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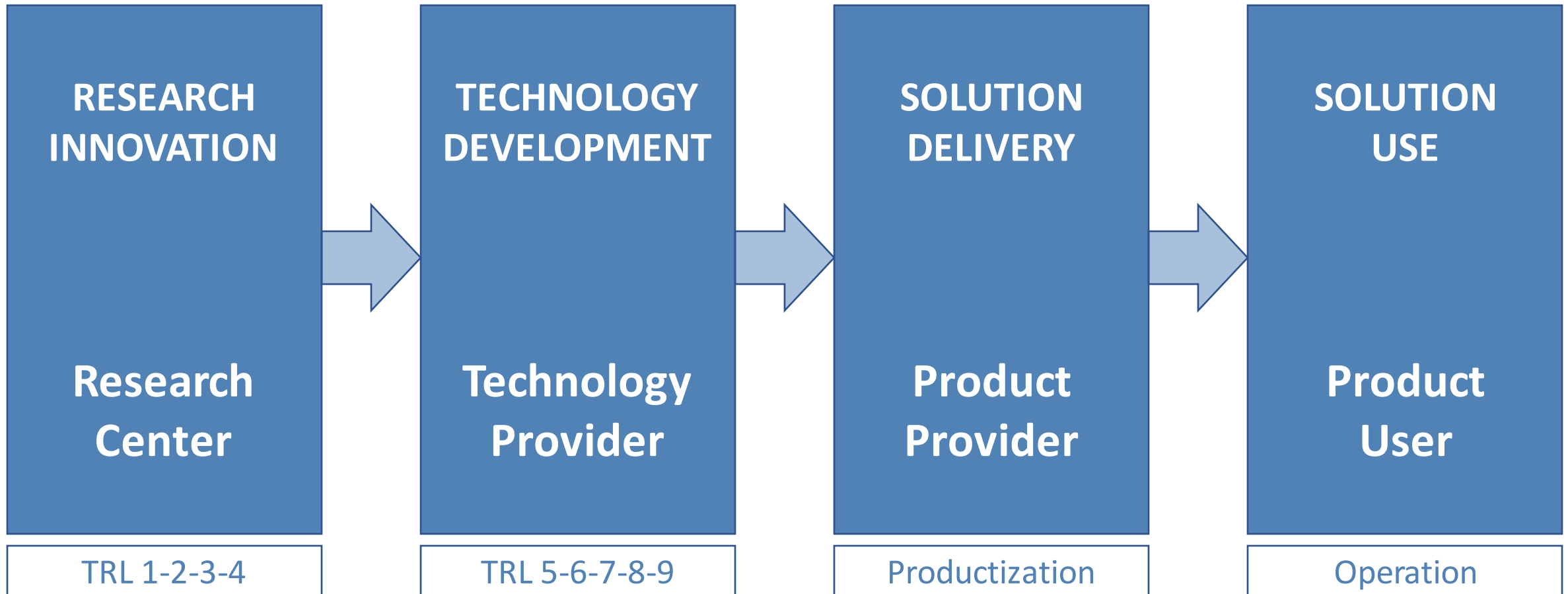


Temperature Optimisation for Low Temperature District Heating across Europe: **How to bring TEMPO innovations to the market?**

