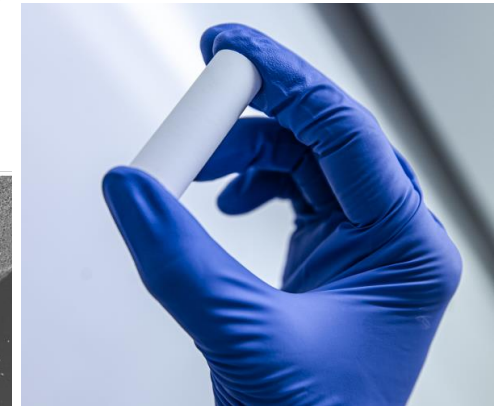
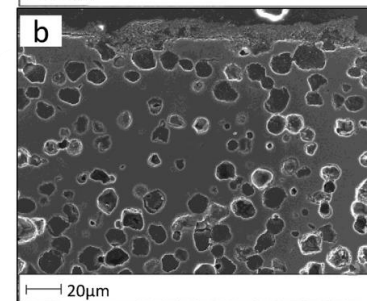
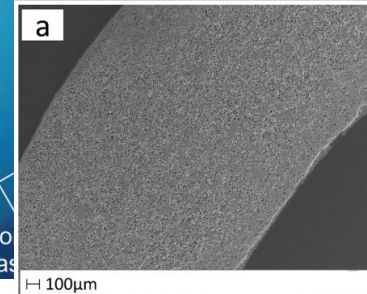
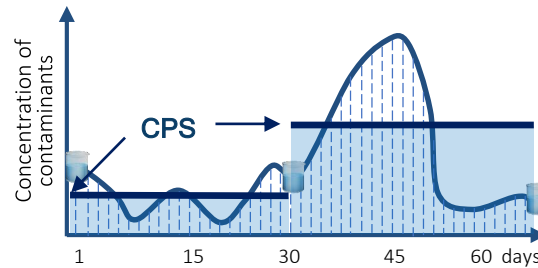
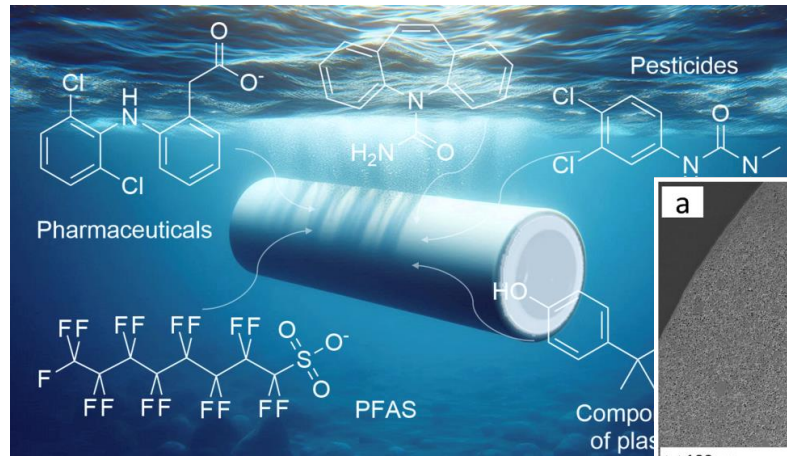
The Researcher's (Deep Tech Innovator's) Perspective



Idea & Research

Falsifiable theory
Laboratory and/or field work

Transition from the technology...



The User's Perspective



Need

Identified problem

Industry driven research vs. market education

The Researcher's (Deep Tech Innovator's) Perspective



Idea & Research

Falsifiable theory
Laboratory and/or field work

The User's Perspective



Need

Identified problem

... to value proposition:

Detecting points of pain:

- How are you planning to prove meeting the requirements of **Directive (EU) 2024/3019 on urban wastewater treatment?** (at least 80% removal of CECs)
- Are the data from your monitoring campaigns **sufficient** to take decisions? E.g.,
 - Which hospital is the most contaminating in the city?
 - What is the performance of the wetland wastewater treatment?
 - Do you know where the contamination come from?