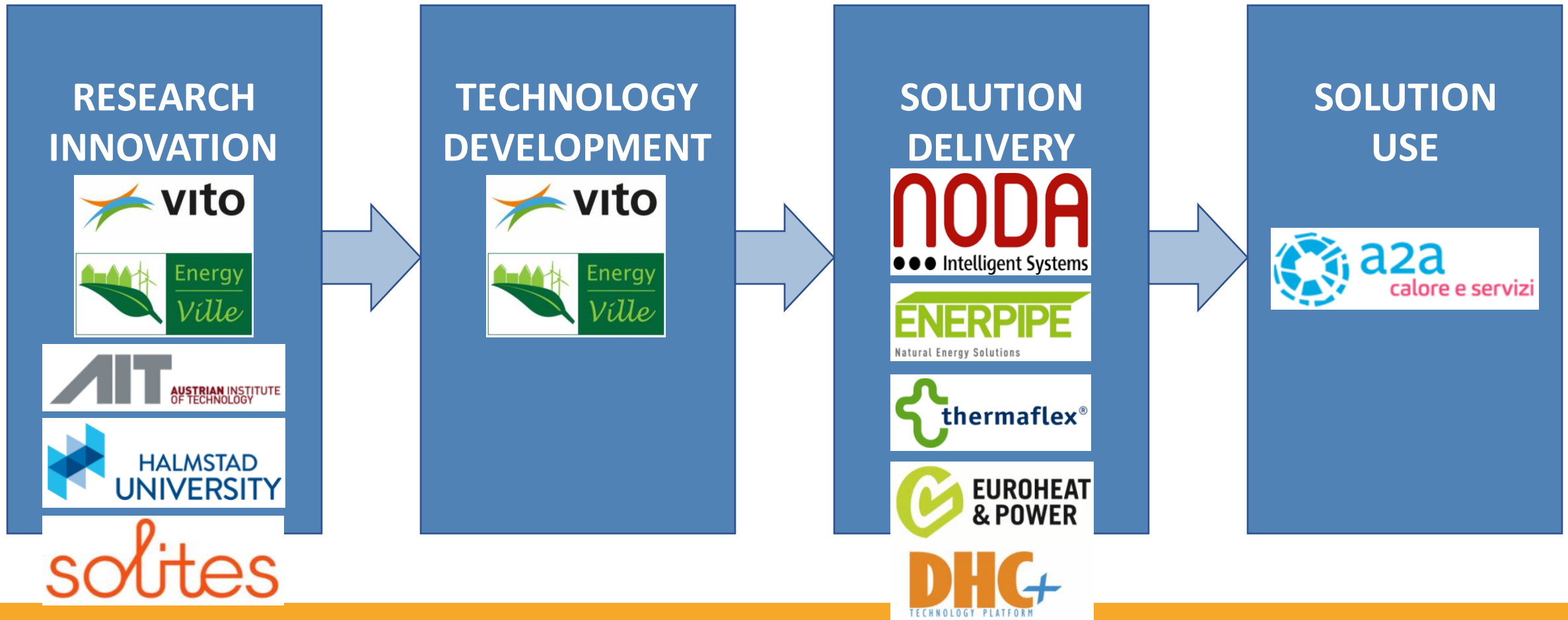
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