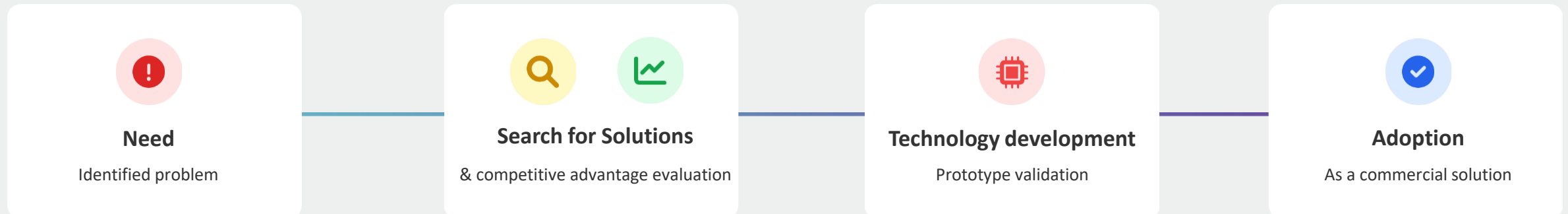
Stakeholder map, map of channels, business model (canvas), roadmaps...

Industry driven research vs. market education

The Researcher's (Deep Tech Innovator's) Perspective

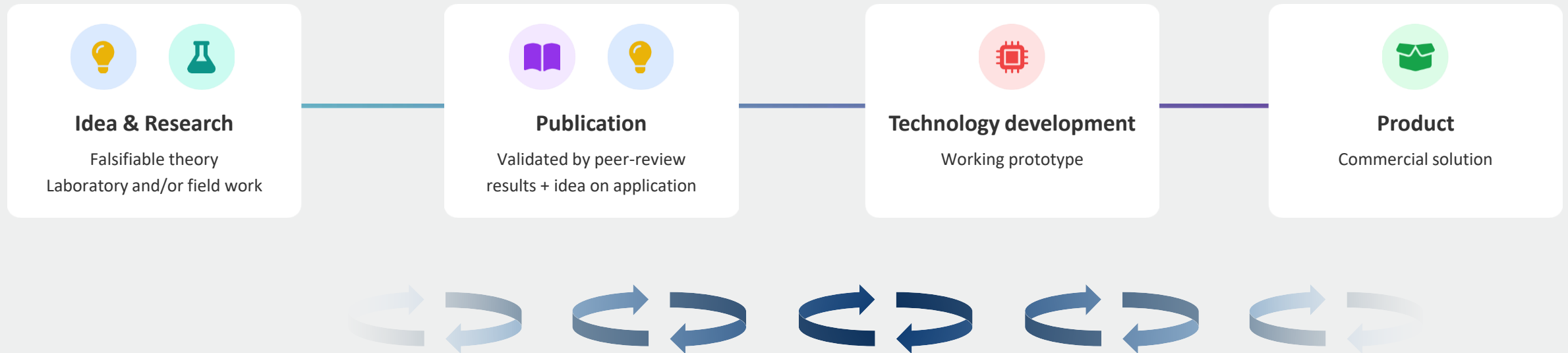


The User's Perspective

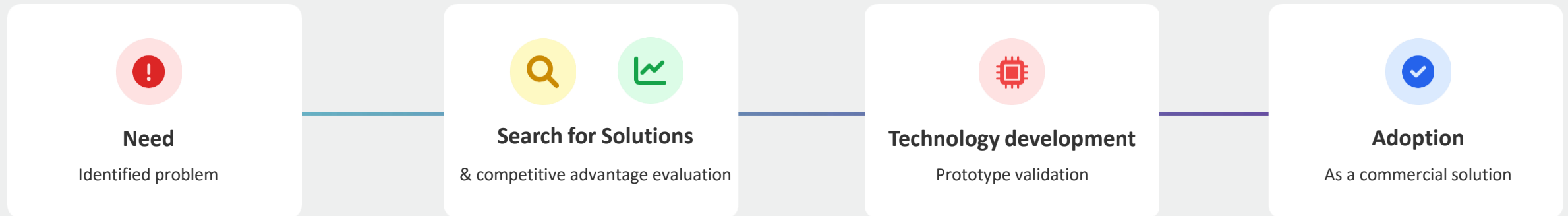


Industry driven research vs. market education

The Researcher's (Deep Tech Innovator's) Perspective



The User's Perspective



1. Me, CPS, and AWA Monitoring

- Me: background and motivation
- Ceramic Passive Samplers (CPS)

2. Technology Transfer: From Scientific Discovery to Commercial Product

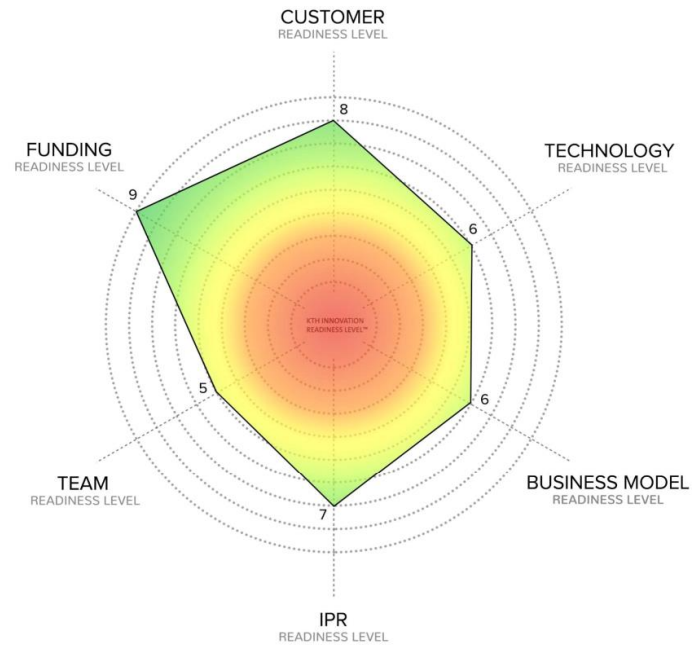
- Scientist's vs. user's perspective
- Industry driven research vs. market education

3. Technology Transfer Process: Asking the Right Questions

- The KTH readiness model: TRL, BRL, etc.
- Creation of AWA Monitoring: financial hurdles, from prototype to product, scaling, long-term vision

Technology Transfer Process: Asking the Right Questions

The KTH Innovation Readiness Model™



kthinnovationreadinesslevel.com

BRL
9

Sustainable business model proven to meet internal and external expectations on profit, scalability and impact over time.

BRL
8

Sales and metrics show that sustainable business model is viable.

BRL
7

Viability of sustainable business model (pricing, revenue model, etc.) validated by initial commercial sales.

BRL
6

Full sustainable business model tested on customers, partners, suppliers (e.g. by test sales), calculations show economic viability.

BRL
5

Key assumptions in sustainable business model tested on market.

BRL
4

First calculations indicating economically viable business model.
First assessment indicating environmental and social sustainability.

BRL
3

Description of sustainable business model and target market(s), including competition.

BRL
2

First hypothesis of possible business concept (in any format) and identified overall market potential and competition.

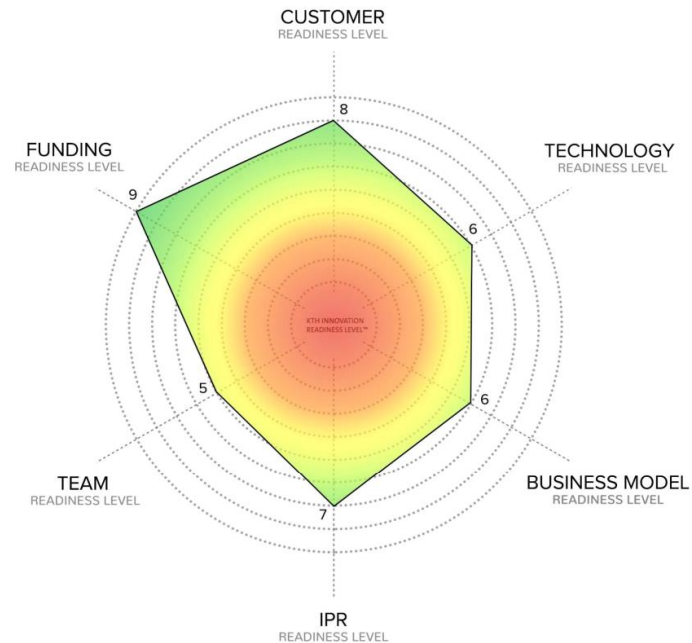
BRL
1

No or unclear hypothesis of possible business idea, market potential, and competition.

Sustainable business model = Revenue $\geq$ Cost (over time) .AND Positive contribution to the environment and society $\geq$ Negative contribution to the environment and society (over time)

Technology Transfer Process: Asking the Right Questions

The KTH Innovation Readiness Model™



kthinnovationreadinesslevel.com

BRL 9

Sustainable business model proven to meet internal and external expectations on profit, scalability and impact over time.

BRL 8

Sales and metrics show that sustainable business model is viable.

BRL 7

Viability of sustainable business model (pricing, revenue model, etc.) validated by initial commercial sales

BRL 6

- 5
- Received feedback on revenue side of business model (e.g. revenue model, pricing, etc.) from a few potential customers or persons with market knowledge (experts)
 - Received feedback on cost side of business model (e.g. production, supply chain, etc.) from a few external partners/suppliers/experts
 - Key measures to increase positive and decrease negative environmental and social contribution specified in business model (see KTH IRL user guide)
 - Updated P&L projection based on market feedback indicates economic viability
 - Target market description (target segment(s), TAM, SAM, SOM, and competitive analysis) updated based on market feedback