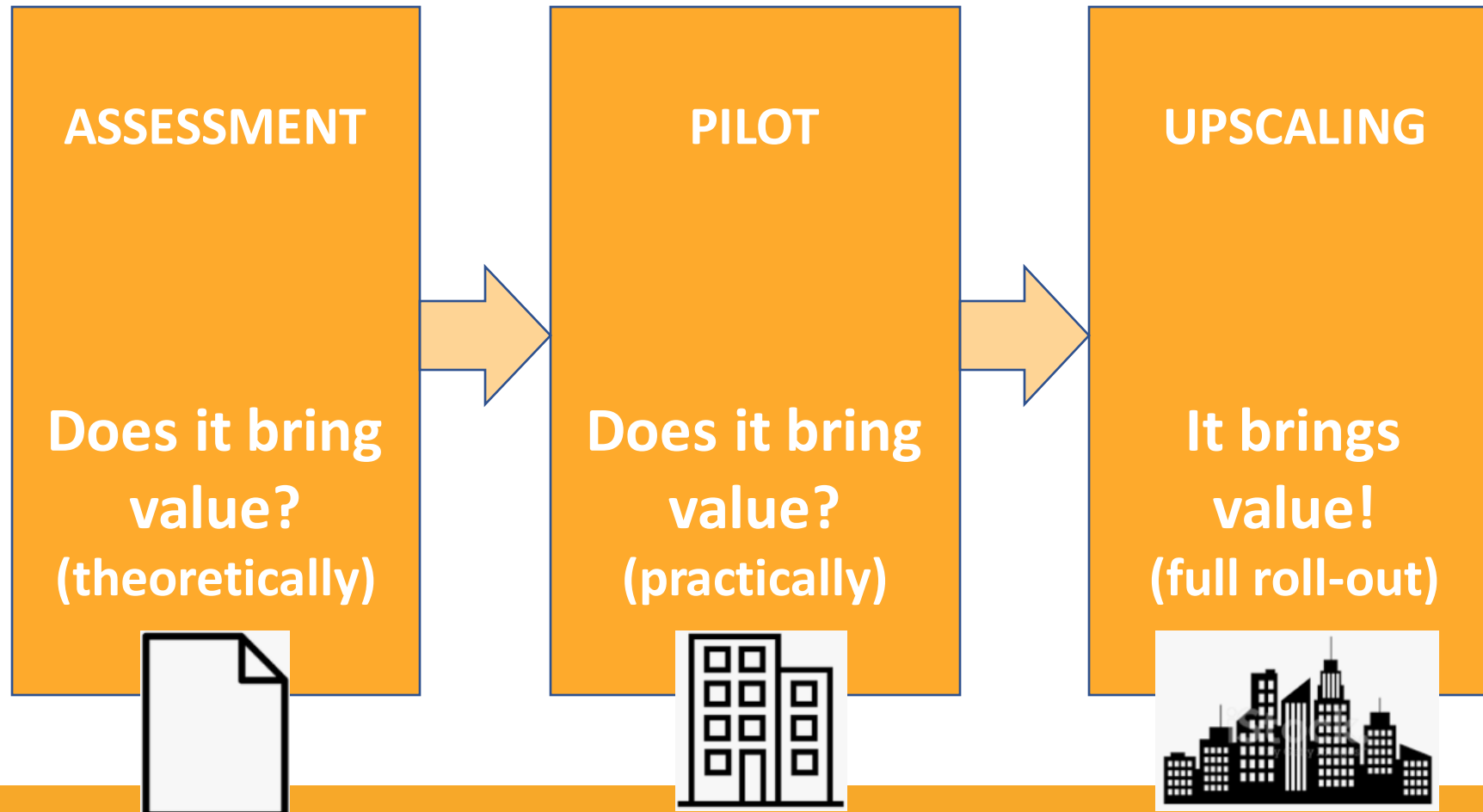
B2B eco system AI/Digitalisation for District Heating