BRL 5

BRL 4

BRL 3

BRL 2

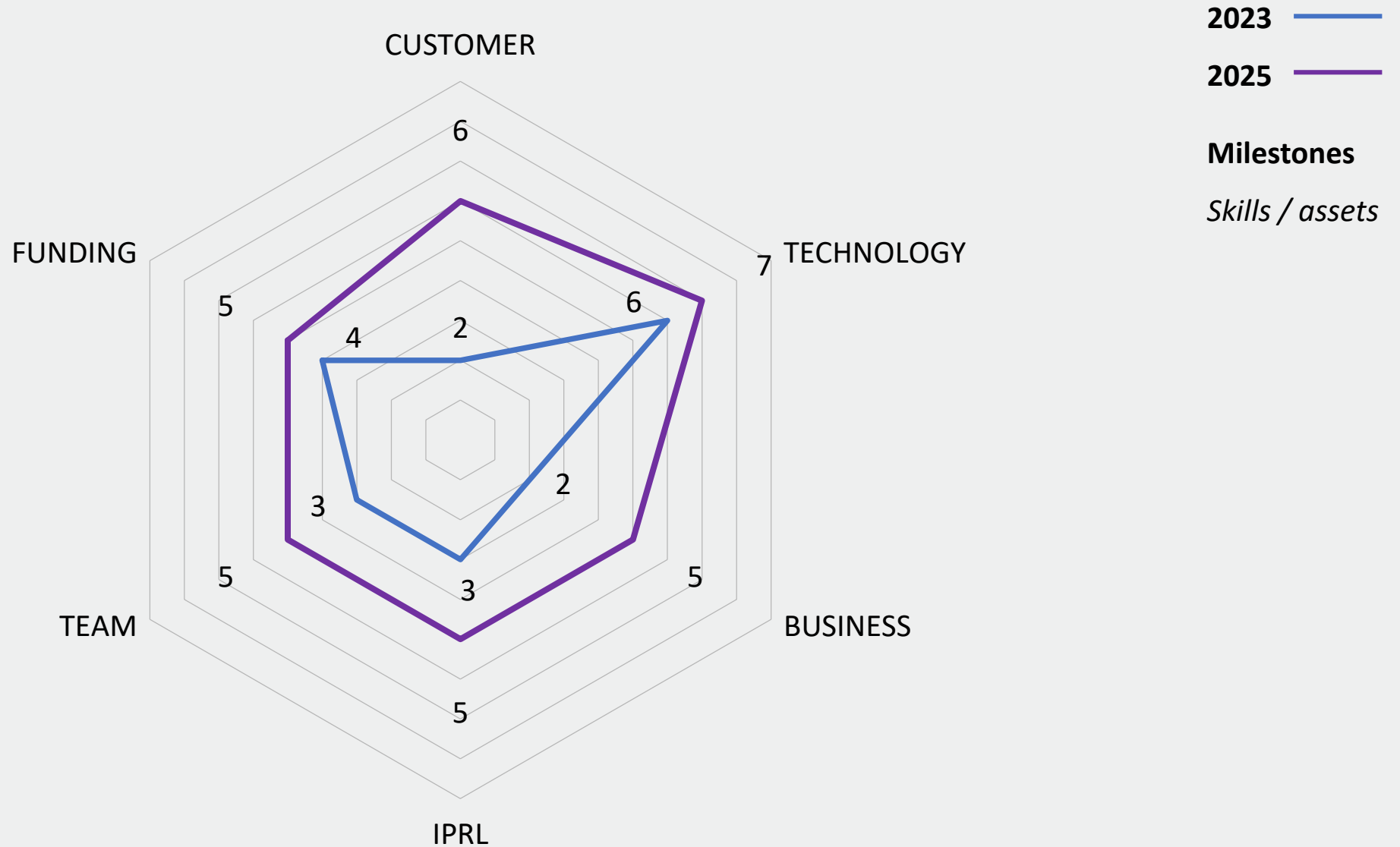
First hypothesis of possible business concept (in any format) and identified overall market potential and competition.

BRL 1

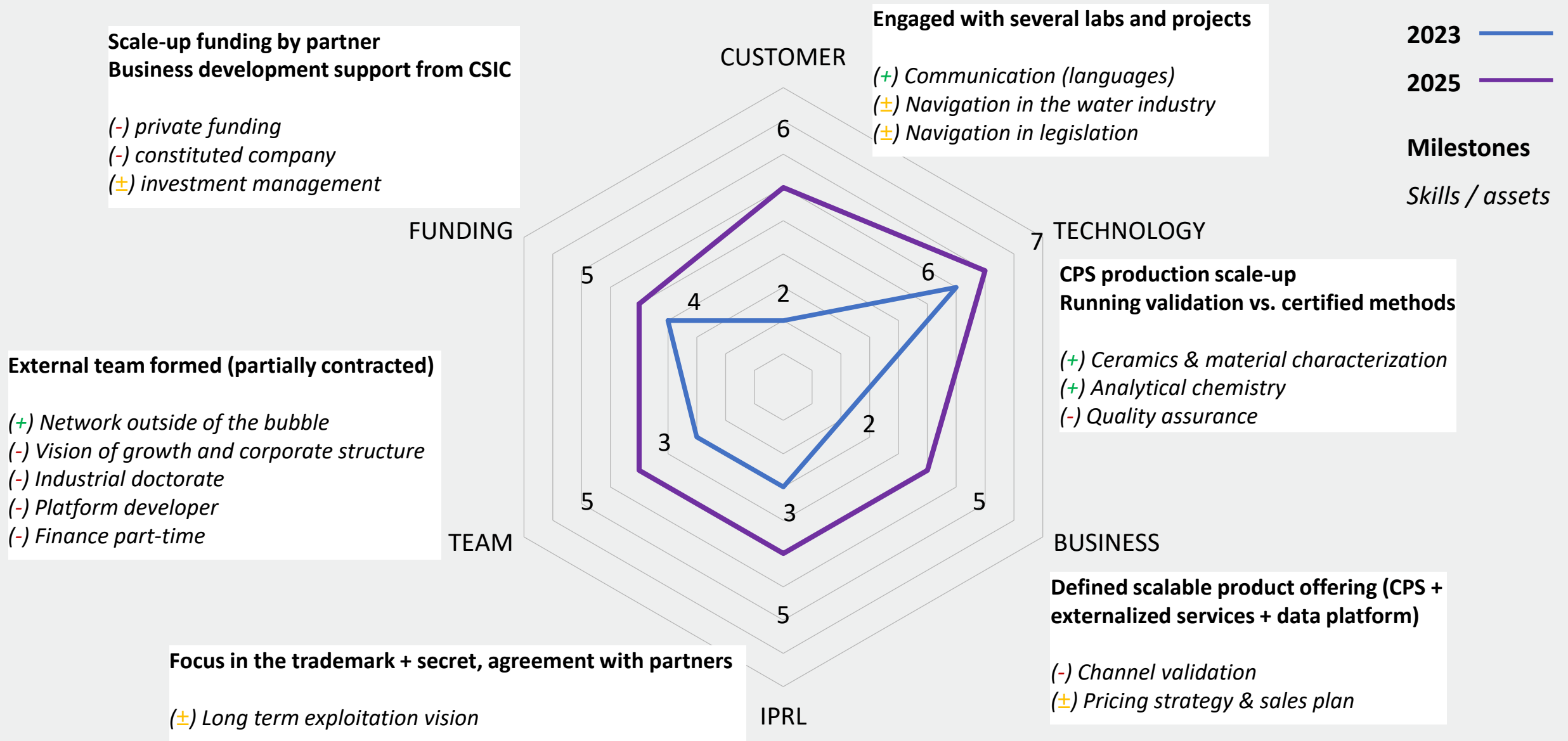
No or unclear hypothesis of possible business idea, market potential, and competition.

Sustainable business model = Revenue $\geq$ Cost (over time) AND Positive contribution to the environment and society $>$ Negative contribution to the environment and society (over time)