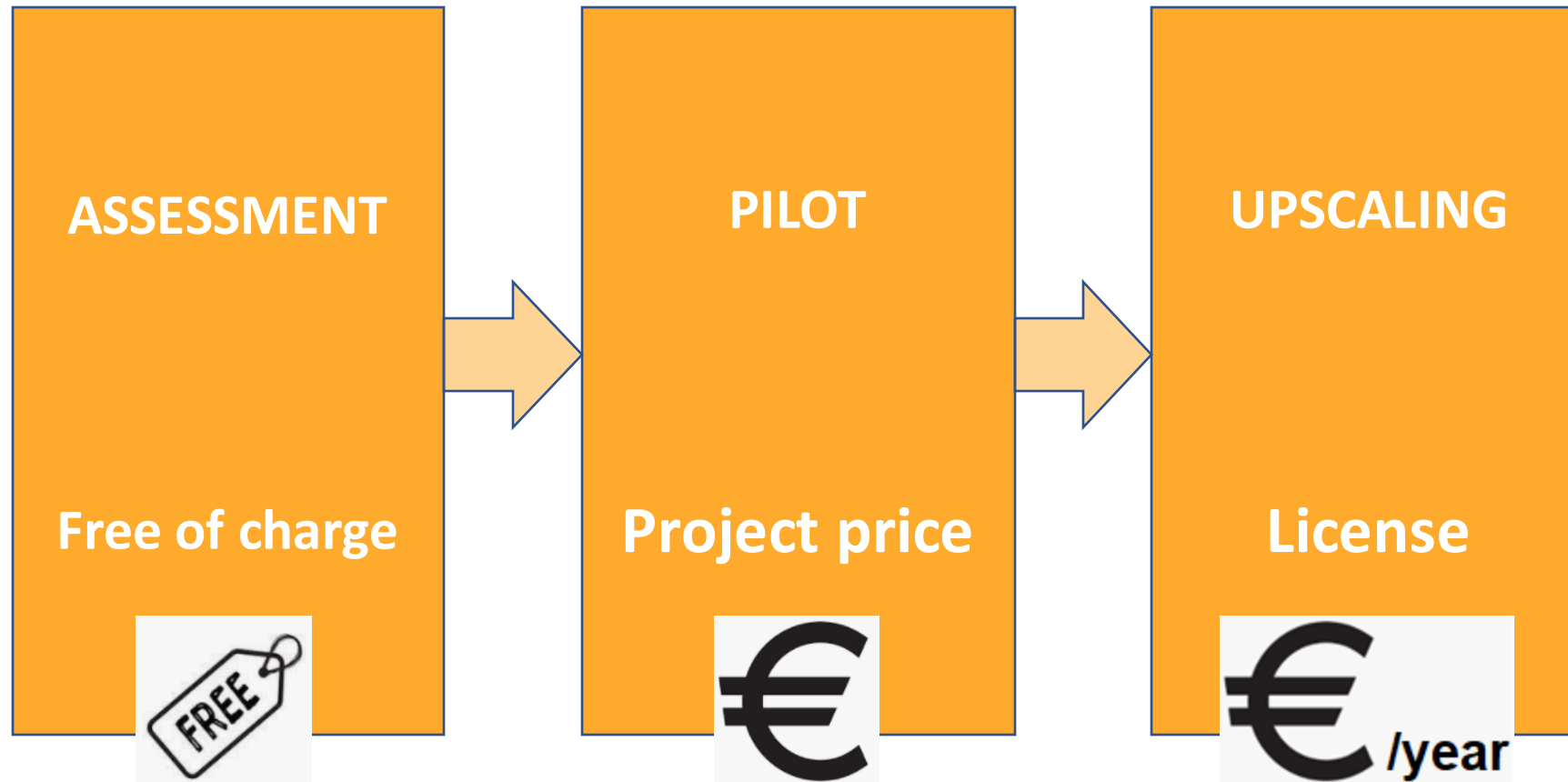
B2B eco system AI/Digitalisation for District Heating



Phases in AI/Digitalisation for District Heating deployment



VITO Commercial model in AI/Digitalisation for District Heating



3 Main barriers to entry into market

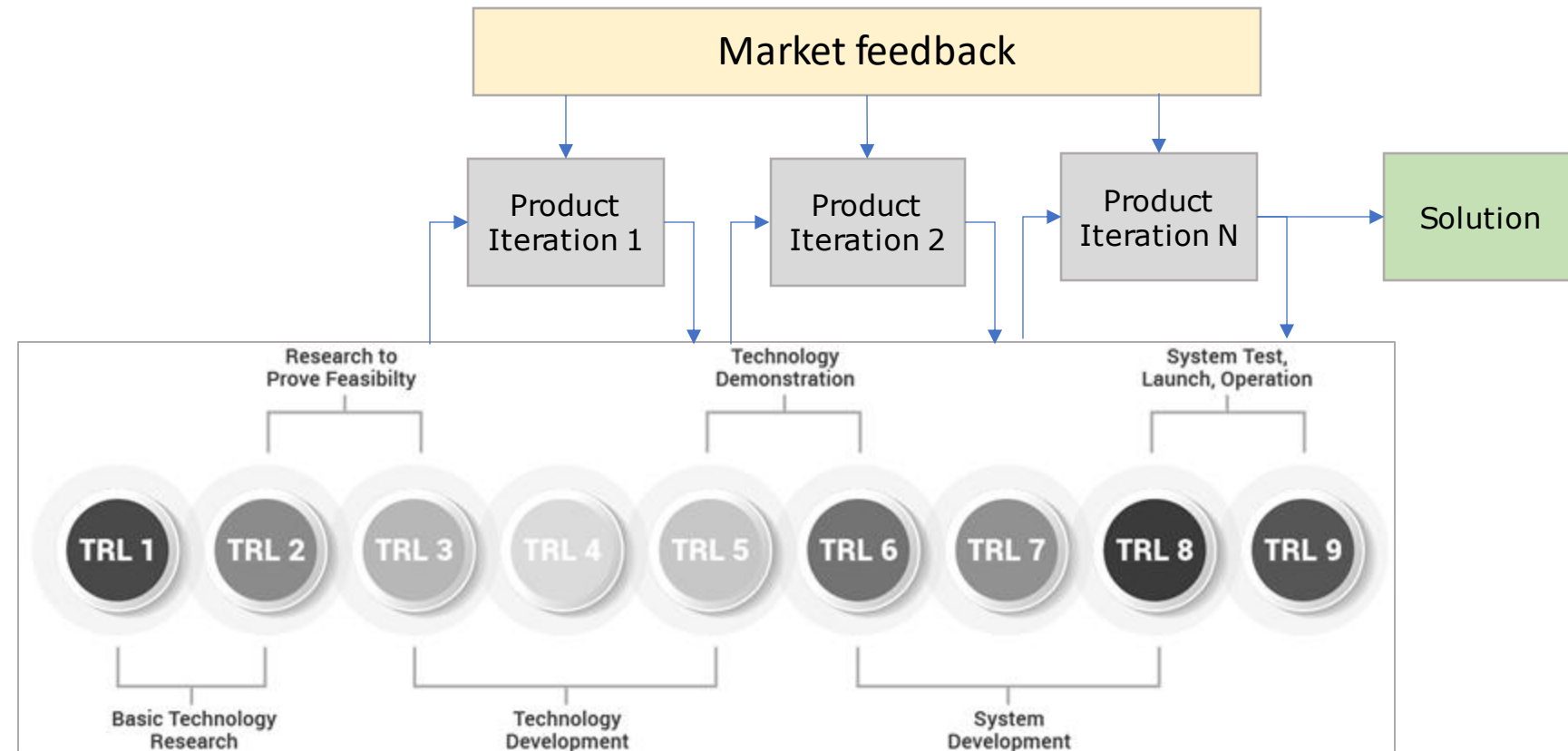


1. Lengthy product development cycle by the solution providers following the technology development cycle
2. Significant training effort towards, and from solution providers
3. Requires consequential high risk investments from solution providers, who are typically SMEs

Lowering the barriers – How?



- Iterative and continuous product development starting at TRL 4
- Deliver tested solutions for faster Go-to-market
- De-risking investments from solution providers



Product iterations and solution



- Product Iterations
 - Assessment of customer needs and requirements, business case, product-market fit
 - Development of a minimum viable product (MVP)
 - Small scale tests and/or demonstration with potential customer(s)
- Solution development
 - Product + non-tech components e.g. UI, Backend, Docs etc.
 - Robustness, Reliability, Scalability
 - User experience and support