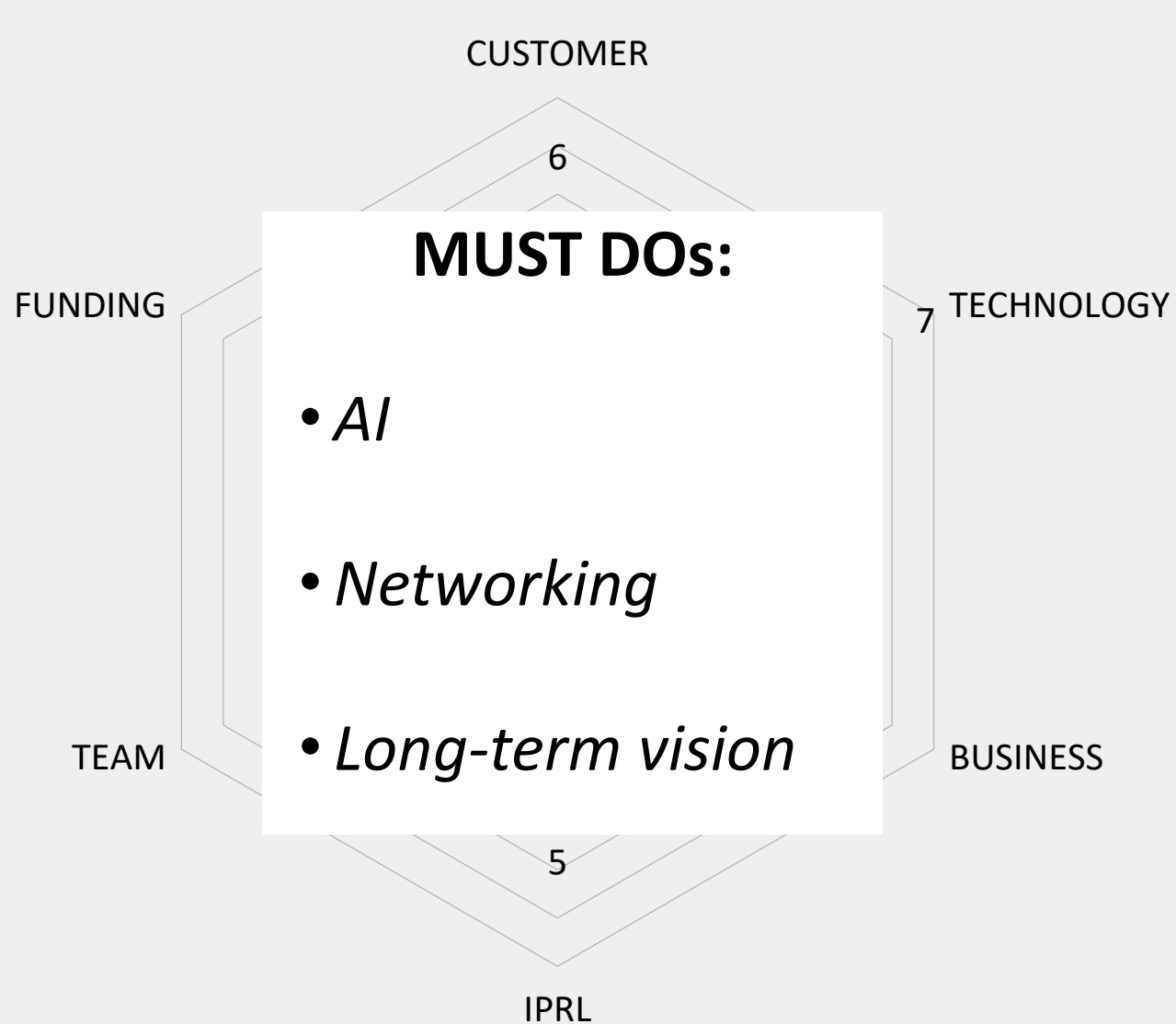
Technology Transfer Process: Asking the Right Questions



Technology Transfer Process: Asking the Right Questions



Technology Transfer Process: Asking the Right Questions





AIA Monitoring

Sílvia Lacorte
Jorge Silva
Miguel Laguna
Ana Piera
Giacomo Moro
Jaume Lladós
Raquel Muñoz
Helena Franquet
Josep Sanchis
M^a Rosa Boleda





THANK YOU!

Questions & comments?

<https://www.upwater.eu/technologies>

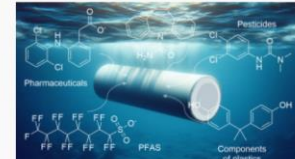
awamonitoring.com

linkedin.com/company/awamonitoring

UPwater [HOME PAGE](#) | [UPDATES](#) | [EVENTS](#) | [ABOUT](#) | [TECHNOLOGIES](#) | [PROJECT PARTNERS](#) | [PRESS & CONTACT](#) | [RESOURCES](#)

Ceramic Passive Sampler (CPS)

The CPS is a passive-sampling device that enables continuous detection of organic pollutants in water. It transitions monitoring from periodic snapshots to ongoing data collection, capturing subtle contamination signals with higher resolution and cost-efficiency. For more information, see the [posters on CPS](#) or visit the [website of AWA Monitoring](#).



AWA Monitoring [Home](#) | [Products](#) | [AwanceCPS](#) | [AwaNet](#) | [About us](#) | [Contact](#) | [Login](#)

Your partner in water sampling and analysis

Innovative sampling and analytical methods for easy, accurate, and cost-effective monitoring of organic contaminants



AWA Monitoring
Resolving the challenges of water quality control
Research Services · Sant Feliu de Llobregat, Barcelona · 199 followers · 2-10 employees