Example – STORM and TEMPO



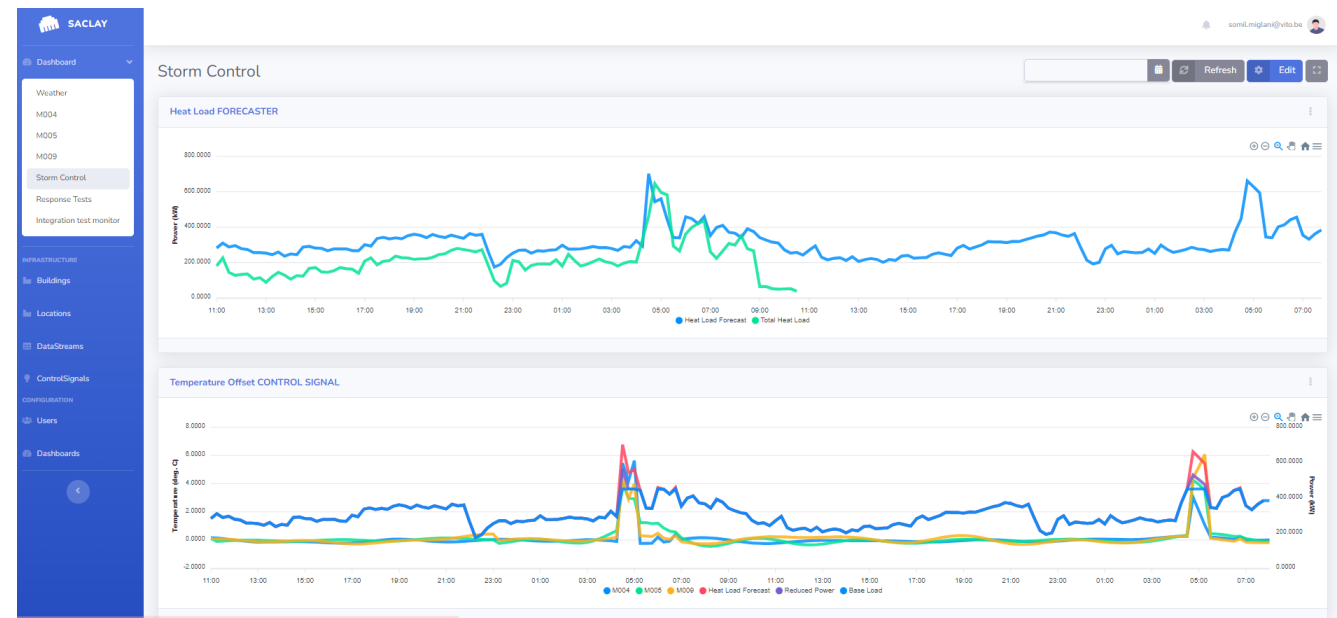
- H2020 STORM project – Smart Thermal Operational Resource Management – 2015-2019
- Research Output commercialized as STORM District Energy Controller
- Commercially available as a solution



STORM Solution



- Control algorithms organized in a modular software architecture - www.stormcontroller.eu
- Data management platform – www.flexharvester.com
- User Interface for data visualization and analysis



Snapshot of the STORM User Interface

STORM's Commercial success



3GDH in Rottne, SE



4GDH in Heerlen, NL



3GDH in Eindhoven, NL
(2018-Present)



4GDH in Paris, FR
(2019-present)



VITO's Living Lab

3GDH in Mol, BE,
(2019-present)



3GDH in Taiyuan, CN
(2020-present)



2022

H2020 Demonstrators

Current pilots

TEMPO's Innovations – Pathway to the market



- Pathway to the market:
 - TEMPO Innovations in the smart control domain are viewed as extensions to the STORM controller
 - STORM Solution acts as a carrier for these innovations
 - A holistic controller is envisioned that optimizes both supply and demand sides
- Product development:
 - In 2020, Product development cycle was initiated
 - A MVP is currently being tested in VITO's living lab
 - Will be available for Pilots starting heating season 2022-2023

Call To Action



- To District Heating Network Operators/Owners/Stakeholders:
 - => explore the TEMPO potential
 - => Pilot the TEMPO innovations in your DHN
- To System Integrators/Engineering Firms/Software Houses:
 - => Integrate TEMPO innovations in your solution for DHNs



Thank you!

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